UNITED STATES MILITARY ACADEMY

WEST POINT, NEW YORK

ACADEMIC PROGRAM

CLASS OF 2017

Curriculum and Course Descriptions

OFFICE OF THE DEAN

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MADN 20 August 2014

MEMORANDUM FOR Cadets

SUBJECT: FOREWORD: Academic Program (Redbook), AY 2014-2015

1. Henry Ford once said, "You can't build a reputation on what you're going to do." If you are going to establish a reputation as a student, you must start doing it early. The first step in that process is designing an academic program that is best for you and challenges you to strive for excellence.

2. Developing a four-year academic program is a complex process that demands your close and early attention. We have taken a number of steps to assist you in that task. Help is available through Company Academic Counselors (CAC), Department Academic Counselors (DAC), and the Counseling Section in the Academic Affairs and Registrar Services, Office of the Dean. But the first and most important step is for you to understand the academic program at West Point andthe opportunities it offers. I encourage you to read and use the Redbook which is designed to provide the information you will require to create a program that meets your needs and capabilities.

3. The Redbook includes a complete set of field tables for the majors available to each class, as well as a listing of all courses, by department, offered in each academic year and term. You should use this volume as you would any reference document and refer to it whenever you have a question concerning a specific course.

4. I wish you the best of luck during the upcoming academic year and continued success throughout your entire West Point experience.

TIMOTHY E. TRAINOR, Ph.D.
Brigadier General, U.S. Army
Dean of the Academic Board

MADN 20 August 2014

MEMORANDUM FOR Cadets, Staff, and Faculty

SUBJECT: FOREWORD: Academic Program (Redbook), AY 2014-2015

1. This Redbook contains all the field tables for majors offered to the Class of 2017. It also contains all of the field tables for the majors for the Class of 2016 and previous classes back to 2001. This volume supersedes all other Redbooks. Used as a reference, this Redbook for academic year (AY) 2014-2015 will allow cadets to design their academic programs.

2. Parts 1 and 2 of the Redbook present information about the United States Military Academy's educational philosophy, graduation requirements, academic standards, core curriculum, and academic discipline descriptions. Part 3 presents a catalog of all the courses offered at the Military Academy.

3. Parts 4 and 5 provide different approaches to the majors offered to each class. Throughout most parts of the Redbook are interconnecting links which allow you to move through and view various aspects and descriptions of the curriculum.

4. Changes for the Class of 2017 and other changes taking effect in AY 2015, by department, are listed in the enclosure following this memorandum.

5. Cadets in all classes should review their academic programs with their Company Academic Counselors (CAC) or Department Academic Counselor (DAC) as appropriate.

6. We welcome suggestions that will improve the Redbook. Forward suggestions, as well as corrections, to the Office of the Dean, ATTN: Academic Affairs and Registrar Services (AARS).

FOR THE DEAN OF THE ACADEMIC BOARD:

Jean R. S. Blair

Encl
Curricular Changes

JEAN R. S. BLAIR
Vice Dean
United States Military Academy

Curricular Changes

Department of Behavioral Sciences and Leadership

- Add Network Science minor effective for the Class of 2017
- Add new course, PL396 Social Network Analysis for Public Policy (2015-2), 3.0 credits

Department of Foreign Languages

- Add new course, LZ475 Persian Reading and Writing through the Media (2015-2), 3.0 credits
- Add new course, LN451 Advanced Language and Culture in Context (2014-2), 3.0 credits
- Add a Persian track to the Regional Studies minor, effective for the Class of 2017

Department of Mathematical Sciences

- Add a new course, MA394 Fundamentals in Network Science (2015-1), 3.0 credits

Department of Military Instruction

- Add new course, DS320 Landpower (2015-2), 3.0 credits
- Add new AIAD course, DS399 Strategic Studies Internship (2015-0), 3.0 credits
- Add new course, DS490 Special Topics in Strategic Studies (2015-1), 3.0 credits
- Add new course, DS495 Research Methods in Strategic Studies (2015-1), 3.0 credits
- Add new course, DS496 Strategic Studies Thesis (2015-2), 3.0 credits
- Add new course, DS497 Strategic Studies Capstone (2015-2), 3.0 credits
- Drop DS310 Tactics, 3.0 credits
- Drop DS498 Colloquium in Military Affairs, 3.0 credits
- Add Defense and Strategic Studies major w/ Thesis, effective for the Class of 2017

Department of Systems Engineering

- Add Systems Design and Management major w/ Honors, effective for the Class of 2017

PART I: THE ACADEMIC PROGRAM

USMA EDUCATIONAL PHILOSOPHY

USMA Mission: *To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; and prepared for a career of professional excellence and service to the Nation as an officer in the United States Army.*

While many good colleges have objectives similar to those of the Military Academy, the Academy's mission adds a dimension that makes West Point unique. It is the sole college in the nation whose only responsibility is to prepare every one of its students for professional service as a regular Army officer. The academic program, like the other aspects of the West Point environment, is designed to foster development in leadership, moral courage, and integrity essential to such service.

ACADEMIC PROGRAM GOALS

The Overarching Academic Goal: Graduates integrate knowledge and skills from a variety of disciplines to anticipate and respond appropriately to opportunities and challenges in a changing world.

Communication: Graduates communicate effectively with all audiences.

- Listen actively, read critically, and develop an informed understanding of the communications of others.
- Speak and write using Standard American English.
- Effectively convey meaningful information to diverse audiences using appropriate forms and media.
- Communicate in a foreign language.
- Use sound logic and relevant evidence to make convincing arguments.

Critical Thinking and Creativity: Graduates think critically and creatively.

- Identify the essential aspects of a situation and ask relevant questions.
- Integrate knowledge and skills from a variety of disciplines.
- Make meaningful connections and distinctions among diverse experiences and concepts.
- Reason both quantitatively and qualitatively.
- Think innovatively and accept risk to pursue solutions in the face of ambiguity.
- Value reflection and creativity; envision possibilities.

Lifelong Learning: Graduates demonstrate the capability and desire to pursue progressive and continued intellectual development.

- Demonstrate the willingness and ability to learn independently.
- Engage successfully in deliberate self-directed and collaborative learning experiences.
- Pursue self-awareness and embrace the responsibility for personal intellectual development.
- Pursue knowledge in areas of personal or professional interest.

Ethical Reasoning: Graduates recognize ethical issues and apply ethical perspectives and concepts in decision making.

- Understand the intellectual foundations of ethical principles.
- Recognize ethical components of problems and situations.
- Examine and evaluate different ethical perspectives, principles, and concepts in context.
- Apply ethical perspectives and concepts in solving complex problems, including those found in military settings.

Science, Technology, Engineering, and Mathematics: Graduates apply science, technology, engineering, and mathematics concepts and processes to solve complex problems.

- Apply mathematics, science, and computing to model devices, systems, processes, or behaviors.
- Apply the scientific method.
- Collect and analyze data in support of decision making.
- Apply an engineering design process to create effective and adaptable solutions.
- Understand and use information technology appropriately, adaptively, and securely.

Humanities and Social Sciences: Graduates apply concepts from the humanities and social sciences to understand and analyze the human condition.

- Understand, analyze, and know how to influence human behavior.
- Analyze the history, diversity, complexity, and interaction of cultures.
- Analyze political, legal, military, and economic influences on social systems.
- Engage in and reflect on cross cultural experiences.
- Integrate the methodologies of the humanities and social sciences in decision-making.

Disciplinary Depth: Graduates integrate and apply knowledge and methodological approaches gained through in-depth study of an academic discipline.

- Apply disciplinary tools, methods of inquiry, and theoretical approaches.
- Identify and explain representative questions and arguments of their chosen disciplines.

- Recognize limits of a discipline as well as areas in which it contributes to intellectual inquiry and problem solving.
- Synthesize knowledge and concepts from across their chosen disciplines.
- Contribute disciplinary knowledge and skills as a part of a collaborative effort engaging challenges that span multiple disciplines.

ACCREDITATION

The United States Military Academy is accredited by the Middle States Commission on Higher Education, 3624 Market Street, Philadelphia, PA 19104. (267-284-5000) The Middle States Commission on Higher Education is an institutional accrediting agency recognized by the U.S. Secretary of Education and the Council for Higher Education Accreditation.

At the United States Military Academy programs in Civil Engineering, Electrical Engineering, Engineering Management, Environmental Engineering, Mechanical Engineering, Systems Engineering, and Nuclear Engineering are accredited by the Engineering Accreditation Commission of ABET; programs in Computer Science and Information Technology are accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

OVERVIEW OF THE ACADEMIC PROGRAM

The United States Military Academy's curriculum has two primary structural features. The first is a solid core of twenty-six courses that the Academy considers essential to the broad base of knowledge necessary for all graduates; a course in Information Technology for all but engineering majors; and a three-course core engineering sequence for those who do not choose a major in engineering. This core curriculum, when combined with physical education training and military science, constitutes the Military Academy's "professional major." The second structural feature is the opportunity to specialize and explore an area in depth through the selection of an academic major consisting of not less than ten elective courses.

The chart on the following page presents the baseline academic program the typical cadet will follow.

TYPICAL ACADEMIC PROGRAM

FOURTH CLASS		THIRD CLASS	
Term 1	**Term 2**	**Term 1**	**Term 2**
MA 103 - 4.0 Math Modeling/Intro to Calculus	**MA104 - 4.5** Calculus I	**MA205 - 4.5** Calculus II	**MA206 - 3.0** Prob & Stats
CH101 - 3.5 Chemistry I	**CH102 - 3.5** Chemistry II	**PH201 - 3.5** Physics I	**PH202 - 3.5** Physics II
EN101 - 3.0 English Composition	**EN102 - 3.0** Literature	**Lx203 - 3.5** Foreign Language	**Lx204 - 3.5** Foreign Language
HI10_ - 3.0 History	**HI10_ - 3.0** History	**SS201 - 3.5** Economics	**SS202 - 3.5** Political Science
PL100 - 3.0 General Psychology	**IT105 - 3.0** Intro to Computing and Information Technology	**PY201 - 3.0** Philosophy	**EV203 - 3.0** Physical Geography
PE115/6/7 - 1.0 Combatives(W)/Boxing(M)/ Military Movement		**PE215 - 1.5** Fundamentals/Personal Fitness	**PE320 - 0.5** Survival Swimming
	MS100 - 1.5 Introduction to Warfighting	**MS200 - 1.5** Fundamentals of Army Operations	

SECOND CLASS		FIRST CLASS	
Term 1	**Term 2**	**Term 1**	**Term 2**
***core engineering sequence: or** **Elective 3.0**	***core engineering sequence: or** **Elective 3.0**	***core engineering sequence: or** **Elective 3.0**	**Elective 3.0**
IT305 Theory/Prac Mil IT Sys or **Elective - 3.0**	**Elective - 3.0**	**Elective - 3.0**	**Elective - 3.0**
SS307 - 3.5 **International Relations**	**EN302 - 3.0** Advanced Comp through Culture	**Elective - 3.0**	**Elective - 3.0**
Elective - 3.0	**Elective - 3.0**	**Elective - 3.0**	**LW403 - 3.5** Constitutional and Military Law
Elective - 3.0	**PL300 - 3.0** Military Leadership	**HI301 - 3.0** Military History	**HI302 - 3.0** Military History
PE2__ - 0.5 Lifetime Physical Activity	**PE360 - 0.5** Combat Applications	**PE450 - 1.5** Army Fitness Development	
MS300 - 1.5 Platoon Operations		**MX400 - 3.0** Officership	
** Offered in 7 different versions (credit hours will vary):*			
Civil **Electrical** **Mechanical**	**Nuclear** **Systems** **Cyber**	**Environmental**	
Highlighted *- Courses can be taken either Term 1 or Term 2*			

CORE CURRICULUM

The foundation of the academic program at USMA remains the 26 common core courses, an additional course in information technology and three courses in an engineering sequence. For most cadets, then, the first two academic years are a common academic experience. Variations begin in the last two years, with the selection of a major and with the three course engineering sequence.

Designed to provide educational breadth, the 26 common core courses and the additional course in information technology are listed below, along with alternative sequences of courses.

Chemistry

CH101 General Chemistry I

CH102 General Chemistry II

Alternative sequence:

CH151 Advanced General Chemistry I

CH152 Advanced General Chemistry II

Computer Science/Information Technology

IT105 Introduction to Computing and Information Technology

IT305 Theory and Practice of Military Information Technology Systems

Alternative course:

IT155 Advanced Placement Introduction to Computing and Information Technology

IT355 Advanced Theory and Practice of Military Information Technology Systems

Economics

SS201 Economics: Principles and Problems

Alternative course:

SS251 Advanced Economics: Principles and Problems

English

EN101 Composition

EN302 Advanced Composition through Culture

Foreign Language

Two courses required; sequence determined by the Department of Foreign Languages

History

Choice of two sequences:

HI105 History of the United States

HI108 Regional Studies in World History

or

HI107 Western Civilization

HI108 Regional Studies in World History

Alternative sequences:

HI155 Advanced History of the United States

HI158 Advanced Regional Studies in World History

or

HI157 Advanced History of Western Civilization

HI158 Advanced Regional Studies in World History

International Relations

SS307 International Relations

Alternative course:

SS357 Advanced International Relations

Law

LW403 Constitutional and Military Law

Leadership

PL100 General Psychology

PL300 Military Leadership

Alternative sequence:

PL150 Advanced General Psychology

PL350 Advanced Military Leadership

Literature

EN102 Literature

Mathematics

MA103 Mathematical Modeling and Intro to Calculus
MA104 Calculus I
MA205 Calculus II
MA206 Probability and Statistics

Alternative sequence, MA104 validated:
MA153 Advanced Multivariable Calculus
MA255 Mathematical Modeling and Introduction to Differential Equations
MA206 Probability and Statistics
MA100/MA101 may be required in lieu of MA103.

Military History

HI301 History of the Military Art
HI302 History of the Military Art

Alternative sequence:
HI351 Advanced History of the Military Art
HI352 Advanced History of the Military Art

Philosophy

PY201 Philosophy

Physical Geography

EV203 Physical Geography

Physics

PH201 Physics I
PH202 Physics II

Alternative sequence:
PH251 Advanced Physics I
PH252 Advanced Physics II

Political Science

SS202 American Politics

Alternative course:
SS252 Advanced American Politics

Within the core curriculum, there is a Mathematics, Science and Engineering (MSE) sequence that is intended to provide each cadet with a fundamental knowledge of the experimental and analytic techniques of the basic sciences. This sequence, called a

thread, begins in Fourth Class year with two semesters of mathematics and two semesters of chemistry. It continues in Third Class year with two semesters of mathematics, two semesters of physics, and physical geography.

The core curriculum also includes a computer science thread designed to ensure that every academy graduate is comfortable with and capable of using computers in an Army increasingly dependent on technology. This facility is developed through an introductory computer science course in the Fourth Class year and the integration of computer applications throughout the core curriculum and particularly in the Information Technology course in the Second Class year.

Additionally, the core curriculum includes a strong preprofessional sequence of social sciences, behavioral sciences, and history to develop an awareness of the people, government, and society that the commissioned officer will serve. This sequence begins in Fourth Class year with two semesters of history and one semester of psychology. It continues in Third Class year with one semester of political science, philosophy, and economics. Second Class year includes one semester of international relations and one semester of military leadership. The First Class year's contribution to this thread of professional development is found in a one-semester course in constitutional and military law and two semesters of military history.

In Fourth Class year, cadets begin a four year integrated program aimed at producing a high level of competence in written and oral communication skills. English composition and literature courses in Fourth Class year and an additional composition course in Second Class year are key elements in this development, but written and oral skills will be stressed throughout the curriculum, and each cadet will encounter at least one major writing requirement in the core program each year.

Most cadets will begin their study of a foreign language in Third Class year. If a cadet expresses an interest in a major in foreign languages, however, the sequence may be started in Fourth Class year. All cadets will take at least two semesters of one of the seven foreign languages offered. Course work will present perspectives from another culture, develop the ability to learn another language, provide an introductory level of proficiency in the language selected, and provide a firm foundation for further language study.

These features mean that the first two academic years are a common core experience for the majority of cadets. Individual alterations to the typical sequence can be made based on specific needs and capabilities. Cadets are encouraged to work closely with academic counselors when designing their academic programs.

CORE ENGINEERING SEQUENCES

Four courses in First and Second Class years contribute to the MSE thread. One is the course in Information technology. The other three consist of one of the seven three-course core engineering sequences: civil, cyber, electrical, environmental, mechanical, nuclear, or systems. The following is a listing of the seven core engineering sequences.

CE - Civil Engineering

MC300 Fundamentals of Engineering Mechanics and Design

CE350 Infrastructure Engineering

CE450 Construction Management

CY - Cyber Engineering

IT300 Programming Fundamentals

IT350 Network Engineering and Management

CS482 Cyber Security Engineering

EE - Electrical Engineering

EE300 Fundamentals of Digital Logic

EE350 Basic Electrical Engineering

EE450 Military Electronic Systems

EV - Environmental Engineering

EV300 Environmental Science

EV350 Environmental Engineering Technologies

EV450 Environmental Engineering for Community Development

ME - Mechanical Engineering

MC300 Fundamentals of Engineering Mechanics and Design

ME350 Introduction to Thermal Systems with Army Applications

ME450 Mechanical Engineering Design of Army Systems

NE - Nuclear Engineering

NE300 Fundamentals of Nuclear Engineering

NE350 Radiological Engineering Design

NE450 Nuclear Weapons Effects

SE - Systems Engineering

SE300 Introduction to Systems Engineering

SE350 Systems Modeling and Design

SE450 Applied Systems Design and Decision Making

DISCIPLINARY DEPTH COMPONENT

The United States Military Academy's curriculum allows for a disciplinary depth component consisting of 10 - 18 courses in a major. The Academy defines disciplinary depth as a course of study that offers a complex structure of knowledge. The comprehension of this structure--a decent understanding and control of it--is what is meant by study in depth. The study in depth component of a particular discipline generally exhibits the following characteristics:

- **A Central Core of Method and Theory.** This core serves as an introduction to the explanatory power of the discipline, provides a basis for subsequent work, and unites all students in a shared understanding of its character and aims. The historical development of the method and theory should be presented.
- **Experience with the Discipline's Wide Range of Topics.** Care should be taken, however, to avoid programs consisting of a hodgepodge of courses. Conversely, a program requiring courses from only one department is no guarantee of depth.
- **Experience with the Discipline's Variety of Analytical Tools.** The student should be acquainted with the tools' history and assumptions, and provided a strong sense of their limits and power as instruments for understanding nature and society.
- **A Course Sequence that Presumes Advancing Sophistication.** Successful performance at increasingly higher levels demands the knowledge or techniques acquired in previous courses. Sequential learning builds on blocks of knowledge that lead to more sophisticated understanding and encourages leaps of the imagination and efforts at synthesis. As students advance, they work increasingly with the primary tools of their concentration.
- **Some Understanding of the Discipline's Characteristic Questions and Arguments.** This includes the need to acquaint the student with the questions the discipline cannot answer and the arguments it does not make.
- **Offers a Complex Structure of Knowledge.** Complex structures of knowledge may themselves differ substantially in character and still offer depth. The complexity of the field or discipline may derive predominantly from the intricacy of its materials, such as bringing together a comprehension of different systems of knowledge, as in management. It may derive predominantly from the continuous relevance of a substantial and cumulative history, as in literature. Further, it may derive from the crucial interplay between continuous observation and developing, articulated theoretical base, as in engineering and economics.
- **Requires Multiple Dimensions.** Study in depth cannot be reached merely by cumulative exposure to a specific subject matter, and therefore usually requires exposure to offerings of more than one academic department.
- **Demonstrates How Knowledge is Acquired.** While mastery of a body of knowledge is important to mastery of a discipline, inquiry is what leads to knowledge and understanding. The student should also be acquainted with some of the "dead ends" of the field--notable experiments, theories, and intellectual undertakings that failed.
- **Demonstration and Validation of Final Mastery of the Discipline's Complexity.** The program should culminate in a substantial project undertaken after a sound grasp of the fundamentals of the discipline has been established. In the American Association of Colleges' (AAC) view, this experience provides two great lessons: the joy of mastery, the thrill of moving forward in a formal body of knowledge and gaining some effective control over it, integrating it, perhaps even making some small contribution to it; and the lesson that no matter how deeply and widely students dig, no matter how

much they know, they cannot know enough, they cannot know everything. Depth is an enemy of arrogance.

WHAT CONSTITUTES A COURSE

Throughout this section we have talked about core courses and elective courses. What exactly constitutes a course? Each course is different in many specific ways. In general, however, there are guidelines for any course of instruction which contribute to its being worthy of academic credit. The development of a course along the following lines is what is required for a "course" to be included for academic credit on a cadet's academic transcript.

- **Course objectives that require new learning experiences.** Learning involves a change in capabilities or dispositions that can be attributed to experience. When we say change, we usually think of students acquiring a new capability or disposition--what they know (knowledge), how they use what they know (intellectual skills), how they think, what they can do (physical skills), or what they value (attitudes and values). We normally do not think of learning as involving the maintenance of already acquired capabilities. A course of instruction, then, is the purposeful arrangement of experiences designed to facilitate intended change in students' capabilities or dispositions, which we represent by course objectives.
- **A valid, comprehensive method of evaluating student mastery of course objectives.** We believe that student evaluation is a critical component of the learning process and must be present in a course of instruction. We recognize that evaluation methods and the frequency of evaluation will vary as a function of course objectives; however, the evaluation method should assess students' mastery of course objectives and should permit valid inferences about student learning.

If a course of instruction meets the preceding two guidelines, then the awarding of credit hours should be based on a calculation of planned time (40 hours of planned time associated with 1.0 credit hour). A 3.0 credit hour course then requires 40 instructor contact hours with two hours of preparation required for each hour in class: 40 lessons at 3 hrs/lesson = 120 hours = 3.0 credit hours.

GRADING PHILOSOPHY AND GRADING POLICIES

Finally, but as a critical and essential part of the educational philosophy, it is important to articulate explicitly the Dean's academic grading policies and philosophies.

Grading Philosophy

The foundation of our grading is a commitment to evaluate cadets based on their achievement of announced course objectives. Satisfactory performance on graded course requirements must therefore reflect satisfactory progress toward meeting course objectives. We will establish reasonable academic standards of achievement in advance of cadets taking a course and taking tests. Our goal is not to rank order cadets against each other based on any preconceived concept of an appropriate grade distribution (curving). Instead we challenge cadets to meet announced standards of performance and assign grades based on their success in doing so. Once standards are established, the principal responsibility for academic performance rests with each individual cadet.

Policies

Instructors are responsible for providing sound instruction, measurement of cadet attainment, and a reasonable amount of additional assistance. Instructors shall strive to motivate and inspire cadets to achieve their full academic potential. Beyond these obligations, the responsibility for academic success or failure rests with each cadet.

To the extent consistent with subject matter, instructors will provide cadets with a statement of the objectives for each course. Cadets will be evaluated against these objectives. Departments will avoid evaluation and grading practices that encourage reliance on curving.

However compiled numerically, letter grades ranging from A to F will be the standard means of communicating academic achievement.

Instructors will promptly provide cadets an evaluation of each graded course requirement; the evaluation will be a letter grade or a numerical score easily convertible by the cadet to a letter grade.

The Dean will convene an annual grading and evaluation seminar, composed of one or more representatives from each department. Seminar participants will exchange information on department grading practices, hear presentations regarding testing and evaluation, discuss testing and evaluation issues, and, as needed, propose changes to the Military Academy's grading and evaluation system.

GRADUATION REQUIREMENTS AND ACADEMIC

STANDARDS

Regulations for the United States Military Academy state that cadets of the First Class who have been found by the Academic Board successfully to have completed the course of instruction, including academic, military, and physical education and training; to have maintained the standards of conduct; and to possess the moral qualities, traits of character and leadership essential for a graduated cadet; shall receive a diploma signed by the Superintendent, the Commandant of Cadets, and the Dean of the Academic Board; and shall there upon become a graduate of the United States Military Academy with a degree of Bachelor of Science.

ACADEMIC REQUIREMENTS

To satisfy the academic portion of these graduation requirements, a cadet must:

- Complete successfully or validate each course in the core curriculum, including the common core courses and a core engineering sequence;
- Satisfy the requirements of at least one major;
- Complete successfully 40 academic courses; complete successfully the eight military science courses and the program of Physical Education presented under the Office of the Commandant; and
- Achieve a 2.00 Cumulative Quality Point Average (CQPA) in the courses above. The CQPA is an index of cumulative performance in all academic, military science, and physical education courses. It generally corresponds to grade point average (GPA) or grade point ratio (GPR) in other colleges and universities. As part of the West Point experience, a cadet is required to complete requirements and achieve minimum standards in three developmental programs within the USMA Cadet Leader Development System (CLDS). Within the CLDS the military program score (MPS), the physical program score (PPS), and the academic program score (APS) combine to form the cadet performance score (CPS). The APS is based on performance in courses within the Academic Program and does not include military science and physical education courses. Cadets who are deficient in one or more of the three developmental programs for failure to maintain minimum program performance standards may be considered by the Academic Board for separation.

Graduation requirements for all three programs, academic, military and physical and institutional (non-program) requirements by class year are available through the following links: Graduation Class of: 2010 – 2011 – 2012– 2013-2017

ACADEMIC STANDARDS

The primary responsibility for attaining satisfactory academic performance rests with the individual cadet. Cadets must strive to achieve their highest level of academic excellence. To meet this responsibility, cadets have an obligation to know their academic status, manage their time, and establish priorities in such a manner as to accomplish this goal. The performance of academic duties is a significant part of the process of preparing for the acceptance of the duties and responsibilities of Army officers. The standard for performance of academic duties is the same as that for the performance of officer duties--excellence and one's personal best.

Cadets must achieve a grade of "D" or better in all required academic (core and elective), military science, and physical education courses. Grades of "N/C" (no credit) may be awarded temporarily, but cadets must resolve the circumstances that resulted in the "N/C" and be awarded a letter grade in order to receive credit for the course.

Examinations

Written Partial Review (WPR): This examination is designed to test knowledge of course material covering specified lessons. Each department will determine the material to be covered, the time of the exam, and the weight of the exam. Written Partial Reviews may be scheduled during normal class meetings or during Dean's Hour. Cadets who have more than one (more than two in the case of First or Second Class cadets) major graded requirements (WPR, themes, etc.) coming due on the same day may request permission to attend the examination on the alternate day. Responsibility for seeking relief rests with the cadet, while the faculty role is one of cooperation in granting permission when reasonably feasible. Relief must be sought 48 hours in advance of the scheduled examination. All cadets may be required to take two examinations on Saturdays during the Dean's Hour.

Term-End Examinations (TEE): These examinations, given at the end of the term, test cadets' knowledge of course material presented during that term. The Dean's office will schedule the TEE for each course, and every cadet will take the TEE in accordance with the established schedule.

Grading

In general, the academic departments describe the relative weight of their graded course requirements in terms of marks (points). Graded course requirements include, but are not limited to, daily writs, WPR, themes, research papers, computer exercises, and TEE. Early in each course, each instructor should provide a list of the course requirements and their weights. Because there is no standard scale used by all departments for converting marks to grades, cadets should ascertain from their instructors during the first few lessons of each term how the various departments assign grades.

Cadets can view a report of their grades on line four times during each term. The first three reports are interim or progress reports. They are provided after the sixth, tenth, and fifteenth weeks of the term. The fourth report reflects final grades, average for the term, and cumulative average. Copies of the report are available in the Academic Affairs and Registrar Services (AARS), Office of

the Dean, during the summer. In accordance with the Privacy Act, cadets must give permission in writing for the Academy to send academic reports to parents or guardians. Reports will be mailed at the end of each term.

After TEE's have been graded, department heads assign final course grades using the A+ to F scale. These final course grades are assigned quality points in accordance with the following table:

Letter Grade	Quality Points	Letter Grade	Quality Points	Letter Grade	Quality Points
A+	4.33	B	3.00	C-	1.67
A	4.00	B-	2.67	D	1.00
A-	3.67	C+	2.33	F	0.00
B+	3.33	C	2.00		

Should a cadet resign or be separated during the term before the first TEE, his or her transcript for all courses will reflect a grade of W (Withdrawn) with no credit awarded. Once the TEE cycle begins, cadets will receive a grade in every course in which they are enrolled.

Minimum Quality Point Averages

In addition to passing each required course, cadets must achieve a minimum CQPA of 2.00 in order to graduate. In order to monitor progress in the Academic Program and to signal substandard achievement, the Academic Board has established performance standards based on APS term (APST) and APS cumulative (APSC). The following table presents the minimally acceptable standards based on APS. Cadets with averages below those stated will be considered deficient in the Academic Program and will be reported to the Academic Board at the end of each term.

MINIMALLY ACCEPTABLE APS:

CLASS YEAR	TERM	APST	APSC
Fourth	First Term	1.67	N/A
	Second Term	1.67	1.70
	STAP	N/A	1.70
Third	First Term	1.67	1.80
	Second Term	1.67	1.90
	STAP	N/A	1.90
Second	First Term	1.67	1.95
	Second Term	1.67	1.95
	STAP	N/A	1.95
First	First Term	1.67	2.00
	Second Term	1.67	2.00
	STAP	N/A	2.00

The APST is based on grades in all courses taken during a semester, excluding Military Science and Physical Education. The APSC is based on grades in all courses previously taken at the Academy, excluding Military Science and Physical Education, except that grades in repeated courses replace prior grades of "D" and "F."

ACADEMIC DEFICIENCIES AND PROBATION

Cadets who fall below the APSC levels shown in the table for the applicable semester will be reported deficient in the Academic Program to the Academic Board at term end. Cadets deficient in APSC may be considered by the Academic Board for separation for failure to attain minimum standards in the Academic Program.

Cadets deficient in APSC who are retained at the Academy will be placed on academic probation for the following term. Cadets whose APST is below 1.67 will also be placed on academic probation for the following term. Cadets are removed from academic probation at the end of the next term in which both their cumulative and term averages exceed the peg points in the table. Grades earned in the Summer Term Academic Program (STAP) may raise the APSC above the required peg point and remove a cadet from probation. In order to be removed from academic probation for term performance, however, cadets must achieve better than 1.67 in a full academic term (16 weeks).

A cadet placed on academic probation is subject to the following measures during the probationary period:

- Mandatory counseling by an assigned academic counselor within two weeks of the start of the current term. Performance reviews following the tenth and fifteenth week grade reports.
- Mandatory review of chain of command duties by the company tactical officer with a view toward reducing time requirements, IAW Annex A, USMA Reg 1-1 and the Academy Schedule.
- Assessed room tours in lieu of area tours, except in cases of Class 1 offenses.
- Subject to reduced privileges which are reviewed monthly relative to progress and adjustment.
- Limited to participation in one extracurricular activity or Corps Squad sport at a time. This will be reviewed monthly and follow the guidelines in the Academy Schedule.
- Ineligible to participate in events which involve the loss of academic time, either class or evening study period (e.g., away booster trip sections, spectator at home athletic contests, extracurricular activity events [Director of Cadet Activities (DCA) and religious trips], voluntary lectures or films, Cadet Public Relations Council (CPRC), conferences, etc.), except for participation in the one extracurricular activity provided for above. Participation in a mandatory educational trip that is required for a course is permitted.
- Not authorized to use the following facilities during evening study period: day room, post movie, and Eisenhower Hall (except to attend mandatory lectures). Cadets on academic probation may purchase take-out food at Grant Hall. No stopping to socialize is authorized. Cadets are not authorized to consume beverages or food while they wait for their order.
- A cadet's privileges may be withdrawn by the company tactical officer upon the request of an instructor if both agree that this course of action is essential to improve the cadet's grades.

ACADEMIC ASSISTANCE

Each academic department offers important supplementary programs and assistance to give cadets specific guidance in academic matters. This guidance assists cadets in overcoming academic weaknesses and in exploiting academic strengths.

Additional Instruction (AI): Academic departments will provide AI on the day it is requested. It is the responsibility of each cadet to request additional instruction. Specific guidance on AI hours and procedures will be provided by each department.

Academic Counseling: The Academic Affairs and Registrar Services (AARS), Office of the Dean, coordinates the faculty-based academic counseling programs available to each cadet. Within the Counseling Branch, there are counselors available during normal working hours on a walk-in-basis. They can discuss elective choices, schedules, course changes, and overloads and can effect any changes in a cadet's program. Two volunteer faculty members serve as Company Academic Counselors (CAC) for each company and can help cadets on most academic matters or make referrals to the proper authority in the Dean's Office or academic departments. In addition, the CAC's have formal academic counseling responsibility for all cadets in each company who have not yet selected a field of study or major. Upon selection of a field of study or major, cadets are assigned to the Department Academic Counselors (DAC) of the appropriate academic department. Finally, within the cadet chain of command there are the Company Academic Officer and Sergeant who can advise on the grading system, company tutors, AI, and other matters.

SPECIAL ACADEMIC PROGRAMS

English Instruction Programs: After the first semester, cadets who have not met course requirements in EN101 will be reenrolled in EN101. Should a cadet's writing in any course require remediation of a specialized nature, the head of the department may direct the cadet to the Department of English for evaluation and counseling.

Center For Enhanced Performance: The Center improves student performance and capacity for retention by educating and training cadets in performance enhancement techniques. These techniques can be gained by specialized training provided by the performance enhancement staff and the courses the Center offers each academic term.

- ***Peak Performance Program:*** This is offered to all cadets who wish to enhance their academic, athletic, and military performance through psychological and mental skills training. The goal is for the cadet to gain the ability to perform at one's full potential in any performance situation, especially under pressure and stress. A variety of skills are taught to include relaxation, effective thinking, goal setting, focus and concentration, visualization and imagery, and team building. Individual sessions are scheduled with the cadet and a performance enhancement trainer. Sessions are tailored to meet the cadet's specific needs.

- ***Student Success Course (RS101):*** This credit producing course is designed to improve cadet academic, physical, and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking and others. The LASSI, the Learning and Study Strategies Inventory, is the pre- and post-course assessment. The strategies mastered are implemented immediately into the cadet's present life at USMA and contribute to life-long learning. The course has five graded assignments and a final pass/no record grade determination.

- ***Reading Efficiency (RS102):*** This course develops flexible reading strategies. Increasing one's base reading rate while maintaining comprehension is accomplished through the use of computer programs, textbook reading and recreational reading. Various pacing techniques and supervised practice lead to the increase of both reading rate and comprehension but most of all to the development of a reader who has a variety of strategies to use depending upon the type of reading required.

ACADEMIC AWARDS AND RECOGNITION

Excellence in academic pursuits has long been the measure of an individual's self-discipline and self-growth. Intellectual curiosity is fostered by an individual's understanding of the demands and rewards of increasing one's established levels of qualification. This awareness of individual responsibility in a developing educational process is not currently unique to the Military Academy's academic environment; it has been the keystone of our educational philosophy for over 200 years. Recognition of a cadet's excellence in academics occurs throughout his or her four years at the Military Academy and is acknowledged with more than 100 awards. Just as these awards reflect an individual commitment to academic excellence in undergraduate study, they also reflect a strong foundation for graduate and post-graduate work.

RECOGNITION

Distinguished Cadets: Recognition occurs in the privilege of wearing gold stars to reflect distinguished academic achievement. Cadets must earn a QPA of 3.67 or better, either for the year or cumulatively. Additional criteria include: full academic load; no failures, N/C (except an N/C in physical education for medical reasons), or W in any course taken during the year.

Dean's List: Selected cadets are recognized for academic achievement on the Dean's List. Dean's List criteria is a TQPA of 3.00 or better considering all courses in the academic program taken during the semester, including military science and physical education. Cadets who are under loaded (take less than the minimum five academic courses) or receive a W, F, or N/C (except an N/C in physical education for medical reasons) in any course taken that term are ineligible for Dean's List recognition. The cadet's academic transcripts and term-end grade mailer will contain the notation "Dean's List" for all those so designated.

Superintendent's Award: The Superintendent's Award is a prestigious award given to cadets who prove themselves to be outstanding simultaneously in all three programs (Academic, Military, and Physical). It is based on the Cadet Award Score (CAS) which is a combination of the three program scores (APS, MPS, and PPS) applying equal weight to each. It has two levels of recognition, both of which are based on demonstrated performance: achievement and excellence. The insignia for the Superintendent's Award for Excellence is a gold star encircled by a gold wreath; it is presented to the top 5% of cadets in each class based on CAS.

The insignia for the Superintendent's Award for Achievement is a gold wreath; it is presented to the next 15% of the cadets in each class based on CAS. As with other individual awards, additional criteria apply.

Dean's Company Award: The Dean's Company Award recognizes academic achievement by company during the fall and spring terms. Performance in the academic program is determined by the company Academic Program Score (APS). The company with the highest APS in each regiment receives a gold streamer to be attached to the company guidon. A silver streamer is awarded to any company with a company APS of 3.0 or higher.

Thayer Scholar Designation: The Thayer Scholar designation is awarded to Cadets who are selected for and complete the requirements of the Thayer Scholar Program (TSP). The purpose of the TSP is to provide the most academically gifted Cadets the opportunity to achieve their highest intellectual potential while contributing to the intellectual engagement and development of the United States Corps of Cadets. Cadets are briefed on the program by the TSP Program Director and Office of the Dean during Cadet Basic Training. Cadets may apply for the program at the invitation of the TSP Committee beginning in their first semester of their 4th class year. TSP scholars are selected by the TSP Committee based on their previous academic accomplishments and potential to perform scholarly work while at the Academy. The TSP Committee is made up of representatives from each academic department and the Office of the Dean. In order to be awarded the Thayer Scholar designation Cadets must be selected for the program by the TSP Committee; maintain an APS of at least 3.5, an MPS and PPS of at least 3.0 (waiverable for one semester); participate in core course cohorting and additional academic enrichment opportunities offered during the academic year; achieve honors designation in their major program (if offered); and perform undergraduate scholarship reviewed and accepted by the TSP Committee.

GRADUATE SCHOOLING

ADMINISTRATIVE INFORMATION

Transcripts: Before transcripts will be released, permission must be given in writing. Transcripts of academic records are available at Academic Affairs and Registrar Services (AARS), Office of the Dean. There is no charge for transcripts required in connection with official requirements, but a nominal charge will be made for all others.

Academic Evaluations: Upon request, faculty members will provide cadets with academic evaluations using USMA Form 3-230 which is available in the Office of the Dean. These forms permit the Office of the Dean, with a cadet's authorization under the provisions of the Privacy Act, to provide selected information to designated institutions, agencies, or individuals. In most cases, the Office of the Dean will use these, and other information in the cadet file, as a basis for an official assessment of graduate school potential. Cadets are encouraged to seek academic evaluation by instructors during the Second and First Class years.

Qualifying Examinations: Most graduate or professional schools require that prospective students report their score on a nationally recognized qualifying examination before acceptance is granted. Cadets are responsible for arranging to take any of the examinations which may be required for admission to a graduate or professional program.

GRADUATE SCHOOLING OPPORTUNITIES

Medical School: The Medical Program Advisory Committee (MPAC) is responsible for the evaluation of cadet applicants and selection of up to two percent of each graduating class to be recommended by the Academic Board to the Surgeon General to begin medical school in the fall after graduation from USMA. Cadets applying to medical school are screened by the MPAC during First Class year. Selection is based upon academic records, successful completion of the Medical College Admissions Test (MCAT), interviews, recommendations, and acceptance into an approved medical school. Those selected may attend either the Uniformed Services University of the Health Sciences or a civilian medical school. Those choosing a civilian medical school will receive a Health Professions Scholarship.

Law School: After two years of active duty USMA graduates may apply to attend law school under the provisions of the Judge Advocate General's Fully Funded Legal Program. Selection for the program is contingent upon successful completion of the Law School Admissions Test, favorable consideration by the Judge Advocate General selection board, and acceptance into an approved law school.

SCHOLARSHIPS AND FELLOWSHIPS

Cadets are encouraged to compete for a number of nationally recognized graduate scholarships and fellowships.

- ***Rhodes Scholarship:*** The Rhodes Scholarship provides for two to three years of study at Oxford University in England. Applications are screened in the Second Class year by the Scholarship Committee. Those recommended by the Academic Board will compete with outstanding students from other colleges and universities before state and district selection committees. State and district competitions normally occur during early December, and cadets are often on Thanksgiving Leave when notified they have been selected to compete. In this case, cadets' leaves will be extended to allow them to remain at home until completion of the last interview for which they qualify.

- ***Hertz Foundation Fellowship:*** The Hertz Foundation Fellowship provides up to five years of study leading to a Ph.D. in the Applied Sciences at selected universities. Applicants are screened in their Second Class year by the Scholarship Committee and recommended by the Academic Board. Final selection is made by the Hertz Foundation, based upon academic records, recommendations, and personal interviews.

- ***National Science Foundation Graduate Fellowship:*** The National Science Foundation Graduate Fellowship provides for three years of study leading to a master's or doctoral degree in the mathematical, physical, biological, engineering, or social science, or in the history and philosophy of sciences. Selection is based upon academic grades, courses completed, recommendations, career objectives, and Graduate Record Examination Aptitude and Advanced Test results.

- ***Marshall Scholarship:*** The Marshall Scholarship provides for at least two years of study leading to a Masters or equivalent degree at a university in the United Kingdom. There are no restrictions on the field chosen to study. Applications are screened in the Second Class year by the Scholarship Committee. Those recommended by the Academic Board will compete with outstanding students from other colleges and universities before state and district selection committees. State and district competitions normally occur during early December, and cadets are often on Thanksgiving Leave when notified they have been selected to compete. In this case, cadets' leaves will be extended to allow them to remain at home until completion of the last interview for which they qualify. Final selection is made by the Marshall Air Commemoration Commission in London.

- ***East/West Center Grants:*** The East/West Center Grant provides for two years of graduate study leading to a master's degree at the East-West Center of the University of Hawaii. Specific programs of study focus on culture and communications, resource systems, population, and environmental policy in the Asia-Pacific region. Applications are screened in Second Class year by the Scholarship Committee. Those recommended by the Academic Board will compete with outstanding students from other colleges and universities in the United States and throughout the Asia-Pacific region. Selection is based on academic grades, course work, recommendations, results of the Graduate Record Examination, and essays written for the application.

- ***Truman Scholarship:*** Awarded during a cadet's Second Class year, this scholarship provides a $3,000 grant to support undergraduate academic endeavors and two years of graduate study leading to a master's degree at any accredited university in the world. Both the grant and the two years of funded academic study can be deferred. Studies should

prepare the candidate for public service; i.e., careers in the military, government, public administration, public health, international relations and diplomacy, social service, education and human resource development, or conservation and environmental protection. The Scholarship Committee screens applicants in Third Class year. Those recommended by the Academic Board will compete with outstanding students from other colleges and universities before district selection committees.

- ***George Olmsted Foundation Scholarship:*** This scholarship provides two years of study at a foreign university by graduates of the Military Academy in other than an English-speaking country. Candidates apply to the foundation after graduation. The foundation selects two USMA graduates every year from these candidates after they have had from three to eight years of commissioned service. A recommendation from the Department of the Army is also required. Selection criteria include scholastic ability, character, and leadership traits. Cadets will sign up in the Office of the Dean during the second semester, First Class year.

- ***Daedalian Scholarship:*** This scholarship is awarded by the Order of Daedalians "for advance study in a field related to aerospace engineering." The Military Academy recommends candidates prior to graduation on the basis of interest and academic/military record. Final selection is made by Department of the Army, normally after the completion of flight training. Award is delayed for one to three years after graduation.

- ***Phi Kappa Phi Fellowship:*** This fellowship provides for the first year of graduate study and is authorized as an adjunct to graduate training which previously has been approved. Competition for this fellowship is limited to cadets who are members of the Honor Society of Phi Kappa Phi and who are recipients of a Rhodes, Marshall, Truman, or East-West Scholarship; Hertz or National Science Foundation Fellowship; or medical school acceptance.

DESIGNING AN ACADEMIC PROGRAM

As a cadet, your goal should be to strive for academic excellence and to pursue the maximum level of academic achievement possible. It is your responsibility, based on your individual abilities and in coordination with an academic counselor, to design an academic program that maximizes your capabilities. All cadets will complete the 26 course core curriculum which includes a foreign language, and an area of academic specialization. Cadets who choose not to specialize in engineering will also complete a three-course engineering sequence and a second course in information technology. Based on your capabilities and interests, you will decide which major to pursue. You will also have the opportunity to decide upon advanced placement, advanced individual research, or enrollment in one of the other special educational opportunities available. Additionally, for those cadets who through course validations have the room in their schedules, two academic minors are available. A minor is a disciplinary depth component approximately equal to half the requirements of comparable majors.

The Military Academy has established an extensive academic counseling system to assist you in making the decisions that affect your academic program. Approximately one hundred officers voluntarily serve as departmental and company academic counselors. The Chief Counselor, Academic Affairs and Registrar Services (AARS), Office of the Dean, can provide special assistance. You should know your counselor by name and should seek his/her assistance frequently as you narrow your list of options

But remember the development of an approved course of study and selection of a major remain your responsibilities.

COURSE PLANNING

DEPARTMENT OF FOREIGN LANGUAGES SEQUENCES

The choice of a language is a cadet's to make, and every attempt is made to fulfill expressed preference. Cadets will not be enrolled in Arabic, Chinese, or Russian without their concurrence, unless they listed it as an option. Enrollment is determined by written and oral tests given during Cadet Basic Training. Because graduation requirements may be related to the major selected, cadets should refer to the field tables in Part 4 of the Redbook for specific requirements, if any.

FOREIGN LANGUAGE GRADUATION REQUIREMENTS

If placement level is:	Graduation requirements are:
Beginning	Core Sequence LX 203-204
Advanced	Placement Two courses at 300 or 400 level

DEPARTMENT OF MATHEMATICAL SCIENCES

The core sequence in mathematics for all cadets is shown below:

Fourth Class Year		Third Class Year	
lst Term	*2nd Term*	*lst Term*	*2nd Term*
MA103	MA104	MA205	MA206

Based upon individual academic preparation and aptitude for mathematics, cadets may be able to validate one or more of the core courses. Cadets validating a course begin their mathematics sequence with the next required course. Cadets demonstrating a deficiency in algebra and trigonometry may be enrolled in MA100.

SEMINAR AND TOPICS COURSES

Because the topic or seminar course will usually change each term and/or be offered in alternating years, cadets must ensure that they enroll in the course desired. Enrolling in the same seminar or topic course more than once is not permitted unless the course is in the cadet's depth of study program and is determined by the Head of the Department to be substantially different from the first course.

ADVANCED INDIVIDUAL STUDY COURSES

The Advanced Individual Study program offers cadets the opportunity to broaden and enhance competence in their chosen fields through individual research directly under the tutelage of an experienced instructor during the Second and First Class years. The Advanced Individual Study selected must be in an area in which the cadet has taken a substantial number of electives. A second enrollment in the same individual study course may be approved when it is in the cadet's depth of study program and when it is not essential for the fulfillment of field requirements. Multiple Advanced Individual Study enrollments in different disciplines will be approved only if a cadet has completed a substantial number of electives in the same discipline as the Advanced Individual Study course being requested. Further exceptions are possible for cadets with a great number of available electives. Cadets should discuss these opportunities with the Counseling Branch, Academic Affairs and Registrar Services, Office of the Dean, and departmental counselors.

ACADEMIC INDIVIDUAL ADVANCED DEVELOPMENT (AIAD) COURSES

The purpose of an AIAD, *with or without academic credit*, is to provide a venue for educational experiences that would not be possible within the usual framework of academic, military, and physical programs that comprise the 47-month USMA experience. An **AIAD** *with academic credit* requires additional academic rigor specified below.

An AIAD, *with or without academic credit*, is an activity offered by the U.S. Military Academy that is:

- An experiential program of learning.
- The only duty of the cadet during the experience.
- An immersive experience in an environment different from that encountered by cadets during their normal participation in the academic, military, and physical programs of the USMA.
- An optional activity that would otherwise be personal leave for the cadet.
- Facilitated by an academic department of the U.S. Military Academy authorized to do so by the Dean.

An **AIAD** *with academic credit* is one that meets the criteria identified above and also earns academic credit recorded on the USMA transcript. An AIAD with academic credit is a multi-week, experientially motivated activity, on a voluntary and individual or small group basis, that includes a component of intellectual rigor with demonstrable results. An AIAD proposed with academic credit is subject to requirements given below, existing administrative standards contained in Dean's Policy and Operating Memorandums (DPOM 2-1, MADN-ORD, 16 August 2004, subject: Gradekeeping and DPOM 2-8, MADN-ORD, 15 February 2006, subject: Academic Administration), and undergoes review by the Curriculum Committee. An AIAD will be conducted away from USMA unless its scope statement in the Redbook specifies that it may be conducted at USMA.

For practical purposes, therefore, an **AIAD** *with academic credit* will be treated as a course and Departmental proposals will be made IAW DPOM 5-5, MADN-AAD, 21 July 2006, subject: Managing Curricular Change and guidance provided by the Dean of the Academic Board. As such, an**AIAD** *with academic credit* will have:

- A scope statement that delineates, together with a syllabus that sequences, the body of knowledge, skills, and attitudes expected to be realized during the AIAD. The scope of the AIAD is tailored to the needs of a project, course, or to the requirements of an outside agency or Army laboratory.
- Published learning outcomes and objectives that demonstrate a purposeful arrangement of learning experiences and outcomes designed to facilitate and delineate an intended change in the cadet's academic capability.
- A learning model with explicit statements about the structure, process and content of the course.
- Supervision by the Faculty Advisor sufficient to ensure the academic integrity of the AIAD. The Faculty Advisor will be a member of the USMA faculty, although the cadet may be under the direct supervision of another individual considered to be qualified by the host USMA department and Faculty Advisor. The direct supervisor may well be someone other than a USMA faculty member. If the AIAD is a bona fide academic course taken from another US service academy, then the grade assigned by the host institution can be awarded to the cadet by presenting appropriate documentation to the

Academic Affairs and Registrar Services (AARS), Office of the Dean. Otherwise, the USMA Faculty Advisor must assign a grade based on sufficient graded artifacts.

- An assessment plan that includes deliverable artifacts created by the cadet and evaluated by the Faculty Advisor as the basis for the assigned grade. Deliverable artifacts include written examinations, essays, research papers, diaries, briefings, laboratory reports, projects, products, and other items normally produced by academic courses.

- Academic credits (1.0, 2.0, 3.0, or 3.5) proportionate to the level of effort required to create the deliverable artifacts and the overall academic quality of the experience. Credit hours will be awarded based on a careful assessment of the requirements of the program and will correspond to the basic guidelines outlined in DPOM 02-8 unless otherwise approved by the General Committee.

VALIDATION AND ADVANCED COURSE ENROLLMENT

Advanced Placement test scores and previous high school or college academic records are reviewed by the academic departments to determine whether a cadet is eligible for validation of certain courses. Many academic departments use examinations and personal interviews, in addition to screening academic records, to assist in their evaluation. When the process is completed, a cadet may be offered the opportunity to validate a course. The decision is entirely the cadet's to make; cadets should keep in mind, however, that they may have to replace the validated course with another course. Most Third and Fourth Class cadets have found it advantageous to delay the selection of their electives by substituting upper class core courses for validated courses until they have a firm commitment to a major. The significant aspects of validation are that it is voluntary, and that, while it excuses a cadet from taking a course, it does not reduce graduation course requirements.

ACADEMIC COURSE LOADS

The minimum load that all cadets must carry under normal circumstances is five academic courses which are equal to or greater than 15 semester hours of credit. Cadets may elect to take six academic courses in the pursuit of certain academic majors. In addition, cadets will meet established requirements for physical education courses and military science core curriculum during a regular academic semester.

OVERLOADING

Cadets are considered overloading when they are carrying seven academic courses in a term. Overload courses offer the means of adapting an academic program to capitalize upon a cadet's abilities and to satisfy a particular interest. During the Third, Second, and First Class years, cadets may wish to enroll in one overload course for each term. Approval will depend upon demonstrated ability and motivation. Specifically, Dean's List recognition in the preceding term is required. Cadets with a Cumulative Quality Point Average, CQPA, of 2.30 or higher may overload in their First Class year. Only elective courses may be overloaded.

A cadet who enrolls in an overload course and finds it unsuited to his or her needs may request withdrawal from the overload course through the Academic Affairs and Registrar Services (AARS), Office of the Dean, any time after the first month of the term and up until the beginning of Term End Examinations (TEE). Cadets are required to designate which of their electives is the overload. No change in this designation will be permitted after the term begins. There is, of course, the possibility that the Dean may remove a cadet from an overload course for poor performance in that course or in any other courses.

CADET ON-LINE REGISTRATION AND PROCESSING SYSTEM (CORPS)

Cadets will use this automated system to update spring term enrollment during the fall term, and in the spring of the Fourth Class year to enroll in courses for the Third Class year. In the fall of the Third Class year, cadets will use the system to designate engineering core sequences, fields of study or optional majors, to select field and major courses, and to establish their academic plans for their Second and First Class years. Routine course or schedule changes are accomplished through CORPS in accordance with instructions published by the Office of the Dean. Specific instructions on the use of CORPS will be published separately. Late course changes must be processed manually.

CHOOSING A MAJOR

One choice deserves special mention, and that is a cadet's choice of an area of academic specialization. Without exaggeration, it is the most important academic decision a cadet will make at the Military Academy. Much of the rationale for the presentation of core topics before the selection of a major is to ensure that cadets have the best information available upon which to make that decision.

Currently a major requires the commitment of between 10 and 18 electives. Once a cadet starts taking electives to support a major, it is very difficult, and in many cases impossible, to change to another major. Cadets are encouraged to seek guidance in arriving at this decision and to take the necessary time and effort to make that decision a good one.

Once a Third Class cadet designates a major, the cadet is passed from the company academic counselor to a counselor in the department that sponsors the chosen discipline. Departmental counselors then help the cadet lay out the remaining four terms of his or her academic program, providing guidance on the sequencing of courses best designed to facilitate study of the discipline.

Ten courses must be designated to fill the elective requirements for the baseline area of academic specialization, arranged in semesters of five academic courses each. Cadets who choose an area requiring more than ten courses must complete an

additional sixth academic course in the term in which sequenced. The Military Academy provides opportunities to pursue Academic Individual Advanced Development (AIAD) during the summer, which under some circumstances may be used to reduce a course load during the academic year to five courses per term.

Through validation, advanced placement, or overload, it is possible for a cadet to meet the requirements for more than one major. Each cadet must officially pursue and gain credit for one major. Beyond that requirement, a cadet is free to pursue and gain transcript credit for additional majors, or a major and a minor, provided he or she meets the following guidelines:

- In pursuing two majors, a cadet must meet all course requirements for each major and double-count no more than four courses.
- In pursuing a major and a minor, a cadet must meet all course requirements for both the major and the minor. Double counting practices (counting one course to meet an elective course requirement in two different majors) are not permitted between a major and a minor.
- Double counting practices are not permitted between any study-in-depth program (major or minor) and the core curriculum. An exception is granted to departments with ABET programs, which may elect to direct cadets toward a specific three-course Core Engineering Sequence in support of their entry-level/fall-back majors programs.
- Department counselors in both fields must grant approval.

The graduation transcript will reflect the chosen major and minor.

OFFICE OF THE SUPERINTENDENT
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK 10996-5000

MAOR

MEMORANDUM FOR

DEAN OF THE ACADEMIC BOARD, United States Military Academy, West Point, NY 10996
COMMANDANT OF CADETS, United States Military Academy, West Point, NY 10996
DIRECTOR OF INTERCOLLEGIATE ATHLETICS, United States Military Academy, West Point, NY 10996
DIRECTOR OF ADMISSIONS, United States Military Academy, West Point, NY 10996
CHIEF OF STAFF, USMA, United States Military Academy, West Point, NY 10996

SUBJECT: Class of 2010 Graduation Requirements

1. A cadet must successfully complete the course of instruction of the academic, military and physical programs and institutional (non-program) requirements to meet the baseline graduation requirements. A waiver for any of these requirements may be granted by the Academic Board based on a recommendation by the appropriate Class Committee.

2. The following are the graduation requirements for the Class of 2010:

a. Institutional Requirements (non-program)

(1) Achieve a Cumulative Quality Point Average (CQPA) of 2.00 (non-waiverable).

(2) Cadets must achieve a grade of "D" or better in all required academic (core and elective), military science, and physical education courses.

(3) Successfully complete one Individual Advanced Development (MIAD, PIAD, AIAD) experience.

(4) Meet the height/weight standards of AR 600-9.

b. Academic Program.

(1) Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence or equivalent.

(2) Satisfy the requirements of at least one major.

(3) Successfully complete 40 academic courses.

c. Military Program.

(1) Successfully complete Cadet Basic Training and Cadet Field Training.

(2) Successfully complete the following tasks:

(a) mask confidence course
(b) 75-foot rappel
(c) minimum of one 10-mile or greater foot march
(d) live hand grenade throw
(e) water obstacle course (WOC)
(f) day and night land navigation course
(g) rifle qualification

(3) Successfully complete a West Point Detail as a cadre member during the Second Class or First Class summer.

(4) Successfully complete Cadet Troop Leader Training (CTLT) or Drill Cadet Leader Training (DCLT) during the Second Class or First Class summer unless previously waived.

(5) Successfully complete all required Military Science courses.

d. Physical Program.

(1) Successfully complete all required Physical Education course work.

(2) Achieve the minimum passing score on the final term Graded Record APFT in First Class year.

(3) Meet the four-year requirement of participation in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level unless excused for medical reasons.

3. On 19 December 2008 the Academic Board unanimously approved a motion to recommend to the undersigned approval of the above stated graduation requirements.

F. L. HAGENBECK
Lieutenant General, US Army
Superintendent

OFFICE OF THE SUPERINTENDENT
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK 10996-5000

MAOR

MEMORANDUM FOR

DEAN OF THE ACADEMIC BOARD, United States Military Academy, West Point, NY 10996
COMMANDANT OF CADETS, United States Military Academy, West Point, NY 10996
DIRECTOR OF INTERCOLLEGIATE ATHLETICS, United States Military Academy, West Point, NY 10996
DIRECTOR OF ADMISSIONS, United States Military Academy, West Point, NY 10996
CHIEF OF STAFF, USMA, United States Military Academy, West Point, NY 10996

SUBJECT: Class of 2011 Graduation Requirements

1. A cadet must successfully complete the course of instruction of the academic, military and physical programs and institutional (non-program) requirements to meet the baseline graduation requirements. A waiver for any of these requirements may be granted by the Academic Board based on a recommendation by the appropriate Class Committee.

2. The following are the graduation requirements for the Class of 2011:

a. Institutional Requirements (non-program)

(1) Achieve a Cumulative Quality Point Average (CQPA) of 2.00 (non-waiverable).

(2) Cadets must achieve a grade of "D" or better in all required academic (core and elective), military science, and physical education courses.

(3) Successfully complete one Individual Advanced Development (MIAD, PIAD, AIAD) experience.

(4) Meet the height/weight standards of AR 600-9.

b. Academic Program.

(1) Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence or equivalent.

(2) Satisfy the requirements of at least one major.

(3) Successfully complete 40 academic courses.

(4) Achieve an Academic Program Score Cumulative (APSC) of 2.00.

c. Military Program.

(1) Successfully complete Cadet Basic Training and Cadet Field Training, and Cadet Leader Development Training.

(2) Successfully complete the following tasks:

(a) mask confidence course
(b) 75-foot rappel
(c) minimum of one 10-mile or greater foot march
(d) live hand grenade throw
(e) water obstacle course (WOC)
(f) day and night land navigation course
(g) rifle qualification

(3) Successfully complete a West Point Detail as a cadre member during the Second Class or First Class summer.

(4) Successfully complete Cadet Troop Leader Training (CTLT) or Drill Cadet Leader Training (DCLT)

during the Second Class or First Class summer unless previously waived.

(5) Successfully complete all required Military Science courses.

(6) Achieve a Military Program Score Cumulative (MPSC) of 2.00.

d. Physical Program.

(1) Successfully complete all required Physical Education course work.

(2) Successfully complete the Second Class Indoor Obstacle Course Test during the Second or First Class year.

(3) Achieve a Physical Program Score Cumulative (PPSC) of 2.00.

(4) Achieve the minimum passing score on the final term Graded Record APFT in First Class year.

(5) Meet the four-year requirement of participation in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level unless excused for medical reasons.

3. On 19 December 2008 the Academic Board unanimously approved a motion to recommend to the undersigned approval of the above stated graduation requirements.

F. L. HAGENBECK
Lieutenant General, US Army
Superintendent

OFFICE OF THE SUPERINTENDENT
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK 10996-5000

MAOR 24 October 2008

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Class of 2012 Graduation Requirements

1. A cadet must successfully complete the course of instruction of the academic, military and physical programs and institutional (non-program) requirements to meet the baseline graduation requirements. A waiver for any of these requirements may be granted by the Academic Board based on a recommendation by the appropriate Class Committee.

2. The following are the graduation requirements for the Class of 2012:

a. Institutional Requirements (non-program)

- Achieve a Cumulative Quality Point Average (CQPA) of 2.00 (non-waiverable).
- Cadets must achieve a grade of "D" or better in all required academic (core and elective), military science, and physical education courses.
- Successfully complete one Individual Advanced Development (MIAD, PIAD, AIAD) experience.
- Meet the height/weight standards of AR 600-9.

b. Academic Program.

- Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence or equivalent.
- Satisfy the requirements of at least one major.
- Successfully complete 40 academic courses.
- Achieve an Academic Program Score Cumulative (APSC) of 2.00.

c. Military Program.

- Successfully complete Cadet Basic Training, Cadet Field Training, **and Cadet Leader**

Development Training.

- Successfully complete the following tasks:
  - mask confidence course
  - 75-foot rappel
  - minimum of one 10-mile or greater foot march
  - live hand grenade throw
  - water obstacle course (WOC)
  - day and night land navigation course
  - rifle qualification
  - combat lifesaver certification course
- Successfully complete a West Point Detail as a cadre member during the Second Class or First Class summer.
- Successfully complete Cadet Troop Leader Training (CTLT) or Drill Cadet Leader Training (DCLT) during the Second Class or First Class summer unless previously waived.
- Achieve a Military Program Score Cumulative (MPSC) of 2.00.
- Successfully complete all required Military Science courses.

d. Physical Program.

- Successfully complete all required Physical Education course work.
- Successfully complete the Second Class Indoor Obstacle Course test during the Second or First Class year.
- Achieve a Physical Program Score Cumulative (PPSC) of 2.00.
- Achieve the minimum passing score on the final term Graded Record APFT in First Class year.
- Meet the four-year requirement of participation in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level unless excused for medical reasons.

3. On 3 September the Academic Board unanimously approved a motion to recommend to the undersigned approval of the above stated graduation requirements.

F. L. HAGENBECK
Lieutenant General, US Army
Superintendent

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OFFICE OF THE SUPERINTENDENT
UNITED STATES MILITARY ACADEMY
WEST POINT, NEW YORK 10996-5000

MADN

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Classes of 2013-2017 Graduation Requirements

1. A cadet must successfully complete the course of instruction in the academic, military and physical programs and satisfy the institutional (non-program) requirements to meet baseline graduation requirements. Upon the recommendations of the appropriate Class Committee, the Academic Board may grant a waiver for any requirement other than the Cumulative Quality Point Average (CQPA) minimum value.

2. The following are the graduation requirements for the Classes of 2013-2017:

a. Institutional Requirements (non-program)

(1) Achieve a Cumulative Quality Point Average /(CQPA)/ of 2.00 (non-waiverable).

(2) Successfully complete a Military, Physical or Academic Individual Advanced Development (MIAD, PIAD, or AIAD) experience.

(3) Meet the height/weight standards of Army Regulation 600-9.

(4) Meet the physical fitness standards in paragraph 1-24 of Army Regulation 350-1 and Appendix A of Army Training Circular 3-22.20. As of March 2010, all references to FM 21-20 in AR 350-1 are to be understood as references to TC 3-22.20.

b. Academic Program.

(1) Successfully complete or validate each course in the core curriculum, including the common core courses and a core engineering sequence equivalent.

(2) Satisfy the requirements of at least one major.

(3) Successfully complete 40 academic courses.

(4) Achieve an Academic Program Score Cumulative (APSC) of 2.00.

c. Military Program.

(1) Successfully complete all required Military Science and Military Development course work.

(2) Successfully complete Cadet Basic Training (CBT) and Cadet Field Training (CFT).

(3) Successfully complete Cadet Leader Development Training (CLDT) unless constructive credit is granted for a West Point detail (selected positions in CBT and CFT).

(4) Successfully complete a West Point detail as a chain of command member during Second or First Class summer.

(5) Successfully complete Cadet Troop Leader Training (CTLT) unless previously waived.

(6) Achieve a Military Program Score Cumulative (MPSC) of 2.00 or greater.

d. Physical Program.

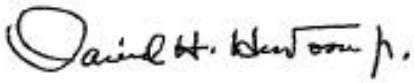
(1) Successfully complete all required Physical Education course work.

(2) Successfully complete the Second Class Indoor Obstacle Course Test (IOCT) during the Second or First Class year.

(3) Achieve a Physical Program Score Cumulative (PPSC) of 2.00.

(4) Participate in a competitive athletic activity at the Intercollegiate, Club, or Company Athletic level during each academic semester unless excused for medical or other approved reasons.

3. The Academic Board approved these graduation requirements on 1 September 2010.



DAVID H. HUNTOON, JR.
Lieutenant General, US Army
Superintendent

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PART II: DISCIPLINARY OFFERINGS

PART 2: DISCIPLINARY OFFERINGS

This section of the Academic Program (Redbook) presents descriptions of the academic disciplines within which USMA majors. A complete list of the Military Academy's majors appears in Part 4.

ACADEMIC DISCIPLINE DESCRIPTIONS

AMERICAN LEGAL SYSTEM

Law is the study of the means of maintaining social order, balancing individual interests against the interests of society, resolving disputes, and addressing social concerns. The study of law sharpens analytical and problem-solving abilities while developing an appreciation of law as a basic foundation of society. The American Legal System major will equip cadets with the means to understand conflicting issues, to analyze problems, and then to choose the most appropriate solution. The legal system major is not intended to train lawyers. Rather, it will prepare cadets for success in command or in any other position in which effective analytical, problem-solving, and communications skills are essential. From this understanding cadets can expand their breadth of experience and gain insight into current social problems or future challenges. A Legal System major will enhance the ability to think critically, conduct research, and persuasively express oneself orally and in writing. Law provides an excellent preparation for subsequent graduate study in public policy and administration, politics, government, business management, and international relations.

ART, PHILOSOPHY, AND LITERATURE

Cadets who major in Art, Philosophy, and Literature (APL) deepen their reasoning and creativity through study of the imaginative and theoreticalworks that characterize people and their cultures. APL majors concentrate in either Philosophy or Literature while also considering selected aspects of Art History, and they graduate with an enriched understanding of the history of ideas and why people pursue particular goals. By approaching cultural and human problems in a variety of ways, this program arms cadets for reasonable and productive engagement with the world's intellectual, moral, and emotional complexities. APL majors refine their listening, speaking, reading, and writing skills in a variety of analytic and creative situations that range in possibility from symbolic logic to dramatic performance. The APL Honors major further challenges cadets to compose a lengthy academic research project in close consultation with a member of the doctoral faculty. With an APL major, the cadet graduates from West Point with a logical mind, precise communication skills, and a capacity for creativity: attributes that, taken together, constitute excellent preparation for Army service in the 21st Century.

Graduates of the Art, Philosophy, and Literature major...

- Possess a body of discipline-specific knowledge;
- Communicate effectively within their discipline, observing audience, vocabulary, conventions, and methodology;
- Apply knowledge of Philosophy or Literature within and across disciplinary boundaries;
- Possess an appreciation of histories and cultures as they address issues and topics in Art, Philosophy, and Literature;
- Engage in disciplinary thinking and are able to construct well-supported oral and written arguments;
- Demonstrate the capability and the desire to pursue continued intellectual development;
- Think creatively.

BEHAVIORAL SCIENCES

The Behavioral Sciences field directly promotes our understanding of human behavior at individual, small group, organizational and societal levels. Cadets explore underlying causes of behavior, producing military officers who can influence the organizations and societies in which they are expected to lead. In several elective programs--psychology and sociology--emphasis is on understanding as a basis for leader decisions. The elective program in Engineering Psychology examines the technology of human performance and soldier/machine interface on the modern and future battlefields.

CHEMICAL ENGINEERING

Chemical engineering is perhaps the broadest and most diverse field in all of engineering. Any commercial process or product that uses or contains molecules probably involved a chemical engineer at some stage of development. This includes all materials used by the military, including such basic items as food, clothing, fuel, water, explosives, metals, polymers, ceramics, semiconductors, medicines, artificial organs, and prostheses, just to name a few. Chemical engineers design these materials at the molecular level, optimize the design for specific applications, and develop efficient methods for production, packaging, and distribution. Chemical engineers are also very concerned with the conversion between matter and energy, particularly since almost all chemical reactions require or produce energy. In terms of contemporary societal problems, chemical engineers are at the forefront of the effort to design new and more efficient fuels, and we are critical to efforts at environmental remediation, including waste recycling and remediation. Within the military, chemical engineers are uniquely qualified to address problems in fuel and water production and distribution, power generation, as well as detection, decontamination, and protection against chemical and biological agents.

Chemical Engineering Mission

The mission of the chemical engineering program is to prepare commissioned leaders of character who are proficient in applying chemical and engineering principles to solve problems in a complex operational environment.

Program Educational Objectives

During a career as commissioned officers in the United States Army and beyond, program graduates:

- Contribute to the solution of infrastructure or operational problems in a complex operational environment.
- Succeed in graduate school or other advanced study programs.
- Advance their careers through clear and precise technical communication.
- Demonstrate effective leadership and chemical engineering expertise.

Student Outcomes

On completion of the chemical engineering program, our graduates will be able to:

- Apply knowledge of mathematics, science, and engineering.
- Design and conduct experiments, as well as analyze and interpret data.
- Design a system, component, or process to meet desired needs within economic, environmental, social, political, ethical, health and safety, manufacturing, and sustainability constraints.
- Function on multidisciplinary teams.
- Identify, formulate, and solve engineering problems.
- Understand professional and ethical responsibilities.
- Communicate effectively.
- Understand the impact of engineering solutions in a global economic, environmental, and societal context.
- Recognize the need and develop the skills required for life-long learning.
- Demonstrate knowledge of contemporary issues.
- Demonstrate an ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

The program provides the graduate with a thorough grounding and working knowledge of the chemical sciences, including:

- General, organic, and physical chemistry.
- Material and energy balances on chemical processes, including safety and environmental factors.
- Thermodynamics of physical and chemical equilibria.
- Heat, mass, and momentum transfer.
- Chemical reaction engineering.
- Continuous and staged separation operations.
- Process dynamics and control.
- Modern experimental and computing techniques.
- Process design.

CHEMISTRY

Every material thing — from the foods we eat, to the medicine we take, to the air we breathe — is a chemical or a mixture of chemicals. Chemistry is the science of the composition, structure, properties, and reactions of material things. Since chemistry is

the molecular science, military applications of chemistry rely on the understanding of the structure and changes at the molecular level. These application areas can include the synthesis and development of advanced materials and explosives, solving environmental problems, creating innovate biotechnology solutions, and chemical or biological sensing.

The Chemistry Major includes all the courses recommended by the American Chemical Society and are designed to provide cadets with basic instruction with comparable emphasis on the areas of analytical chemistry, biochemistry, inorganic chemistry, organic chemistry and physical chemistry. Cadets are required to complete 27 core courses. In addition, cadets must complete a three-course engineering sequence and may choose from any of the sequences offered. Thirteen elective courses are required to complete the major. Thus, the Chemistry Major requires a total of 43 courses to be taken or validated. Cadets choosing this program will complete an integrative experience (CH471 Applications of Polymer Chemistry) that will examine the social, economic, political, and technological aspects of polymer technology. Cadets who choose the Chemistry Major and are pursuing the Medical School Option should take CH387 Human Physiology. Graduates who complete a Chemistry Major will be able to:

- Understand and apply the Scientific Method.
- Design and execute experiments to solve a problem or question.
- Use library and Internet resources to gather, organize, and understand scientific information.
- Effectively and clearly communicate scientific information in written and oral form.
- Understand the applications of chemistry and the life sciences in the Army and in society.
- Collect, present, and analyze scientific data gathered in the laboratory.
- Understand and apply classical and modern methods of chemical analysis.
- Understand the principles of modern instrumental methods of chemical analysis.
- Understand the relationship between the properties of a substance, its molecular structure, and its reactivity.
- Understand and apply the basic reaction mechanisms necessary for molecular synthesis.
- Understand and apply the physical concepts of chemistry.
- Understand the role of statistics and statistical mechanics in chemistry.
- Understand the role of quantum mechanics in mathematically describing matter and energy.
- Understand the interactions between matter and electromagnetic radiation.

CIVIL ENGINEERING

Civil engineers are engaged in the planning, analysis, design, construction, and maintenance of a wide variety of structures and facilities, including buildings, bridges, highways, railroads, airports, dams, canals, ports, water and wastewater treatment systems, and storm water and sanitary sewer systems. The Civil Engineering program at USMA offers a civil engineering major accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org, that requires courses in basic mechanics, structural analysis, structural steel design, and reinforced concrete design as the foundation of the program. In addition, courses in infrastructure engineering, site civil engineering, geotechnical engineering, hydrology and hydraulic engineering, and construction management provide breadth to the program. The civil engineering major also includes a capstone design course, in which cadets develop a comprehensive design of a civil engineering system, including the functional layout, structure, foundation, and site considerations to include utilities, drainage and environmental concerns. Design is emphasized throughout the program, as is the use of the personal computer as a tool for analysis, design, and decision-making. The program includes an extensive offering of enrichment electives, as well as an Advanced Individual Study in Civil Engineering, for selected cadets wishing to pursue a particular subject in depth. The Civil Engineering program serves as excellent preparation for initial Army troop assignments in combat and construction engineering as well as later jobs in civil works and facilities engineering. The program additionally provides a sound basis for graduate schooling in civil engineering and related fields, and for registration as a professional engineer. Cadets who maintain good standing in the civil engineering major take the Fundamentals of Engineering (FE) exam during the spring semester of their First Class year. Passing the FE exam is the essential first step in becoming a registered professional engineer.

Graduates who major in civil engineering will achieve the following Civil Engineering Program Educational Objectives:

A few years after graduation, Civil Engineering Program graduates:

1. As Army leaders, solve complex, multi-disciplinary problems effectively, to include:
    - recognizing and fully defining the physical, technological, social, political, business and ethical aspects of a complex problem;
    - using a methodical process to solve the problem;
    - demonstrating creativity in the formulation of alternative solutions;
    - using appropriate techniques and tools to enhance the problem-solving process;
    - working effectively on teams; and
    - developing high-quality solutions that consider all dimensions of the problem.

2. Provide appropriate civil engineering expertise to the Army, when called upon to do so
3. Communicate effectively.
4. Continue to grow intellectually and professionally - as Army officers and as engineers.

To achieve these objectives, cadets will demonstrate the following Civil Engineering Student Outcomes:

At graduation, Civil Engineering Program graduates:

1. Design civil engineering components and systems.
2. Demonstrate creativity, in the context of engineering problem-solving.
3. Solve problems in the structural, construction management, hydraulic, and geotechnical discipline areas of civil engineering.
4. Solve problems in mathematics through differential equations, calculus-based physics, and general chemistry.
5. Design and conduct experiments, and analyze and interpret data.
6. Function effectively on multidisciplinary teams.
7. Describe the roles and responsibilities of civil engineers and analyze the issues they face in professional practice.
8. Use modern engineering tools to solve problems.
9. Write effectively.
10. Speak effectively.
11. Incorporate knowledge of contemporary issues into the solution of engineering problems.
12. Draw upon a broad education necessary to anticipate the impact of engineering solutions in a global and societal context.
13. Are prepared and motivated to pursue continued intellectual and professional growth—as Army officers and engineers.
14. Explain the basic concepts of management.
15. Explain the basic concepts of business and public policy.
16. Are leaders of character.

COMPUTER SCIENCE

Computer scientists analyze, plan, design, and build computer systems. Within this broad area of computer system design, the computer science program at USMA provides cadets the opportunity to focus on the design of computer software components and the implementation software systems. The program provides a solid introduction to the general field of computer science, including computer theory, computer programming, algorithm analysis, data structures, object oriented design, computer organization, programming languages, operating systems, and the design of large software systems. According to your interests, you may pursue further study in artificial intelligence, computer graphics, computer networks, information assurance, and other topics. The opportunity to accomplish advanced individual study under the direction of a faculty member is available to those who are interested and qualified. Whether operating a remote sensor network from a fire base in Afghanistan, managing logistics from a Brigade Support Area in Kuwait, pattern matching events for intelligence purposes in Iraq, or simply understanding the computational feasibility of solving a complex problem, the Computer Science major prepares you to succeed as a leader in any branch of the Army and is a superb foundation for advanced civil schooling. The USMA Computer Science major is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

The Program Educational Objectives (PEO) for Computer Science are that, five to seven years after graduation, cadets who major in Computer Science will have been successful Army officers who have:

A. Initiated and completed tasks that identify aspects of a complex situation that can be enhanced by using computing technology.

B. Applied computing knowledge and skills while using an engineering process individually or in diverse teams to develop computing technology applications.

C. Used effective communication to explain new computing technology to war fighters in support of current and emerging Army war fighting doctrine.

D. Grown professionally through self-study, continuing education and professional development.

To support these objectives, Computer Science graduates demonstrate the following outcomes at the time of graduation:

(a) An ability to apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices

(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

(d) An ability to function effectively on teams to accomplish a common goal

(e) An understanding of professional, ethical, legal, security, social, political, and economic issues and responsibilities

(f) An ability to communicate effectively with a range of audiences

(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society

(h) Recognition of the need for and an ability to engage in continuing professional development

(i) An ability to use current techniques, skills, and tools necessary for computing practice

(j) An ability to apply design and development principles in the construction of software systems of varying complexity

DEFENSE AND STRATEGIC STUDIES

Defense and Strategic Studies (DSS) provides cadets with the opportunity to take an interdisciplinary approach to the study of the nature of war and the role of the military as an instrument of national power. Building on the foundation of military history, political science and economics provided by core courses, the elective offerings highlight historical events of the twentieth century and the political and social trends that influence contemporary military affairs. DSS also offers opportunities to study military problems from the perspectives of geography, history, political science and law.

ECONOMICS

This field provides insights into the basic social questions of what a society should produce, how that output can be produced most efficiently, and how the output should be distributed. The field includes required courses on the national economy, decision making by firms and individuals, and applications of economic principles to national security issues. In addition, there are courses on international trade, comparative economic systems, accounting, managerial economics, and financial institutions. In each course, the emphasis is on the development of principles which can be applied to help resolve important public policy issues. The field supports graduate study in the social sciences in general, with particular relevance to economics, operations research, engineering management, business administration, and domestic and international affairs.

ELECTRICAL ENGINEERING

The impact of the electronics revolution on our daily lives is projected, by many, to exceed that of the industrial revolution. The advent of the integrated circuit and the microprocessor have made possible phenomenal advances in such varied fields as medicine, communications, manufacturing, computation, education, energy conversion, and weapons systems. Electrical engineers are at the forefront of this revolution, using the principles of physics, mathematics and the engineering sciences to develop new and innovative applications of electronics. Regardless of branch, officers will surely be involved with electronic systems in military hardware. The courses in the electrical engineering curriculum are directly applicable to the Army you will lead. As a student of electrical engineering you will develop a mastery of the fundamental elements of circuit theory, electromagnetic fields and waves, electronics, digital computer logic and electromechanical energy conversion. You will then study in greater depth subjects selected from the areas of robotics, communications, opto-electronics, alternative energy and information assurance. The program emphasizes practical design, hands-on laboratory and computer experience, teamwork, and interdisciplinary projects. The program additionally provides a sound basis for graduate schooling in electrical engineering and related fields. The Electrical Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

The Electrical Engineering Program objectives are that five to seven years after graduation cadets who major in Electrical Engineering will have been successful Army officers who have:

- Applied their engineering, management, and leadership skills in service of their country.
- Demonstrated intellectual growth through self-study, continuing education, and professional development in the Army.
- Provided technical leadership and disciplinary knowledge as Army Officers with a broad understanding of the potential ethical and societal impacts of technology.
- Applied engineering methodology and creativity to Army problems while effectively communicating across mediums and cultures.

Expected Student Outcomes for graduating cadets in the Electrical Engineering major are to:

1. Apply knowledge of mathematics, probability, statistics, physical science, engineering, and computer science to the solution of problems. [ABET Criterion 3 Student Outcome (a)]
2. Identify, formulate, and solve electrical engineering problems. [ABET Criterion 3 Student Outcome (e)]
3. Apply techniques, simulations, information and computing technology, and disciplinary knowledge in solving engineering problems. [ABET Criterion 3 Student Outcome (k)]
4. Design and conduct experiments to collect, analyze, and interpret data with modern engineering tools and techniques. [ABET Criterion 3 Student Outcomes (b) and (k)]
5. Communicate solutions clearly, both orally and in writing. [ABET Criterion 3 Student Outcome (g)]
6. Work effectively in diverse teams. [ABET Criterion 3 Student Outcome (d)]
7. Apply professional and ethical considerations to engineering problems. [ABET Criterion 3 Student Outcome (f)]
8. Incorporate understanding and knowledge of societal, global and other contemporary issues in the development of engineering solutions that meet realistic constraints. [ABET Criterion 3 Student Outcomes (c), (h) and (j)]

9. Demonstrate the ability to learn on their own. [ABET Criterion 3 Student Outcome (i)]

ENGINEERING MANAGEMENT

Engineering Management majors study the engineering relationships among the management tasks of staffing, organizing, planning, financing, and the human element in production, research, engineering, and service organizations. By emphasizing leadership in a technical setting, the program builds on the traditional roles of the basic and applied sciences for engineering and technology management. Engineering managers must understand the interaction of organizational, technical, and behavioral variables in order to build a productive engineering team. Majors get a technical foundation in a specific engineering field of their choice: civil, mechanical, nuclear, electrical, environmental or general engineering. The program also provides a solid base of courses in personnel management, finance and accounting, engineering economy, production operations management, quantitative business analysis, project management, and computer modeling in order to prepare graduates to lead in a technical environment. The program culminates with a capstone design experience for a real client. The Engineering Management program at West Point is one of the top undergraduate programs in the nation and provides the academic foundations for a wide variety of activities important to Army officers of all branches. The Engineering Management Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Engineering Management Program Educational Objectives: The Engineering Management program seeks to prepare future Army officers for productive and rewarding careers in the engineering or related profession for service to the Nation. Five to seven years after graduation, cadets who majored in Engineering Management will have been successful Army officers who:

1. Successfully lead and participate as a member of multi-disciplinary teams in a diverse cultural environment.
2. Apply critical thinking to their engineering, management, and leadership skills to design solutions to complex problems.
3. Demonstrate intellectual growth and continuous self-improvement through self-study, continuing education, and professional development.
4. Demonstrate effective communicating skills across a variety of mediums and cultures.
5. Act responsibly by upholding strict ethical and moral standards and considering impacts of decisions on social, political, economic, and technological issues.

Engineering Management Student Outcomes: To achieve these objectives, cadets will demonstrate the following Engineering Management Student Outcomes at the time of graduation:

- Lead and work effectively as a contributing member of multidisciplinary engineering teams.
- Lead the design or re-engineer of a system, process, or organization within realistic environmental constraints such as cultural, historical, legal, moral/ethical, economic, environmental, organizational, emotional, social, political, and technological.
- Use the techniques, skills, modern engineering tools and technology necessary for engineering management practice.
- Use systems thinking and engineering management techniques to identify, define, solve, recommend and implement the solution to a client's problem.
- Monitor, assess and manage the broad global and societal impacts of engineering management problems, solutions and management decisions throughout the system lifecycle.
- Use stakeholder analysis to identify contemporary issues in engineering management.
- Apply knowledge of mathematics, science, and engineering appropriate for Army officers and practicing engineering managers.
- Design and conduct system experiments, including the ability to collect, analyze, and interpret system input and output data.
- Accurately, clearly, and concisely report engineering findings, conclusions, and recommendations to clients and stakeholders to support decision making.
- Demonstrate the skills necessary to support continued intellectual growth and learning for a career of professional excellence and service to the Nation as an officer in the United States Army.
- Act professionally and ethically as a leader of character.

ENVIRONMENTAL ENGINEERING

Environmental engineers face a range of issues from disasters like air pollution from the 9/11 terrorist attack on the World Trade Towers or drinking water contamination following the catastrophic earthquake in Haiti. Environmental engineers use chemical, biological, and physical processes to engineer systems that address these issues. This discipline is evolving to face new challenges resulting from rapid growth in human population and technology. Environmental engineers work in multidisciplinary teams to develop methods to combat global climate change; find alternative sources of energy; and to recover materials from discarded products. It is not surprising that a report in *Fortune* Magazine identified environmental engineering as the fastest growing profession for the period 2002 to 2012. Our program provides you with an active learning experience designed to develop your knowledge of math, science, and engineering science and your ability to use this knowledge to be an active problem solver for complex environmental issues. This skill has been invaluable to our graduates in the Army as they work environmental projects in Iraq and Afghanistan and improve the welfare of their soldiers. The Environmental Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

The Program Educational Objectives of the Environmental Engineering Program identify what our graduates can accomplish within four to seven years after graduation.

Graduates of the Environmental Engineering Program can:

- Analyze and solve complex problems. Graduates can apply their knowledge of mathematics, science, engineering, and the humanities to analyze and solve practical problems to include those in Environmental Engineering. They can evaluate, mitigate, and communicate risk. They can use appropriate technologies to formulate effective, context-based courses of action; adapt methods and strategies to overcome incomplete or imperfect information; and recommend or choose a best course of action. Graduates can creatively adapt problem solving strategies and solutions to a rapidly changing and/or potentially life threatening situations. Problem solving is not bounded by disciplinary expertise. Graduates may encounter problems within the environmental engineering discipline, or within the broader context of officership in the profession of arms.
- Lead, manage, and execute. Graduates can lead people, manage resources and programs, prioritize activities, and execute projects within constraints to successfully complete the mission within the environmental field and the Army. Graduates must be able to execute an array of missions efficiently while minimizing environmental impacts. Potential missions include actions in combat, homeland security, disaster relief, humanitarian aid, and other operations under austere conditions.
- Communicate effectively. Graduates have the ability to listen to, understand, and assess varying viewpoints and can, based on this assessment, communicate pertinent information to stakeholders and the general public in such a manner as to bridge their differences and strengthen relationships among them.
- Recognize their roles as a professional. Graduates have internalized their professional responsibilities to society, the profession of arms, and the practice of engineering. They demonstrate internalization through participation in professional societies, continuing education, progression in assignments, community outreach, and other activities.

The Student Outcomes of the Environmental Engineering Program identify what our graduates can accomplish upon graduation.

Upon graduation Environmental Engineering majors will demonstrate the following Environmental Engineering Student Outcomes:

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

ENVIRONMENTAL SCIENCE

Environmental science is a broad, integrative, science-based discipline which focuses on the interrelationships between people and the environment. Environmental scientists conduct investigations to analyze these interrelationships and to identify, abate, or eliminate human-caused pressures on the environment. The ultimate goal of these investigations is to create a sustainable balance between humans and the natural world that minimizes environmental degradation. This major develops expertise into the processes that sustain our environment by expanding upon the West Point core science education by adding studies in the natural sciences such as biology, ecology, geology, and meteorology, and in the integrative studies of environmental decision making and environmental security. This broad academic background is excellent preparation for challenges faced by a military leader who must balance resource and human requirements. The program seeks to (1) enhance your curiosity about natural processes and your ability to study such processes as a scientist and (2) deepen your knowledge of human influences on the environment and foster evaluation of our individual and collective responsibilities as environmental stewards.

Environmental Science Program Outcomes. The Environmental Science Program Outcomes are designed to:

Outcome 1. Enhance curiosity about natural processes and one’s ability to study such processes as a scientist.

Outcome 2. Deepen knowledge of human influences on the environment and foster evaluation of our individual and collective responsibilities as environmental stewards.

Outcome 3. Develop one’s ability to evaluate the connections between the environment and individual, national, and global security.

Outcome 4. Improve one’s facility with the tools of environmental science by developing proficiency in collecting and analyzing lab and field data, deducing patterns, and formulating the next step in an on-going study.

Outcome 5. Provide a solid foundation in earth, air, water and life sciences and their interconnections.

FOREIGN AREA STUDIES

A Foreign Area Studies major is offered to cadets interested in pursuing an interdisciplinary study of East Asia, Latin America, Eurasia, Europe, Africa or the Middle East. Cadets choosing one of these area programs will study the peoples, societies, languages, cultures, geography, history, foreign relations, politics, and economics of a particular region. Cadets will have the opportunity to study in depth the factors that frequently determine national objectives and influence the formulation of governmental policy. The Foreign Area Studies program is designed to develop cadets' ability to assess and interpret the relationship and importance -- both present and future -- of these regions to the United States. This multidimensional academic program requires cadets to synthesize and analyze knowledge from a variety of disciplines; as a result, cadets who select this academic major will gain the intellectual background and personal insights that are indispensable for effective and rewarding service in the globally-committed Army of the 21st century.

Student Outcomes

Outcome 1: Area Studies Majors will be proficient in their respective languages.

Outcome 2: Area Studies Majors will develop cultural competence relevant to the target society.

Supporting Objectives: Area Studies Majors will demonstrate their cultural competence by being able to

- describe culture-specific linguistic behaviors, as well as similarities and differences in common cultural practices in the target region;
- articulate values and attitudes, customs and traditions, and social structures of the people in LX-speaking countries;
- describe major personalities and critical historical events in their linguistic and cultural settings in LX-speaking countries.

Outcome 3: Area Studies Majors will have an appreciation for the regional dynamics of LX-speaking countries.

Supporting Objectives: Area Studies Majors will demonstrate their regional expertise/capability by being able to

- describe the diversity and distribution of people in the region;
- discuss the region’s human organizations and interactions among culture groups;
- describe the region’s physical landscape and its impact on contemporary society and economy;
- outline the political factors that shaped society in the LX-speaking region;
- describe present-day society, the political institutions, and popular culture of LX-speaking countries;
- discuss the role of the military and its mission in LX-speaking countries.

Outcome 4: Area Studies Majors will be critical thinkers.

Supporting Objectives: Area Studies Majors will demonstrate their critical thinking skills by being able to

- demonstrate the ability to compare and analyze the sources of stability and instability of political regimes in the region;
- demonstrate the ability to articulate and compare the variables which cause political changes in the region’s states;
- recognize how acquired linguistic knowledge can be applied to learning other languages;
- activate skills and knowledge gained during course studies in the Academy’s Core Curriculum and in Area Studies electives of the Department of Foreign Languages, Department of Geography and Environmental Engineering, or Department of Social Sciences in order to complete a capstone project that has direct application to the profession of arms (LN490).

FOREIGN LANGUAGES

The study of languages permits access to the minds, to the literature, and to the recorded knowledge of people of foreign cultures. Language is the repository of a people's common experience and collective values. Though it is possible to learn interesting things about another culture in one's own language, it is impossible to know that culture without learning the fundamentals of the associated language. Proficiency in foreign languages is a most valuable skill for Army officers, of great practical use both professionally and personally. Cadets may study Arabic, Chinese, French, German, Portuguese, Russian, or Spanish -- seven of the most important languages of the modern world. They may study a single foreign language and/or a combination of any two languages. The primary emphasis in all courses is to develop listening and speaking abilities. Traditional study methods are augmented with technology-enhanced techniques, including interactive video and computer-based simulations. Advanced level study in all seven languages includes courses on the media and military readings as well as on civilization, culture, and literature. Cadets may also choose to take the Defense Language Proficiency Test in their final year of language study in order to enter their language skill level in their personnel records.

Student Outcomes

Outcome 1: Foreign Language Majors will be proficient in their respective languages.

Supporting Objectives: Majors in Arabic, Chinese, French, German, Portuguese, Russian, and Spanish will demonstrate their language proficiency by being able to

- negotiate successfully a variety of uncomplicated communicative tasks in straightforward social situations;

- express personal meaning by creating with the language;
- grasp main ideas and most details of connected discourse on a variety of topics beyond the immediate situation;
- comprehend longer prose of several paragraphs in length, particularly if presented with a clear underlying structure;
- accomplish a number of practical writing tasks.

Outcome 2: Foreign Language Majors will develop cultural competence relevant to the target society.

Supporting Objectives: Majors in Arabic, Chinese, French, German, Portuguese, Russian, and Spanish will demonstrate their cultural competence by being able to

- describe culture-specific linguistic behaviors, as well as similarities and differences in common cultural practices;
- identify representative artistic and intellectual accomplishments of the LX-speaking countries and explain how these reflect and affect the culture of the target society;
- articulate values and attitudes, customs and traditions, and social structures of the people in LX-speaking countries;
- describe major personalities and critical historical events in their linguistic and cultural settings.

Outcome 3: Foreign Language Majors will have an appreciation for the regional dynamics of LX-speaking countries.

Supporting Objectives: Majors in Arabic, Chinese, French, German, Portuguese, Russian, and Spanish will demonstrate their regional expertise by being able to

- demonstrate knowledge of the geography of the target region or regions;
- discuss social, political, and economic factors that shaped the history of the LX-speaking world;
- describe present-day society, the political institutions, economy, and popular culture of LX-speaking countries;
- articulate the role of the military and its mission in LX-speaking countries.

Outcome 4: Foreign Language Majors will be critical thinkers.

Supporting Objectives: Majors in Arabic, Chinese, French, German, Portuguese, Russian, and Spanish will demonstrate their critical thinking skills by being able to

- analyze short literary texts;
- recognize how acquired linguistic knowledge can be applied to learning other languages;
- activate skills and knowledge gained during study for courses in the Academy's Core Curriculum/ Professional Major as well as in the academic major in order to complete a capstone project that has direct application to the profession of arms.

Student Outcomes

Outcome 1: Double Language Majors will be proficient in their respective languages.

Supporting Objectives: Double Language Majors with the Primary Language of Arabic, Chinese, French, German, Portuguese, Russian, or Spanish and one Secondary Language: Arabic, Chinese, French, German, Portuguese, Russian, or Spanish will demonstrate their language proficiency by being able to

- negotiate successfully a variety of uncomplicated communicative tasks in straightforward social situations;
- express personal meaning by creating with the language;
- grasp main ideas and most details of connected discourse on a variety of topics beyond the immediate situation;
- comprehend longer prose of several paragraphs in length, particularly if presented with a clear underlying structure;
- accomplish a number of practical writing tasks.

Outcome 2: Double Language Majors will be proficient in their secondary language.

Supporting Objective:

- Cadets will be able to communicate using formulaic utterances in most common aspects of daily life. They may begin to be able to carry out predictable tasks.

Outcome 3: Double Language Majors will develop cultural competence relevant to the target society.

Supporting Objectives: Double Language Majors with the Primary Language of Arabic, Chinese, French, German, Portuguese, Russian, or Spanish and one Secondary Language: Arabic, Chinese, French, German, Portuguese, Russian, or Spanish will demonstrate their cultural competence by being able to

- describe culture-specific linguistic behaviors, as well as similarities and differences in common cultural practices;
- identify representative artistic and intellectual accomplishments of the LX-speaking countries and explain how these reflect and affect the culture of the target society;
- articulate values and attitudes, customs and traditions, and social structures of the people in LX-speaking countries;

- describe major personalities and critical historical events in their linguistic and cultural settings.

Outcome 4: Double Language Majors will have an appreciation for the regional dynamics of LX-speaking countries.

Supporting Objectives: Double Language Majors with the Primary Language of Arabic, Chinese, French, German, Portuguese, Russian, or Spanish and one Secondary Language: Arabic, Chinese, French, German, Portuguese, Russian, or Spanish will demonstrate their regional expertise by being able to

- demonstrate knowledge of the geography of the target region or regions;
- discuss social, political, and economic factors that shaped the history of the LX-speaking world;
- describe present-day society, the political institutions, economy, and popular culture of LX-speaking countries;
- articulate the role of the military and its mission in LX-speaking countries.

Outcome 5: Double Language Majors will be critical thinkers.

Supporting Objectives: Double Language Majors with the Primary Language of Arabic, Chinese, French, German, Portuguese, Russian, or Spanish and one Secondary Language: Arabic, Chinese, French, German, Portuguese, Russian, or Spanish will demonstrate their critical thinking skills by being able to

- analyze short literary texts;
- recognize how acquired linguistic knowledge can be applied to learning other languages;
- activate skills and knowledge gained during study for courses in the Academy's Core Curriculum/ Professional Major as well as in the academic major in order to complete a capstone project that has direct application to the profession of arms.

N.B.: Cadets may demonstrate Cultural Competence and Regional Expertise Outcomes in the target language or in English.

GEOGRAPHY

Geographers are concerned with the spatial arrangements, processes, connections, distribution, and organization of both the physical and human worlds. Geography is a broad, integrating discipline whose thought, methodologies, and analytical foundations extend to many disciplines in engineering, science, and the humanities. The study of geography requires persistent curiosity and inquiry of the human-land-environment interfaces: how the earth-ocean-atmosphere system functions; how the physical landscape evolves; how human populations adapt to the land and climate; and how they, in turn, impact the environment. Course studies in geography span from a Humanities and Social Science (HSS) to a Math Science and Engineering (MSE) focus and can be undertaken in either Environmental Geography or Human Geography as an academic major. Environmental geography involves the scientific study of the Earth system and includes the subdisciplines of climatology, meteorology, geology, geomorphology, water resources, and land use management. Cadets apply geographic approaches and skills to the study of anthropogenic influences on the environment and natural hazards. The Human Geography program allows cadets to explore cultural diversity, population trends, and political systems from both a world and regional perspective. Both programs integrate the use of geographic skills enhanced through technologies such as computer mapping, remote sensing, and information systems. Geography is the ideal discipline for the military officer who must lead in a dynamic and changing world. The knowledge and understanding of terrain, weather, climate, and cultures coupled with environmental awareness and a sense of Earth stewardship will provide cadets with a foundation for enlightened leadership and public service in conflict and peacetime.

Graduates with a major in Human Geography should be able to:

1. Describe the development of geography and discuss human geography’s unique place within the discipline.
2. Elucidate human geography’s differences and similarities compared to other social sciences.
3. Explain the basic physical geography processes that affect human patterns & systems on the earth’s surface.
4. Explain and apply the fundamental theories that underlie modern thinking in human geography.
5. Demonstrate a basic competence in a technical skill of value to human geographers, such as foreign language or research methodologies.
6. Utilize geospatial information sciences to inform understanding of geographic issues.
7. Demonstrate broad knowledge of the global cultures of the world and summarize the regional geography of at least one world realm.
8. Apply knowledge of human geography to better understand real world issues, including, but not limited to, topics of concern to the Army.
9. Differentiate between a systematic and regional approach to human geography.
10. Conduct basic geographic research, analyze the findings, and professionally communicate the results orally and in writing.
11. Synthesize prior learning in the discipline and apply it to the complexities of a changing world and novel situations.

Graduates with a major in Environmental Geography should be able to:

1. Describe the development of geography and discuss environmental geography’s unique place within the discipline.

2. Elucidate how environmental geography connects both physical geographic principles and human geographic principles in order to understand the interactions between people and the natural environment.
3. Explain and apply the fundamental theories that underlie modern thinking in environmental geography.
4. Demonstrate broad knowledge of the global cultures of the world and summarize the regional geography of at least one world realm.
5. Show comprehension of the fundamental systematic sciences that comprise physical geography.
6. Utilize geospatial information sciences to inform understanding of geographic issues.
7. Demonstrate a basic competence in a component of landscape analysis such as remote sensing, urban geography, or land use planning.
8. Conduct basic geographic research, analyze the findings, and professionally interpret the results orally and in writing.
9. Synthesize prior learning in the discipline and apply it to the complexities of a changing world and novel situations.

GEOSPATIAL INFORMATION SCIENCE

Fundamental to understanding our environment and the geography of the earth is our ability to locate, measure, and quantify geographic phenomena. The discipline of Geospatial Information Science is concerned with the measurement of the earth and of all that is on it, natural and man-made. Cadets develop expertise in subjects ranging from traditional methods of land surveying to satellite imaging and positioning systems. The Geospatial Information Science curriculum builds on a firm math, science, and geography foundation with specialized courses in land surveying, cartography, photogrammetry, remote sensing, and geographic information systems. Both the civil and military sectors of our society are placing an ever-increasing reliance on the ability to build and query GIS to support a myriad of social/economic and engineering issues. The cadet at USMA has a rare opportunity to pursue an integrated field of study that is commonly spread over several separate disciplines at other institutions. This major has applicability for the future military officer regardless of branch. Cadets majoring in GIS receive a 3Y (Space Activities) Skill Identifier on their official military record. The curriculum prepares cadets for advanced civil schooling in any of the specialized fields of Geospatial Information Science.

HISTORY

As Army officers, West Point graduates will perform a broad spectrum of missions vitally important to our nation's security and interests. They must be intellectually and professionally prepared to face these challenges in an uncertain and dangerous world inhabited by peoples of different languages, religions, and cultures. The Department of History contributes to cadets' intellectual and professional development by imparting historical knowledge, an appreciation of history, and critical thinking and communication skills.

Broad historical knowledge is central to developing informed citizens and soldiers. It helps cadets place their service as future Army officers in the context of U.S., Western, and world history. Additionally, it provides the cultural and historical literacy necessary for officers to serve effectively wherever in the world they may find themselves. This is particularly true in the case of counterinsurgency warfare, where victory depends on achieving legitimacy in the eyes of the indigenous population.

Officers with an appreciation of history recognize that every situation is historically unique. They understand that history is of value not in divining answers about the future but in asking the right questions. History is the means of putting human activities and ideas in context, avoiding false analogies, lending a sense of scope and scale, assessing moral implications, anticipating unintended consequences, and judging the feasibility and suitability of possible courses of action. Consulting history on these issues helps officers arrive at thoughtful, appropriate, and humane solutions to the problems they will face in their careers.

Officers who are critical thinkers challenge accepted wisdom in the search for truth and justice. They are open-minded and able to make independent and informed decisions. They reject simplistic answers that suggest the existence of a black-and-white world; rather, they accept the ambiguity associated with most human endeavors and seek the best solution rather than a single "correct" one. The study of history encourages critical thinking by requiring cadets to:

- formulate critical questions;
- conduct research by gathering and prioritizing information;
- analyze information within the broad context in which it appears;
- interpret and synthesize information;
- derive reasoned, evidence-based conclusions;
- assess and adjust their conclusions as conditions change or new information becomes available.

Finally, officers must be able to communicate effectively, both orally and in writing, to influence others. It is of no use to know and appreciate history and to be able to think critically if the officer is incapable of communicating his or her thoughts. The Department of History develops cadets' communication skills through frequent practice in and out of the classroom. Our principal evaluative concern is the content of the message, but we also devote great energy to enabling cadets to communicate with grammatical correctness, stylistic grace, and acceptable format.

Cadets may pursue a major in one of three fields: American History, International History, or Military History. Each offers flexibility, permitting cadets to develop a foundation of historical perspective as well as pursue specialized studies in regional areas, languages, or other disciplines.

INFORMATION TECHNOLOGY

The Information Technology (IT) program builds on the USMA Academic Program Goal for Science, Technology, Engineering and Mathematics:

"Graduates apply science, technology, engineering, and mathematics concepts and processes to solve complex problems."

Information technologists play a critical role in the specification, design, acquisition, deployment, and management of information technologies for the Army and society. They address the development and evolution of infrastructure and systems for use in organizations. In the Army, information technologists design, install, and modify information systems and networks in tactical and strategic environments.

The Information Technology Major

The primary goal of the IT major is to teach cadets to systematically identify critical information requirements and then design, build, and test complex information systems from hardware and software components to meet individual client and Army organizational needs. The Information Technology program is accredited by the Computing Accreditation Commission of ABET, http://www.abet.org.

The Information Technology Program objectives are that, five to seven years after graduation, cadets who major in Information Technology will have been successful Army officers who have:

- Indentified and exploited opportunities to improve Army operations by applying best practices in information technology.
- Effectively communicated information technology to a range of audiences.
- Grown professionally through self-study, continuing education, and professional development.

The Information Technology Program enables students to attain, by the time of graduation:

(a) An ability to apply knowledge of computing and mathematics appropriate to the discipline

(b) An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution

(c) An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs

(d) An ability to function effectively on teams to accomplish a common goal

(e) An understanding of professional, ethical, legal, security, social, political, and economic issues and responsibilities

(f) An ability to communicate effectively with a range of audiences

(g) An ability to analyze the local and global impact of computing on individuals, organizations, and society

(h) Recognition of the need for and an ability to engage in continuing professional development

(i) An ability to use current techniques, skills, and tools necessary for computing practice

(j) An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, web systems and technologies

(k) An ability to identify and analyze user needs and take them into account in the selection, creation, evaluation and administration of computer-based systems

(l) An ability to effectively integrate IT-based solutions into the user environment

(m) An understanding of best practices and standards and their application.

(n) An ability to assist in the creation of an effective project plan.

INTERDISCIPLINARY SCIENCE

The program in the Interdisciplinary Science consists of study selected from the disciplines of biology, chemistry, mathematics and physics. This major offers cadets an opportunity to acquire a comprehensive grasp of their physical environment and, more importantly, an understanding of human thought in seeking out successful methods of increasing our insight and knowledge. This area of inquiry will enable cadets to analyze and understand future developments in our society as they relate to such critical issues as medical and genetic research, the energy crisis, the nuclear power controversy, the space program, and the development of sophisticated weapon systems. It will provide cadets with a sound basis for graduate study not only in basic sciences but also in applied sciences, engineering, medicine or life science. Additionally, it will prepare cadets for entry into the majority of the technically oriented officer career branches and several of the functional areas designations, such as Acquisition Officer, Nuclear and Counterproliferation Officer, and Space Operations Officer.

LEADERSHIP AND MANAGEMENT

The Leadership and Management (LMS) program provides cadets the academic foundation for a wide variety of activities particularly important to an Army officer. The professional Army officer of the 21st century will be required to understand and apply

concepts of leadership and management to lead, sustain and improve organizations in a volatile, uncertain, complex, and ambiguous environment. Cadets will choose to pursue either the leadership or the management option in order to analyze one of the fields in depth. Cadets pursuing the leadership option will study the field of leadership from five levels of analysis: individual, group, leader, organization, and environment. Cadets pursuing the management option will study the field of management from the interdisciplinary bases of human resource management, economic and financial analysis, marketing, quantitative decision-making, and strategy. Cadets studying either field will concurrently gain exposure to courses in the other option. Cadets who Major in LMS will culminate their studies by completing a capstone course tailored to their respective option.

LIFE SCIENCE

The life sciences are a branch of the sciences that study the structure and processes of living organisms. Advances in molecular biology and biotechnology over the last decade are providing significant improvements in the quality of our lives even as they alter the fundamental way we view life itself. Genetic engineering, recombinant DNA research, environmental pollution, AIDS and cancer are just a few of today's research areas that fall under the life sciences heading. The Life Science Major includes courses that give cadets a basic understanding of analytical and organic chemistry and biology. The major focuses on broader understanding of biochemistry and biotechnology. Cadets are required to complete 27 core courses. In addition, cadets must complete a three-course engineering sequence and may choose from any of the sequences offered. Cadets choosing this program will complete an integrative experience (CH479 Methods and Applications of Biotechnology) that will examine the social, economic, political, and technological aspects of biotechnology. The Life Science Major includes all the courses needed for cadets pursuing the Medical School Option. Graduates who complete a Life Science Major will be able to:

- Understand and apply the Scientific Method.
- Use library and Internet resources to gather, organize, and understand scientific information.
- Effectively and clearly communicate scientific information in written and oral form.
- Understand the applications of chemistry and the life sciences in the Army and in Society.
- Understand the basic principles of organic, inorganic and physical chemistry and be able to apply them to a study of the life sciences.
- Understand and be able to apply basic instrumental methods of chemical analysis.
- Recognize the structure and understand the functions of biomolecules.
- Know the structures and functions of eukaryotic and prokaryotic cells.
- Understand the principles of bioenergetics and metabolism.
- Collect, present, and analyze scientific data gathered in the laboratory.
- Understand the structure-function relationships at all levels of organization of living organisms (molecules → cells → tissues → organs → organ systems → organism).
- Understand the importance and applications of an organism's genome.
- Understand the organization, diversity, and interdependence of living organisms.

Applications of the life sciences involve all facets of our lives and are very important to our careers as military officers. A better understanding of biotechnology will allow us to use biosensors to detect weapons of bioterrorism. Biomolecular engineering will make possible the use of cells to manufacture novel biomaterials with specific properties and functions. Biotechnology and biomedical engineering will improve the medical treatment of battlefield casualties. The most important "system" in the future Army will continue to be the human soldier. Because the soldier is a biological system, biotechnology offers unique potential for enhancing the performance of this most complex, critical, and costly of the Army's systems.

LITERATURE

See Art, Philosophy, and Literature.

MATHEMATICAL SCIENCES

The mathematical sciences embody those areas of mathematics having strong interdependence with other disciplines. Their purpose is to clarify scientific concepts and describe scientific phenomena through symbolic language and the rules for its use. Its scope spans the total knowledge of man that is capable of being quantified. The full process of the mathematical sciences entails mathematical formulation of scientific problems and their subsequent solution and interpretation. The mathematical sciences have expanded from their historical ties with the physical sciences to include areas such as: the biological, sociological, behavioral, and computer sciences; operations research; and all engineering fields. The Department of Mathematical Sciences offers abundant opportunities for study in a broad range of mathematical subjects. Courses such as differential equations, algebra, mathematical modeling, analysis, numerical computation, statistics, and linear optimization provide a sound mathematical foundation in the science and engineering fields. In addition, follow-on courses such as algebra, analysis, combinatorics, and advanced individual study provide both depth in understanding the foundations of mathematical theory, as well as opportunity for study and research in a selected subject. Whenever possible, the use of the computer is emphasized to extend the knowledge required for the consideration of realistic and challenging problems of today's world.

Mathematical Sciences Program Outcomes

Graduates:

1. Demonstrate competence in modeling physical, informational, and social phenomena by
    a. Identifying and articulating assumptions, metrics and constraints
    b. Applying appropriate solutions techniques
    c. Interpreting results within the appropriate context
2. Argue and inquire soundly and rigorously; become independent questioners and learners
3. Achieve mathematical proficiency in breadth and depth
    a. Understand and apply theorems and algorithms
    b. Understand and apply analytical methods
    c. Understand and apply numerical methods
    d. Understand and apply graphical methods
    e. Understand discrete and continuous structures and processes
4. Communicate mathematics, both orally and in writing
5. Use technology to model, visualize, and solve complex problems
6. Develop attitudes – habits of mind
    a. Creative and curious
    b. Experimental disposition
    c. Critical thinking and reasoning
    d. Commitment to life-long learning
7. Understand the role of mathematics in interdisciplinary problem solving

MECHANICAL ENGINEERING

Mechanical Engineering is one of the broadest and most diverse of the engineering fields. It deals with devices and systems for energy conversion, for material transport and for control of motion and forces. A sampling of the topics addressed by the discipline include air, ground, and sea vehicles; power plants; control systems; machinery; machine tools; conventional and nuclear-powered power production facilities; biomedical devices; space vehicles; pollution control; new energy sources; energy conversion; transportation systems; and, military weapons systems. These modern weapons systems are used as vehicles of instruction in many of the courses, making mechanical engineering particularly appropriate for those considering service in most branches of the Army as well as specialties such as engineers, aviation, research and development, project management and logistics. The Department of Civil and Mechanical Engineering offers a major in Mechanical Engineering that is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org. All cadets experience the same core mechanical engineering program. Cadets choose a two-course sub-discipline in mechanical engineering for depth of study and choose a free elective. The goal of the Mechanical Engineering program is to support USMA's General Educational goal by providing high quality instruction in a positive learning environment leading to a degree recognized as being among the best in the nation. The Mechanical Engineering program stresses engineering fundamentals so that graduates are well equipped to understand complex technical problems in a rapidly changing, technology-intensive Army. Once completed, the graduate is well-prepared to excel as an officer and an engineer. The practice-oriented degree is strengthened by the complete integration of design and laboratory experience throughout the curriculum.

To meet this goal, the Program Educational Objectives of the Mechanical Engineering program are:

Within four to seven years after graduation, mechanical engineering majors are expected to attain:

1. multiple positions of responsibility in which they:
    a. lead people.
    b. manage resources.
    c. solve complex problems.
    d. communicate information.
    e. influence decisions.
    f. uphold the Army values (Loyalty, Duty, Respect, Selfless Service, Honor, Integrity, and Personal Courage).
2. self-development through formal and informal learning opportunities.
3. experience in providing engineering expertise to the Army when called upon to do so.
4. sustained employment and/or further education in a technical/professional field.

To achieve these Program Educational Objectives, cadets who qualify for graduation with a mechanical engineering major from USMA will demonstrate the following Mechanical Engineering Student Outcomes:

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability

(d) an ability to function on multidisciplinary teams

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) a knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

NETWORK SCIENCE MINOR

Cadets who minor in Network Science (NS) graduate with an enriched understanding of the inter relationships and influences that drive change in systems of all kinds. Examples of such systems include, but are not limited to, social systems like organizations; physical systems like the contemporary communications infrastructure; and natural systems like ecological webs. NS minors learn to formalize and measure several different aspects of individual actor's importance to a system, as well as to formalize and measure various characteristics of the system itself, such as its size, sensitivity to change, and topology (i.e. shape). However, NS minors will learn to do more than simply calculate these measures; the program of study emphasizes the application of network science to real-world problems that exist within and between academic disciplines as diverse as sociology, economics, biology, policy analysis, electrical engineering, international relations, organizational theory, and computer science. Owing to these goals, the NS minor is inherently interdisciplinary and combines aspects of mathematics with theories drawn from the social and behavioral sciences and tools created by computer scientists. This interdisciplinary focus will prepare cadets to navigate the complex and diverse problems they will face as officers—problems which no single discipline can solve in isolation and which require rigorous analytical problem-solving.

Graduates:

1. Demonstrate competence in modeling networks by:
    a. Identifying and explaining social and technical theories that characterize networks' function;
    b. Calculating and interpreting node-level measures of importance and influence (e.g. degree, closeness, betweenness, and eigenvector centralities);
    c. Calculating and interpreting network-level measures that characterize entire systems (e.g. size, density, diameter, fragmentation, and anti-fragility);
    d. Achieving mastery of network-analysis software tools to model social, physical, &/or natural systems.
2. Become independent questioners and listeners who can synthesize qualitative theories and quantitative network methodologies.
3. Achieve breadth and depth in network science proficiency by:
    a. Understanding and applying network data-collection;
    b. Understanding and applying network measures;
    c. Understanding and applying advanced network analysis algorithms and simulations;
    d. Understanding and applying network theory across academic disciplines;
    e. Understanding and applying network analysis software to the study of real-world problems.
4. Communicate effectively, both orally and in writing, about networks
5. Develop the following attitudes and habits of mind:
    a. Creative and curious;
    b. Experimental disposition;
    c. Critical thinking and reasoning across disciplinary boundaries;
    d. Commitment to life-long learning.
6. Understand the contribution that network analysis makes to interdisciplinary problem solving.

NUCLEAR ENGINEERING

Nuclear engineering makes practical use of the energy that is released by the atomic nucleus. Applications extend into the fields of electric power, medicine, nuclear weapons, and nuclear weapons effects. At USMA the vehicle for learning the concepts of the field is the commercial nuclear power plant. The approach is interdisciplinary; it draws widely upon mathematics, physics, and mechanics, with special emphasis on applied physics and the thermal-hydraulic aspects of mechanical engineering. The management of engineering is also addressed through decision analysis and economic analysis. The Nuclear Engineering major is designed to provide depth of knowledge in the application of nuclear energy to include power production, radiation health physics, nuclear weapons, and weapons effects. The major is taught through multiple departments and includes interdisciplinary electives from physics, mathematics, mechanical engineering, civil engineering, electrical engineering, environmental engineering, and nuclear engineering. The Nuclear Engineering student will gain a broad background for further study in graduate school and Army assignments requiring expertise in mechanical engineering, applied radiation physics, nuclear weapons and weapons effects, or any of a variety of related topics. The Nuclear Engineering program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

The Nuclear Engineering Program Educational Objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program educational objectives are based on the needs of the Nuclear Engineering Program's constituencies.

- As Army leaders, graduates solve complex, multi-disciplinary problems for the Army and the Nation.
- Graduates demonstrate the necessary leadership and teamwork skills to lead and work in multi-disciplinary teams.
- Graduates are prepared to provide appropriate nuclear and radiological engineering expertise to the Army.
- Graduates communicate effectively, orally and in writing; providing clear instructions to subordinates and feedback to supervisors.
- Graduates continue to grow intellectually and professionally - as Army officers and as engineers.

To achieve these Program Educational Objectives, cadets will possess the ability to demonstrate the following Nuclear Engineering Student Outcomes by graduation.

- an ability to apply knowledge of mathematics, science, and engineering
- an ability to design and conduct experiments, as well as to analyze and interpret data
- an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
- an ability to function on multi-disciplinary teams
- an ability to identify, formulate, and solve engineering problems
- an understanding of professional and ethical responsibility
- an ability to communicate effectively
- the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
- a recognition of the need for, and an ability to engage in life-long learning
- a knowledge of contemporary issues
- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

OPERATIONS RESEARCH

Operations Research (OR) is a scientific approach to decision making whose focus is upon how best to design and operate systems, usually under conditions requiring the allocation of scarce resources. However, whether one means the term to be a professional designation, a label for a body of methods, or an approach to problem solving, OR is today inextricably linked to the direction and management of large systems of people, machines, materials, and money in government, industry, business, and defense. Since its inception during WWII, the interdisciplinary field of OR has set itself apart as an applied mathematical science and engineering discipline with a diverse range of applications. Because of the increased demand for OR analyses within the Army, the OR specialty (FA49) continues to enjoy steady growth in membership, and is associated with superb educational and promotion opportunities throughout an officer's military career. West Point remains the single largest source of FA49 officers for the Army. Graduates of the OR program at USMA are well prepared to tackle some of the Army's most challenging problems and to pursue graduate study in support of the FA49 career field.

Operations Research Program Outcomes

Graduates:

1. Demonstrate competence in modeling processes and systems by
    a. Identifying and articulating assumptions, metrics and constraints
    b. Applying appropriate solutions techniques
    c. Interpreting results within the appropriate context
2. Argue and inquire soundly and rigorously; become independent questioners and learners
3. Achieve proficiency in operations research -- in breadth and depth
    a. Understand and apply probabilistic and statistical models and methods
    b. Understand and apply simulation methods
    c. Understand and apply optimization methods
4. Communicate effectively - orally and in writing
5. Use technology to model, visualize, and solve complex problems
6. Develop attitudes – habits of mind
    a. Creative and curious

b. Experimental disposition
c. Critical thinking and reasoning
d. Commitment to life-long learning

7. Understand the role of operations research in interdisciplinary problem solving

PHILOSOPHY

See Art, Philosophy, and Literature.

PHYSICS

Our modern lives have been overwhelmingly affected by the discoveries of physics in the twentieth century, for it is through physics that we have come to understand the fundamentals of nuclear energy, semiconductors, lasers, fiber optics, the interaction of radiation with matter, and even the workings of the universe. It is through this basic understanding that applied scientists and engineers have developed and assembled the myriad technical devices that are so much a part of modern life. The program in physics integrates all these phases of modern technology to develop a fundamental knowledge that can support a variety of technical interests and activities in future years. The major is designed to provide the cadet a solid foundation in the essential pillars of theoretical physics-classical mechanics, electrodynamics, statistical physics, and quantum mechanics. Aditionally, a strong experimental component emphasizes the skills necessary to design and build experimental apparatus and applies these skills to modern physics, lasers and optics. Opportunities are available to perform research at Army and national laboratories during the summer.

Physics Major Student Outcomes and Supporting Objectives

1. **Cadets can apply the laws of physics to formulate mathematical models of physical systems, solve the resulting equations, and apply the solutions to hypothetical and real-world problems.**
   a. Cadets can use advanced mathematical methods to solve physics problems.
   b. Cadets can identify situations in which relativistic effects are important and apply special relativity to solve mechanics problems.
   c. Cadets can apply Newtonian and Lagrangian mechanics to solve problems in classical physics.
   d. Cadets can solve problems involving electro- and magnetostatics.
   e. Cadets can solve problems involving electrodynamics in vacuum and in homogeneous linear media.
   f. Cadets can identify phenomena and solve problems involving thermodynamics and quantum statistical mechanics.
   g. Cadets can identify situations in which quantum mechanics is necessary and solve problems involving non-relativistic quantum mechanics.
2. **Cadets can apply the laws of physics to formulate and test hypotheses in an experimental setting.**
   a. Cadets can plan and perform experiments.
   b. Cadets can design and build components of experimental apparatus.
   c. Cadets can analyze experimental data.
3. **Cadets can complete academic assignments and perform research using accepted ethical and scientific standards.**
   a. Cadets provide sufficient citations and notes to clearly distinguish the cadet's work from the work of others.
   b. Cadets avoid using or obscuring fallacious reasoning in the presentation of solutions to technical problems.
   c. Cadets are aware of acceptable scientific standards and the professional and/or personal consequences of not following them.
4. **Cadets can communicate logical solutions to scientific and technical problems to superiors, peers, and subordinates.**
   a. Cadets can prepare written submissions, posters, laboratory reports, and oral briefings using the style, format, organization, and procedures common to standard scientific presentations.
   b. Cadets can use sound mathematical reasoning, appropriate computational techniques, and statistical methods to explore, represent, and communicate solutions to problems.
   c. Cadets use precise and accepted scientific language in all technical communications.
   d. Cadets read and understand the content of general scientific publications such as Scientific American and Physics Today. They are able to follow citations to obtain background information on the material in the articles and summarize orally and in writing the strengths and weaknesses of the arguments presented in such publications to non-technical audiences.
5. **Cadets are prepared for graduate education in physics, engineering or related fields.**
   a. Cadets demonstrate proficiency across the range of skills and knowledge expected of entering graduate students in reputable physics programs.
   b. USMA graduates gain admission to graduate programs in technical fields at leading colleges and universities.
   c. USMA graduates successfully earn advanced degrees from leading colleges and universities.

POLITICAL SCIENCE

As with the other social sciences, political science is concerned with human behavior. What distinguishes political science is its interest in: "Who gets what, when, and how." Some of the questions dealt with by political science include: On what basis is political power allocated? What societal needs and cultural values lead to the creation of different settings? How are authoritative policy decisions made and implemented? How is power distributed and used in the international system? To what extent and by

what means do citizens participate in politics? At West Point, the Political Science field of study offers three stems for concentration: American, Comparative, and International Politics. Students of American Politics study policymaking, institutions and processes. Cadets consider how U.S. defense policy and other government policies are made. Institutions such as political organizations, the Presidency, and Congress are analyzed from both a U.S. and comparative perspective. Students also consider processes such as political leadership, voting and group behavior. Cadets pursuing the study of Comparative Politics have the opportunity to examine and analyze the conduct of politics in a number of settings, ranging from Latin America, Europe, the Middle East, Asia, to Africa, as well as the United States. Students will analyze the domestic mechanisms of states, the variables that influence their actions domestically and internationally, and the actors within the state that drive state behavior. The program examines and compares the effects of various regime types (democratic, authoritarian, etc.) on outcomes such as political efficacy, economic performance, and the state's relationship with domestic society. The Comparative Politics program emphasizes the regime of states and its relationships with institutions, society, and culture. The primary interests in comparative politics are political culture, political institutions, social structure, economics, and interstate relationships. Students of International Relations examine the foreign relations of states, the incentives and influence of non-state actors, characteristics of the international system, and explanations for international conflict and cooperation. Central phenomena of interest in international relations include power, strategy, armed conflict, conflict resolution, trade, and economic development.

The outcome goals of West Point's political science majors are as follows:

1. Analyze the constitutional origins and historical development of the formal institutions (Legislative, Executive, Judicial branches, bureaucracy) and the effect of informal actors (media, political parties, interest groups) on public policy development in the U.S.
2. Summarize the origins and development of the American political tradition, distinguishing how the deep historical and philosophical roots of the Republic inform and explain contemporary politics and public policymaking.
3. Understand how political scientists research, analyze, interpret, explain, and critique the foundations, processes, institutions, and policies that constitute American government and politics.
4. Understand the foundational assumptions, central concepts, logical claims, and dominant criticisms of the behavioralist, historical institutionalists, and rational choice schools of thought in American politics and public policy.
5. Understand U.S. civil-military relations by emphasizing the roles, responsibilities, and culture of the military as an institution, and profession, and the enduring norms, behavior, and models of military leadership that formulate, legitimate, and implement public policy consistent with American republican traditions.
6. Understand and appreciate the U.S. defense and foreign policymaking enterprise(s) from the perspectives of grand strategy and 'American' grand strategy.

Graduates of the Comparative Politics Program:

1. Develop an understanding of political, socio-economic, and cultural phenomena in different political systems through the use of theory, concepts, and historical analysis.
2. Understand the importance of the comparative method as a means to identify and evaluate sources of political continuity and change. Use exacting comparison to analyze political regimes and the variables, which determine their stability and the quality of their institutions.
3. Identify our own biases through the study of other countries and cultures. Appreciate non-U.S. perspectives. Explore questions of morality and ethics, especially in the context of other cultures.
4. Develop analytical skills, both written and oral.
5. Obtain an in-depth understanding of a particular region and the role of culture within political discourse.
6. Provide future officers the intellectual tools to understand diverse and changing political processes and contexts.

Graduates of the International Relations Program:

1. Understand and are able to employ alternative theoretical approaches in order to describe, explain, or predict events or developments in international relations.
2. Are familiar with the variety of actors in international affairs and appreciate their incentives as well as the roles that they play in shaping international events and developments.
3. Understand the key elements of social science research as the basis of a rigorous approach to developing and evaluating alternative explanations for international relations phenomena.
4. Obtain in-depth understanding of a particular region or international relations issue.
5. Appreciate the relevance and value of international relations theories and concepts to issues of central concern to Army officers and national security professionals.

PRE-MED

See Life Science

See Interdisciplinary Science

SYSTEMS DESIGN and MANAGEMENT

Systems Design and Management is the study of defense acquisition, design, and management systems in accordance with performance requirements, budget, and schedules. It combines specific core courses with traditional engineering, system engineering, finance and organizational management courses. Cadets will study the engineering relationships between the management tasks of staffing, organizing, planning, and financing, as well as the human element in production, research, service and Army organizations. Three areas of concentration are available, Project Management, Logistics Management, and Soft Systems. Systems Design and Management graduates are ready to lead multidisciplinary teams, perform systems thinking, systems design and modeling, and systems decision making to address complex, ill-defined problems characterized by global, political, social, military, economic, and technological challenges. A one year Capstone course along with Engineering Economy, Project Management, Systems Acquisition Management, and Financial Accounting provide a solid foundation in enabling a graduate to act as an intermediary between stakeholders and clients in an acquisition environment. Cadets who major in Systems Design and Management will culminate their studies by completing a capstone project with a team of other cadets for an actual client. This major will produce graduates with technical and business skills and prepare them for future academic and professional opportunities in a society increasingly dominated by technological change.

Each graduate shall be able to:

1. Exhibit leadership and character within each stage of the system lifecycle by addressing traditional engineering challenges as well as moral and ethical standards specific to the locale.
2. Employ systems thinking to identify and scope problems, specify the needs of multiple stakeholders, and define and measure system performance to validate recommendations.
3. Develop innovative system solutions and use systems modeling to evaluate courses of action in relevant domains.
4. Perform systems decision-making that considers qualitative and quantitative aspects of the problem.
5. Accurately, clearly, concisely, and persuasively report findings, conclusions, and recommendations to the decision-makers and stakeholders in a multicultural context.
6. Lead interdisciplinary teams to implement effective and efficient solutions by melding traditional and non-traditional engineering domains.
7. Demonstrate the skills and interest for intellectual growth and learning for a career of professional excellence and service to the nation as an officer in the United States Army.

SYSTEMS ENGINEERING

Systems Engineers innovatively solve large, complex problems in a technologically advanced environment by engineering solutions which provide significant value to clients and their organizations. Systems Engineers also lead interdisciplinary teams of engineers and others in the development and implementation of technical solutions to complex issues facing organizations. Systems Engineering majors learn to think systematically, engineer systematically, and approach decisions systematically. The Systems Engineering Program is accredited by the Engineering Accreditation Commission of ABET, http://www.abet.org.

Thinking systematically involves understanding the entire environment in which the system operates including the needs, wants and desires of all the stakeholders of the system. Engineering systematically involves identifying and understanding the required system functions, developing alternative system solutions, and applying the basic modeling and simulation tools required to analyze the system from an engineering perspective. Approaching decisions systematically involves leading and participating in multi-disciplinary teams to innovate and implement visionary solutions to these complex problems.

The recent rapid growth and success of systems engineering can be attributed to advances in technology and the transition of society to a highly networked, globally-oriented information age which results in a dramatic increase in the complexity of problems. These problems require systems thinking and a holistic approach to problem solving that is at the heart of the systems engineering discipline. It is the challenge of systems engineers to harness and direct technology toward solving problems most often related to processes and operations. Ultimately, the study and application of systems engineering principles involve innovation and the creative application of analytical models to facilitate sound decision making.

Systems Engineering Program Educational Objectives: Within 5–7 years of graduation each graduate of the Systems Engineering Program will have:

- Effectively led interdisciplinary teams to solve complex problems while continuing intellectual growth and fostering an organizational ethos that promotes the professional, moral, ethical, and respectful treatment of all.
- Analyzed, designed, implemented, and maintained systems throughout their lifecycles.
- Approached problems holistically while recognizing each system as a whole, with its fit and relationship with the environment being primary concerns.
- Convincingly communicated engineering analysis and recommended solutions to leaders to enable sound decision-making in the presence of uncertain, biased, or confounding influences.

Systems Engineering Student Outcomes: To achieve these objectives, cadets will demonstrate the following Systems Engineering Student Outcomes at the time of graduation:

- Define the problem, design solutions, make decisions, and implement the chosen engineering solution within a broad global and societal context.

- Act professionally and ethically as a leader of character within each stage of the system lifecycle.
- Lead and work effectively as a contributing member of multidisciplinary systems engineering teams.
- Employ up-to-date techniques, skills, and engineering tools necessary for Army officers and systems engineering practice.
- Identify and formulate a client's engineering problem and specify the client's actual needs using systems thinking, systems engineering and systems decision-making.
- Apply knowledge of contemporary stakeholder issues to systems decision making.
- Design or re-engineer a system or process in order to develop innovative alternatives that meet the needs of the client within realistic environmental constraints such as cultural, historical, legal, moral/ethical, economic, environmental, organizational, emotional, social, political, and technological.
- Apply knowledge of mathematics, science, and engineering appropriate to Army officers and practicing systems engineers in order to develop, quantitatively evaluate, and implement effective and efficient solutions.
- Design and conduct systems experiments, including collecting, analyzing and interpreting data
- Accurately, clearly, and concisely report findings, conclusions, and recommendations to the client in a manner that supports the client's decision.
- Demonstrate the skills necessary to support continued intellectual growth and learning for a career of professional excellence and service to the nation as an officer in the United States Army.

PART III: COURSE DESCRIPTIONS

Brigade Tactical Dept
18 Courses

DC302 **DC302** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

a course only used for scheduling

Offerings:

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

DC465 **DC465** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

A placeholder course, not a real course at all

Offerings:

2015-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: directed by departments

MD100 **CADET BASIC TRAINING** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-0

New Cadets negotiate a demanding training regimen in soldiering and cadetship. The New Cadet makes the transition into the Corps of Cadets and learns the standards of behavior and values consistent with the mission of the United States Military Academy. The New Cadet is evaluated by the cadet chain of command and summer Tactical Officer during each of two details and receives a grade for MD100, which is a numerically weighted average of the submitted grades.

Offerings:

2016-0 2017-0

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD101 **4TH CLASS MILITARY PERF I** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Fourth Class cadets learn to be a follower and to support the chain of command and to develop understanding of and commitment to the duty concept. Fourth Class cadets serve as members of a squad in their assigned companies. The Fourth Class cadet's primary task is to strive for individual excellence in academic, military, and physical activities while developing teamwork among their classmates. The Fourth Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD101, which is a numerically weighted average of the submitted grades.

Offerings:

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD102 **4TH CLASS MILITARY PERF II** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Fourth Class cadets learn to be a follower and to support the chain of command and to develop understanding of and commitment to the duty concept. Fourth Class cadets serve as members of a squad in their assigned companies. The Fourth Class cadet's primary task is to strive for increased individual excellence in academic, military, and physical activities while optimizing the teamwork among their classmates. The Fourth Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD102, which is a numerically weighted average of the submitted grades.

Offerings:

2015-2 2016-2 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD200 **CADET FIELD TRAINING** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-0

Offerings: 2016-0 2017-0

Third Class cadets participate in a demanding training program which further develops proficiency in Pre-Commissioning Tasks and exposes the Third Class cadet to tactical tasks that require teamwork. Various training situations provide opportunities for Third Class cadets to serve as leaders where they are observed by the cadet chain of command and officers. The Third Class cadet is evaluated by the cadet chain of command and summer Tactical Officer during each of two details and receives a grade for MD200, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD201 **3RD CLASS MILITARY PERF I** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Third Class cadets serve as team leaders. They learn to lead others by exercising responsibility for the professional development of one or two subordinates, while serving as a member of a larger military unit. Drawing on recent experiences as Fourth Class cadets, Third Class cadets offer expertise and counsel which facilitates the transition process and development of cadet privates. The Third Class cadet is evaluated by the cadet chain of command and company Tactical Officers and receives a grade for MD201, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD202 **3RD CLASS MILITARY PERF II** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Third Class cadets serve as team leaders. They learn to lead others by exercising responsibility for the professional development of one or two subordinates, while serving as a member of a larger military unit. Drawing on recent experiences as Fourth Class cadets, Third Class cadets offer expertise and counsel which further facilitates the transition process and development of cadet privates. The Third Class cadet is evaluated by the cadet chain of command and company Tactical Officers and receives a grade for MD202, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD300 **WEST POINT DETAIL CHAIN OF CMD** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-0

Offerings: 2016-0 2017-0

First and Second Class cadets will serve as members of the cadet Chain of Command for a West Point Leader Detail. First Class cadets, as Senior NCOs or officers, learn the basic duties and responsibilities of a commissioned officer by leading in a cadet summer training assignment. They set the example for all subordinates by establishing and attaining sound goals, maintaining standards of behavior, and demonstrating values within the organization. They develop subordinates in such a fashion as to foster teamwork, cohesion, and the desire to excel in all areas of endeavor. Second Class cadets serve as cadet noncommissioned officers. This affords them the opportunity to learn and experience the roles and functions of non-commissioned officers in military units while training and leading their subordinates in both individual and collective training. First and Second Class cadets are evaluated by the cadet chain of command and company Tactical Officer and receive a grade for MD300, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD301 **2ND CLASS MILITARY PERF I** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings:

Second Class cadets serve in cadet NCO leadership and staff positions in the Corps of Cadets. Second Class cadets lead through subordinate leaders; that is, they lead small military units in which they exercise responsibility for other members through their influence upon subordinate leaders. The Second Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD301, which is a numerically weighted average of the submitted grades.

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD302 **2ND CLASS MILITARY PERF II** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Second Class cadets serve in cadet NCO leadership and staff positions in the Corps of Cadets. Second Class cadets lead through subordinate leaders; they lead small military units in which they exercise responsibility for other members through their influence upon subordinate leaders. The Second Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD302, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD400 **CDT TRP LEADERSHIP TNG (CTLT)** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-0

Offerings: 2016-0 2017-0

First and second class cadets learn the basic duties and responsibilities of a commissioned and noncommissioned officer by leading in an active Army unit during CTLT. CTLT provides first and second class cadets with a realistic leadership environment to observe, while performing duties normally given newly assigned second lieutenants in the active Army. In CTLT, the cadet is evaluated by the officer chain of command in his/her unit and receives a MD400 grade of Pass/Fail.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD401 **1ST CLASS MILITARY PERF I** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

First Class cadets serve in First Sergeant, Command Sergeant Major or officer leadership positions from platoon through brigade level and learn to lead through their personal influence upon both a chain of command and staff. They learn that success as a leader is based on the performance of the unit and demonstrate their capacity to exercise personal self-discipline in the absence of close supervision. The First Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD401, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD402 **1ST CLASS MILITARY PERF II** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-1 2017-2

First Class cadets serve in First Sergeant, Command Sergeant Major or officer leadership positions from platoon through brigade level and learn to lead through their personal influence upon both a chain of command and staff. They learn that success as a leader is based on the performance of the unit. They demonstrate their capacity to exercise personal self-discipline in the absence of close supervision. The First Class cadet is evaluated by the cadet chain of command and company Tactical Officer and receives a grade for MD402, which is a numerically weighted average of the submitted grades.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD403 **CBT/CFT CADRE** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-0 2017-1

MD403 is for First Class cadets who fail MD402 and are therefore placed in a conditioned status at the end of their First Class year. First Class cadets enrolled in MD403 will serve two consecutive details in either Cadet Basic Training or Cadet Field Training. The requirements outlined for MD300 apply to MD403; evaluation is conducted in the same fashion. The grades from each detail are each equally weighted and combined to derive an overall MD403 grade.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD404 **1ST CL MILITARY PERF-DEC GR** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2016-2 2017-1 2017-2

MD404 is offered to cadets who remain at the Academy beyond eight semesters and have participated in all previous military development courses. Cadet officers in MD404 will receive a grade based on performance and requirements specified in MD402. Evaluation is conducted in the same fashion as in MD402.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MD410 **CADET LEADER DEVELOPMENT TNG** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-0

Offerings: 2016-0 2017-0

Cadet Leadership Development Training (CLDT) trains, mentors, and assesses basic leadership skills focusing on Troop Leading Procedures (TLPs), communication, and tactical decision-making in order to develop competent and confident small unit leaders capable of operating in an uncertain and rapidly changing environment. In a series of tactical scenarios that mirror the Common Operational Environment (COE), cadets experience a minimum of two assessed leadership positions that provide the First Class cadet with a common experience to further enhance his/her leadership ability to solve tactical problems. Trainer Teams coach, teach, mentor, and assess a cadet's leadership ability and provide formal and constructive feedback in the form of AAR's and written assessments. Success is measured by the cadet's demonstrated ability to improve through the course of evaluations, and understand the areas requiring improvement and sustainment to successfully perform as a leader.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PME2 **PROFESSIONAL MILITARY ETHIC ED** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2017-1

The purpose of Professional Military Ethic Education (PME2) is to provide cadet instruction that reinforces current academy programs to assist in developing the self-concept of Officership, the ethos of the American Military Profession and attributes outlined by the CLDS Character Development Domains. This is presently the only unifying course of instruction identical for each of the members of the Corps of Cadets that occurs throughout the 47 month experience. The course is intended to reinforce important points of education covered in the other program areas and for discovery on unique topics geared toward developing leaders with the attributes consistent with the CLDS outcome goals that are not addressed elsewhere at the Academy. The program curriculum is organized along the lines of three areas of fundamental importance to developing leaders of character; Army Values (Realization of the moral and ethical requirements of Officership), Officership (Realization of what is required to serve as an American Commissioned Officer) and Leadership (Application of our values and learned attributes to enable graduates to create a great command climate). THIS COURSE IS NEEDED TO ADMINISTOR THE PURCHASE OF BOOKS. THERE ARE NO ENROLLMENTS.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

Center for Enhanced Performance

5 Courses

RS100 **STUDENT SUCCESS COURSE, PREP** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2017-1

This course is designed to improve cadet academic performance and mental agility. Mastery of a variety of these strategies leads to development of a more self-regulated leader of character. Strategies presented include: help seeking (AI, Library, tutors), organization and time management, class preparation (text study system), test preparation, overcoming nerves, learned optimism and importance of attitude. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has no graded assignments. A final pass/fail grade determination is recorded on the cadet transcript.

Lessons: 10 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

RS101 **STUDENT SUCCESS COURSE** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1985-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to improve cadet academic, physical, and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking, stress management, and others. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has graded assignments, a complete student success plan and a course portfolio. A final pass/no-credit grade determination is recorded on the cadet transcript.

Lessons: 20 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

RS101I **STUDENT SUCCESS COURSE** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1

This course is designed to improve cadet academic, physical, and leadership performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, textbook study system, concentration, test taking, visualization, memory, note taking, stress management, and others. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has graded assignments, a complete student success plan and a course portfolio. A final pass/no-credit grade determination is recorded on the cadet transcript. This course is for scheduling purposes only, and will be merged into RS101 before the first graded event. It is intended for international students only

Lessons: 20 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: none

RS102 **READING EFFICIENCY** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1985-1

Offerings: 2016-1 2017-1

This course develops flexible reading strategies. Increasing one's base reading rate while maintaining comprehension is accomplished through the use of computer programs, textbook reading, and recreational reading. Various pacing techniques and supervised practice lead to the increase of both reading rate and comprehension, but most of all to the development of a reader who has a variety of strategies to use depending upon the type of reading required.

Lessons: 10 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

RS103 **INFO LITERACY & CRIT THINKING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings:

This course is designed to improve cadet information literacy and critical thinking performance at USMA. Mastery of a variety of strategies leads to this goal. Strategies presented include: effective thinking, goal setting, time management, understanding of the research process, academic/library research skills, evaluation of information sources, critical reading and reasoning. The strategies mastered are implemented immediately into the cadets' present life at USMA and contribute to life-long learning. The course has no graded assignments. A final pass/no-credit grade determination is recorded on the cadet transcript.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 20 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): EN101
-Or-
HI108

Department of Behavioral Sciences and Leadership

50 Courses

MG379 **LEADING TEAMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2016-1 2017-1

This course is designed to improve cadets' understanding of human behavior in small group/team settings. Course content includes structural characteristics of teams such as size, status, roles and norms in addition to the effects of task and environment. Cadets then use their understanding of these constructs to analyze team phenomena such as cohesion, performance, decision making, problem solving and conflict resolution. We also devote a number of lessons to current issues such as electronic and virtual groups, high performance work teams and shared leadership in a team environment. The course is particularly relevant to professional development in that cadets gain a comprehensive understanding of the dynamics of small group and team interaction. This allows them to develop and implement creative leader actions that will maximize unit/team effectiveness.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

Disqualifier(s): PL379

MG380 **MARKETING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing management, and to provide practice in assessing and solving marketing problems through the use of case studies and real world projects in both the military and civilian realms. Topics include competitive analysis, marketing strategy, customer behavior, segmentation and targeting, market research, pricing and promotion. Graded requirements include a combination of WPRs, written projects and student led discussions. This course is required for cadets pursuing the Management major"

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MG381 **INTRODUCTION TO MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

This course serves a dual purpose. It is an introduction to the concept of management as well as an introduction to the multidisciplinary nature of the management field of study. This course focuses on the managerial activities that organizational leaders use to effectively and efficiently direct the resources of organizations. As a result, the course is structured around the primary concepts of planning and decision-making, organizing, leading and controlling. In addition, cadets will examine the concepts of ethical and global management as they learn to analyze operating environments, assess organizational capabilities and develop feasible courses of action.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One individual paper (2-3 pages) and individual presentation (10-15 minutes). One group paper (15 pages) and group presentation (30 minutes) based on integration and synthesis of course material through a managerial assessment of an organization.

MG382 **HUMAN RESOURCE MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-1

Offerings:

This course begins with the premise that people are a firm's most important resource; and that the management of this critical resource ultimately determines the success or failure of the organization. The course examines the behavioral science principles used to foster the creation of effective work environments -- environments specifically designed to elicit motivation, commitment, productivity and satisfaction. The course gives special attention to how human resource management (HRM) practices can give a firm a Competitive Advantage by using High Performance Work Systems, tending to Stakeholders' needs (customers, employees, stockholders, and the community) and through strategic Globalization. By analyzing HRM practices in terms of these three critical organizational outcomes, students learn how to apply HRM concepts to positively influence the success of the organization.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: PL381 includes a semester-long project which focuses on sustaining and/or improving a real-world firm by applying the course material to a situation.

Corequisite(s): PL300
-Or-
PL350

MG390 **NEGOTIATION FOR LEADERS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings:

This course immerses cadets in fundamental-level Negotiations and Bargaining theory and application. The course progresses from dual-party, single-issue, distributive scenarios to multi-party/multi-issue/integrative scenarios. Cadets learn and practice systematic ways to devise an effective strategy prior to entering a negotiation and then actually apply bargaining tools and tactics during the Negotiation in order to accomplish their individual and organizational goals. Cadets learn concepts and frameworks that help them analyze and understand human behavior so that they have a perspective from all parties involved in a negotiation. Examinations are behavioral and written. Emphasis is placed on applying the behavioral principles learned to real-world issues and their impacts on functioning as future Army officers.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MG395 **FUNDAMENTALS OF ACCOUNTING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings:

The purpose of MG395 is to provide and integrate the analytical tools learned in this and other courses in a management setting. Specifically, this course will provide the fundamentals of understanding, developing, and analyzing financial statements (income statement, statement of retained earnings, balance sheet, and statement of cash flows), using accounting ratio analysis, analyzing inventory, understanding costing systems and budgeting. By applying the various accounting techniques in a managerial setting, cadets will be better prepared to quantitatively support their managerial decisions. This course is required for cadets pursuing the Management major.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

MG410 **MANAGERIAL FINANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings:

The purpose of MG410 is to provide Management Majors with the basic principles of managerial finance, and then to apply these principles in the context of managerial decision-making. Specifically, this course will cover: the fundamentals of the time value of money; the meaning and measurement of risk and return; valuation techniques for stocks and bonds; and standard techniques for financial analysis, to include capital budgeting, discounted cash flow valuation, and weighted average cost of capital. Cadets will leave this course with a solid understanding of how financial managers at the corporate level balance risk and return, and thus manage everyday financial decision-making. This course is required for all management majors.

2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206 MG395

MG420 **OPERATIONS MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

The purpose of MG420 is to provide cadets with the tools to deal with the quantitative aspects of design and analysis of operations management. Emphasis is on identification, analysis, and solution of production problems using applied quantitative techniques using the case study technique. In addition to case studies, simulations reinforce the problem-solving techniques necessary for today's successful managers. Specific methods and techniques taught and applied are operations strategy, product design and selection, supply chain management, total quality management, forecasting, capacity planning, facility location, facility layout, work system design, inventory management, material requirements planning, and scheduling. This course is required for cadets pursuing the Management major.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

MG421 **STRATEGIC MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

This capstone course for management majors emphasizes the integration of concepts and principles found in all previous management courses as they relate to the strategic management of public, private and military organizations. This course focuses on all aspects of the strategic management process to include: the identification of opportunities and threats in a competitive environment, the development of organizational core competencies and the strategic alternatives available to organizations as they seek to achieve their goals in a highly dynamic operating environment filled with complexity, uncertainty and risk. MG 421 uses the case study method that requires comprehensive, in-depth analysis of realistic management situations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One individual paper (2-3 pages) and individual presentation (10-15 minutes) on a current strategic management issue. Small teams conduct semester long capstone project. Results are reported in written and oral format.

Prerequisite(s): MG380 MG381 MG382 MG395 MG410 MG420

MG472 **INTERNATIONAL MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course examines the individual, group and organizational level influences on human behavior in the international arena. Cadets will gain an understanding of these influences and use the insights gained to formulate leader actions to effectively motivate and manage in a global environment. The course emphasizes the practical application of management theories and research findings in the international situations that cadets encounter in their personal lives and in the field Army with an increasing emphasis on the global environment. Course content includes foundations of individual behavior, diversity, motivation, decision making, rewards, feedback and power and influence in an international setting. We will also examine organizational influences on ethical behavior in the global arena with an emphasis on creating ethical climates in the organizations we belong to.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): PL300

Disqualifier(s): PL472

PL100 **GENERAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-1

Offerings: 2015-2 2015-4 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This course develops the ability to apply current psychological principles. Psychology is a broad and expanding discipline and the introductory course is necessarily a survey. The focus of the course is the development of an awareness and understanding of one's own behavior and the behavior of others. Emphasis is placed on applying the behavioral principles learned to the cadets' current lives and their functioning as future officers.

Lessons: 39 @ 55 min (2.500 Att/wk) **Labs:** 1 @ 55 min

Special Requirements: None

PL150 **ADVANCED GENERAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is an advanced multidisciplinary study of human behavior and leadership that focuses current psychological principles to the study and understanding of human thoughts, emotions and behaviors. The focus of the course is the enrichment of an awareness and understanding of one's own behavior and the behavior of others. Emphasis is placed on applying the behavioral principles learned to real-world issues and their impacts on functioning as future Army officers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Disqualifier(s): PL100

PL300 **MILITARY LEADERSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2017-1 2017-2 2018-1

This course is a multidisciplinary study of leadership in an organizational context which focuses on the integration of theory and practice. The cadet studies the leader's direct influence on individual motivation and group processes through the application of leadership theories, skills, and attributes. The cadet also learns how to influence subordinates indirectly through organizational systems and procedures, organizational culture, and ethical climate. Cadets apply the knowledge gained in the classroom to their experiences as cadet leaders in the Corps of Cadets. In addition, the course helps each cadet develop usable leadership products in the form of a reflective leadership notebook, which helps the cadet define and inform his or her own personal approach to leading. The cadet will also develop a detailed and theoretically sound leadership philosophy, as well as comprehensive leader plans which have direct application to their roles as leaders in the Corps of Cadets and as future Army officers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

Disqualifier(s): PL350

PL350 **ADVANCED MILITARY LEADERSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: No Course Offerings

This course is an advanced multidisciplinary study of leadership in an organizational context that focuses on the integration of theory and practice. The cadet studies the leader's direct influence on individual motivation and group processes through the application of leadership theories, skills, and attributes. The cadet also learns how to influence subordinates indirectly through organizational systems and procedures, organizational culture, and ethical climate. Cadets apply the knowledge gained in the classroom to their experiences as cadet leaders in the Corps of Cadets. The cadet will also develop a detailed and theoretically sound leadership philosophy, which will have direct application to their roles as leaders in the Corps of Cadets and as future Army officers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

Disqualifier(s): PL300

PL360 **PSYCH ELITE PERFORMANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on the psychological theories and applied techniques that enhance elite performance. In every performance endeavor, human beings have consistently exceeded our wildest expectations. While this has been significantly affected by the technological advances physical training, an equally, if not more significant part of these advances has been the systematic approach to psychological skills training. This approach makes performance enhancement a reality to all who are seeking to perform to their full potential, regardless of the arena in which they perform. This course reviews the current theories that underlie performance enhancement training techniques and relates them to all areas of elite level performance (academic, physical, athletic, and specific areas of military training.) Topics include the development and maintenance of self-confidence, goal setting, attention and concentration, energy management, cognitive and somatic coping strategies, visualization, leadership, and team cohesion. Students will not

only understand the theoretical bases underlying these topics, but apply them, through a series of individual projects, a semester-long group research project, and weekly individual instruction, to personal areas of importance.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

PL361 **RESEARCH METHODS I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides cadets with detailed practical knowledge and skills in the scientific analysis of human behavior. The course content begins with a review of the terms and philosophy of the scientific method as well as basic research concepts. Several research designs, primarily non-experimental methods, provide cadets with a better understanding of research techniques and how they affect the results of a study. Basic methods of data analysis, to include descriptive and inferential statistics, will be covered. Groups of cadets will conduct research projects on a topic of their choice using naturalistic observation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several design and statistics assignments, several writing assignments and two group oral presentations related to the semester-long group research project.

Prerequisite(s): PL100
-Or-
PL150

PL371 **INTRODUCTORY SOCIOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Sociology is the scientific study of society and the interactions among humans. The goal of Introductory Sociology is to provide a survey of the field of sociology and educate and inspire cadets to examine contemporary situations that involve social interaction and use sociological concepts, theories, and research to explain what is taking place, identify social threads and patterns across the situations, and determine the personal as well as the social significance of their analysis. Sociology demands that the student transcend the taken-for-granted, subjective world view and develop a sociological imagination by revealing the linkages and relationships among social facts and connect public issues to self awareness. PL371 is a survey course with the identification of common threads across social situations, and determining the self and social significance of facts. The teaching and learning strategy involves reading, writing, discussions, presentations, and other active-learning, hands and heads-on projects.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Three papers synthesizing course readings; lead one class discussion.

Prerequisite(s): PL100
-Or-
PL150

PL372 **SOCIOLOGY OF THE FAMILY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on contemporary American families, with special emphasis on military families. It approaches the study of marriages and families from a scientific perspective, based on scholarship and research. Cadets will learn about the actual state of marriages and families in the United States, and particularly within the military population. This course uses the sociological perspective to analyze issues, as well as several other academic disciplines, such as psychology, anthropology, biology, physiology, and economics to provide additional information. Cadets will examine past and present forces that contribute to changes in the nature of marriage and families in the United States. They will explore the nature of relationships between the family and other major social institutions. They will also evaluate contemporary issues, policies, and research related to marriages and families in order to determine the social significance of these situations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A major course paper analyzing either personal family expectations or a specific contemporary family issue.

Prerequisite(s): PL100
-Or-
PL150

PL373 **LIFE CYCLE & HUMAN DEVEL** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-2 2017-2

This course focuses on individual development and the forces that influence our development from birth to old age. Cadets will study the various facts, theories, issues, and topics that constitute the field of human development. Cadets will explore human development from various theoretical perspectives. In addition, cadets will discuss such topics as cognitive and moral development, how our self-concept and sense of identity form, and the influence of family and the world around us on development. Special attention will be given to the developmental impact of college.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One analysis paper (6-8 pages); one research paper (10-12 pages) and one group presentation.

Prerequisite(s): PL100
-Or-
PL150

PL376 **PERSONALITY & AB PSYCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2016-1 2017-1

Building upon the elementary concepts of personality from PL100, this course examines in detail various theoretical frameworks used to study personality and abnormal behavior. The course focuses on four theoretical perspectives: the psychoanalytic, learning, phenomenological, and dispositional perspectives. After examining how the various theoretical perspectives can be used to explain personality, the course applies these perspectives to an understanding of abnormal behavior. Thus, the course focuses on developing the cadets' understanding of "normal" personality development and how and why deviant behavior may result.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets will complete a case-study analysis of a real or fictional person of the cadet's choice (10-15 pages) and one oral presentation.

Prerequisite(s): PL100
-Or-
PL150

PL377 **SOCIAL INEQUALITY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

Cadets are introduced to several theoretical perspectives intended to explain the structure of social stratification in the United States. The course examines the state of social inequality in the United States, with a focus on social class, integration, mobility, and equality of opportunity. Cadets explore individual and structural perspectives of social inequality. Cadets evaluate social issues, policies, and programs intended to influence social inequality. Throughout the course, cadets discuss the relevance of class, race, ethnicity, and gender on social opportunity and inequality.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

PL383 **EXPERIMENTAL SOCIAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course surveys the field of contemporary social psychology. Cadets examine the impact of social structure and group membership on social behavior, while focusing on intrapsychic processes such as attribution, cognition, and learning that underlie social behavior. The course is intended to enable cadets to more effectively analyze and explain human behavior in a given situation. Specific topics include the self, attitudes and attitude change, sex and gender, conformity, obedience, compliance, deviance, helping behavior, aggression, attraction and romance, groups and intergroup relations, and collective behavior. The classroom experience is heavily discussion-oriented in order to maximize the application of social psychological concepts, theories, and perspectives to daily life.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two (5-6 page) individual reports of group conducted research studies, and one oral presentation.

Prerequisite(s): PL100
-Or-
PL150

PL384 **SOCIOLOGICAL THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

Sociological theory is a set of interrelated ideas that allow for the systemization of knowledge of the social world, the explanation of that world, and predictions about the future of the world. In some ways, all of us are amateur theorists, interpreting the meanings of the events and encounters that shape the world and ourselves. In PL384 cadets will learn in-depth how theories can help make sense of our times and to choose courses of action to realize our collective and individual dreams. In this course, theory is brought down-to-earth, to show how a sociological imagination (in other words, a theoretical consciousness that embraces self-awareness) is valuable to self and society. Questions like "Are families disintegrating?" "Why are some people discriminated against?" "What accounts for the crime rate?" "Are religion and economics compatible?" "Why is the sexual division of labor so persistent?" "Are wars inevitable?" can be addressed. Theories are thus tentative answers to the questions that preoccupy us as members of families, professions, communities, nations and, increasingly, as global citizens.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL371

PL386 **EXPERIMENTAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2016-1 2017-1

This course provides cadets with detailed practical knowledge and skills in the experimental analysis of behavior and human performance. Particular emphasis is placed on design of laboratory and field experiments, laboratory automation and instrumented data acquisition, computer data analysis, and on the distinction between laboratory research, field test and evaluation. The course includes practical exercises in several content areas of experimental and engineering psychology. These topics are evaluated by laboratory reports.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two lab reports (1000-1500 words), and one course project (2500 words).

Prerequisite(s): PL100
-Or-
PL150

Corequisite(s): MA376

PL387 **FOUNDATIONS OF COUNSELING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course introduces cadets to the fundamentals of counseling. It focuses on the practical applications of counseling theories, principles, and techniques. Using the vehicles of videotaping and audiotaping, the course emphasizes personal, performance, career, and disciplinary counseling to help prepare cadets for leadership roles both as a cadet and an officer. The course covers the counseling process and the dynamics of interpersonal relationships within that process. Counseling skills include: basic and advanced communication skills, goal setting, intervention strategies, assertiveness, crisis intervention, and multiculturalism. Examinations are behavioral and written.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

PL390 **BIOLOGICAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-1

Offerings:

This course introduces the cadet to the physiological and anatomical structures and processes that underlie human behavior with emphasis on human performance. The course examines the structure of the nervous and endocrine systems, the mechanisms of seeing and hearing, movement, stress and arousal, learning, memory, biological causes of abnormal behavior, sleep, language, and the effects on performance of damage to neural structures. Cadets are introduced to the scientific examination of real-world bio-psychological problems in laboratory assignments in examining tissue, brains and eyes to provide three-dimensional realism to classroom instruction. This course provides the basis for competence in later engineering psychology electives. Biological Psychology is the "hardware" introduction to engineering psychology.

2016-1 2017-1

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 110 min

Special Requirements: One laboratory report (1200 words). One scientific critique (1200 words).

PL391 **SENSATION/PERCEPTN/PSYCPHYS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-2

Offerings: 2015-2 2016-2 2017-2

This course covers the acquisition and analysis of information by the human nervous system from examination of the physical properties of light and sound, the functioning of the visual, auditory systems and the kinesthetic processes, and the theoretical background of contemporary perceptual research. The following general topics are covered: psychophysical methods, including measurement, scaling and signal detection theory; physiology of the visual, auditory and kinesthetic systems; recognition of color and brightness, pitch and loudness, patterns, features, and the role of visual channels; visual detection and tracking; the role of kinesthesis in military applications; and research methodology in perception. Laboratory assignments stress the application of data acquisition systems on research and the construction of strictly defined experimental methods in this area of research.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 110 min

Special Requirements: Two application projects requiring laboratory reports (1200 words each).

Prerequisite(s): MA376 PL386 PL390

PL392 **COGNITIVE PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-2 2017-2

This course addresses the processes of human information gathering, learning and memory using an information processing model. The course deals with cognitive theory and application, including stage models of processing and memory, machine models and artificial intelligence, and research methodology in these areas. Emphasis is placed on practical military applications in such areas as pattern recognition and detection, text processing, visual search and associated problems. Laboratory experiences stress development of experimental paradigms in this area of investigation and the use of test instrumentation, and computer software models to investigate cognitive processing.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Team term project, two laboratory reports (1000 words), and oral presentation.

Prerequisite(s): PL100
-Or-
PL150

PL393 **CRIMINOLOGY-CRIM JUST SYSTM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

Criminology is the scientific study of the making of laws, the breaking of laws, and the reaction to the breaking of laws. When a crime appears to have been committed and authorities have been notified, the criminal justice system is set in motion. The criminal justice system is the societal response to crime and includes three major activities – law enforcement, the judicial process, and corrections. The course provides an overview of (a) the theories offered to explain crime and delinquent behavior (b) the criminal justice system which responds to those behaviors, and (c) the relationships between the varied explanations of criminal behavior and society's criminal justice responses to those behaviors. The focus of the course is primarily on the United States, but there is some attention devoted to an international view of crime and criminal justice.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets select, write, and report on a topic in criminology.

Prerequisite(s): PL100
-Or-
PL150

PL394 **ANTHROPOMETRICS & BIOMECHANICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

Virtually every activity in which humans engage involves interacting with our environment. Much of that interaction requires physical movement. Creating a safe workplace requires an understanding of the forces we apply to objects in our environment and how those forces can be measured and modified by better design. Anthropometrics is the study of human measurement. Biometrics is the study of forces on our muscular and skeletal system. The goal of this course is to teach cadets the fundamentals of anthropometrics and biomechanics so that they will be able to modify work environments of injury. The course will emphasize work performed in military settings.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

PL396 **SNA FOR PUBLIC POLICY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2016-2 2017-2

PL396 is an interdisciplinary course where students learn to apply network strategies to real policy issues, and assess the utility of these models to society. The course enables students to confront complexity in modeling, solving, analyzing, and understanding large dynamic systems and networks. The course is designed with three sections. The first portion of the course covers basic network analytic methods and concepts. Students get hands-on experience with network software tools. In the second section, high-level concepts and modeling principles are covered. In the third sections, four major policy issues are covered - health care, natural resources, cyber/information, and education. Cadets research a government policy and re-define the problem in network terminology and relational data. Evaluating and recommending public policy is a complex social, political, scientific process with many competing issues and challenges. As final projects, students select their own topics, and are asked to critique and provide resolution of issues around education, health care, transportation, information technology, and public utilities from network perspectives.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Book or article review on network science approach to studying public policy work in a group to produce a poster for presentation at Projects Day.

Prerequisite(s): MA205 PL100
-Or-
MA153 PL100

PL398 **LEADERSHIP THEORY & DEVEL** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1982-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on the "cutting edge" concepts and theories of leadership and leader development that are designed to help cadets better understand the leadership process to enhance leadership effectiveness and organizational performance across multiple levels of analysis. The course addresses leadership from not only the focal leader perspective, but also from the organizational, strategic and combat leadership viewpoints. The course will examine the historical evolution of leadership theory, and emphasizes scientific research and the empirical supports for existing leadership theories, and current thinking on the effective development of leaders. Additionally, cadets will study some of the emerging leadership perspectives that have been proposed to be relevant for effective leadership in the volatile, ambiguous, uncertain and chaotic world of the 21st century.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Book review and analysis on a noted military leader. Significant inquiry into current leader development theory in relationship to the leader development program at USMA: written reports and oral presentations communicate the results.

Prerequisite(s): PL300
-Or-
PL350

PL399 **BEH SCI & LEADERSHIP PRACTICUM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-4

Offerings:

The Department of Behavioral Sciences and Leadership's Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent AIADs have involved internships with the American Psychological Association; studies of psychological support to NATO operations in France and stress in military operations in Norway; as well as other topics in CONUS, China, Germany, and Australia. Scope, depth and material covered will meet the requirement of a 3-credit hour course in the department. Grades are determined based on preparatory briefings and essays, a journal of daily activities or Weblog with instructors, the quality of the work performed during the internship, student evaluation of the experience and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PL399A **BEH SCI & LEADERSHIP PRACTICUM** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-4

Offerings: 2015-7 2016-7

The Department of Behavioral Sciences and Leadership's Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent AIADs have involved internships with the American Psychological Association; studies of psychological support to NATO operations in France and stress in military operations in Norway; as well as other topics at West Point, elsewhere in the continental United States, or overseas. Scope, depth and material covered will meet the requirement of a two-credit hour course in the department. Grades are determined based on preparatory briefings and essays, a journal of daily activities or Weblog with instructors, the quality of the work performed during the internship, student evaluation of the experience and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PL462 **EXPERIMENTAL APP IN PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This seminar-based course focuses on the advanced study of topics in psychology. It provides cadets an opportunity for reading and analysis in depth in a topic area of interest and relevance to the study of psychology and its applications. The course employs a seminar approach in which cadets present their own analyses of the discussion topics to the group. By the end of this course, cadets will be able to conduct and evaluate research in the behavioral sciences. This course continues the themes of PL361 (Research Methods I) and introduces cadets to more varied experimental and non-experimental designs and more complex statistical analyses. Groups of cadets will conduct a research project using an experimental method in an area of their choice. Cadets who complete this course will be competent consumers of behavioral sciences research and will be equipped to use the scientific method to investigate and solve many of the problems they will face as military leaders.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Review and analysis of topic within psychology; topics will vary depending on instructor expertise and relevance to contemporary issues. Assignments (papers and oral presentations) will culminate to course paper summarizing research project investigating

Prerequisite(s): PL361

PL470 **TOPICS-BEHAVIOR SCI/LDRSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: 2015-2 2016-2 2017-2

This course explores an advanced topic in Behavioral Sciences and Leadership. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As specified by the professor.

Prerequisite(s): PL100
-Or-
PL150

PL471 **LEADERSHIP IN COMBAT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-2 2017-2

PL 471 examines leadership in combat at the tactical level from an interdisciplinary perspective. It first seeks to provide a theoretical foundation for understanding human dimensions of combat, and then explores some of the factors that influence the leadership of soldiers in combat through a collection of readings, film, and first-hand discussions with combat veterans. Cadets examine four case studies and conduct a comparative analysis of two combat leaders.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As specified by professor.

PL475 **HUMAN-COMPUTER INTERACTION** **3.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

Computer use in the world today is at an all-time high. Consequently, the need for user-friendly computers is crucial. Somewhat ironically, human capacity for memory has often been explained using the computer metaphor, while the computer designer often attempts to instill human-like qualities into their computer designs. This course focuses on the interface between the human and computer. Initial focus is placed on understanding the theoretical foundations of human processes. The course then examines how these processes interact with computer usage. Students will learn design principles that enhance compatibility with computer systems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL392

PL476 **EDUCATIONAL PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-2

Offerings: 2016-1

In this course, cadets will develop their instructional skills and formulate a conceptual basis for their instructional practices as army officers. The course is oriented toward the study of psychological theories of learning and application of these theories to the design, delivery, and evaluation of adult education and training. The course is subdivided into major areas of study. Learning theory focuses on the study of the learning process with balanced treatment given to behavioristic and cognitive perspectives. Instructional design emphasizes a systems approach to planning and decision making in learning situations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course practicum in which cadets design, deliver, and evaluate a learning experience. The practicum involves submission of a written design plan and evaluation (15-20 pages) and the delivery of instruction (55 minutes).

PL479 **LEADING ORGNZS THRU CHANGE** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The environments in which organizations operate are characterized by unprecedented change fueled by rapidly emerging technologies, information overload, changing values, lifestyles and attitudes, and social and civil problems of great magnitude. Effective leaders either must be proactive toward change or be its captive. The purpose of this course is to examine change from an organizational perspective through a complex and diverse mix of theories, concepts, and information. Course concepts are drawn from the disciplines of behavioral science, business, management, and military doctrine. Cadets have the opportunity to analyze the successes, the failures, and the multiple dilemmas of modern organizations in both the private and public sectors in order to better understand the causes, implications, and potential leader actions and strategies associated with organizational change.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets prepare an individual research report examining an actual large-scale change within the context of a modern organization.

Prerequisite(s): PL300
-Or-
PL350

PL482 **ARMED FORCES AND SOCIETY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

The intersection of armed forces and society involves the examination of two domains: the intersection of any armed force and the larger societal context and the focused study of the military as a unique social institution with a set of demands placed on the people making up the institution. Our principal focus is sociological as we use sociological theories, concepts, and research to study the military and society and culture both in the United States and abroad. PL482 is a capstone course that requires cadets to apply their sociological knowledge at the intersection of the armed forces and society . The course expects cadets to read, write, and discuss military and society issues in-depth and practically apply their knowledge to solve real world problems. Cadets integrate the knowledge gleaned from the course into a coherent and focused research project addressing some aspect of the human dimension of the armed forces and society.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper that applies course concepts to analysis of the current military. This paper is written in stages throughout the semester.

Prerequisite(s): PL300
-Or-
PL350

PL485 **HUMAN FACTORS ENGINEERING** **3.0 Credit Hours (BS=0.5,ET=1.5,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course surveys the theories and methods of human factors engineering (ergonomics). Human factors engineering is concerned with the application of technology and the design of equipment for human use. This course emphasizes the cognitive dimension of human factors engineering. The focus is on understanding the capabilities and limitations of humans as they interact with equipment and facilities. This course lays the foundations for the systematic application of information about humans to the design of equipment and workspace environments.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 55 min

Special Requirements: Term project--research report and oral presentation. Students will perform an in-depth analysis of an existing human-machine system. Results will be reported in written and oral formats.

Prerequisite(s): PL386

PL488B **COLLOQUIUM-BSL-PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-2 2017-2

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two to four critical essays and oral presentations based on readings.

PL488C **COLLOQUIUM-BSL-LEADERSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2016-2 2017-2

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two to four critical essays and oral presentations based on readings.

PL488D **COLLOQUIUM-BSL-SOCIOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-2 2017-2

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two to four critical essays and oral presentations based on readings.

PL488E **COLLOQUIUM-BSL-ENGIN PSYCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-2

Offerings: 2015-2 2016-2 2017-2

The colloquium focuses on advanced study of behavioral science topics and issues using small group discussions of important books and articles of both traditional and contemporary topics in psychology, sociology, organizational leadership, and engineering psychology. It is a reading and discussion course. Subcourse topics are not fixed and are subject to annual revision.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two to four critical essays and oral presentations based on readings.

Prerequisite(s): PL485

PL490 **ENGINEERING PSYCHOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1993-2

Offerings: 2015-2 2016-2 2017-2

This course integrates the material previously covered in the Human Factors curriculum, especially PL485, Human Factors Engineering. It uses the theoretical bases and practical applications of Human Factors Engineering in the treatment of design problems. Emphasis in this course is on the design of systems to fit human capabilities. Course project is a design project of a contemporary applied problem.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Term project--team design projects applying selected engineering psychology concepts to a contemporary problem.

Prerequisite(s): PL485

PL497 **SEMINAR IN BEHAVIORAL SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-1

Offerings: 2016-1 2017-1

Cadets develop individual research themes from contemporary behavioral science topics. They are then grouped under a seminar leader for study, discussion, and preparation of their research reports, culminating in a presentation before the seminar group. Cadets will be expected to master both the significant work within the topics of choice and the body of criticisms of the works and to propose a study to advance the body of knowledge.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Literature review and research proposal; oral defense of proposal.

PL498 **ADV STUDY-BEHAVIOR SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-2

Offerings: 2015-2 2016-2 2017-2

This course allows selected cadets to design an advanced study project under the guidance of a member of the BSL faculty. The advanced study, designed with the guidance of the faculty advisor, can be a thesis, research program, or service learning project. Depending on the nature of the project, cadets will work individually or in small groups. Cadets may conduct work in such areas as Leadership, Engineering Psychology, Sociology, or Psychology.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Written research report with an oral defense.

Prerequisite(s): PL100 PL361
-Or-
PL150 PL361

PL499 **LEADERS IN ACTION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings:

This course is designed to enhance cadets' leadership performance through the application of essential leadership skills in challenging, on-going, real-world projects, and scenario-driven leadership laboratory exercises. The course uses a series of "concept study > actions > reflections" (CAR) cycles to focus students on the enhancing (and hindering) factors that typically surface when an individual has responsibility for executing a project and must "do" leadership. Cadets move through a CAR cycle in three related stages. First, cadets consider specific concepts, theories and models of leadership covered in prior courses. Then, using a pool of projects resourced by the faculty expressly for this course, cadets wrestle with real-world leadership projects (such as leading an organizational unit through an unexpected change), keeping these issues and insights in mind. Finally, both during and after the project, cadets engage in self-reflection exercises (e.g., journals) and meet with faculty mentors, to help process and make sense of their leadership experience on both a personal and conceptual level.

2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course-long research projects and written and oral reports.

Prerequisite(s): PL398

Department of Chemistry & Life Science

45 Courses

CH101 **GENERAL CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: None

Disqualifier(s): CH151

CH101X **GENERAL CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: None

Disqualifier(s): CH101 CH101Y CH151

CH101Y **GENERAL CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: None

Disqualifier(s): CH101 CH101X CH151

CH102 **GENERAL CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings:

This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

2015-2 2015-3 2016-2 2016-3 2017-2 2017-3

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: None

Prerequisite(s): CH101
-Or-
CH151

Disqualifier(s): CH152

CH102X **GENERAL CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: No Course Offerings

USED FOR SCHEDULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: None

Prerequisite(s): CH151
-Or-
CH101

Disqualifier(s): CH102
-Or-
CH102Y
-Or-
CH152

CH102Y **GENERAL CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: No Course Offerings

USED FOR SCHECULING PURPOSES ONLY. This course provides a solid background in chemistry principles and applications. It includes a study of the nature of matter, its atomic and molecular structure, and the associated energies involved. Fundamental concepts, principles, theories, and laws of chemistry are stressed. Stoichiometry, states of matter, solutions, kinetics, thermodynamics, acid-base and redox equilibria, electro-, organic, and nuclear chemistry are stressed. The course also provides the student with a strong foundation in materials chemistry, the chemistry of life, environmental chemistry, and military chemistry. A laboratory program is integrated within the course and is designed to develop an appreciation of classical and modern investigative techniques and to illustrate fundamental concepts.

Lessons: 31 @ 80 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: NONE

Prerequisite(s): CH151
-Or-
CH101

Disqualifier(s): CH102
-Or-

-Or-
CH152
-Or-
CH102X

CH151 **ADV GENERAL CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

An advanced coverage of the concepts and principles covered in CH101-102 including a more in-depth laboratory program with emphasis on instrumental analysis.

Lessons: 28 @ 80 min (2.500 Att/wk) **Labs:** 12 @ 120 min

Special Requirements: None

Disqualifier(s): CH101

CH152 **ADV GENERAL CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

An advanced coverage of the concepts and principles covered in CH101-102 including a more in-depth laboratory program with emphasis on instrumental analysis.

Lessons: 28 @ 80 min (2.500 Att/wk) **Labs:** 12 @ 120 min

Special Requirements: None

Prerequisite(s): CH151
-Or-
CH101

Disqualifier(s): CH102

CH290 **INTRODUCTION TO RESEARCH** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Introduces the methods of research in chemistry, chemical engineering, or life science that includes use of the research literature and instruction in intermediate experimental and theoretical procedures and techniques specific to the cadet's program of study. Under the direct supervision of faculty.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 2 hours of work per week towards completion of the project.

CH362 **MASS & ENERGY BALANCES** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

Introduction to mass and energy balances in single phase and multiphase, nonreactive and reactive systems. Course topics include an introduction to engineering calculations and process variables, use of computers in solving chemical engineering problems, fundamentals of material balances in single-phase and multi-phase systems, energy balances on nonreactive and reactive processes, applications of combined material and energy balances, introduction to chemical engineering unit operations, and a general introduction to the field of chemical engineering.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH102
-Or-
CH152

CH363 **SEPARATION PROCESSES** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

This course covers methods for the physical separation of chemicals. Topics include dew point and bubble point calculations, adiabatic flash, distillation, chromatography, liquid-liquid and gas-liquid absorption. Students are taught the significance of staging of unit operations. Heavy emphasis is placed on theory of operation, numerical methods of solution, and simulation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH362

CH364 **CHEMICAL REACTION ENGINEERING** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course studies the effects of chemical reaction kinetics on systems of engineering significance. It introduces selection and operation of commercial chemical reactors, emphasizing chemical kinetics and transport phenomena. It studies currently practiced engineering techniques associated with each of these reactors. Topics covered in this course include ideal reactors including batch, CSTR and PFR, isothermal and nonisothermal. Other topics may include catalytic reactors, bioreactors, reactors, transient and steady state design, pressure drop in reactors, recycle, stability, and numerical methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH362

CH365 **CHEMICAL ENG THERMODYNAMICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2016-1

Offerings: 2016-1 2017-1 2018-1

This course covers the body of thermodynamic knowledge necessary for understanding modern chemical process simulation. Students learn the theory behind the thermodynamic methods used in the software. The course includes calculus- and numerical-based thermodynamics approaches for determining the properties of substances, solutions, and multiphase mixtures. Topics include equations of state, pure component properties, transport properties, properties of mixtures, fugacity, excess properties, activity coefficients, and phase equilibria. The problems in the course emphasize engineering applications. Topics covered in class are related to real systems through the use of chemical process simulators.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CH363 CH364 MA366 MC312

CH371 **INTRO TO ANALYTICAL CHEM** **3.5 Credit Hours (BS=2.0,ET=1.5,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The course teaches the fundamental concepts of analytical chemistry. Topics include acid-base equilibria, redox potentials, compleximetric titrimetry, separations, electrochemistry, and absorption spectroscopy. The course provides an overview of modern analytical techniques being used in various fields. The course emphasizes the development of rigorous laboratory techniques and introduces the cadet to computer based data acquisition. Cadet laboratory work is evaluated in terms of the student's ability to accurately determine the identity and quantity of an unknown sample.

Lessons: 30 @ 55 min (3.000 Att/wk) **Labs:** 17 @ 120 min

Special Requirements: None

Prerequisite(s): CH102
-Or-
CH152

CH375 **INTRODUCTION TO BIOLOGY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course consists of an examination of the unity and diversity of life. It investigates why there are so many different life forms and proceeds through Mendelian Genetics, the discovery of cells and chromosomes, DNA replication, and genetic expression. These topics then serve as a foundation knowledge supporting the study of population genetics, biodiversity, bioenergetics, animal and plant physiology, population ecology and ecosystem ecology. Emphasis is placed on related course material to current environmental issues and disease, particularly as these areas apply to military operations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH101
-Or-
CH151

CH381 **INTRO TO ORGANIC CHEMISTRY** **3.5 Credit Hours (BS=1.5,ET=2.0,MA=0.0)**

Scope: 1992-1

Offerings: No Course Offerings

This one semester course is an introduction to the concepts and material in organic chemistry designed for non-chemistry concentrators. It examines the relationship between chemical structure and the physical and chemical properties of molecules. Functional group reactivity, reaction mechanisms and instrumental methods of structural analysis are also studied. Topics are chosen from the two semester course that are important to environmental and chemical engineering students who are not required to take two semesters of organic chemistry.

Lessons: 35 @ 80 min (3.000 Att/wk) **Labs:** 12 @ 120 min

Special Requirements: None

Prerequisite(s): CH102
-Or-
CH152

Disqualifier(s): CH383

CH383 **ORGANIC CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

Organic chemistry I is an introduction to the relationship between chemical structure and the physical and chemical properties of molecules. A qualitative description of structure and bonding is presented. The relationships between free energy changes and equilibria, and between activation energy and rate of reaction are developed. Stereochemistry and isomerism are explored. The concept of the mechanism of reaction is presented and the relationships between mechanism, the least energy path, stable intermediates and transition states are exemplified by the reactions of the alkanes, alkenes, alkyl halides, and alcohols. The use of instrumental methods of structural analysis is also introduced.

Lessons: 35 @ 80 min (3.000 Att/wk) **Labs:** 12 @ 120 min

Special Requirements: None

Prerequisite(s): CH102
-Or-
CH152

Disqualifier(s): CH381

CH384 **ORGANIC CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

The reactions of the important functional groups are explored: conjugated alkenes; aldehydes; ketones; carboxylic acids; and amines. The concept of aromaticity is explored and its mechanistic implications are developed. Selected topics in carbohydrate and lipid chemistry are also studied. Functional group interconversions and synthetic strategy are presented. The laboratory capstone synthesis introduces cadets to multi-step synthetic sequences.

Lessons: 35 @ 80 min (3.000 Att/wk) **Labs:** 12 @ 120 min

Special Requirements: None

Prerequisite(s): CH383

CH385 **INTRODUCTION TO CELL BIOLOGY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1 2017-2

The course will cover the structure and function of prokaryotic and eukaryotic cells. The course will present a detailed discussion on the molecular biology of DNA replication, transcription, translation, the control of gene expression, cell-to-cell signaling, and the cytoskeleton. Emphasis will be placed on research methods and techniques that have lead to our understanding of how the cell works.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH375

CH387 **HUMAN PHYSIOLOGY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

This course consists of an in-depth study of human physiology and the interrelationships between major organs and systems of the body. This course will concentrate on homeostatic reflex mechanisms of the human body. Major topics covered include endocrinology, neural physiology, muscles, cardiovascular physiology, respiratory physiology, renal physiology, digestion, immunology, and reproductive physiology. The laboratory program reinforces the foundational principles of thermoregulation, muscle, cardiac, respiratory, neural, sensory and renal physiology and introduces cadets to basic laboratory measurements and diagnostics for each of those subjects.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): CH375

CH388 **GENETICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

Genetics is the science of heredity. It is concerned with the physical and chemical properties an organism?s genome, how the genome is transmitted from one generation to the next, and how genes are expressed in the development and function of an organism. Heredity is the process by which all living things produce offspring like themselves. This capacity for self-reproduction involves the transmission from parent to offspring of genetic information. This course is intended to develop an understanding the basic principles of genetics and to develop an ability to apply these principles to solve problems involving heredity. These genetic principles are built on a foundational understanding of DNA structure and replication, as well as basic cellular processes such as transcription and translation. Students will learn basic Mendelian genetics and progress to more complex genetic problems. These principles will be applied in the laboratory through the completion of a Mendelian genetics project.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 55 min

Special Requirements: All cadets will complete a Mendelian Project.

Corequisite(s): CH375

CH389 **ADVANCED LAB PROJECTS I** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by a member of the faculty. Individual cadets must gain the consent of the faculty member and present project title and scope of proposed effort for Program Director approval.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.

Prerequisite(s): CH101
-Or-
CH151

CH390 **ADVANCED LAB PROJECTS II** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The development of usable protocols, procedures, or laboratory experiments to advance current research projects directed by a member of the faculty. Project can be either a continuation of CH389 or a new project limited to the scope of 1.5 credit hours. Individual cadets must gain the consent of the faculty member and present project title and scope of proposed effort for Program Director approval.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 3 hours of work per week towards completion of the project.

Prerequisite(s): CH389

CH399 **TOPICS IN CHEM/LS/CHMENG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-7

Offerings: 2016-2 2017-2

This course provides in-depth study of a special topic in chemistry, chemical engineering and life science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior faculty member. This course may also be offered as an AIAD course at USMA.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

CH400 **CHEM ENG PROFESSIONAL PRACTICE** **1.5 Credit Hours (BS=0.0,ET=1.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2017-2

The course will meet once per week and will cover topics such as ethics, continuing education, and global and social issues within chemical engineering. Special emphasis will be placed on preparation for the Fundamentals of Engineering Exam using practice problems and graded practice exams. The course also covers professional plant engineering using plant simulators and mock exercises to teach proper troubleshooting and response techniques.

Lessons: 20 @ 55 min (1.250 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CH459 CH485

CH400 **CHEM ENG PROFESSIONAL PRACTICE** **1.5 Credit Hours (BS=0.0,ET=1.5,MA=0.0)**

Scope: 2016-2

Offerings: 2016-2

The course will meet once per week and will cover topics such as ethics, continuing education, and global and social issues within chemical engineering. Special emphasis will be placed on preparation for the Fundamentals of Engineering Exam using practice problems and graded practice exams. The course also covers professional plant engineering using plant simulators and mock exercises to teach proper troubleshooting and response techniques.

Lessons: 20 @ 55 min (1.250 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CH365 CH459 CH485

CH402 **CHEM ENG PROCESS DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2017-2

This course provides a capstone experience that brings together material from previous courses to examine contemporary problems in chemical engineering process design. The course provides instruction in the conceptual design of processes to achieve design goals, as well as the economic optimization of the process. The course emphasizes the use of computer simulations, theory of unit operations, process control, safety, environmental and economic factors. The effect of changes in design on the process economics will be investigated. Written and oral design reports for the capstone design project are required.

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: The completion of significant out-of-class design problems requiring the equivalent of 2.5 credit hour of student effort. Compensatory time is provided to complete the design requirement.

Prerequisite(s): CH459

CH402 **CHEM ENG PROCESS DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2016-2

Offerings:

This course provides a capstone experience that brings together material from previous courses to examine contemporary problems in chemical engineering process design. The course provides instruction in the conceptual design of processes to achieve design goals, as well as the economic optimization of the process. The course emphasizes the use of computer simulations, theory of unit operations, process control, safety, environmental and economic factors. The effect of changes in design on the process economics will be investigated. Written and oral design reports for the capstone design project are required.

2016-2

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: The completion of significant out-of-class design problems requiring the equivalent of 2.5 credit hour of student effort. Compensatory time is provided to complete the design requirement.

Prerequisite(s): CH365 CH459 CH485

CH457 **MICROBIOLOGY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course introduces the diversity of microorganisms in all three domains of life. The course covers prokaryotic cell structure and function, growth, genetics, and metabolism. The course will survey five major groups of microorganisms: eubacteria, archaea, protozoa, fungi and viruses including ecology, their role in human disease and their applications in medicine, industry and warfare. Cadets have the opportunity to explore both a viral and a bacterial disease in-depth and present their findings in a briefing and a paper. The 18-hour laboratory program focuses on practical applications of concepts covered in class, with a particular emphasis on the eubacteria. The lab program culminates with a hands-on laboratory examination.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH375

CH459 **CHEM ENGR LABORATORY** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This course provides laboratory experience in selected chemical engineering unit operations, such as gas absorption, evaporation, distillation, liquid-liquid extraction, cooling tower, heat exchanger, and chemical reactors. Process control and process safety are emphasized in laboratory and classroom instruction. Written and oral reports required.

Lessons: 7 @ 120 min (3.000 Att/wk) **Labs:** 40 @ 120 min

Special Requirements: None

Prerequisite(s): CH362 CH363 CH364

CH460 **HUMAN ANATOMY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course is designed to provide cadets with a detailed study of the anatomical structure of the human body. Body structure will be studied by organ systems and will involve a balance between gross anatomical study and histology. Form-function relationships will be emphasized. The laboratory study will involve working with human skeletal collections and virtual dissection of cadavers and preserved specimens. The 14-hour laboratory program focuses on structural identification (naming) of human and mammalian anatomy and various imaging modalities (e.g., radiographs, CT scans), and computer programs. Cadets that successfully complete this course will have a good understanding of human body structure, construction, and function.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH102 CH375 CH387
-Or-
CH102 CH385 CH387
-Or-
CH152 CH375 CH387
-Or-
CH152 CH385 CH387

CH471 **APPLICATIONS OF POLYMER CHEM** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course is an introduction to modern polymer chemistry and engineering. It provides an introduction to macromolecules and their properties. It covers polymerization methods, copolymerization, the morphology of polymers, and the testing and characterization of polymer products. The course also introduces the flow properties of polymers, polymer additives, natural and biomedical polymers and modern polymer technology, including the military uses of polymer products.

Lessons: 47 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: All cadets will complete an integrative experience group project that will investigate the social, political and economical implications of a polymer technology.

Prerequisite(s): CH102
-Or-
CH152

CH472 **INORGANIC CHEMISTRY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course features an in-depth study of main group and transition elements and their compounds, with emphasis on chemical bonding and both atomic and molecular structures. The fundamentals of quantum chemistry to include the valence bond and molecular orbital theories as applied to inorganic chemistry are studied. An introduction to symmetry/group theory, coordination chemistry/crystal field theory, chemistry in aqueous and nonaqueous solutions, and organometallic compounds are also included in the course. Chemical principles and spectroscopic techniques will also be emphasized. Journal articles from the chemical literature are used to supplement the text with topics of current interest.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s):
-Or-
CH384 CH481

CH473 **BIOCHEMISTRY** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-2

This course is an introduction to biochemical systems and concentrates on studying them from the molecular approach. Three themes are emphasized: 1) Structure - Function relationships, 2) Metabolism, and 3) Regulation of the systems and processes studied. The fundamental goals of the course are to provide students the basic knowledge of biochemistry and to give them a framework for analyzing problems and questions in life science studies. Additional emphasis is placed on familiarizing students with the experimental techniques used in biochemistry and their application to current issues of interest.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Corequisite(s): CH384

CH474 **INSTRU METHODS OF ANALYSIS** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

A laboratory course designed to develop proficiency in the selection and use of modern instrumental methods of chemical analysis. Topics include atomic spectroscopy, molecular absorption and fluorescence spectroscopy, infrared and Raman spectroscopy, nuclear magnetic resonance and mass spectrometry, and chromatography. The laboratory program includes a Capstone experimental procedure and methodology design component. Cadet laboratory work is evaluated in terms of the student's ability to determine the proper instrumental methodology to analyze a chemical sample.

Lessons: 32 @ 55 min (2.500 Att/wk) **Labs:** 15 @ 120 min

Special Requirements: One project report on a selected research topic.

Prerequisite(s): CH371 PH204
-Or-
CH371 PH254
-Or-
CH371 PH202
-Or-
CH371 PH252

Corequisite(s): CH384

CH479 **METHODS & APPS OF BIOTECH** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course is intended to reinforce topics learned in other life science courses by studying laboratory and practical applications of biotechnology. Laboratories will concentrate on biotechnology methods including purification, separation, and identification or DNA, RNA and protein. Other biotechnology techniques that will be studied include recombinant DNA techniques, PCR, and DNA sequencing. Classroom lessons will include discussions of assigned readings on the modern applications of biotechnology.

Lessons: 23 @ 55 min (2.500 Att/wk) **Labs:** 24 @ 120 min

Special Requirements: None

Prerequisite(s): CH388 CH457

CH481 **PHYSICAL CHEMISTRY I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

The major areas of study in this course are chemical thermodynamics with a special focus on chemical equilibrium, and chemical kinetics, introduction to intermolecular interactions. Some of the specific topics covered include properties of real gases, the kinetic theory of gases, the laws of thermodynamics as related to chemical systems, diffusion as a description of mass transport, rates of chemical reactions, and molecular reaction dynamics. The laboratory program illustrates the fundamental topics covered through precision measurements, utilizing modern instrumental and computational methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Corequisite(s): CH383

CH482 **PHYSICAL CHEMISTRY II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

This course builds on the concepts covered in CH481 through a study of the quantum mechanics of atoms and molecules, their interaction with radiation, and statistical thermodynamics. Some of the specific topics covered include the electronic structure of atoms and molecules, molecular geometry, molecular symmetry, several types of spectroscopy used for identification and monitoring of the local molecular environment, and the details of molecular motion. Various levels of theory are used to obtain increasingly more accurate descriptions of atomic and molecular systems with user-friendly software tools. Statistical thermodynamics enables understanding about the connection between the microscopic details in quantum mechanics and the macroscopic observations made in the laboratory. The laboratory program illustrates the fundamental topics through use of modern instrumental and computational methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s):
-Or-
CH481

CH485 **HEAT AND MASS TRANSFER** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-1

Offerings:

This course includes the study of the mechanisms of energy and mass transport, with special emphasis on applications in engineering systems. Coverage includes Fourier's Law of Heat Conduction, and Fick's Law of Diffusion, the development of shell energy and species balances, and the use of these equations to solve for temperature and concentration profiles in chemical engineering systems. An important emphasis in the course is the use of transport equations to understand species diffusion, convection, and chemical reaction in equipment design.

2016-1 2017-1

Lessons: 44 @ 55 min (3.000 Att/wk) **Labs:** 3 @ 120 min

Special Requirements: None

Prerequisite(s): MA366 MC312

CH487 **ADVANCED CHEMISTRY LABORATORY** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

In this laboratory course students will further develop their knowledge and understanding of organic and inorganic syntheses, quantitative and qualitative instrumental analysis, and applications of physical chemistry principles to molecular structure and kinetics. They will carry out experiments such as: synthesis, Fourier transform and dispersive Raman spectroscopic analysis, laser spectroscopy, kinetics, polymer characterization, and molecular modeling and computational chemistry. Students and faculty will also discuss current research and present their work as seminars.

Lessons: 31 @ 55 min (2.500 Att/wk) **Labs:** 9 @ 120 min

Special Requirements: Library research and written reports are required.

Prerequisite(s): PH204
-Or-
PH254
-Or-
PH202
-Or-
PH252

CH489 **INDIVIDUAL RESEARCH I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This undergraduate research course is designed to significantly advance the cadet?s knowledge and comprehension of science and/or engineering by answering a real world scientific question. Course work includes defining a problem, understanding related issues, designing an experimental approach, analyzing data, and drawing conclusions. By applying the scientific method to attempt to solve an actual problem, cadets will expand their critical thinking and intellectual capability. Cadets are supervised by a faculty advisor with expertise in the chosen research area. Cadets conduct research individually but may be part of a larger group working on a project with a broad scope. The minimum requirement for moving onto CH490 is a defined problem and hypothesis, a background in related research, and an experimental design. The Head of the Department will approve cadet projects. Lessons and labs will be established through consultation between cadet and advisor. Requirements include both written and oral progress reports.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.

Prerequisite(s): CH102
-Or-
CH152

CH490 **INDIVIDUAL RESEARCH II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

With the same outcome goal as CH489 of significantly advancing the cadet's knowledge and comprehension of science and engineering into answering a real world scientific question, this course typically involves experimentation, data analysis, data evaluation, and publishing results. Cadets are supervised by a faculty advisor with expertise in the chosen research area. Cadets conduct research individually but may be part of a larger group working on a project with a broad scope. This course could conclude in a poster presentation, publication and/or a conference presentation as the undergraduate researcher contributes to the larger scientific community. Requirements include both a written final report and an oral presentation.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.

Prerequisite(s): CH489

CH491 **ADVANCED INDIVIDUAL STUDY I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This undergraduate research course is structured similarly to both CH489 and CH490. In this course, a cadet may continue on an established research problem or begin a new line of investigation. The minimum requirement for moving onto CH491 is a defined problem and hypothesis, a background in related research, and an experimental design. Requirements include both written and oral progress reports. Written recommendation from Department Head must be presented to ORD and approved by the Dean of the Academic Board as this course constitutes a third semester of independent study.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.

Prerequisite(s): CH490

CH492 **ADVANCED INDIVIDUAL STUDY II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The Advanced Individual Study provides cadets the unique opportunity to complete a carefully defined question or problem researched over the course of the previous 1.5 to 2 years. Based in research, this problem may be critical, experimental, applied, or creative in nature, and represents an effort to make an original contribution to the field. The Research Thesis is a culmination of a research effort that goes beyond normal requirements of the major and represents the cadet's best work in their discipline. Each thesis must demonstrate clear critical thinking, a mastery of disciplinary material, clarity in communication of complex ideas, and professionalism in production. Cadets must complete a written thesis and present an oral thesis defense to the faculty and staff. Additionally cadets having completed a year of research on one topic would be able to explore another researcher topic altogether. Written recommendation from Department Head must be presented to ORD and approved by the Dean of the Academic Board.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: LESSONS and LABS: Established by consultation between the cadet and his/her faculty advisor. Cadets are expected to perform an average of 7.5 hours of work per week towards completion of the project.

Prerequisite(s): CH490

CH499 **TOPICS IN CHEM/LS/CHMENG W/LAB** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-7

Offerings: 2017-3

This course provides in-depth study of a special topic in chemistry, chemical engineering and life science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior faculty member. This course may also be offered as an AIAD course at USMA. This course will contain significant lab content to justify 3.5 credit hours.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CH102
-Or-
CH152

Department of Civil and Mechanical Engineering

52 Courses

CE350 **INFRASTRUCTURE ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course identifies, analyzes, and assesses built infrastructure which is the foundation for modern society. The complex and interconnected nature of infrastructures is investigated and demands on critical components are calculated. Students explore the non-technical factors necessary for the functioning of infrastructure including supplies, trained personnel, and cross-sector dependencies. The course provides a basis for understanding the complexity and cost of maintaining, rebuilding and developing infrastructure. Major blocks of instruction include water and wastewater, power, transportation, solid waste, communications systems, and public administration. Several in-class scenarios are provided to synthesize the connectivity between the major items of infrastructure. Finally, as infrastructure is one of the six variables in the joint operating environment, the knowledge gained is employed to analyze infrastructure in the context of combat operations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

CE371 **SOIL MECHANICS/FNDTN ENGNRG** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2006-2

Offerings: 2015-2 2016-2 2017-2

Soil Mechanics is the study of soil properties which govern the use of soil as a construction or foundation material. The course is devoted to describing soils, analyzing soil stresses, determining consolidation settlement, designing earth embankments, determining earth pressures, and designing foundations based upon applicable engineering principles and recognition of the fundamental concepts of soil behavior. During laboratory periods the student will examine soil properties and extract necessary parameters for design.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Design problems and a laboratory summary report; compensatory time provided. One day-long field trip.

Corequisite(s): CE364
-Or-
MC364

CE380 **HYDROLOGY/HYDRAULIC DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This course studies both hydrology, which is the study of occurrence, movement and distribution of rainfall, and hydraulic design, which is the application of fluid mechanics and other science an engineering disciplines in the design of structures and development of water resources. Hydrologic principles are applied to model and analyze the distribution and movement of rainfall in a watershed. Hydraulic principles are applied to analyze and design flow through systems of reservoirs, channels and culverts. The course makes extensive use of computer simulation models used in engineering practice.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: Three design problems; term project; compensatory time provided. One day-long field trip.

Prerequisite(s): CE300 MA206
-Or-
CE302 MA206
-Or-
MA206 MC300
-Or-
MA206 MC302

Corequisite(s): ME311
-Or-
MC311

CE390 **CIVIL ENGINEERING SITE DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course provides cadets the necessary background to select and develop sites for civil engineering structures as well as review the work of others. Proper site selection and engineering have a significant impact on the economics of a project and long-term utility of the constructed facility. Specifically, the course covers the skills of determining site layout and access, establishing site contour and drainage, installation of utilities, elementary surveying, creation of digital models using computer modeling software, and the development of environmental impact statements. In the theater of operations, this background is critical to the success of missions related to construction of roads, runways, base-camps and other engineered military works.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): EV203
-Or-
EV203X

CE399 **CIVIL ENG PRAC-FIELD ENG** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-7

Offerings: 2015-7 2016-7 2017-7

This course provides cadets with an opportunity to learn and practice the field aspects of civil engineering. Topics include plane surveying, introduction to construction materials, wood frame building construction, heavy equipment operations, concrete placement and finishing, roadway construction, steel fabrication, reinforced concrete construction, bridge construction, power production, and environmental systems. Cadets perform actual construction projects as part of course requirements. LESSONS and LABS: 12 lessons of varying length, scheduled across three weeks of full-day instruction during the summer.

Lessons: 12 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: TDY travel to the course location at the U.S. Air Force Academy.

Prerequisite(s): CE302
-Or-
CE300
-Or-
MC302
-Or-
MC300

CE400 **CIVIL ENGR PROF PRACTICE** **1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This seminar consists of 13 class attendances during the spring semester and includes all First Class cadets in the Civil Engineering major. The course focuses on issues related to the professional practice of civil engineering, and is intended to augment and enrich the cadets' CE492 Capstone design experience. Topics include professional roles and responsibilities, professional registration, continuing education, engineering ethics, procurement of work, competitive bidding, quality-based selection processes, and construction management. Cadets are also introduced to the design and construction processes used by the U.S. Army Corps of Engineers. The seminar will include presentations by guest lecturers on topics of current interest in the field of civil engineering. Guest lecturers will be primarily civil engineering practitioners, providing the students an opportunity to interact with professionals in their major field of interest.

Lessons: 13 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One essay requirement usually on an ethics topic.

Corequisite(s): CE492

CE403 **STRUCTURAL ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2006-2

Offerings: 2015-2 2016-2 2017-2

This course addresses the analysis and design of basic structural forms such as beams, trusses, and frames, which are found in bridges and buildings. Classical deflection techniques such as direct integration and virtual work; and indeterminate analysis techniques such as the force method and displacement methods (slope deflection, direct stiffness and moment distribution) are used to determine forces and deflections in elastic structures. Structural analysis computer programs are introduced and directly applied in the solution of graded analysis and design problems. Approximate analysis techniques are used to check the general accuracy of computer-based results.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two Engineer Analysis problems. Compensatory time is provided. One half-day field trip.

Prerequisite(s): CE364
-Or-
MC364

CE404 **DSN STEEL AND WOOD STRUCTURES** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course teaches the engineering thought process through the design of steel structures. The course synthesizes the fundamentals of statics, mechanics of materials, and structural analysis and applies them to the design of structural members, with emphasis on satisfying real-world needs. Topics include an introduction to the design of structural systems, design of steel tension and compression members, design of beams and beam-columns, and an introduction to connection design. All design is performed in accordance with codes and specifications used in current engineering practice. A comprehensive design problem requires development of a design methodology, consideration of alternative solutions, and design of an optimal steel structure to meet stated functional requirements. Seven lessons of the course introduce students to the design of wood tension members, compression members and beams.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Problem sets and a semester-long design project; one compensatory lesson provided for the final submission. One field trip.

Prerequisite(s): CE403
-Or-
CE453

CE450 **CONSTRUCTION MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course focuses on the implementation portion of the design process. The management of construction is covered to include scope of work, rough order-of-magnitude estimating, scheduling, planning, progress reporting, resource constraining, and quality control. The roles of the contractor, owner, and designer are explained.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One semester-long design project requiring a formal oral and written presentation; compensatory time provided.

Prerequisite(s): CE350

CE472 **ADV SOIL MECHNCS/FNDTN ENGRNG** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-2 2017-1 2018-1

Students will extend what they learned in Soil Mechanics and Foundation Engineering and design advanced foundations in this course. Topics covered are: slope stability, field testing, field instrumentation, designing braced excavations, designing piles and drilled shafts, designing flexible walls, designing earth retaining structures, and designing earth structures using geosynthetics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CE371

CE483 **DSN CONC AND MASON STRUCTURES** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

The course introduces the materials and mechanical properties of concrete and masonry, and the design of reinforced concrete and masonry structures. Mix design and strength testing labs develop the concept of proportioning constituents for quality concrete and provide a background in techniques of material testing, quality control, and sound construction practices. The study of reinforced concrete and masonry includes analysis and design of simple structures, resulting in an appreciation for the strength and serviceability of these structures. Current codes and standards are used to guide the practical design of beams, slabs, columns, footings, walls and lintels.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: One field trip.

Prerequisite(s): CE403

CE489 **ADV IND STUDY CIVIL ENGRING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The cadet, on an individual or small group basis, pursues advanced study of a research or design topic in civil engineering. The scope of the course is tailored to the needs of the project and desires of the cadet, in consultation with the Faculty Advisor. The cadet is required to define and analyze the problem, study the fundamentals involved, organize an approach, determine a procedure, perform research and/or achieve a solution, submit a written report, and give a formal briefing.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As determined by faculty advisor. Many CE489 projects will have a significant laboratory requirement.

CE489A **ADV IND STUDY CIVIL ENGRING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The cadet, on an individual or small group basis, pursues advanced study of a research or design topic in civil engineering. The scope of the course is tailored to the needs of the project and desires of the cadet, in consultation with the Faculty Advisor. The cadet is required to define and analyze the problem, study the fundamentals involved, organize an approach, determine a procedure, perform research and/or achieve a solution, submit a written report, and give a formal briefing.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As determined by faculty advisor. Many CE489A projects will have a significant laboratory requirement.

Corequisite(s): CE489

CE490 **TOPICS IN CIVIL ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1997-2

Offerings: 2016-1 2016-2 2017-1 2017-2

This course provides in-depth study of a special topic in engineering mechanics or in structural, geotechnical, environmental, water resources, construction, or transportation engineering not offered elsewhere in the USMA curriculum. The course is intended to broaden the cadet's exposure to the civil engineering discipline. Course content will be based on the special expertise of the visiting professor or a senior civil engineering faculty member.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: TBD.

CE490A **TOPICS IN CIVIL ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: 2016-1 2016-2 2017-2

This course provides in-depth study of a special topic in engineering mechanics or in structural, geotechnical, environmental, water resources, construction, or transportation engineering not offered elsewhere in the USMA curriculum. The course is intended to broaden the cadet's exposure to the civil engineering discipline. Course content will be based on the special expertise of the visiting professor or a senior civil engineering faculty member.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: TBD

Prerequisite(s): CE490

CE491 **ADV STRUCTURAL ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings:

This course builds upon the material covered in CE403/453 to develop a better understanding of structural behavior. Matrix analysis methods, including an introduction to finite elements, are developed as the basis for modern, computer-based structural analysis. These and other advanced analytical techniques are used to analyze and design trusses, beams, and frames. Coursework involves extensive use of the computer as an analytical tool. Students use state-of-the-art structural engineering analysis and design software and Computer Aided Drafting software.

2015-2 2016-2 2017-2 2113-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Graded homework is assigned to reinforce concepts covered in class.

Prerequisite(s): CE403

CE492 **DESIGN OF CE SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course provides an opportunity for cadets to apply and synthesize their knowledge of structural engineering, geotechnical engineering, hydrology, hydraulic engineering, construction management and engineering economics in an open-ended, realistic, semester-long, capstone design experience. Working in teams, cadets develop functional requirements for a proposed project then perform the civil engineering designs for this facility. Execution of the design requires extensive use of computer-based analysis and design tools. The products of this effort include a comprehensive design report including drawings, a model of the facility, and a briefing to the client. The integrated design experience is augmented by formal classroom instruction in civil engineering systems design and advanced topics in civil engineering component design. This course constitutes the integrative experience for cadets majoring in civil engineering and civil engineering studies.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One comprehensive semester-long design problem requiring four submissions and an oral presentation. Compensatory time provided for each submission.

Prerequisite(s): CE404 CE483
-Or-
CE454 CE483

Corequisite(s): CE371 CE380

CE495 **TRANSPORTATION ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

This course provides cadets with a solid introduction to the principles of transportation engineering with a focus on highway engineering and traffic analysis. The material learned will provide the basic skill set that will allow students to solve transportation problems that are likely to appear in professional practice (civilian and military), on the Fundamentals of Engineering exam (FE), and on the Principles and Practice of Engineering exam (PE).

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One in-class design exercise.

Prerequisite(s): CE371 CE380 CE390

MC300 **FUND OF ENGR MECH AND DESIGN** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The engineering design process and the method of design are introduced. Principles of equilibrium are used to analyze forces on statically determinate rigid bodies and structures to include trusses and frames. The behavior of deformable bodies under axial, flexural, and torsional loading is examined. The concepts of stress, strain, and material properties are introduced and are used to relate external forces applied to a body to the resulting internal forces and deformations so that performance can be evaluated. Practical applications involving the design and adequacy of mechanical and structural elements under various loading conditions are emphasized.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: None

Prerequisite(s): MA205 PH201
-Or-
MA255 PH201
-Or-
MA255 PH251
-Or-
MA205 PH251

Disqualifier(s): CE300

MC302 **STATICS & DYNAMICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-2

Offerings: 2016-2 2017-2

Statics & Dynamics examines the effect of forces acting on particles and rigid bodies. Vector mechanics is used extensively. The first part of the course, Statics, addresses the topics of equilibrium in two and three dimensions, to include distributed loads, trusses, frames, friction, and cables. The second part, Dynamics, begins with the study of kinematics, including translating and rotating reference frames and coriolis acceleration. The final block of the course deals with two dimensional kinetics methods of force-acceleration, work-energy, and impulse-momentum.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Homework problems aare assigned

Prerequisite(s): MA205
-Or-
MA255

Corequisite(s): PH202
-Or-
PH252

Disqualifier(s): CE302

MC306 **DYNAMICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Dynamics examines the motion of particles, systems of particles, and rigid bodies under the influence of forces. It focuses on the use of Newtonýs Second Law, in three major, progressive blocks of instructionýfrom scalar, then vector, treatments of rectilinear and curvilinear motion of single particles; through vector motion of systems of particles; to general three-dimensional motion of rigid bodies. The course also provides brief introductions to energy methods: work-energy and impulse-momentum.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Homework problems are assigned.

Prerequisite(s): PH201
-Or-
PH251

Corequisite(s): CE300
-Or-
MC300

Disqualifier(s): ME306

MC311 **THERMAL-FLUID SYSTEMS I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-1

Offerings: No Course Offerings

Thermal-Fluid Systems I is an integrated study of fundamental topics in thermodynamics and fluid mechanics. The course introduces conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to incompressible flow in pipes and turbomachinery, external flows, power generation systems, refrigeration cycles, and total air-conditioning focusing on the control volume approach. Laboratory exercises are integrated into classroom work. This course includes completion of a comprehensive, out-of-class design problem. This design problem provides the opportunity for students to apply engineering science and the engineering design process to a hands-on project.

Lessons: 44 @ 55 min (3.000 Att/wk) **Labs:** 3 @ 120 min

Special Requirements: Completion of an out-of-class design problem requiring the equivalent of 0.5 credit hour of student effort. Compensatory time is provided to complete the design requirement.

Prerequisite(s): CH101 MA205 PH201
-Or-
CH101 MA255 PH201
-Or-
CH101 MA205 PH251
-Or-
CH101 MA255 PH251
-Or-
CH151 MA205 PH201
-Or-
CH151 MA255 PH201
-Or-
CH151 MA205 PH251
-Or-
CH151 MA255 PH251

Disqualifier(s): ME311

MC311 **THERMAL-FLUID SYSTEMS I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Thermal-Fluid Systems I is an integrated study of fundamental topics in thermodynamics and fluid mechanics. The course introduces conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to incompressible flow in pipes and turbomachinery, power generation systems, refrigeration cycles, and total air-conditioning focusing on the control volume approach. Laboratory exercises are integrated into classroom work. This course includes completion of a comprehensive, out-of-class design problem. This design problem provides the opportunity for students to apply engineering science and the engineering design process to a hands-on project.

Lessons: 44 @ 55 min (3.000 Att/wk) **Labs:** 3 @ 120 min

Special Requirements: None

Prerequisite(s): CH101 MA205 PH201
-Or-
CH101 MA255 PH201
-Or-
CH101 MA205 PH251
-Or-
CH101 MA255 PH251
-Or-
CH151 MA205 PH201
-Or-
CH151 MA255 PH201
-Or-
CH151 MA205 PH251
-Or-
CH151 MA255 PH251

Disqualifier(s): ME311

MC312 **THERMAL-FLUID SYSTEMS II** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

MC 312 Thermal-Fluid Systems II continues the integrated study of fundamental topics in thermodynamics and fluid mechanics. The course applies conservation principles for mass, energy, and linear momentum as well as the 2nd Law of Thermodynamics. Principles are applied to an automotive system to examine engine performance (Otto and Diesel Cycles) and to high performance aircraft to examine the Brayton Cycle, compressible flow, external flow, lift, and drag. Laboratory exercises are integrated into classroom work. Design problems provide the opportunity for students to apply engineering science to the design of thermal-fluid systems.

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 55 min

Special Requirements: None

Prerequisite(s): MC311
-Or-
ME311

Disqualifier(s): ME312

MC364 **MECHANICS OF MATERIALS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-1

Offerings: 2015-3 2016-1 2017-1

This course studies the behavior of a variety of materials under normal, shear, torsional, bending and combined loads. The concepts of stress, strain, creep, corrosion, fatigue and material properties are explored. The course examines observed behavior in light of the relationships between the microscopic structure and macroscopic properties of materials used in engineering applications. The loading, geometry, functional environment and material properties of machine or structural parts are used to relate the forces applied to a body to the resulting internal forces and deformations so that performance can be evaluated. Practical applications involving the design and adequacy of mechanical and structural elements under various loading and environmental conditions are emphasized.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: Several out of class design problems are given.

Prerequisite(s): MA205 MC300
-Or-
MA255 MC300
-Or-
CE300 MA205
-Or-
CE300 MA255

Disqualifier(s): CE364

MC380 **ENGINEERING MATERIALS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Course explores the relationship between the microscopic structure and macroscopic properties of materials used in engineering applications. The origin of mechanical and physical properties is studied. Emphasized is an understanding of the fundamental aspects of atomic and microstructural concepts for proper materials selection and enhancement of engineering properties. Materials under study are metals, ceramics, polymers, composites, nano-sized/structured materials, biomaterials, smart materials, and semi- and super-conductors. Laboratory exercises are incorporated throughout the course to provide practical experience in making decisions concerning material composition and processing in order to optimize engineering properties. Experiences from the field are detailed to demonstrate application of concepts.

Lessons: 42 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 120 min

Special Requirements: The completion of an out-of-class design problem requiring the equivalent of 0.5 credit hours of student effort.

Prerequisite(s): CH102 MC364
-Or-
CH152 MC364
-Or-
CE364 CH102
-Or-
CE364 CH152

Disqualifier(s): ME380

MC478 **STRUCTURAL MECHANICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1 2017-2

The course extends the coverage of Mechanics of Materials to the analysis of structural elements found in civil and mechanical engineering applications. Topics include stress/strain transformation, Mohr's circle, Generalized Hooke's Law, failure theory, fatigue and fracture mechanics and the basic theory of elasticity in three dimensions. Also covered in varying depth are numerical methods and experimental methods as they apply to structural mechanics. Students investigate the combined effects of axial, torsion, flexural, and shear loads on members with complex geometries and cross sections. Coverage includes the generalized flexure theory and the concept of a shear center, torsion of non-circular cross-sections, and thick-walled cylinders.

Lessons: 37 @ 55 min (2.500 Att/wk) **Labs:** 3 @ 55 min

Special Requirements: None

Prerequisite(s): MC364
-Or-
CE364

Disqualifier(s): CE478

MC486 **VIBRATION ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

In this course students develop a foundation in the analysis and design of free and forced single and multi-degree of freedom systems. Applications include modeling, damping, resonance, force transmissibility, vibration absorbers, matrix formulation and modal analysis. Emphasis is placed on vibrations examples from several engineering fields. Out-of-class design problems provide students with the opportunity to apply principles taught in the classroom to realistic problems encountered by practicing engineers. In-class demonstrations supplement the theory development.

Lessons: 39 @ 55 min (2.500 Att/wk) **Labs:** 1 @ 55 min

Special Requirements: Two out-of-class design problems. Compensatory time given.

Prerequisite(s): MA364 MC306

Corequisite(s): MC364

Disqualifier(s): ME486

ME350 **INTRO THERMAL SYS W/ ARMY APPL** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2005-2

Offerings: No Course Offerings

This course is presented within the framework of a common model for the engineering design process. This model serves as a conceptual framework for study in the engineering thermal sciences. This course concerns the study of mediums and energy. The basic conservation laws are developed. The student will gain a basic engineering knowledge of thermal science applications in the Army. Emphasis is placed on practical applications of internal combustion and gas turbine engines and fluid flow. Laboratory exercises are integrated into classroom work.

Lessons: 37 @ 55 min (2.500 Att/wk) **Labs:** 3 @ 55 min

Special Requirements: None

Prerequisite(s): CE300 CH102
-Or-
CE300 CH152
-Or-
CH102 MC300
-Or-
CH152 MC300

ME370 **COMPUTER AIDED DESIGN** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Explores the use of computer methods as an aid to solving engineering problems. Computer techniques are studied in a variety of engineering contexts. Topics include 3D solid modeling, engineering analysis, engineering computer programming, and graphical presentation of information. Students learn to apply a variety of engineering-related programs or routines. Students write, document, and use programs of their own in design scenarios. Considerable emphasis is placed on use of the computer as a tool in the engineering design process.

Lessons: 27 @ 55 min (2.500 Att/wk) **Labs:** 13 @ 120 min

Special Requirements: None

Prerequisite(s): MA205
-Or-
MA255

ME387 **INTRO APPLIED AERODYNAMICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

The fundamental laws of fluid mechanics are used to develop the characteristic forces and moments generated by the flow about aerodynamic bodies. Lift, drag, and aerodynamic moments are studied for airfoils (2-D) and finite wings (3-D) in the subsonic and supersonic flow regimes. Theoretical concepts are demonstrated in laboratory sessions that include low-speed wind tunnel testing and actual flight in the Department of Civil and Mechanical Engineering's fixed-wing aircraft.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 120 min

Special Requirements: None

Prerequisite(s): MC300 MC311

Corequisite(s): ME312
-Or-
MC312

ME388 **HELICOPTER AERONAUTICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

The aerodynamics of helicopter flight is analyzed for hover, translating, and partial power flight. Theory and experimental results are used to predict aircraft performance. The course analyzes the dynamic response of the rotor system and the performance aspects of the vehicle as a whole. This is followed by a design workshop, during which cadets complete the initial sizing of a helicopter to meet specific mission requirements. The course includes one flight lab in a helicopter, a laboratory examining rotor power and thrust utilizing a whirl stand apparatus, and one field trip to a commercial helicopter company.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 120 min

Special Requirements: Graded design workshop, whirl-stand laboratory, and flight laboratory briefing.

Prerequisite(s): CE300 ME311 ME370
-Or-
MC300 MC311 ME370

ME389 **INTRO TO ADV STUDY IN MECH ENG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-2

The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by Faculty Advisor.

ME389A **INTRO TO ADV STUDY IN MECH ENG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2017-2

The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirements as determined by Faculty Advisor.

Corequisite(s): ME389

ME400 **MECHANICAL ENGINEERING SEMINAR** **2.0 Credit Hours (BS=0.0,ET=2.0,MA=0.0)**

Scope: 2013-2

Offerings:

This seminar consists of a series of guest speakers and preparatory lessons for the Fundamentals of Engineering Examination. It will include all First Class cadets majoring in mechanical engineering. Guest Speaker topics will address the concerns of professional mechanical engineers such as engineering ethics, continuing education, engineering economy, social and safety considerations, and professional registration. Project management techniques will be introduced in this seminar as well as presentations by guest lecturers on topics of current interest in the field of mechanical engineering. Guest lecturers will be primarily mechanical engineering practitioners, providing the students an opportunity to interact with professionals in their major field of interest.

2015-2 2016-2 2017-2

Lessons: 26 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ME403 **MANUFACTURING/MACHINE COMP DSN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is an introduction to mechanical manufacturing machines and machine component design. The first portion of the class is devoted to safe, hands-on experience with manufacturing machines and equipment. Cadets will have an opportunity to work on civil and mechanical manufacturing machines that are common in machine, woodworking, and sheet metal shops such as a mill, lathe, grinder, belt sander, drill press, and bandsaw. The course progresses to fundamental engineering science applied to machine components. These topics include load, stress, and strain analyses, impact, fatigue, and surface damage. The course progresses to the study of machine component design to include mechanical components such as fasteners, springs, bearings, gears, and shafts. Welding techniques and welding equipment are introduced. The course culminates in a team-oriented process, design, and manufacture of a mechanical engineering product using the techniques, tools, machines, and equipment that were developed and taught throughout the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 110 min

Special Requirements: One comprehensive design and manufacturing project.

Prerequisite(s): CE300 CE364
-Or-
MC300 MC364

ME404 **MECHANICAL ENGINEERING DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

This course introduces mechanical engineering design as an iterative decision making process. It also introduces engineering economics and ethics. One engineering design problem reinforces the design process instruction and culminates in a student competition. Cadets begin an integrative capstone design experience that applies the Mechanical Engineering Design Process to a real-world engineering problem addressing social, political, economic, and technical issues. Students begin capstone assignments early in the course and continue their projects with ME496.

Lessons: 15 @ 55 min (2.500 Att/wk) **Labs:** 25 @ 55 min

Special Requirements: None

Prerequisite(s): ME403

ME450 **ME DESIGN OF ARMY SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course presents mechanical engineering design as an iterative decision making process. A wide variety of mathematics, science, and engineering fundamentals are applied to the synthesis, analysis, and evaluation of mechanical components. The culminating design project provides an opportunity to experience design and to consider reliability, economics, and the judicious use of resources. A paper design and design and build projects reinforce the design process instruction. The course culminates in a student competition.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 55 min

Special Requirements: Design projects as assigned; compensatory time provided.

Prerequisite(s): ME350
-Or-
ME311
-Or-
MC311

ME472 **ENERGY CONVERSION SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

Fundamental concepts are extended to the engineering analysis of coal, oil and natural gas fossil fuel systems to assess the dominant sources of energy and technologies in the electric power, transportation, industrial, and residential and commercial energy sectors. Renewable and alternative energy resources including solar, wind, biomass, hydro, geothermal, nuclear and ocean energy are assessed, along with analysis of conventional and emerging technologies to harness them. National and global energy issues are discussed with technical, economical, environmental, societal and geopolitical considerations and in the context of Army energy needs.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None.

Prerequisite(s): ME312
-Or-
MC312

ME480 **HEAT TRANSFER** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The three modes of heat transfer, conduction, convection, and radiation, are studied in detail and applications are made to various engineering systems. The principles of conduction and convection are used to study the mechanisms of heat transfer during boiling, condensation and the design of heat exchangers.

Lessons: 46 @ 55 min (3.000 Att/wk) **Labs:** 1 @ 55 min

Special Requirements: None

Prerequisite(s): MA364 ME312
-Or-
MA364 MC312

ME481 **AIRCRAFT PERFOR/STAT STBLTY** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

The course applies the principles developed in applied aerodynamics to develop the equations of motion for a rigid aircraft in steady state level flight, maneuvering flight, and during takeoff and landing. These equations are analyzed to determine such performance characteristics as maximum range, endurance, turning rate, climb rate, etc. Piston-prop, turbo-prop, and jet aircraft are considered. The equations of motion are then analyzed to develop static stability criteria and investigate steady state control characteristics. Two flight laboratories in the departments fixed-wing airplanes provide an opportunity to obtain performance data and analyze the steady state stability and control of an actual aircraft.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 120 min

Special Requirements: Two flight laboratory reports, glider design and test.

Prerequisite(s):

-Or-

-Or-

-Or-
ME311 ME387
-Or-
MC311 ME387

ME483 **AERONAUTICAL SYSTEMS DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2005-2

Offerings: 2016-2 2017-2

Using the aeronautical fundamentals learned in the prerequisite courses, cadet design groups apply the design process to develop and build an aeronautical systems design project. The following design areas are addressed: weight estimation, aerodynamic surfaces, stability and trim, component layout, drive trains, structural analysis, and miscellaneous subsystems. The semester-long course project is completed in phases, culminating in a final report and oral presentation. This course provides an integrative experience in support of the overarching academic program goal, and is often interdisciplinary in nature.

Lessons: 3 @ 55 min (2.500 Att/wk) **Labs:** 44 @ 110 min

Special Requirements: Cadets spend extensive time in project development laboratories fabricating and refining their products under the supervision of laboratory technicians during Z-hour (mutually agreed upon meeting period).

Prerequisite(s): ME402 ME481

ME486 **VIBRATION ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2007-2

Offerings: 2016-2

In this course students develop a foundation in the analysis and design of free and forced single and multi-degree of freedom systems. Applications include modeling, damping, resonance, force transmissibility, vibration absorbers, matrix formulation and modal analysis. Emphasis is placed on vibrations examples from several engineering fields. Out-of-class design problems provide students with the opportunity to apply principles taught in the classroom to realistic problems encountered by practicing engineers. In-class demonstrations supplement the theory development.

Lessons: 39 @ 55 min (2.500 Att/wk) **Labs:** 1 @ 55 min

Special Requirements: Two out-of-class design problems. Compensatory time is given.

Prerequisite(s): MA364 ME306
-Or-
MA364 MC306

Corequisite(s): CE364
-Or-
MC364

ME489 **ADV STUDY IN MECH ENGRNG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis.Other requirements as determined by Faculty Advisor.

ME489A **ADV STUDY IN MECH ENGRNG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2017-2

The cadet pursues advanced study of a topic in mechanical engineering on an individual or small group basis, independent of a formal classroom setting. Similar to graduate level research, the scope of the selected project is tailored to the interests of the cadet based on resources and in consultation with a faculty advisor. To develop research skills, the cadet is integral in all phases of project completion by defining objectives, studying fundamentals and background material, outlining the approach, conducting analysis, and communicating results.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Enrollment by permission of Mechanical Engineering Program Director. Appropriate ET credit will be determined by the Mechanical Engineering Program Director on a case by case basis. Other requirments as determined by the Faculty Advisor.

Corequisite(s): ME489

ME489B **INDEPENDENT STUDY, ADVANCED** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: No Course Offerings

This course will cover adavanced topics in M. E.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Must have ME489 and ME489A

ME490 **TOPICS IN MECHANICAL ENGNRG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-2

Offerings: 2015-2 2016-1 2017-2

This course provides in-depth study of a special topic in engineering mechanics or mechanical engineering not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor or a senior mechanical engineering faculty member.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: TBD

ME491 **MECHANICAL POWER PLANTS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2006-2

Offerings: 2015-2 2016-2 2017-2

Students engage in the analysis, testing and evaluation of internal combustion engines and their subsystems with a view toward understanding the underlying principles which affect their design. Spark ignition and compression ignition engine systems are studied in detail with laboratory opportunities to relate theory to practice. A series of component design problems is interspersed throughout the course.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: Component design projects; compensatory time provided.

Prerequisite(s): ME311
-Or-
MC311

Corequisite(s): ME312
-Or-
MC312

ME492 **PWR TRAINS & VEH DYNAMICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

An introductory course in ground vehicle theory with emphasis on analysis, testing, and evaluation of automotive power trains and dynamic systems to understand the underlying principles affecting vehicle design. Clutches, transmissions (manual and automatic), differentials, wheels and tires, as well as braking, steering and suspension systems are studied in detail to include their effect on vehicular or other system performance. High speed, tracked vehicle application of the above systems is also covered. Theory is verified with hands on experience in the laboratory. Component design problems are interspersed throughout the course.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: Comprehensive team design projects; compensatory time provided.

Prerequisite(s): ME306 ME312
-Or-
MC306 MC312

ME496 **MECHANICAL SYSTEM DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This course provides experience in the integration of math, science, and engineering principles into a comprehensive engineering design project. Open-ended, client-based design problems emphasize a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, perform appropriate analysis to support the technical feasibility of the design, and make decisions leading to an optimal system design. System integration, human factors engineering, computer-aided design, maintainability, and fabrication techniques are addressed. This course provides an integrative experience in support of the overarching academic program goal, and is often interdisciplinary in nature.

Lessons: 3 @ 55 min (3.000 Att/wk) **Labs:** 44 @ 110 min

Special Requirements: Cadets spend extensive time in project development laboratories fabricating and refining their final products under the supervision of laboratory technicians during Z-hour (mutually agreed upon meeting period).

Prerequisite(s): ME404

XE475 **MECHATRONICS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

XE 475 is a comprehensive introductory course in the field of mechatronics. Mechatronics is the crossroads in engineering where mechanical engineering, electrical engineering, computer science, and controls engineering meet to create new and exciting real-world systems. Knowledge of mechanical and electrical components, controls theory, and design are integrated to solve actual physical design applications.

Lessons: 42 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 120 min

Special Requirements: The completion of an out-of-class project requiring the equivalent of 0.5 credit hour of student effort.

Corequisite(s): XE472

XE495 **TOPICS: ADVANCED TECHNOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2016-2 2017-2

This course is taught by the Class of 1950 Chair of Advanced Technology, a visiting scholar with a distinguished record of academic and professional achievement in the field of engineering, science and technology. The seminars focus on topical issues that either reflect the Chair's area of expertise or are conducted by an expert in the field. Students will apply mathematics, science, and engineering fundamentals to evaluate equipment, processes, and concepts being used in the Army. The course has a final design briefing that is an integrative experience. Admission into course is with permission of Department Head.

Lessons: 20 @ 110 min (1.250 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: FCS Decision Brief too distinguished guests; Industry field trip.

Prerequisite(s):
MA205 PH202
-Or-
MA205 PH252
-Or-
MA205 PH204
-Or-
MA205 PH254
-Or-
MA255 PH202
-Or-
MA255 PH252
-Or-
MA255 PH204
-Or-
MA255 PH254

Department of Electrical Engineering and Computer Science

79 Courses

CS301 **FUND OF COMPUTER SCIENCE** **3.5 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This is the first course for cadets enrolled in the computer science major. This course presents a thought-provoking introduction to the key concepts throughout the field. Cadets develop their understanding of programming (to include modular design) and problem-solving skills begun in IT 105, then launch their computer science studies by focusing on software, data organization, and other topics. Exercises in the design and implementation of software systems are required.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: Design projects; Compensatory time given.

Prerequisite(s): IT105
-Or-
IT155
-Or-
CS105
-Or-
CS155

Disqualifier(s): CS300
-Or-
IT300

CS350 **DATABASE DESIGN & IMPLEMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2

This course addresses the analysis, design and implementation of relational database applications. Implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using a standardized notation such as the unified modeling language (UML), data model to logical schema conversion techniques, normalization, transaction processing, and client-server architectures.

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 55 min

Special Requirements: None

Prerequisite(s):
-Or-
CS301
-Or-
IT305

CS380 **COMPUTER ORGANIZATION** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2005-2

Offerings: 2016-1

This course provides an introduction to computer organization and computer architecture. It builds on digital logic theory and devices (as studied in EE360) and procedural logic (as studied in CS301) to develop more complex systems. Emphasis is placed on understanding the basics of computer system organization, design, and operation. This includes the use of Register Transfer Language (RTL) to describe the movement of data in the computer and assembly language programming to control the system at a higher level. Additionally, cadets are introduced to modern engineering design tools through the use of VHDL (VHSIC Hardware Description Language) as they design, simulate, and program a simple processor in design projects. Other topics such as microprogram control, RISC architectures, arithmetic processing, input/output, and memory design are introduced. Cadets learn the fundamentals of SPARC Assembly Language to demonstrate instruction-level control of a real processor. Cadets are introduced to the C programming language and linking assembly language routines with higher-level languages. (Note: merged into EE375 eff 2005-1)

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 55 min

Special Requirements: None

Prerequisite(s): CS301 EE360

CS384 **DATA STRUCTURES** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 1998-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to build on the cadet's basic programming knowledge. Major emphasis is placed on object-based design, programming methodology, algorithms and algorithm analysis, data structures, and abstract data types as tools for the analysis, design, and implementation of software modules to meet specified requirements. Cadets will learn and employ several well-known algorithms and data structures. Techniques of searching, sorting, recursion, and hashing will be examined. Data structures such as sets, heaps, linked lists, stacks, queues, and trees will be covered. A block-structured programming language reflecting comprehensive support for good software engineering principles will be the foundation of application-oriented exercises. Cadets will design software solutions by employing problem decomposition and selecting the appropriate algorithms and abstract data types.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS360
-Or-
CS360A
-Or-
CS301

CS385 **DESIGN & ANALYS-ALGORITHMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course studies analysis of algorithms and the relevance of analysis to the design of efficient computer algorithms. Algorithmic approaches covered include greedy, divide and conquer, and dynamic programming. Topics include sorting, searching, graph algorithms, and disjoint set structure.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS384 MA372

CS393 **DATABASE SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2016-1 2016-2 2017-1

This course addresses the analysis, design and implementation of relational database applications. The structured query language (SQL) is covered in depth along with standard problem domain and data modeling techniques. Implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using a standardized notation such as the unified modeling language (UML), data model to logical schema conversion techniques, normalization, client-server architectures and web-based access to database systems (e.g. XML). Additional advanced topics covered include system security, transaction processing, data recovery techniques, and maintaining state for mobile devices. Design projects focus on implementing the key course concepts using state-of-the-art multi-user database software.

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 55 min

Special Requirements: Three design projects; compensatory time given.

Prerequisite(s): CS301
-Or-
IT305

Disqualifier(s): CS350

CS394 **DISTRIB APPLICATION ENGRNG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1 2017-1

Building on the foundations of algorithm implementation, data structures, data representation, and object oriented programming this course focuses on the principles of designing, implementing, and testing a modern distributed application. Cadets study the construction and interaction of user interface, network, web server, database, and other components to produce an integrated working secure system. Cadets will learn new tools and skills working as a team to analyze, design, and implement a system that solves a given problem. This is one of the courses that a Computer Science major can choose from a list of elective courses and the focus is on data structure concepts and object oriented programming.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS350
-Or-
CS393

Corequisite(s): CS403

Disqualifier(s): IT394

CS400 **COMPUTER SCIENCE SEMINAR** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-2

This seminar will meet once or twice a week and will include all First Class cadets majoring in computer science. The seminar?s instruction consists of relevant reading assignments, class discussions based on readings and case studies, and numerous distinguished guest speakers. Content will address the concerns of computing professionals as well as recent Department of Defense initiatives and new developments in the discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of computing on individuals, organizations, and society. They will also be able to outline and defend the values and responsibilities of a member of the computing profession and to summarize avenues through which they can continue to grow professionally.

Lessons: 27 @ 55 min (1.700 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): CS401

CS401 **SOFTWARE SYSTEMS DESIGN I** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course is the first in the senior-level sequence dealing with software systems. It provides cadets with an integrative engineering design and implementation experience as they pursue a solution to a complex, real-life problem. Conceptual material stresses requirements definition and problem solving strategies applied to the design and implementation of software systems. Hierarchical abstractions, modeling, and user interface issues are examined and integrated with a study of the software life cycle, requirements specification, and verification and validation issues. Cadets also learn and employ additional advanced computing techniques that prepare them for the more complex portions of project implementations during CS402. Potential topic areas to be covered may include distributed computation, software quality measurement, or portable application interfaces.

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Individual and team projects; compensatory time provided.

Prerequisite(s): CS403

CS403 **OBJECT ORIENTED CONCEPTS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

This course builds on the fundamental programming skills from prerequisite courses to explore advanced concepts used in modern object oriented software design to create software that is robust, reusable, and extensible in varying problem domains. Cadets gain confidence in their abilities to model, implement, and test solutions to demanding programming problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Design projects; compensatory time provided.

Prerequisite(s): CS350 CS384
-Or-
CS384 CS393

CS450 **DISTRIB APPLICATION DEVELOPMNT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

Building on the foundations of algorithm implementation, data representation, web development, and basic networking, this course focuses on the principles of constructing a modern distributed application. Cadets study the principles, construction, and interaction of user interface, network, web server, and database components to produce an effective distributed application. Cadets will learn new tools and skills working as a team to analyze, design, and implement a system that solves a given problem.

2015-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS350 IT300
-Or-
CS300 CS350
-Or-
CS301 CS350

Disqualifier(s): IS450
-Or-
CS394

CS473 **COMPUTER GRAPHICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

This course concerns computer programs that draw two- and three-dimensional objects on computer output devices and receive input from users through graphical input devices. Cadets implement interactive programs through a commonly available graphical application programmers' interface (API). They learn about graphical hardware devices and the elegant algorithms that underlie the API, including elementary computational geometry, continuous time physical simulation, homogeneous transformations, parametric forms, clipping, shading, color, and surface rendering. These concepts are all illustrated with examples of military data visualization including two-dimensional maps and three-dimensional battle simulation and terrain visualization.

Lessons: 33 @ 55 min (0.000 Att/wk) **Labs:** 7 @ 55 min

Special Requirements: None

Prerequisite(s): CS384 MA205 PH203
-Or-
CS384 MA255 PH203
-Or-
CS384 MA255 PH253
-Or-
CS384 MA205 PH253
-Or-
CS384 MA205 PH201
-Or-
CS384 MA255 PH201
-Or-
CS384 MA255 PH251
-Or-
CS384 MA205 PH251

CS474 **FUNDAMENTLS-COMPUTER THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: No Course Offerings

Grounds the cadet in the essentials of theory of computation: formal languages, automata, and computability theory. Frames computation in the context of the Chomsky hierarchy, the polynomial and exponential time hierarchies, and the decidability hierarchy. Explores fundamental limits on computation: what problems can never be solved, what problems can be solved but are intractable, and the class NP of problems that are thought to be intractable, but for which no proof of intractability exists to date.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS385

CS474 **FUNDAMENTALS-COMPUTER THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings:

Grounds the cadet in the essentials of theory of computation: formal languages, automata, and computability theory. Frames computation in the context of the Chomsky hierarchy, the polynomial and exponential time hierarchies, and the decidability hierarchy. Explores fundamental limits on computation: what problems can never be solved, what problems can be solved but are intractable, and the class NP of problems that are thought to be intractable, but for which no proof of intractability exists to date.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): CS385

CS478 **PROGRAMMING LANGUAGES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1 2017-1

Concepts of high-level programming language design are explored in detail. Cadets will examine the fundamental issues of programming language design and use this knowledge as a framework for comparison of different high-level languages. Cadets will study concepts from some or all of the imperative, functional, object-oriented, concurrent, and logic programming language paradigms.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 55 min

Special Requirements: None

Prerequisite(s): CS403

CS481 **OPERATING SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

The operating system controls the computer itself and provides a useful interface for users and application programs. The operating system controls all the computer resources: processors, main storage, secondary storage, I/O devices, and files. It determines which programs will be in memory at any given time and the order in which programs will run. The operating system should resolve conflicts between processes, attempt to optimize the performance of the computer, allow the computer to communicate with other computers, and maintain a record of actions performed as it goes about its system tasks. This course investigates the basic design issues encountered in order to produce an operating system that can address the above problems in an efficient manner. These concepts are reinforced by a series of programming projects that include both design and implementation.

Lessons: 37 @ 55 min (2.500 Att/wk) **Labs:** 3 @ 55 min

Special Requirements: Programming projects; compensatory time given.

Prerequisite(s): CS403

CS482 **CYBER SECURITY** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2

The focus area for this course is Cyber Security in the context of secure operation of networked computer systems. Topics covered include operating systems, system and network security, and offensive and defensive information operations. A course project and term paper bring together the diverse concepts learned. In a culminating exercise, cadets develop and implement defensive measures to protect a production network from intrusions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Final project; compensatory time given.

Prerequisite(s): CS481
-Or-
IT382

CS482 **CYBER SECURITY ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2016-1

Offerings:

The focus for this course is to design, build and test secure networked computer systems. Topics covered include operating system and network security, secure network architecture, and offensive and defensive information operations. Practical exercises that give students hands-on experience with current network security tools and techniques complement a series of laboratory exercises that have small groups of cadets secure their own small network. In a culminating exercise, cadets design, build and test defensive measures to protect a production network from intrusions.

2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS484
-Or-
IT350

CS483 **DIGITAL FORENSICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-2

Offerings:

Digital Forensics will explore the evidence left behind when malicious activity occurs on an information system. The material in this course will build on your knowledge of Operating Systems, file formats, file system structure, computer architecture, and networking. The course begins with an overview of these areas, then examines how to find and extract digital evidence. During the course, you will be challenged with three projects (subjects to be chosen by you) and in class challenges that will allow you to demonstrate your understanding of the material.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS481 EE375

CS484 **COMPUTER NETWORKS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-1

Offerings:

This course provides cadets with an introduction to computer networks by breaking the subject into comprehensible parts and building a survey of the state of the art. The goal of the course is to provide each cadet with basic concepts necessary to understand the design and operation of computer networks. Taking a layered approach, it examines the internet with an emphasis on the TCP/IP protocol suite. Additionally, basic principles including multiplexing, switching, flow control, and error control are covered. Internetworking and its application to both local and wide area networks are also investigated. The course offers an understanding of the current status and future directions of technology and how technology relates to standards.

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT382
-Or-
CS403

CS484 **COMPUTER NETWORKS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-2

Offerings:

This course provides cadets with an introduction to computer networks by breaking the subject into comprehensible parts and building a survey of the state of the art. The goal of the course is to provide each cadet with basic concepts necessary to understand the design and operation of computer networks. Taking a layered approach, it examines the internet with an emphasis on the TCP/IP protocol suite. Additionally, basic principles including multiplexing, switching, flow control, and error control are covered. Internetworking and its application to both local and wide area networks are also investigated. The course offers an understanding of the current status and future directions of technology and how technology relates to standards.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS384
-Or-
IT350

CS485 **SPEC TOPICS IN COMPUTER SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-2

Offerings: 2015-2 2017-2

This course provides in-depth study of a special topic in computer science not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior computer science faculty member.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be determined by the program director.

CS486 **ARTIFICIAL INTELLIGENCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

The course provides an introduction to the field of Artificial Intelligence (AI). Cadets will develop an appreciation for the domain of AI and an understanding of the current interest and research in the field. The historical ideas and techniques of AI and the resulting set of concepts will be covered. Classic programs will be covered as well as underlying theory. Topics include a history of computer problem solving, heuristic search techniques, knowledge representation, knowledge engineering, predicate calculus, and expert and/or rule based systems. Advanced topics that may be covered include intelligent agents, genetic algorithms, neural networks, fuzzy logic, robotics, vision, natural language processing, learning, and the programming languages of AI. The course will emphasize the practical application of artificial intelligence to industry and business as well as DoD.

Lessons: 32 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: Term project/paper; compensatory time given.

Prerequisite(s): CS384 EE360
-Or-
CS384 EE300

CS488 **LANG-BASED SIMULATION MODELING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2017-2

This course applies nearly all previous study of computer science to a specific problem domain essential to the Army - simulation technology. Cadets will learn the fundamental principles of event-based simulation, language-based representation of simulation models, and how models are implemented efficiently. Finally, they will learn how simulations are assessed and validated to determine their usefulness. A series of progressive implementation projects put learned concepts into practice.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS403 CS474

Corequisite(s): CS478

CS489 **ADV IND STUDY COMPUTER SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The detailed syllabus of this elective will be tailored to the specific project and to qualifications of the cadet. The research or study program will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, design a viable research plan, and conduct research under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established by consultation between cadet and advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: At least 3.0 average in CS courses normally required. Grades based largely on research paper/presentation to faculty. Participation in Eastern Collegiate Science Conference/publication of research are options.

CS489A **ADV IND STUDY COMPUTER SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1995-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Same as CS489.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Same as CS489.

Prerequisite(s): CS489

CS490 **COMPUTR SCI SUMMER RESEARCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings: No Course Offerings

This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three full weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will meet the requirements of a three-credit course in computer science.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral and written reports.

CS490A **COMPUTR SCI SUMMER RESEARCH** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings: No Course Offerings

This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will be equivalent to two credits of course work in computer science.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

CS490B **COMPUTR SCI SUMMER RESEARCH** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings: No Course Offerings

This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a USMA faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the Academic Individual Advanced Development program. Scope, depth, and material covered will be equivalent to one credit of course work in computer science.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral and written reports.

EE300 **FUNDAMENTALS OF DIGITAL LOGIC** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This is a course for non-electrical engineering majors that covers the analysis, design, simulation, and construction of digital logic circuits and systems. The material in this course provides the necessary tools to design digital hardware circuits such as clocks and security devices, as well as computer hardware. The course begins with the study of binary and hexadecimal number systems, Boolean algebra, and their application to the design of combinational logic circuits. The first half of the course focuses on combinational logic designs. The second half of the course emphasizes sequential logic circuits like memory systems, counters, and shift registers. Laboratory work reinforces the course material by requiring cadets to design and implement basic digital circuits. Throughout the course, the focus is on how the various digital hardware devices are used to perform the internal operations of a computer.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: None

Disqualifier(s): EE360

EE301 **FUNDAMENTALS OF ELEC ENGIN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 1998-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

This first course in electrical engineering for the non-electrical engineering major provides a foundation in basic circuit theory and analysis, power in circuits and electric power systems, and analog electronics. Lectures, laboratory work, classroom demonstrations and discussions showing practical applications emphasize and illustrate the fundamental theories and concepts presented in the course. Engineering design is reflected in laboratory work and minor design problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): MA205 PH202
-Or-
MA205 PH252
-Or-
MA255 PH202
-Or-
MA255 PH252
-Or-
MA205 PH204
-Or-
MA255 PH204
-Or-
MA205 PH254
-Or-
MA255 PH254

Disqualifier(s): EE302

EE302 **INTRO ELECTRICAL ENGIN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2015-3 2016-2 2017-2

This first course in electrical engineering provides a solid introduction to electric circuit theory. Fundamental principles and network theorems are developed using DC resistive circuits. The complete responses of RC, RL, and RLC circuits are obtained using classical and Laplace-transform techniques to solve the related differential equations. Electrical system transfer functions, time-domain and frequency-domain relationships, stability, frequency response, steady-state AC analysis, and power are also studied. Laboratory work, practical applications, and classroom demonstrations emphasize and illustrate the fundamentals presented in the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Corequisite(s): MA205 PH202
-Or-
MA205 PH252
-Or-
MA255 PH202
-Or-
MA255 PH252
-Or-
MA205 PH204
-Or-
MA255 PH204

Disqualifier(s): EE350
-Or-
EE301

EE350 **BASIC ELECTRICAL ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-2 2017-2

This is a course for non-electrical engineering majors that provides a foundation in basic circuit theory and analysis, power in circuits and electric power systems, and analog electronics. Lectures, laboratory work, classroom demonstrations and discussions showing practical applications illustrate the fundamental theories and concepts presented in the course. Engineering science is reflected in laboratory work.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): MA205 PH204
-Or-
MA205 PH254
-Or-
MA255 PH204
-Or-
MA255 PH254
-Or-
MA205 PH202
-Or-
MA205 PH252
-Or-
MA255 PH202
-Or-
MA255 PH252

Disqualifier(s): EE302
-Or-
EE301

EE360 **DIGITAL LOGIC W/ EMBEDDED SYS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course covers the analysis, design, simulation, and construction of digital logic circuits and embedded systems. The material in this course provides the necessary tools to design digital hardware circuits based on design techniques such as Karnaugh maps and Finite State Machines. The course begins with the study of binary and hexadecimal number systems, Boolean algebra, and their application to the design of combinational logic circuits. The first half of the course focuses on designs using medium-scale integration (MSI) circuits and Field Programmable Gate Arrays (FPGAs) to implement combinational logic functions. The second half of the course emphasizes sequential logic circuits. Laboratory work in this half of the course focuses on using very high speed integrated circuit hardware description language (VHDL) to simulate digital systems and to program those systems in hardware. As a final project, cadet teams design, build, and test a digital logic system.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: A two-part design project (0.5 design credits).

Prerequisite(s): CS105
-Or-
CS155
-Or-
IT105
-Or-
IT155

Disqualifier(s): EE300

EE362 **INTRODUCTION TO ELECTRONICS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

This course continues cadet education in electrical engineering through the study of basic electronic devices and circuits. It begins with an introduction to semiconductor physics. It then covers the operation of the pn-junction diode and the metal-oxide semiconductor field-effect transistor (MOSFET) in DC, large-signal, and small-signal regimes. The course emphasizes single-stage amplifier design. The course concludes with an introduction to bipolar junction transistors (BJT) and the design, analysis, simulation, building, and testing of a two-stage audio amplifier. Six laboratory exercises and computer-aided design and analysis using modern circuit simulation software supplement the lectures with practical circuit analysis, design, construction and testing.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: All cadets design, build and test a multistage audio amplifier (0.5 design credits).

Prerequisite(s): EE302

EE375 **COMPUTER ARCHITECTURE W/MICRO** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-1

Offerings:

This course provides an introduction to computer architecture and organization using modern microprocessors. It builds on digital logic theory and embedded systems to develop more complex systems. Emphasis is placed on hands-on understanding of the basics of computer system organization, design, and operation. This includes the use of Register Transfer Language (RTL) to describe the movement of data in the computer and assembly language programming to control the system at a higher level. Additionally, students are introduced to modern engineering design tools through several labs using VHDL (VHSIC Hardware Description Language) to design, simulate and program a simple processor. Other topics such as microprogram control, RISC architectures, arithmetic processing, input/output, and memory design are introduced.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): EE360

EE377 **ELECTRICAL POWER ENGNRNG** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings:

This course provides a study of the fundamentals in two areas of electric power engineering: electromechanical energy conversion and electric power systems. Steady-state behavior in single-phase and balanced three-phase power circuits is emphasized. The concept of per unit analysis is introduced and used throughout the course. Transformers, AC & DC machines, transmission lines, power systems, power electronic devices, and renewable energy sources are studied. Laboratory exercises demonstrate the electrical, mechanical, and physical characteristics of several of the systems studied. The cadet will apply analysis, design, build, and/or test techniques to a power related project.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: Computer-aided analysis of a small power system is included.

Prerequisite(s): EE302
-Or-
EE301

EE381 **SIGNALS AND SYSTEMS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-1

Offerings:

This course provides a general study of linear system theory and signal representation techniques as preparation for continued study in communications, control, and electronic systems. Topics include the resolution of continuous time signals and discrete time sequences into their images as frequency functions using Fourier series and transforms. The study includes singularity functions, convolution, convergence properties, and transform properties. The Laplace transform and its inverse provide a method for determining the system function for systems described by differential equations, while the z-transform and its inverse provide a method of analysis for difference equations. The course includes a brief study of communication system principles to include sampling and a study of analog and digital (both finite and infinite impulse response) filter design. Laboratory exercises in the course consist of learning the engineering software program MATLAB and its use in generating and processing signals. In addition to exposing students to the engineering software program MATLAB, laboratory periods provide opportunities for instructor-assisted problem solving.

2016-1 2017-1

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: None

Corequisite(s): EE302 MA206 MA364

EE383 **ELECTROMAGN FIELDS & WAVES** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-2

Offerings:

This course is an introduction to electromagnetic fields, which are the foundation of electrical engineering. The course begins with transmission line analysis using circuit models and reviews the mathematical tools (vector algebra and calculus) that are used to describe electromagnetic phenomena. Maxwell's equations are solved to describe time-harmonic fields under various boundary conditions and at interfaces between dissimilar media. Additional topics include the applications of electromagnetic field theory to transmission lines, antennas and waveguides, and the role of electromagnetics in science, technology and society. Laboratory periods provide opportunities for instructor-assisted problem solving. Additionally, Cadets complete a computer project on finding the numerical solutions to Maxwell's equations.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: None

Prerequisite(s): PH204
-Or-
PH254
-Or-
PH202
-Or-
PH252

Corequisite(s): MA364

EE400 **EE PROFESSIONAL CONSIDERATIONS** **2.0 Credit Hours (BS=0.0,ET=2.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course addresses the concerns of professional electrical engineers such as engineering ethics, economics, licensing, manufacturability, sustainability, reliability, safety, and design methodologies. The course will include Fundamentals of Engineering Exam preparation and review. The course includes all first class cadets majoring in electrical engineering. Guest lecturers from military, industrial, and academic communities will present some of the material.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EE401

Corequisite(s): XE402

EE401 **ELECTRONIC SYSTEM DESIGN I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course is part of a two-semester team design experience in electrical engineering that integrates math, science, and engineering into a comprehensive system. The system design encompasses both analog and digital electronics, and may also include sub-systems. Projects are open-ended and must result in a product that performs within pre-determined or negotiated constraints. The system design problem draws from a variety of science and engineering experiences within the curriculum and requires significant cadet creativity and decision-making. Acceptable solutions must address technological, social, political, economic, and ethical considerations. Classroom instruction addresses design methodologies and common system components. Course requirements include periodic in-progress reviews, written and oral reports.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: A senior design project is required in this course.

Prerequisite(s): EE362

Corequisite(s): EE462

EE450 **MILITARY ELECTRONIC SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-4 2016-1 2017-1

This is the capstone course of a three course series of courses designed to introduce non-electrical engineering majors to the fundamentals of electrical engineering. These key concepts are then used to interface various sensors and actuators with a simple microprocessor using experiments that demonstrate some basic applications of a simple robot. Finally, cadets design a robot to autonomously navigate a simple maze that simulates some practical military robotics applications.

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 120 min

Special Requirements: A design project is required. Compensatory time given.

Prerequisite(s): EE300 EE350
-Or-
EE300 EE302
-Or-
EE350 EE360
-Or-
EE302 EE360

EE462 **ELECTRONIC DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on the design, simulation, building, and testing of a wide variety of application-oriented circuits based upon the bipolar junction transistor (BJT) and operational amplifier (OPAMP). Applications of the BJT include current sources, active loads, differential amplifiers, and power amplifiers. OPAMP applications include active filters, oscillators, and comparators. Themes common to both the BJT and OPAMP include frequency response and feedback. The classroom material is supplemented with six labs, computer-aided simulations using modern circuit simulation software, and a comprehensive design project.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: A major design project requires cadets to design, build, and test an electrical system.

Prerequisite(s): EE360 EE362

EE477 **DIGITAL COMMUNICATIONS SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course examines modern digital communications networks, with particular emphasis on wired networks at the physical layer and the TCP/IP network model above the physical layer. The study of digital communications systems includes waveform sampling, time multiplexing, line coding, digital modulation, and clock recovery techniques. Time and frequency domain analysis are the basis for study of bandwidth considerations, filtering, and channel and communication system modeling. Network topology, traffic representation, and link capacity assignment schemes are analyzed. Cost and time delay optimization for centralized and distributed networks are investigated. Queuing theory is presented with application to buffer modeling, buffer design considerations, and throughput constraints. Basic network design algorithms and flow control schemes are also covered. A communications system project brings these concepts to reality.

Lessons: 37 @ 55 min (2.500 Att/wk) **Labs:** 3 @ 120 min

Special Requirements: Course project.

Prerequisite(s): EE362 EE381 MA206
-Or-
EE363 EE381 MA206
-Or-
EE363A EE381 MA206

EE480 **OPTICAL FIBER COMMUNICATIONS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

The study of fiber optics provides insight into the enabling technology of the global Internet and modern day telecommunications. This course develops understanding of the devices and key components that comprise a fiber based optical communications system. Students will develop an understanding of the fundamental properties of silica based fibers and the principal components required to exploit this medium. Topical coverage of the fiber medium includes modal fields, attenuation, and dispersion for both single mode and multimode fibers. Several device types will be studied to include transmitters, receivers, multiplexers, amplifiers, specialty optical fibers, and selected state-of-the-art components. Software tools and measurement equipment will be used to characterize fiber and device properties. The course culminates with students designing, building, and characterizing a fiber optic communications link.

Lessons: 32 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): EE383

EE482 **WIRELESS COMM SYS ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-2

Offerings:

This course provides an introduction to wireless systems engineering with applications to voice and data networks. Description of well known systems such as cell phones, pagers, and wireless LAN's is presented along with the design considerations for deployment of wireless networks. Wireless radio channel modeling along with common impairments such as multipath fading are introduced and modulation techniques well suited to the wireless applications are presented. Receivers for the various modulation schemes are analyzed in terms of performance and the trade-offs offered by source and channel coding are presented. Multiple access techniques used in wireless applications are introduced and the design of networks described. The course concludes with an analysis and description of deployed systems along with their standards and services provided.

2015-2 2016-2 2017-2

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 110 min

Special Requirements: Course Project.

Prerequisite(s): EE381

Corequisite(s): EE383

EE483 **PHOTONICS ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-2 2017-2

This course is an introduction to optoelectronic devices and systems. It begins with a review of the fundamental electromagnetic field theory, quantum mechanics, and solid state electronics that characterize optoelectronic device behavior. The course then addresses essential concepts from geometrical and physical (wave) optics. Building upon these fundamental principles, the course addresses the operating principles and design considerations of photoemitters (lasers and LED's), photodetectors, optical waveguides and signal modulators. Finally, the cadet incorporates the individual devices in the design, building and testing of a fiber optic data link.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Corequisite(s): EE362 EE383
-Or-
EE362 PH382

EE485 **SPEC TOPICS IN EE** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2017-1

This course provides an in-depth study of special topics in electrical engineering not offered elsewhere in the USMA curriculum. Course content will be based on expertise of a senior electrical engineering faculty member or a Visiting Professor.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: To be determined by the senior faculty member or visiting professor.

EE486 **SOLID STATE ELECTRONICS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

The course covers device physics, operating principles and applications of diodes, bipolar junction transistors, and field effect transistors (FET). It begins with basic properties of crystalline solids, energy diagrams, and thermal physics. P-N junction diodes are the first semiconducting device explored with further study into MOS capacitor and MOSFET based digital circuits. The course normally covers layout of complementary metal oxide semiconductor (CMOS) gates on an integrated circuit chip. Throughout the course, a number of modern electronic devices are introduced including digital memories, charge coupled devices, solar cells, photodiodes, and light emitting diodes. The laboratories are focused on integrated circuit design and layout, device characterization, and simulation using computer aided design (CAD) tools.

Lessons: 35 @ 55 min (2.500 Att/wk) **Labs:** 5 @ 120 min

Special Requirements: Layout and fabrication of an integrated circuit chip.

Prerequisite(s): EE362

EE487 **EMBEDDED SYSTEMS DEVELOPMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-2

Offerings:

This course teaches students how to employ microcontrollers in the design of an embedded system. Cadets are introduced to the C programming language, which is the foundation for programming embedded systems. Students conduct a detailed study of common microcontroller peripheral devices with emphasis on their application to real-time control design. Cadets practice top-down design of both hardware and software components of moderately complex digital systems throughout the semester. Cadets are exposed to addressing, serial and parallel input and output, timing, interrupts, A-to-D and D-to-A conversion. Additionally, real-time operating systems will be introduced through the use of programmable devices and soft-processors. The cadets will learn the basics of implementing an operating system on an embedded device and linking peripherals to the processor via the operating system.

2015-2 2016-2 2017-1 2017-2

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: None

Prerequisite(s): CS380
-Or-
EE375
-Or-
EE475

EE489 **ADV IND STUDY IN ELECT ENGR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1974-1

Offerings:

Course requirements will be tailored to the needs and qualifications of the individual cadet. The course will normally involve a project requiring research, experimentation, and the submission of a report under the guidance of a departmental advisor. Alternatively, study may take the form of a tutorial course covering material not available in the regular elective course offerings.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be determined.

Prerequisite(s): EE363
-Or-
EE363A
-Or-
EE362

EE489A **ADV IND STUDY IN ELECT ENGR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1974-1

Offerings:

Temp

2015-2 2016-1

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EE489

EE490 **ELEC ENGRNG SUMMER RESEARCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings:

This course is designed to familiarize the cadet with advanced techniques for independent research in electrical engineering. The course will normally require research, development, and experimental implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three full weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will meet the requirements of a three-credit course in electrical engineering.

2015-3 2015-4

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral and written reports.

Prerequisite(s): EE363A

EE490A **ELEC ENGRNG SUMMER RESEARCH** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings:

This course is designed to familiarize the cadet with advanced techniques for independent research in computer science. The course will normally require research, development, and implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will be equivalent to two credits of course work in electrical engineering.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral and written reports.

EE490B **ELEC ENGRNG SUMMER RESEARCH** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings:

This course is designed to familiarize the cadet with advanced techniques for independent research in electrical engineering. The course will normally require research, development, and experimental implementation of a novel idea or concept. An oral presentation and a written project report will be completed under the supervision of a usma faculty member who serves as project advisor. The course requires three weeks of study, completed in conjunction with the academic individual advanced development program. Scope, depth, and material covered will be equivalent to one credit of course work in electrical engineering.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral and written reports.

Prerequisite(s): EE363A

IT105 **INTRO TO COMPUTING & INFO TECH** **3.0 Credit Hours (BS=0.0,ET=0.5,MA=0.0)**

Scope: 2003-1

Offerings:

Designed to meet the needs of the core curriculum, this fundamental course provides an introduction to the principles behind the use, function, and operation of digital computers and information technology. The course presents program design and construction techniques in moderate detail, with consideration given to principles of software engineering. Cadets will use a PC-based, integrated program development environment and sophisticated application software. Problem solving using the computer as a tool is a central theme throughout the course as cadets will employ a design methodology to solve problems efficiently and logically. Emphasis is placed on learning how to learn and individual discovery. Cadets are introduced to the internet, the use of the World Wide Web, other information technology tools, and information security.

2015-2 2015-4 2016-1 2016-2 2017-1 2017-2 2017-3

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: None

Disqualifier(s): IT155
-Or-
CS105
-Or-
CS155

IT155 **ADV INTRO TO COMP & INFO TECH** **3.0 Credit Hours (BS=0.0,ET=0.5,MA=0.0)**

Scope: 2003-1

Offerings:

Provides a more advanced study of computers, information technology and programming for cadets who have demonstrated ability beyond the level of the standard course. The course studies advanced microcomputer technology and advanced programming techniques. All graded material is identical to that in IT105.

2017-1 2017-2

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: None

Disqualifier(s): IT105
-Or-
CS105
-Or-
CS155

IT300 **PROGRAMMING FUNDAMENTALS** **3.0 Credit Hours (BS=0.0,ET=2.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This is the foundational programming course for IT majors and the first course for the cyber engineering sequence. Cadets learn fundamental computing concepts that will allow them to design, build and test small to medium programs using a high-level programming language. Key concepts include applying appropriate aspects of a structured problem solving process, applying a standardized design notation such as the Unified Modeling Language (UML) to communicate their design, and iteratively testing their program.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT105
-Or-
IT155

IT305 **THEORY & PRAC OF MIL IT SYS** **3.0 Credit Hours (BS=0.5,ET=1.5,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2015-3 2015-5 2016-1 2016-2 2016-3 2016-4 2017-1 2017-2 2017-3

This course builds on the foundations of Information Technology (IT) acquired during the first two years of cadet experiences. It covers problem solving utilizing the digitization process, networking, databases, information systems, information assurance, and the evolving legal and ethical framework surrounding use of IT. Students study several aspects of military and commercial IT infrastructures, as well as the IT concepts and techniques that will facilitate their success as a military officer and inspire life-long learning in the IT domain. Concepts are reinforced through numerous in-class exercises and labs as well as team projects.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course end group project.

Prerequisite(s): EV203 IT105 PH204
-Or-
EV203 IT105 PH254
-Or-
EV203 IT155 PH204
-Or-
EV203 IT155 PH254
-Or-
EV203X IT105 PH204
-Or-
EV203X IT105 PH254
-Or-
CS155 EV203 PH204
-Or-
CS155 EV203 PH254
-Or-
EV203 IT105 PH202
-Or-
EV203 IT105 PH252
-Or-
EV203 IT155 PH202
-Or-
EV203 IT155 PH252
-Or-
EV203 IT105X PH202
-Or-
EV203 IT105X PH252

Corequisite(s): MA206 SS202
-Or-
MA206 SS252

Disqualifier(s): IT355

IT350 **NETWORK ENGR & MGT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

This course addresses the analysis, design, building, and testing of modern computer networks. Network implementation techniques and considerations are discussed and practiced extensively. Key concepts include analysis and design using standardized network models, protocols and practices such as the Open Systems Interconnect (OSI) network model, subnetting, static/dynamic routing, switching, and access control. Practical skills implementing network designs are also reinforced through a number of hands-on laboratory exercises using commodity network hardware.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS301
-Or-
IT305

Corequisite(s): CS301
-Or-
IT300

IT355 **ADV THEORY OF MIL IT SYS** **3.0 Credit Hours (BS=0.5,ET=1.5,MA=0.0)**

Scope: 2004-1

Offerings: No Course Offerings

Provides a more in-depth study of information technology for cadets who have demonstrated ability beyond the level of IT305. The course covers material presented in IT305 at an accelerated pace to provide cadets additional opportunities for application and hands-on experience with it principles and concepts.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course end group project.

Prerequisite(s): EV203 IT105 PH204
-Or-
EV203 IT105 PH254
-Or-
EV203 IT155 PH204
-Or-
EV203 IT155 PH254
-Or-
CS105 EV203 PH204
-Or-
CS105 EV203 PH254
-Or-
CS155 EV203 PH204
-Or-
CS155 EV203 PH254

Corequisite(s): MA206 SS202
-Or-
MA206 SS252

Disqualifier(s): IT305

IT382 **NETWORK INFRASTRUCT MGT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-2

This course covers network infrastructures through all stages of implementation as well as application of networking technology within the Army enterprise. The course integrates fundamental knowledge of network infrastructure by teaching cadets how to design, install, secure and maintain both wired and wireless network infrastructures. In addition, cadets learn how to ensure their network is efficient, robust and expandable. This course focuses on the practical study of network infrastructure, but also introduces cadets to the underlying theories of network communication.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s):
-Or-

-Or-

-Or-
CS301
-Or-
IT305

Corequisite(s): CS300
-Or-
CS301
-Or-
IT300

IT383 **USER INTERFACE DEVELOPMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course provides a practical introduction to user interface development and usability engineering of interactive applications. The disciplines of Human-Computer Interaction (HCI) and Software Engineering guide these endeavors, but our focus here is more applied than theoretical. Major emphasis is on the principles and techniques for human-centered design and implementation of graphical user interfaces (GUIs) within a software development lifecycle. Cadets will extend their knowledge of programming in a high-level language by learning how to use an interface builder to create a fully functional GUI. Cadets will learn and practice human-centered problem analysis techniques and usability testing methodologies to ensure that their interfaces are usable. A hypothetico-deducto approach to design is emphasized throughout their development efforts. Fundamentals taught in this course will prepare cadets for more advanced software development, development of physical devices, or a deeper theoretical look at HCI topics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS300
-Or-
CS301
-Or-
IT300

IT384 **NETWORK SYSTEM PROG** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2016-1 2016-2 2017-1 2017-2

This course applies fundamental programming skills to automate interactions with a computer, a local operating system, or the Internet and so use and manage resources and services. Examples of the resources and services that the programming in this course will address include file systems, web servers, mail servers, database servers, image and audio files, compressed and encrypted files and files used in common office environments (documents, presentations, spreadsheets).

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT300
-Or-
CS300

IT392 **NETWORK SERVICES MGT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

Cadets study network services in terms of design, implementation, maintenance and security of computer servers. The learning process in this course builds on IT382 and assumes a functional network with basic connectivity. This course first covers the design and selection of hardware and software to provide network services based on identified user requirements. Cadets then learn to support the Army Enterprise through the implementation and maintenance of network services, including naming, addressing, resource management, voice over IP, and web services. Security is a pervasive theme throughout the course. While this course focuses on the practical aspect of network services, it also gives cadets a foundational understanding of the theories behind those services.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT382
-Or-
IT350

IT394 **DISTRIB APPLICATION DEVELOPMNT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

Building on the foundations of algorithm implementation, data representation, web development, and basic networking, this course focuses on the principles of constructing a modern distributed application. Cadets study the principles, construction, and interaction of user interface, network, web server, and database components to produce an effective distributed application. Cadets will learn new tools and skills working as a team to analyze, design, and implement a system that solves a given problem.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): CS301 CS350
-Or-
CS301 CS393
-Or-
CS350 IT300
-Or-
CS393 IT300

Disqualifier(s): CS450
-Or-
CS394

IT400 **IT SEMINAR** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This seminar will meet once or twice a week and will include all First Class cadets majoring in information technology. The seminar?s instruction consists of relevant reading assignments, class discussions based on readings and case studies, and numerous distinguished guest speakers. Content will address the concerns of IT professionals as well as recent Department of Defense initiatives and new developments in the discipline. Students will develop the ability to identify, explain, and interpret local and global (professional, ethical, social, security, legal, economic, political) impacts of IT on individuals, organizations, and society. They will also be able to outline and defend the values and responsibilities of a member of the IT profession and to summarize avenues through which they can continue to grow professionally.

Lessons: 27 @ 55 min (1.700 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): IT401

IT401 **IT SYSTEM DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course is the first in the senior-level integrative capstone experience. Its purpose is to prepare cadets for a coherent system integration experience. Conceptual material stresses requirements elicitation including aspects of the social, political, economic and ethical dimensions, project planning, and integration of information technologies to meet the needs of the user organization.

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: IT major with First Class Standing.

IT402 **IT SYSTEM DEVELOPMENT II** **3.5 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course is the second in the senior-level integrative capstone experience.. Cadets examine in detail the principles and issues involved in the integration of a significant information system. Cadet design teams, under the guidance of course instructors and in interdisciplinary groups, work on client-focused system integration project that includes the social, political, economic and ethical dimensions.

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Team design project; compensatory time provided.

Prerequisite(s): IT401

IT460 **CYBER OPERATIONS** **3.0 Credit Hours (BS=0.0,ET=1.5,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

This course addresses the entire spectrum of information warfare from the political, legal, and ethical aspects to the technology and techniques of cyber attack. The Political Science and Computer Science faculty jointly teach this course. The course covers how digitization has changed the world and the national security environment of the United States. Students also learn how attack and defense are conducted in cyberspace through classroom discussion and hands-on exercises in the IWAR Laboratory. The course culminates with a group project in which cadets are given a real scenario and possible U.S. objectives and then develop and brief an information operation plan.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s):

-Or-

-Or-

-Or-

-Or-
IT105 SS307
-Or-
IT105 SS357
-Or-
IT155 SS307
-Or-
IT155 SS357

IT485 **SPEC TOPIC IN INFORMATION TECH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-2 2017-1 2017-2

This course provides in-depth study of a special topic in information technology not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior information technology faculty member.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be determined by the program director

IT491 **IT INDEPENDENT STUDY** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Grades based largely on research paper or project report and presentation to faculty.

IT492 **IT INDEPENDENT STUDY** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: No Course Offerings

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Grades based largely on research paper or project report and presentation to faculty

IT493 **IT INDEPENDENT STUDY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This elective will be tailored to the specific project and to qualifications of the cadet. The research, study program, or special project will be proposed by the cadet or selected from those proposed by the department. The cadet will formalize a proposal, develop a viable research plan, and conduct project design under the guidance and supervision of a faculty advisor. The Head of the Department will approve cadet projects. Lessons and labs established through consultation between cadet and advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Grades based largely on research paper or project report and presentation to faculty.

XE402 **INTEGRATIVE SYSTEM DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course is team-based capstone design experience in electrical engineering, computer science and information technology. It provides an integrative experience, presenting each cadet team with a professionally relevant, open-ended situation including professional, ethical, social, security, legal, economic, and political dimensions, where an engineering approach has strong potential to produce benefits. Under the guidance of a faculty advisor for each project team, cadets develop client-focused products, applying the principles of design and implementation to effect an optimal outcome for the circumstances presented to the team by creating a product or service that meets requirements and constraints negotiated with the client.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: Prerequisite for this course is First Class standing in an academic major offered by the Department of Electrical Engineering and Computer Science.

XE442 **ALTERNATIVE ENERGY ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1 2017-1

This course provides a study of the fundamentals of alternative energy generation, storage, integration and efficient use. Solar power (both solar thermal and photovoltaic), wind power, hydro power, fuel cells and other sources of energy are covered. Focus is placed on energy conversion, modeling alternative energy sources, and integration of these sources into the power grid. The technical, economic, and political challenges associated with these alternative energies is covered in depth.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: None

Prerequisite(s): EE301
-Or-
EE302

XE472 **DYNAMIC MODELING AND CONTROL** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course covers dynamic modeling and control of linear systems. The course provides an overview of classical control theory as the foundation for control applications in electrical, mechanical, and aeronautical systems. Topics here include system modeling using Laplace transform, frequency domain, and state variable methods. Mathematical models are developed for electrical, mechanical, aeronautical, chemical and other physical control systems. Control systems analysis and design techniques are studied within the context of how each system is physically controlled in practice. Laboratory exercises include feedback design and system identification. Computer design exercises include dynamic modeling and control of various engineering systems.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 120 min

Special Requirements: Computer interactive exercises.

Prerequisite(s): EE301
-Or-
EE302

XE492 **DISRUPTIVE INNOVATIONS** **3.0 Credit Hours (BS=0.5,ET=2.5,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The course begins by developing the background understanding of what disruptive technology is and a historical context about successes and failures of social, cultural, and religious acceptance of technological innovation. To develop this framework, students read several texts underlying the innovator's dilemma, how scientific revolutions are structured, and cultural distinctions found between the sciences and humanities. For each class meeting, students read current scientific and technical literature and come prepared to discuss current events related to technological innovation. Each student researches potential disruptive technologies and prepares a compelling argument of why the specific technologies are disruptive so they can defend their choice and rationale. Cadets also interact with national level innovators throughout academia, industry, and government.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

XE497	CRITICAL SCIENTIFIC REASONING	3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)

Scope: 2013-1

Offerings: No Course Offerings

The purpose of XE497, Critical Scientific Reasoning, is to improve the students' ability to analyze complex problems in a variety of applied physical science applications using mathematical, scientific, and engineering principles and clearly articulate their analysis and results verbally and in writing. The process of pursuing this goal will make cadets better officers, scholars, and citizens. Several methods will be applied to assist in the pursuit of these goals. Fundamental scientific laws, principles, and theorems and their application to scientific and engineering problem solving will be reviewed. Breadth across a variety of scientific and engineering disciplines will be achieved by studying and discussing current research activities from a variety of fields as well as examining the limitations to scientific advancement in each field. The course will draw from several disciplines including Biology, Chemistry, Civil Engineering, Computing Sciences, Electrical Engineering, Mathematical Science, Mechanical Engineering and Physics. In order to take advantage of the diverse skills of the USMA faculty and selected experts from outside USMA, some classes will be led by guest instructors, each of whom will recommend readings in support of his or her topic.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Department Head approval to enroll. Open only to First Class cadets.

Department of English and Philosophy
58 Courses

EN101 **COMPOSITION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course aims to develop clear, logical, and grammatically correct expression in written discourse. Daily writing and revision reinforce instruction in the writing process. Organization, substance, style, and correctness are major concerns of the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EN102 **LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This course studies ways in which writers use language imaginatively. Cadets develop the writing techniques of EN101 in responding to assignments on selected works of literature from diverse authors.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EN101

EN152 **ADVANCED LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-1

Offerings: 2016-1

This course is an advanced version of EN102 for Cadets who validate EN101. The course revolves around the innovative interpretation of literary texts, though it simultaneously acquaints Cadets with strategies for grounding these interpretations in concrete textual evidence and logical inferences. EN152 promotes close, deliberate reading of literary works, and presents a comprehensive overview of the terms and tenets of literary studies. Due to the fact that students enrolled in EN152 will have placed out of EN101, the course places less emphasis on learning the steps in the writing process and more emphasis on how writing, as a process, allows for the further development of one's critical thinking and analytical skills. Finally, EN152 explores the power of literature to promote ethical awareness, cultivate empathy, and emphasize a shared sense of humanity.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EN302 **ADVANCED COMP THROUGH CULTURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This interdisciplinary writing course refines basic composition skills, develops sophisticated techniques of written expression, and establishes a critical editorial sense with respect to the cadet's own composition and the writing of others. It also serves as a vehicle for the development of cross-cultural competency and understanding as students learn productive ways to negotiate cultural differences, interpret unfamiliar cultural expressions, and to contextualize new cultural knowledge within an expanding comprehension of globalization. Exemplary readings, representative of a specified cultural destination, give focus to writing assignments, while revision and student-teacher conferences emphasize the writing process and the constitutive elements of substance, organization, style, correctness, and the conventions of written academic assignments, including documentation standards.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PY201

EN302M **EN302M** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1 2017-1

Pilot course for language stems for EN302

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: pilot only. will be collapsed before the first graded event into EN302

EN302R **EN302R** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1 2017-1

Pilot course for EN302

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Will be collapsed into EN302 before the first graded event

EN302S **PILOT COURSE FOR EN302** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-1

Offerings: 2016-1

Pilot course for EN302

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP333 **CULTURAL STUDIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings: 2016-1 2017-1

This course analyzes a culture through the study of its art, philosophy, and literature. It not only acquaints cadets with a particular period and place but also introduces them to various definitions of culture and to recent themes and debates in cultural studies. The work of theorists as diverse as Matthew Arnold, Walter Benjamin, Raymond Williams, and Laura Mulvey informs this team-taught course's interdisciplinary approach to cultural artifacts as well as its investigation of aesthetics, ideology, and issues of ethnicity, gender, and class. Typical areas of focus include Augustan Rome, Enlightenment France, and Meiji Japan. Cadets should take this course early in their program of study.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP341 **BRITISH LITERATURE I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2017-1

This course is an introduction to the study of British literature, ranging from the Anglo-Saxon period through the eighteenth century. Cadets will encounter representative masterworks from the Old English, Medieval, Renaissance, and Neoclassical periods, exploring in the process the development of literary forms, the culture of the British Isles, and the English language itself. Possible areas of emphasis include narrative and lyric poetry from all these periods, drama from the Middle Ages and Renaissance, the periodical essay from the Neoclassical period, and the emergence of the novel as a distinct form of literature in the eighteenth century.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP342 **FILM AND FILM THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings:

This course examines film as the major new art form of the twentieth century. Screenings of important films and readings in film theory introduce cadets to the origins, evolution, and cultural influence of cinema. Cadets explore connections between film and the other arts as well as the relationship between art and technology. Topics may include the Hollywood studio system, the transition to sound, world cinema, auteur theory, screenwriting, censorship, and propaganda.

2016-2

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP343 **AMERICAN LITERATURE I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1

The course will focus on the development of American literature from early contact to the Civil War. Students will read from works by such authors as the Puritans, Jefferson, Lincoln, the Transcendentalists, Dickinson, Whitman, and Melville, as well as literature outside of the New England canon: for example, works by Native Americans, French and Spanish colonizers, and African captives. All works will be considered in the context of cultural and intellectual history. We will consider a broad range of genres and modes of writing, including (but not limited to) colonial theory, ethnography, autobiography, fiction, essays, and poetry. A central concern of the course will be the question of what constitutes American literature.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP344 **CRITICISM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

This course introduces cadets to the theory of interpretation and the practice of literary criticism. Through the study of critics ranging from the ancient to the postmodern, cadets investigate mimetic, pragmatic, expressive, and objective schools. They also cultivate their own philosophies of interpretation and apply them to primary texts. Readings may focus on aesthetic, cultural, and ethical dimensions of literature, on the role of the critic, and on the proliferation of competing theories during the latter half of the twentieth century.

Lessons: 40 @ 55 min (2.400 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP346 **BRITISH LITERATURE II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2017-2

This course continues the survey initiated in British Literature I by considering major authors and works of the nineteenth and twentieth centuries. Through representative but necessarily selective readings, cadets will trace the development of British literature from the Romantic Period into the Victorian Age and then to the present day. Possible areas of emphasis include poetry of the English Romantics; Victorian poetry and prose, to include the novel; and poetry, short fiction, and drama from the twentieth century. Study will emphasize the relation of the works considered to the cultural history of Great Britain and the British Empire and will attend as well to the wider influence of the British tradition.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP348 **AMERICAN LITERATURE II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings:

This course will examine both traditional and nontraditional writings from the Civil War to the present. We will examine post-Civil War literature and the myriad, often contradictory desires--economic, aesthetic, sexual, spiritual, and intellectual--to which it gives expression. The course will provide a framework within which students may examine the literature in an historical context. As does American Literature I, the course stresses the diversity of experience and poetics that characterizes American literature. In addition, students will trace the evolution of important literary movements and philosophical influences, as well as the metamorphosis of certain genres over time.

2016-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP351 **WORLD LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2017-1

This course enhances cadets' cultural awareness and refines their disciplinary knowledge and interpretive skills by introducing them to major literary texts from around the globe. As an advanced exercise in comparative study and synthesis, World Literature builds on core courses such as EN302 and foreign language offerings. The prose and poetry of a variety of periods and a range of countries provide contexts for and contrasts to the Anglo-American tradition. In a given semester typical texts could include epics and tragedies of Ancient Greece and Rome, Russian novels, works of medieval Islamic literature, haiku of Japan, Continental European novels of the nineteenth century, or postmodern fiction of South America. This course familiarizes students not only with important literary forms and genres but also with cultural and historical contexts for many of the most pressing issues in our volatile world.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP359 **LOGICAL REASONING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course blends two areas of study that are often kept separate in university courses on logic: informal logic and formal (or symbolic) logic. Informal logic's emphasis is on natural language arguments relatively simple in structure, on rules of valid inference as codified in what is called traditional logic, and on the identification of mistakes in reasoning that make arguments logically weak though possibly persuasive (fallacies). Formal logic builds a symbolic representation of sentences and arguments, describes rigorous tests for determining whether symbolized arguments are valid, and provides the means to assess arguments of far greater complexity than the rules of traditional logic are able to manage.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP360 **EASTERN ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-2

Offerings: 2017-2

Investigating Chinese, Indian, Indonesian, and Japanese folk crafts and architecture, this course intensifies and expands knowledge and understanding of Eastern cultures. To the extent that beautiful and treasured artifacts define and explain a culture, the objects of study provide an important entry to societies marked by languages generally unknown to Western observers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few presentations of moderate length.

Corequisite(s): PY201

EP361 **W. ART I: ANCIENT TO MEDIEVAL** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

At the end of the thirteenth century, Giotto began painting human figures in a way that differed significantly from the vision of his predecessors, and soon sculptors and architects, inspired by classical models, also departed from their received traditions. Although those changes mark a distinctly new era in art, the work of the preceding 4,000 years constitutes a legacy that today brings ever new revelations to its students. Cadets in this course will study some of the great artifacts surviving from those years and seek to understand the various cultural influences that shaped their creation.

2016-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few presentations of moderate length.

Corequisite(s): PY201

EP363 **POLITICAL PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1997-1

Offerings:

Examining the major theories and problems in the history of political philosophy from Plato to Rawls and emphasizing contemporary theory, this course includes such topics as liberty, equality, political authority, the obligation to obey the State, civil disobedience, anarchism, liberalism, conservatism, democracy, meritocracy, affirmative action, and global politics.

2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP365 **ETHICS-MILITARY PROFESSION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1997-1

Offerings:

The fundamental values and principles of the warrior ethos can be traced back to ancient Greece and Rome. These values provide the moral boundaries of the military profession and distinguish members of this profession from other individuals and groups who employ violence to achieve their ends. Cadets in this course will examine the moral principles that define the profession of arms, both in terms of when the use of force is permissible (or even obligatory) to achieve political objectives, and what, if any, limits ought to govern how that force is used.

2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP366 **PHILOSOPHY OF MIND** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-2

Offerings:

This course will jointly address major topics in the traditional philosophy of mind and questions created by recent developments in artificial intelligence: what is mind? What is the relationship of a mind to the physical world, including the brain? What is consciousness and self-consciousness? What are the definitions of mental states and processes, such as perception, desire, belief, emotion, reasoning, and action, and their relationship? Can computers be constructed to think or behave like human beings, or to have consciousness? Readings will come from classical sources, such as Descartes, as well as contemporary literature in philosophy, cognitive science, and artificial intelligence.

2015-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP367 **DRAMA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings:

This course surveys significant plays from a variety of periods and traditions to give cadets an appreciation of a genre that exists as both written literature and creative interpretation. Works to be studied range from the classical tragedies of ancient Greece through the great products of the English renaissance to modern efforts by British and American playwrights. Although the primary focus rests upon the Anglo-American tradition, the course will not neglect dramatists from other countries and cultures.

2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP371 **TOPICS IN ART HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2017-1

This course will provide an in-depth examination of a specific topic in visual culture, closely investigating the way images and monuments engage with and discuss economic, cultural, socio-political, and historical forces. In addition to examining the images and their context, students will explore the various ways those objects have been interpreted and understood by historians, artists, and critics. Classroom discussion will be supplemented by trip sections to New York City to see many of the actual images and monuments under investigation. Possible topics might include Modernism/Postmodernism, History of Photography, and The Visual Culture of War.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP373 **TOPICS IN ETHICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2016-2 2017-2

This course provides cadets an opportunity for reading and analysis in depth of some of the seminal philosophical works in ethics. Taught in seminar format, the course challenges first-class and second-class cadets to take responsibility for discussion and analysis and for drawing connections between ideas as they occur throughout history and across cultures. The cadets will gain a deeper understanding of the human condition and of the complex world of values.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP374 **THE ARTS OF WAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2017-2

This course ranges widely across cultures and historical periods in studying how human creative imagination has dealt with war. The works in this course are especially illuminating to professional soldiers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP375 **17TH & 18TH CENTURY PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2017-1

This course examines a selection of texts written by central figures in the formative centuries of modern European philosophy. Their ideas have had continuing influence on philosophers down to our present day, as well as profound influence on the development of political thought and on the scientific understanding of human beings. Two schools of thought will be covered: Rationalism and Empiricism. Associated with the first school are the continental philosophers Descartes (widely accepted as the founder of Modern Philosophy), Spinoza and Leibniz. The school of Empiricism includes the British philosophers Hobbes, Locke, Berkeley and Hume.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP376 **KANT & 19TH CENTURY PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

This course gives primary attention to the systematic philosophy of the German thinker, Immanuel Kant, whose influence on Nineteenth Century thinking was widespread and who is commonly recognized as one of the pillars of Modern Philosophy. The course will also devote attention to other important areas of philosophical thinking in the Nineteenth Century, whether within the Kantian tradition or lying outside it in other movements, such as Utilitarianism or Pragmatism, which had a continuing and significant influence on later philosophical thinking.

2015-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP377 **20TH CENTURY PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

This course will introduce cadets to a representative sample major of figures and topics which have set the stage for understanding contemporary Philosophy in the so-called Analytic Tradition. Major figures include Frege, Russell, Wittgenstein, Moore, the philosophers of the Vienna Circle, and American philosophers such as Quine, Putnam, Davidson and Kripke. Topics include the ideal of a logically perfect language, meaning and reference, the nature of truth, the distinction between analytic and synthetic statements, the common sense analysis of metaphysical concepts, and the rule-centered social nature of language. As appropriate, leading figures and ideas drawn from Continental Philosophy will be introduced.

2015-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP380 **EASTERN THOUGHT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings:

This course examines primary sources in its quest for an understanding of the many, often bewildering varieties of Eastern thought. The Analects, the works of Mencius and Chuang Tzu, the Bhagavadgita, Tao Te Ching, and Digha Nikaya, I Ching, Zen writings in Zen Flesh, Zen Bones, The Tale of Genji, Chushingura, Essays in Idleness, The Narrow Road to Oku, and Code of the Samurai-all of those works challenge and enlighten a serious student seeking knowledge about a major part of our planet's population.

2016-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP381 **PHILOSOPHY OF RELIGION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-1

Offerings:

This course examines the nature of religion and its truth claims from the perspective of philosophical analysis. It examines such perennial questions as: is there a God? What are the arguments for and against the existence of a Supreme Being? How can a good God permit Evil? Is there life after death? Is it rational to believe in God or does faith stand above or against reason? What is the relationship of religion to ethics? Is the Good good because God commands it, or does God command the Good because it is good?

2016-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP382 **W. ART II RENAISSANCE - MODERN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Artistic masterpieces proliferated as the west moved into the period now called the Renaissance. And as exploration then and later encountered other cultures outside Europe, the aesthetic objects of those cultures increased even more the world's inventory of masterpieces. Studying selected works from that inventory, cadets will gain insight to the artistic process and the astounding cultural education offered by the beautiful creations of a society.

2016-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few presentations of moderate length.

Corequisite(s): PY201

EP383 **REALITY AND KNOWLEDGE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-1

Offerings: 2016-1

This course will address the perennial questions concerning the nature of reality (metaphysics) and what we can know about it (epistemology). How do we acquire knowledge of the physical world, the nonphysical world? Are there noncorporeal entities (souls, deities, angels)? If so, what can we claim to know about them? How are belief and knowledge related? A systematic and comprehensive approach to these problems and others will entail reading works by Plato, Aristotle, Descartes, Locke, Leibniz, Hume, and Kant, as well as more recent metaphysicians and epistemologists.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP385 **THE NOVEL** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-2

In this course the word novel designates any extended fictional narrative, almost always in prose. Cadets will explore the novel of kind or time or both, and, in addition to becoming better readers, will work toward understanding the culturally complex world around them.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP386 **PHILOSOPHY OF SCIENCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-2

Offerings: 2016-2

Mathematics and the sciences (especially the natural sciences) have often been portrayed in the modern era as paradigmatic sources of knowledge. Nevertheless, one can still pose a number of lively and much-debated questions: what makes something a “science?” Is there a single “scientific method” or ideal way of discovering, confirming, or disconfirming scientific truths? Are there limitations to the knowledge the sciences can provide? Indeed, do the sciences provide knowledge? Does science make any presuppositions about the nature of the world or about what exists (ontology)? What is the nature of mathematics? Does it apply to a world of ideal objects, to rules for using symbols, or to the physical world? What kinds of things are numbers? Readings will include works by Peirce, Frege, the Vienna Circle, and Kuhn, as well as contemporary readings in the philosophy of science and mathematics and in the philosophies of physics, biology, the social sciences, and logic.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP388 **ANCIENT PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1

The heritage from ancient Greece and Rome provides the foundation for the Western concept of the universe and the place of people in it. This course examines the origins of philosophy; the essentially secular view of man and the world established during the classical period; and major figures whose views continue to shape Western thought.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP390 **SPECIAL TOPICS IN LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course explores an advanced topic in Literature. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): PY201

EP390A **SPECIAL TOPICS IN LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course explores an advanced topic in Literature. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EP390

EP391 **POETRY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1

Embracing a wide variety of authors, works, periods, traditions, and forms, this course considers the literary genre through which human beings have expressed their most intensely imaginative visions of themselves and the world, and connections between the two. Some consideration of poetics and prosody will complement the cadets' reading of verse that ranges from Japanese haiku through the Shakespearean sonnet to the free-verse creations of modern and contemporary poets.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP392 **MINORITY LITERATURES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1

Designed to expand a cadet's view beyond the cultural boundaries of canonical literature, this course examines a diverse collection of texts, ranging from works like Hurston's Their Eyes Were Watching God, Momaday's The Ancient Child, and Allende's The House of Spirits to works by less familiar authors like Lu Xun, Naguib Mahfouz, and Oe Kenzaburo.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP394 **SHAKESPEARE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-2

Offerings: 2015-2 2017-2

This course surveys representative Shakespearean plays, including great tragedies, histories, and comedies. Study stresses the nature of Shakespeare's genius and the relation of his works to the cultures of all ages.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Corequisite(s): PY201

EP395 **SPECIAL TOPICS IN PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2017-2

This course explores an advanced topic in Philosophy. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP395A **SPECIAL TOPICS IN PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2

This course explores an advanced topic in Philosophy. Specific subject matter will vary with the expertise of the senior faculty member conducting the course.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EP395

EP433 **SENIOR SEMINAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This APL integrative course develops an archetypal concept that crosses disciplinary boundaries and promotes a synthesis of aspects of the core curriculum. It contributes to the overarching goal of helping cadets "to anticipate and respond effectively to the uncertainties of a changing technological, social, political, and economic world." The archetype subjects will incorporate insights from both the sciences and the humanities, with emphasis on manifestations of the archetype in art, philosophy, and literature. The seminar will typically integrate art, technology, and language. Archetypal themes, the organizing element for the course that will change periodically, could be selected from the following possibilities: the WARRIOR, the BRIDGE, the CITY, the ALIEN, the SHIP, and the PRISON.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A major project and reports by designated teams.

EP487 **SENIOR THESIS I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course permits cadets with the requisite energy and talent to initiate a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP488 **SENIOR THESIS II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

This course permits cadets to complete a yearlong project requiring research in depth that culminates in a substantial thesis of high scholarly quality.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Oral defense of thesis.

Prerequisite(s): EP487

EP490 **INDEPENDENT STUDY: LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings:

This optional elective offers the cadet an opportunity for in-depth study of an advanced topic in Literature under the mentorship of a senior faculty advisor. The scope and topic of the course are developed in consultation with the faculty advisor and appropriately build upon academic work already completed in the regular Literature electives. Since such a course is beyond normal teaching duties, an agreement to serve as a faculty advisor will be at the discretion of the faculty member. Enrollment is subject to Department approval.

2016-1 2017-1

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP490B **DEP ELECTIVE** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings:

This optional elective offers the cadet an opportunity for in-depth study of an advanced topic in Literature under the mentorship of a senior faculty advisor. The scope and topic of the course are developed in consultation with the faculty advisor and appropriately build upon academic work already completed in the regular Literature electives. Since such a course is beyond normal teaching duties, an agreement to serve as a faculty advisor will be at the discretion of the faculty member. Enrollment is subject to Department approval.

2015-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EP495 **INDEPENDENT STUDY: PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings:

This optional elective offers the cadet an opportunity for in-depth study of an advanced topic in Philosophy under the mentorship of a senior faculty advisor. The scope and topic of the course are developed in consultation with the faculty advisor and appropriately build upon academic work already completed in the regular Philosophy electives. Since such a course is beyond normal teaching duties, an agreement to serve as a faculty advisor will be at the discretion of the faculty member. Enrollment is subject to Department approval.

2015-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PY201 **PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-1

Offerings:

This course helps third class cadets develop their capacities to think clearly and critically. It acquaints cadets with various viewpoints on major philosophic issues, assists them in acquiring a facility with the language, arguments, and methods of moral discourse, and gives special attention to the subject of war and morality.

2015-2 2015-3 2015-4 2015-5 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A few essays of moderate length.

Prerequisite(s): EN102

ZH303 **BRITISH LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH313 **AMERICAN LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH323 **TOPICS IN LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH333 **LITERARY CRITICISM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH343 **PHILOSOPHICAL PROBLEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH353 **HISTORY OF PHILOSOPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH363 **ETHICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

No Course Offerings

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH373 **WESTERN ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: No Course Offerings

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH383 **EASTERN ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: No Course Offerings

This course, taken abroad by the cadet as part of a foreign study program approved by West Point, falls within the disciplinary area covered by the Department of English and has been determined by the Department as suitable to earn West Point academic credit.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Foreign Languages
110 Courses

LA203 **ARABIC I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Arabic. Learning activities focus on situations cadets are likely to encounter in Arabic society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Arabic-speaking world. Cadets acquire a command of basic Arabic vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LA204 **ARABIC II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LA203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LA203

LA371 **INTENSIVE INTERMEDIATE ARABIC** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Arabic and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Arabic-speaking world. In addition, cadets gain an overview of the profession of arms in Arabic-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Arabic grammar and continue to acquire a corpus of Arabic vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Arabic courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LA204

Disqualifier(s): LA361 LA362

LA470 **SPECIAL TOPIC IN ARABIC** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LA472 **COLLOQUIAL ARABIC** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2000-2

Offerings: 2015-2 2016-2 2017-2

This course introduces the dialect of a particular Arab country. Oral proficiency gained in this course is complementary to previously learned modern standard Arabic. The course may be taken twice for credit if two different dialects are offered. Consult department counselor.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LA385
-Or-
LA475

LA472A **ADVANCED ARABIC** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: No Course Offerings

This course introduces the dialect of a particular Arab country. Oral proficiency gained in this course is complementary to previously learned modern standard Arabic. The course may be taken twice for credit if two different dialects are offered. Consult department counselor. This course covers material not included in LA472 taken abroad

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Must have already taken LA472 abroad

Prerequisite(s): LA475

LA475 **ARABIC RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-2 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Arabic media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Arabic.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LA362
-Or-
LA371

Disqualifier(s): LA385

LA476 **MILITARY SPKG/RDG - ARABIC** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the Arabic-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in an Arabic-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Arabic.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LA475

Disqualifier(s): LA386

LA483 **ARAB CIVILIZATION I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2000-1

Offerings: 2016-1 2017-1

This course and the following one, LA484, constitute an integrated study of the culture, history, and geography of the Arabic-speaking world. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the courses focus on the values and attitudes, the customs and traditions, and the social structures of Arabic people. At the same time, cadets continue to develop greater proficiency in Arabic. Graded work may include giving oral presentations, writing short essays or preparing a term paper. A majority of the work is done in Arabic.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): -Or-
LA475

LA484 **ARAB CIVILIZATION II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1993-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LA483.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LA483

LA485 **ARABIC LITERATURE I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1 2017-1

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LA475

LA486 **ARABIC LITERATURE II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2016-2 2017-2

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LA475

LA492 **ARABIC LITERATURE III** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2017-2

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LA475

LC203 **CHINESE I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Chinese. Learning activities focus on situations cadets are likely to encounter in Chinese society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Chinese-speaking world. Cadets acquire a command of basic Chinese vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LC204 **CHINESE II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LC203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LC203

LC371 **INTENSIVE INTERMEDIATE CHINESE** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Chinese and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Chinese-speaking world. In addition, cadets gain an overview of the profession of arms in Chinese-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Chinese grammar and continue to acquire a corpus of Chinese vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Chinese courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LC204

Disqualifier(s): LC361 LC362

LC470 **SPECIAL TOPIC IN CHINESE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-2

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LC475 **CHINESE RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Chinese media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Chinese.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LC362
-Or-
LC371

Disqualifier(s): LC385

LC476 **MILITARY SPKG/RDG - CHINESE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the Chinese-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Chinese-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Chinese.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LC475

Disqualifier(s): LC386

LC483 **CHINESE CIVILIZATION I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-1

Offerings: 2016-1 2017-1 2017-2

This course and the following one, LC484, constitute an integrated study of the culture, history, and geography of the Chinese-speaking world. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the courses focus on the values and attitudes, the customs and traditions, and the social structures of Chinese-speaking people. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays or preparing a term paper. A majority of the work is done in Chinese.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LC475

LC484 **CHINESE CIVILIZATION II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LC483.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LC483

LC485 **CHINESE LITERATURE I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1 2017-1

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LC475

LC486 **CHINESE LITERATURE II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2015-2 2016-2 2017-2

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LC475

LC492 **CHINESE LITERATURE III** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2016-2 2017-2

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of the target society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in the target language. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in the target language.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LC475

LE101 **ACDMC RDG/WRTG INTL CDTS I** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course seeks to solidify language proficiency of non-native English speakers within the cognitively rigorous demands of a military-academic environment. While essentially a writing course, significant rhetorical, oratorical, and analytical skills are developed through extensive reading and systematic analysis of culturally relevant texts to guide cadets past surface impressions of American culture into successive layers of complexity. Concurrently, research and documentation skills are stressed to develop positive control over linguistic and professional conventions expected of cadets in subsequent core English requirements.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 15 @ 30 min

Special Requirements: None

LE102 **ACDMC RDG/WRTG INTL CDTS II** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings:

This course seeks to solidify language proficiency of non-native English speakers within the cognitively rigorous demands of a military-academic environment. While essentially a writing course, significant rhetorical, oratorical, and analytical skills are developed through extensive reading and systematic analysis of culturally relevant texts to guide cadets past surface impressions of American culture into successive layers of complexity. Concurrently, research and documentation skills are stressed to develop positive control over linguistic and professional conventions expected of cadets in subsequent core English requirements.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 15 @ 30 min

Special Requirements: None

Prerequisite(s): LE101

LF203 **FRENCH I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in French. Learning activities focus on situations cadets are likely to encounter in French society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the French-speaking world. Cadets acquire a command of basic French vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LF204 **FRENCH II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LF203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LF203

LF371 **INTENSIVE INTERMEDIATE FRENCH** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in French and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the French-speaking world. In addition, cadets gain an overview of the profession of arms in French-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of French grammar and continue to acquire a corpus of French vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective French courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LF204

Disqualifier(s): LF361 LF362

LF470 **SPECIAL TOPIC IN FRENCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LF475 **FRENCH RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary French media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LF362
-Or-
LF371

Disqualifier(s): LF385

LF476 **MILITARY SPKG/RDG - FRENCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the French-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a French-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF475

Disqualifier(s): LF386

LF483 **FRENCH CIVILIZATION I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: 2016-1 2017-1

This course constitutes an integrated study of the culture, history, and geography of France from its beginnings to the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of France. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF385
-Or-
LF475

LF484 **FRENCH CIVILIZATION II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1971-2

Offerings:

This course constitutes an integrated study of the culture, history, and geography of France since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of France. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF475

LF485 **SURVEY OF FRENCH LIT I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2001-1

Offerings: 2016-1 2017-1

This course is a survey of French literature tracing its development from the Middle Ages through the 18th century. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of French society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in French. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF385
-Or-
LF475

LF486 **SURVEY OF FRENCH LIT II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2016-2 2017-2

This course is a survey of French literature of the 19th and 20th centuries. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of French society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF475

LF492 **MASTERWORKS OF FRENCH LIT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2015-2 2017-2

Cadets develop competence in the knowledge and comprehension of representative French literary works and their relationship to the cultural context of French society. Selected examples of various literary genres that focus on events pertaining to the two World Wars, conflicts in the former French colonies and other experiences are read, discussed, and analyzed. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in French.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LF475

LG203 **GERMAN I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings:

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in German. Learning activities focus on situations cadets are likely to encounter in German society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the German-speaking world. Cadets acquire a command of basic German vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

2016-1 2017-1

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LG204 **GERMAN II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LG203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LG203

LG371 **INTENSIVE INTERMEDIATE GERMAN** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in German and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the German-speaking world. In addition, cadets gain an overview of the profession of arms in German-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of German grammar and continue to acquire a corpus of German vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective German courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LG204

Disqualifier(s): LG361 LG362

LG470 **SPECIAL TOPIC IN GERMAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LG475 **GERMAN RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary German media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LG362
-Or-
LG371

Disqualifier(s): LG385

LG476 **MILITARY SPKG/RDG - GERMAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the German-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a German-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG475

Disqualifier(s): LG386

LG483 **GERMAN CIVILIZATION I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course constitutes an integrated study of the culture, history, and geography of Germany, Austria, and Switzerland from their beginnings to the end of World War II. Readings, lectures, discussions, and audio and visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of Germany, Austria, and Switzerland. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG385
-Or-
LG475

LG484 **GERMAN CIVILIZATION II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2001-2

Offerings: 2015-2 2016-2 2017-2

This course constitutes an integrated study of the culture, history, and geography of Germany, Austria, and Switzerland since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people of Germany, Austria, and Switzerland. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG475

LG485 **SURVEY OF GERMAN LIT I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2000-1

Offerings:

This course is a survey of German literature tracing its development from the 19th century through post-World War II. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of German society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG385
-Or-
LG475

LG486 **SURVEY OF GERMAN LIT II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2015-2 2016-2 2017-2

This course is a survey of German literature from the Enlightenment to the early 19th century. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of German society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG475

LG492 **20TH & 21ST CENTURY GERMANY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2016-2 2017-2

Cadets develop competence in the knowledge and comprehension of representative German literary works and their relationship to the cultural context of German society. Selected examples of various literary genres that focus on the experiences of the two World Wars, a divided nation, and reunification are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in German.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LG475

LN380 **NATURE OF MODERN LANGUAGES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Cadets learn that human language is a rule-based and universal system. They examine languages like those taught at USMA from the perspective of linguists, teachers and Army officers. Topics include the origin of and the basis for language, the nature of grammar, language sounds, the phenomenon of meaning, and how language attains communication. Knowledge gained is frequently interdisciplinary and relevant to courses offered at USMA in psychology, communication, English and foreign or second languages. Graded work may include giving oral presentations and completing a term project or paper.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Individual oral or written reports.

Prerequisite(s): LA204
-Or-
LS204
-Or-
LF204
-Or-
LC204
-Or-
LG204

-Or-
LP204
-Or-
LR204
-Or-
LA362
-Or-
LC362
-Or-
LF362
-Or-
LG362
-Or-
LR362
-Or-
LP362
-Or-
LS362

LN400 **LANGUAGE IN CULTURAL CONTEXT** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings: No Course Offerings

Cadets travel to selected sites where cultural and linguistic immersion is an opportunity. Cadets engage in structured activities and instruction in the target language. They visit sites of cultural and historical significance, and pursue a program of learning as approved by the Department of Foreign Languages that is similar to other IAD course experiences except for the number of credit hours awarded.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN440A **ARABIC IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings: 2015-7 2016-7 2017-7

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Arabic, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Arabic during this extended stay.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN440C **CHINESE IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-7

Offerings: 2015-7 2016-7 2017-7

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Chinese, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Chinese during this extended stay.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LC362

LN440F **FRENCH IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings:

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of French, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use French during this extended stay.

2015-7 2016-7 2017-7

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LF362

LN440G **GERMAN IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings:

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of German, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use German during this extended stay.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LG204

LN440P **PORTUGUESE IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings:

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Portuguese, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor accompanies the participating cadets who are obliged to use Portuguese during this extended stay.

2015-7 2016-7 2017-7

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN440R **RUSSIAN IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-7

Offerings:

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Russian, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A department instructor usually accompanies participating cadets who complete all work in the language during this extended stay.

2015-7 2016-7 2017-7

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR362

LN440S **SPANISH IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-7

Offerings:

Cadets travel to and reside in a linguistic and cultural community for three weeks. There they use their knowledge of Spanish, its varieties and connected cultures to accomplish learning tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; and directed language learning activities. A Department instructor accompanies the participating cadets, who are obliged to use Spanish during this extended stay.

2015-7 2016-7 2017-7

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN440Z **PERSIAN IN CULTURAL CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-7

Offerings:

Cadets travel to and reside in a linguistic and cultural community where they use their knowledge of Persian, its varieties and connected cultures to accomplish research tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; as well as research in the language. A Department instructor may accompany participating cadets, who complete all work in the language during this extended stay.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN441F **FR LANG ST WTH FR ARM FORCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1992-4

Offerings:

2015-7 2016-7 2017-7

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN441G **STUDY GERMAN LANG & CULTURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1992-4

Offerings:

2015-7 2016-7 2017-7

Cadets experience an intensive program of study and cultural activities tailored to their skill level at a language institute in Stuttgart, Germany. Classes meet three to four hours per day in small groups of six to eight students. Classes address speaking, listening, reading and writing, and emphasize improvement of speaking and listening proficiency. Students reside with German host families and conduct local cultural excursions.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN450 **ADVANCED LANGUAGE IN CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-4

Offerings:

2015-7 2016-7 2017-7

Cadets travel to and reside in a linguistic and cultural community where they use their knowledge of a second language, its varieties and connected cultures to accomplish research tasks, solve problems and live daily routines. A structured program of immersion may include visits to sites of military, political, historical, or social significance; official orientations and lectures; meetings with local or national civilian and military leaders; as well as research in the language. A department instructor accompanies participating cadets who complete all work in the language during this extended stay.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN451 **ADV LANG & CULTURE IN CONTEXT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings:

Cadets travel to and, over an extended period, reside in a linguistic and cultural community where they develop further their foreign language proficiency, cultural competence and regional capability. A structured program of experiential learning includes visits to sites of cultural, geographic, political, historical, or social significance. Participation in military training exercises, involvement in service learning, and attendance at cultural events may be part of the immersion experience. Cadets write reflective essays, keep personal/public journals, complete task-based writing assignments, deliver briefings, and produce research papers. A department instructor may conduct a site visit while cadets are abroad.

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN482H **SPOKEN HEBREW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1989-2

Offerings:

This course aims to develop entry-level oral proficiency in Hebrew (approx. 800 words), the ability to read printed Hebrew for all vocabulary covered, and the ability to write simple sentences in Hebrew. Most of the course work will be oral.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN487 **ADV IND STUDY-FOREIGN LANGS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-1

Offerings:

LN487 and LN488 are essentially honors or tutorial courses available only to exceptionally motivated and qualified cadets who have exhausted all other language-specific courses and who wish to pursue a special field of interest in language, linguistics or a language-related field. The minimum completion requirement is a term paper, based on individual research of a length and on a topic upon which instructor and cadet have agreed.

2016-1 2016-2 2017-1 2018-1

Lessons: 17 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN487A **ADV IND STUDY-FOREIGN LANGS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-1

Offerings:

Temp

2016-1 2017-1

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN488 **ADV IND STUDY-FOREIGN LANGS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-2

Offerings:

LN487 and LN488 are essentially honors or tutorial courses available only to exceptionally motivated and qualified cadets who have exhausted all other language-specific courses and who wish to pursue a special field of interest in language, linguistics or a language-related field. The minimum completion requirement is a term paper, based on individual research of a length and on a topic upon which instructor and cadet have agreed.

2015-2 2016-2 2017-2

Lessons: 17 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN490 **LANGUAGE & CULTURE CAP SEM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings:

In this capstone course concentrators integrate their knowledge of language and culture with other aspects of the curriculum. They attend lectures, participate in seminar discussions and complete a project of international import. Cadets develop a regionally focused topic, complete research and present findings for possible application at the joint command level. They make use of their acquired language skills while completing a course that is interdisciplinary in nature and meets academic program goals.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and presentation.

Prerequisite(s): LA475
-Or-
LC475
-Or-
LF475
-Or-
LG475
-Or-
LP475
-Or-
LR475
-Or-
LS475

LN491 **SEM ABROAD: ADV LANG & CULT I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN492 **SEM ABROAD: ADV LANG & CULT II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN493 **SEM ABROAD: ADV LANG&CULT III** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN494 **SEM ABROAD: ADV LANG & CULT IV** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LN495 **SEM ABROAD: ADV LANG & CULT V** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2016-2 2017-1 2017-2

Cadets attend a military academy or an undergraduate institution abroad and enroll in courses that enhance their language proficiency and cultural literacy. Courses may focus on language acquisition, literature, military science, history or the social sciences. If appropriate, cadets participate in military development activities. They attend lectures and seminars and complete all course requirements. The course grade becomes part of their Academic Summary.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LP203 **PORTUGUESE I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Portuguese. Learning activities focus on situations cadets are likely to encounter in Portuguese society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Portuguese-speaking world. Cadets acquire a command of basic Portuguese vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LP204 **PORTUGUESE II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LP203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LP203

LP371 **INTENSIVE INTERMED. PORTUGUESE** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Portuguese and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Portuguese-speaking world. In addition, cadets gain an overview of the profession of arms in Portuguese-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Portuguese grammar and continue to acquire a corpus of Portuguese vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Portuguese courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LP204

Disqualifier(s): LP361 LP362

LP470 **SPECIAL TOPIC IN PORTUGUESE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

2016-1 2016-2 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LP475 **PORTUGUESE RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-2 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Portuguese media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Portuguese.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LP362
-Or-
LP371

Disqualifier(s): LP385

LP476 **MILITARY SPKG/RDG - PORTUGUESE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the Portuguese-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Portuguese-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Portuguese.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LP475

Disqualifier(s): LP386

LP481 **SHORT STORY IN PORTUGUESE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: 2016-1 2017-1

In this course cadets gain basic competence in the knowledge and comprehension of representative Brazilian and Portuguese short stories and of their relationship to the cultural contexts of Brazilian and Portuguese society. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LP385
-Or-
LP475

LP482 **CIVIL OF PORT-SPKG WORLD** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-2

Offerings:

This course constitutes an integrated study of the culture, history, and geography of the Portuguese-speaking world. Readings, lectures, discussions, and audio-visual materials encompass the representative artistic and intellectual accomplishments, political institutions, economy, and popular culture of Portugal, the former Portuguese empire, and Brazil. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people in the Portuguese-speaking world. At the same time, cadets continue to develop greater proficiency in Portuguese. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LP475

LP492 **LIT OF PORT-SPKG WORLD** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1995-2

Offerings:

Cadets develop competence in the knowledge and comprehension of representative Portuguese and Brazilian literary works and their relationship to the cultural contexts of Portuguese and Brazilian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Portuguese.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LP475

LR203 **RUSSIAN I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings:

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Russian. Learning activities focus on situations cadets are likely to encounter in Russian society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Russian-speaking world. Cadets acquire a command of basic Russian vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

2016-1 2017-1

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LR204 **RUSSIAN II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings:

Continuation of LR203.

2015-2 2016-2 2017-2

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR203

LR371 **INTENSIVE INTERMEDIATE RUSSIAN** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Russian and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Russian-speaking world. In addition, cadets gain an overview of the profession of arms in Russian-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Russian grammar and continue to acquire a corpus of Russian vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Russian courses.

2016-1 2017-1

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR204

Disqualifier(s): LR361 LR362

LR470 **SPECIAL TOPIC IN RUSSIAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LR475 **RUSSIAN RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-2 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Russian media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR362
-Or-
LR371

Disqualifier(s): LR385

LR476 **MILITARY SPKG/RDG - RUSSIAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the Russian-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Russian-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LR475

Disqualifier(s): LR386

LR483 **RUSSIAN CIV I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-1

Offerings: 2016-1 2017-1

This course constitutes an integrated study of the culture, history, and geography of Russia and the Soviet Union from its beginnings to the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures in Russia. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LR475

LR484 **RUSSIAN CIV II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1980-2

Offerings: 2015-2 2016-2 2017-2

This course constitutes an intensive study of the culture, history, and geography of Russia and the Soviet Union since the end of World War II. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of Russia. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LR475

LR485 **SURVEY OF RUSSIAN LITERATURE I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-1

Offerings: 2016-1 2017-1

This course is a survey of Russian literature, tracing its development from the early 19th century to the beginning of WWI. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of Russian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LR385
-Or-
LR475

LR486 **SURVEY OF RUSSIAN LIT. II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-2

Offerings: 2015-2 2016-2 2017-2

This course is a survey of Russian and Soviet literature from the time of the Russian Revolution through the post-World War II "Thaw" period. Cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the cultural context of that society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR385
-Or-
LR475

LR492 **RUSSIAN LIFE IN FICTION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-2

Offerings: 2016-2 2017-2

Cadets develop competence in the knowledge and comprehension of representative Russian literary works and their relationship to the cultural context of Russian society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency in the Russian language. Video and film presentations supplement readings. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. A majority of the work is done in Russian.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LR385

LS203 **SPANISH I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Spanish. Learning activities focus on situations cadets are likely to encounter in Spanish society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Hispanic world. Cadets acquire a command of basic Spanish vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LS204 **SPANISH II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

Continuation of LS203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LS203

LS371 **INTENSIVE INTERMEDIATE SPANISH** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Spanish and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Spanish-speaking world. In addition, cadets gain an overview of the profession of arms in Spanish-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Spanish grammar and continue to acquire a corpus of Spanish vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Spanish courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LS204

Disqualifier(s): LS361 LS362

LS470 **SPECIAL TOPIC IN SPANISH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LS475 **SPANISH RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

In this course cadets enhance their reading and writing skills through study and discussion of contemporary Spanish media (e.g. the Internet, television, film, radio, newspapers and magazines), as well as short literary selections. Reading strategies and textual analysis are addressed. Writing tasks develop organization, substance, and style. Graded work typically includes oral and written summaries of authentic texts and short compositions or reaction papers. The course is conducted in Spanish.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LS362
-Or-
LS371

Disqualifier(s): LS385

LS476 **MILITARY SPKG/RDG - SPANISH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

Cadets gain an understanding of the profession of arms in the Spanish-speaking world through lectures and selected reading materials (e.g. journal articles, Internet media, training manuals, biographies, and historical documents). Course content may encompass the mission and role, training, operations, tactics, and organization of the armed forces. Oral proficiency is enhanced through in-class discussion as well as role-plays and simulations focusing on scenarios likely to be encountered while an officer is deployed in a Spanish-speaking region. Media complement instruction. Graded work may include briefings, role-plays, and simulation. The course is conducted in Spanish.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LS475

Disqualifier(s): LS386

LS483 **SPANISH CIV AND CULTURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course constitutes an integrated study of the culture, history, and geography of Spain. Readings, lectures, discussions, and audio-visual materials encompass spain's representative artistic and intellectual accomplishments, its present-day political institutions, economy, and popular culture. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the Spanish people. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LS475

LS484 **SPANISH AMERICAN CIV AND CULT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

This course constitutes an integrated study of the culture, history, and geography of the countries of Spanish America. Readings, lectures, discussions, and audio-visual materials encompass this civilization's representative artistic and intellectual accomplishments, its present-?day political institutions, economies, and popular cultures. In addition, the course focuses on the values and attitudes, the customs and traditions, and the social structures of the people in Spanish America. At the same time, cadets continue to develop greater language proficiency. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LS475

LS485 **SPANISH-AMERICAN LITERATURE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings:

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the Spanish-American cultural context. Selected examples of various literary genres are read and discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LS385
-Or-
LS475

LS486 **THE LITERATURE OF SPAIN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2000-2

Offerings:

In this course cadets gain basic competence in the knowledge and comprehension of representative Spanish literary works, from the middle ages to the present, and their relationship to the cultural context of Spanish society. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater proficiency in Spanish. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LS385
-Or-
LS475

LS492 **20TH/21ST CENTURY HISPANIC LIT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings:

In this course cadets gain basic competence in the knowledge and comprehension of representative literary works and their relationship to the Hispanic context. Selected examples of various literary genres are read, discussed, and analyzed. At the same time, cadets continue to develop greater language proficiency. Video and film presentations supplement readings, where possible. Graded work may include giving oral presentations, writing short essays, or preparing a term paper. The work is done in Spanish.

2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): LS475

LX300 **3RD SEMESTER FOREIGN LANG** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings:

Cadets may enroll in a third semester of foreign language in any course for which the cadet is qualified.

No Course Offerings

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

LX400 **4TH SEMESTER FOREIGN LANG** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: No Course Offerings

Cadets may enroll in a fourth semester of foreign language in any course for which qualified.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

LZ203 **PERSIAN I (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

In the standard course sequence, cadets acquire a basic proficiency in speaking, listening, reading and writing skills in Persian. Learning activities focus on situations cadets are likely to encounter in Persian society. Cadets are taught how to express simple ideas and basic needs, comprehend the language in everyday contexts, and read simplified texts and brief, authentic selections. In addition to speaking, listening and reading skills, cadets also learn how to write sentences, paragraphs and/or short compositions on familiar topics. Through readings and discussions, cadets are introduced to the cultures and history of the Persian-speaking world. Cadets acquire a command of basic Persian vocabulary and gain a general understanding of how the language works, and they become able to apply that knowledge when learning other foreign languages.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LZ204 **PERSIAN II (STANDARD)** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-1 2016-2 2017-2

Continuation of LZ203.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LZ203

LZ371 **INTENSIVE INTERMEDIATE PERSIAN** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

In the intensive intermediate course, cadets develop proficiency in those skills necessary for communicating effectively in Persian and for pursuing upper-level courses. Cadets develop speaking skills that enable them to engage in conversations on a variety of topics with other class members and with native speakers. Cadets reinforce and expand their language skills by reading, viewing, discussing, and writing about contemporary life, current events, and other cultural and historical topics as presented in selected materials of the Persian-speaking world. In addition, cadets gain an overview of the profession of arms in Persian-speaking regions by reading, discussing, and writing about pertinent materials that focus on the mission and history of the military in those countries. Cadets also review the basic rules of Persian grammar and continue to acquire a corpus of Persian vocabulary. They will be able to use computer-assisted learning resources to strengthen and maintain their language proficiency. This course serves as a bridge to advanced elective Persian courses.

Lessons: 80 @ 55 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LZ204

Disqualifier(s): LZ361 LZ362

LZ470 **SPECIAL TOPIC IN PERSIAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-2 2017-2

This course is taught by a member of senior faculty and provides cadets an opportunity to further develop their language proficiency, regional expertise, and cultural capabilities.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LZ475 **PERSIAN RDG/WRTG THRU MEDIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

Cadets strengthen their reading and writing proficiency through study and discussion derived from contemporary Persian media (e.g., Internet, film, newsprint and magazines) and short literary selections. Reading strategies and textual analysis are introduced and practiced. Writing tasks address organization, substance and grammatical accuracy. Graded work typically includes oral and paragraph-length written summaries of Persian texts and short compositions or reaction papers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): LZ371

Department of Geography and Environmental Engineering

51 Courses

EV203 **PHYSICAL GEOGRAPHY** **3.0 Credit Hours (BS=2.5,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2015-4 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This core course provides cadets with a fundamental understanding of scientific principles and processes of earth science, meteorology, climatology, geomorphology and environmental systems, as well as an introduction to cultural geography. Further, the course furnishes cadets with the technical skills - digital terrain analysis, image interpretation and spectral analysis, remote sensing, global positioning system, geographic information systems cartography - to delineate the geographic distribution of landforms, weather, climate, and culture systems; and evaluate their potential impact on military operations. Lessons are reinforced by extensive use of in- and out-of-class practical exercises, terrain walks and computer exercises to demonstrate the interrelationship between physical and human systems, and their impact on the environment. Historical vignettes are employed to demonstrate how the factors of weather, climate, terrain, soils, vegetation and culture are important, cogent and frequently decisive in military operations.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 4 @ 55 min

Special Requirements: None

EV300 **ENVIRONMENTAL SCIENCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

As the introductory course to the Environmental Engineering Sequence, EV300 provides the cadet with a broad understanding of current global and local environmental issues. It specifically focuses on natural ecosystems processes, the effects of pollution on human health and how the level of risk associated with this pollution is assessed, the environmental effects of energy use, and air pollution concerns such as global climate change, acid rain, and smog. Discussions of anthropogenic influences are conducted with consideration of social, economic, technological and political impacts. Cadets learn to evaluate literature on environmental issues through readings and interactive debates. A course project applying the scientific method to evaluate a current environmental problem provides an opportunity to tie multiple course topics with an in-depth study of an issue of interest.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Design and conduct an environmental study.

Prerequisite(s): EV203
-Or-
EV203X

Disqualifier(s): EV390A
-Or-
EV301

EV301 **ENV SCIENCE FOR ENGR & SCIEN** **3.0 Credit Hours (BS=1.0,ET=2.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is similar to EV300 except that the context of discussion in EV301 is appropriate for cadets who have elected to major in science or engineering. EV301 provides the cadet with a broad understanding of current global and local environmental issues. It specifically focuses on natural ecosystems processes, the effects of pollution on human health and how the level of risk associated with this pollution is assessed, the environmental effects of energy use, and air pollution concerns such as global climate change, acid rain, and smog. Discussions of anthropogenic influences are conducted with consideration of social, economic, technological and political impacts. Cadets learn to evaluate literature on environmental issues through readings and interactive debates. A course project applying the scientific method to evaluate a current environmental problem provides an opportunity to tie multiple course topics with an in-depth study of an issue of interest.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Design and conduct an environmental study, one field trip, in-class labs.

Prerequisite(s): EV203
-Or-
EV203X

Disqualifier(s): EV300
-Or-
EV390A

EV303 **FOUNDATIONS IN GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-1

Offerings: 2016-1 2017-1

This course presents the basic concepts, theories and methods of inquiry in the discipline of geography as foundation for advanced study in Human/Regional Geography; Environmental Geography; or Geospatial Information Science. The course includes models and concepts from the many sub-disciplinary (systematic) areas of geography to include cultural, historical, economic, urban, political and military geography. The application of concepts to real-world issues is emphasized. Research skills and techniques used by professional geographers are presented. Cadets use these approaches to spatially analyze and map the distribution of human and environmental phenomena. Several short papers will be assigned.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Requires Department Head approval for all cadets not selecting a FOS/MAJ in the Department of Geography & Environmental Engineering.

EV350 **ENVIRONMNTL ENGR TECHNOLOGIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course builds on environmental issues introduced in EV300 and further explorers environmental engineering from a unit process and materials balance approach. Analyzing water (transport, quality, drinking water treatment, and wastewater treatment); air (transport, quality, and pollutant minimization); and pollutant management (solid and hazardous wastes), the cadet is exposed to the breadth of the environmental discipline. A laboratory experience is integral to the course. In the laboratory, physical, chemical, and biological quality are discussed and measured. An introductory environmental engineering design project on river water quality is developed within the semester.

Lessons: 36 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: One design project.

Prerequisite(s):
CH102 EV300 MA205
-Or-
CH152 EV300 MA205
-Or-
CH102 EV300 MA255
-Or-
CH152 EV300 MA255
-Or-
CH102 EV301 MA205
-Or-
CH152 EV301 MA205
-Or-
CH102 EV301 MA255
-Or-
CH152 EV301 MA255

Disqualifier(s): EV385

EV365 **GEOGRAPHY OF GLOBAL CULTURES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides the geographic foundation for study in interdisciplinary and management academic areas. Contemporary regions of the world political map serve as the framework within which geographic concepts and analytical techniques are applied. Each cadet will develop an awareness of the diversity and distribution of people on the earth, human organization and exploitation of territory, and interactions among culture groups. Particular emphasis is placed on social institutions, their impact on economic development, and the subsequent identification and analysis of developed, emerging, and underdeveloped states.

Lessons: 38 @ 55 min (2.500 Att/wk) **Labs:** 2 @ 55 min

Special Requirements: None

Prerequisite(s):
EV203
-Or-
EV203X

EV371 **GEOGRAPHY OF RUSSIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-1

Offerings: 2017-1

This course examines the political, economic, and cultural geography of Russia and its adjacent neighbors; the Baltic states, east central European region, transcaucasus, and central Asia. Topics covered include: the commonwealth of independent states; ecocide in the former soviet union; disposition of the former soviet military; and ethnic rivalries. The objective of the course is to provide the student with an understanding of the recent past of the traditional soviet system in order to understand, as well as geographically evaluate, Russia's and the other former republics' situation today.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: 1 field trip; one research paper.

Prerequisite(s): EV365

Disqualifier(s): EV371A

EV372 **GEOGRAPHY OF ASIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1987-2

Offerings: 2015-2 2016-2 2017-2

The course studies the physical and cultural environment of Asia with emphasis on those geographic elements related to the region's progress, developing nations, and emerging world and regional powers. Topics covered include a consideration of the physical and resource base, environmental and cultural factors, spatial organization of agricultural and industrial economies, population patterns and problems, and examination of the realm's several major subregions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: 1 field trip; one written report and one oral presentation.

Prerequisite(s): EV365

Disqualifier(s): EV372A

EV373 **GEOGRAPHY OF LATIN AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-1

Offerings: 2016-1 2017-1

This course studies the physical and cultural landscape of Latin America, giving special treatment to the diversity and cultural identity of the region. Topics covered include an historical geography of the region, including pre-columbian civilizations, Iberian, African, and European influences; the geography of transportation networks, agriculture, urbanization, and population. National boundaries, major landforms and climatic conditions are discussed to describe their effect on civilization. This course also investigates the historical relationship between the United States and Latin America and covers recent U.S. military interventions in the region.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One oral report; one research paper.

Prerequisite(s): EV365

Disqualifier(s): EV373A

EV375 **GEOGRAPHY OF AFRICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2016-1 2017-1 2018-1

This course examines the cultural and natural diversity of African landscapes, with an emphasis on development, population issues, disease, and the origin, dispersal, spatial organization, and interaction of important cultural groups. Africaýs physical landscapes will also be introduced as the palette upon which Africaýs complex human mosaic has developed. Students will explore, from a geographic perspective, why Africa has seemingly been plagued with problems of economic development, health, and political instability.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One written research report with brief oral presentation. One field trip is possible.

Prerequisite(s): EV365

Disqualifier(s): EV374

EV376 **GEOGRAPHY OF THE MIDDLE EAST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course examines the cultural and natural diversity of Southwest Asian landscapes. The realmýs cultures and ethnicities are studied in a geographic context, with an emphasis on the origin, dispersal, spatial organization, and interaction of important cultural groups. Among issues examined are the distribution and strategic significance of critical mineral and energy resources, population and resource disparities, cultural conflict, and economic development. Students will learn how geographic issues impact the prospects for peace and stability in the region.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One written research report with brief oral presentation. One field trip is possible.

Prerequisite(s): EV365

Disqualifier(s): EV374

EV377 **REMOTE SENSING** **3.0 Credit Hours (BS=1.0,ET=2.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Remote Sensing is learning about something without touching it--the most obvious example being the use of satellites to study the Earth. EV377, a techniques course applicable to both the humanities and engineering, studies how and what types of information can be carried by the electromagnetic spectrum. Students enjoy a wide range of practical exercises which introduce them to several remote sensing systems to include conventional and color infrared photography, multispectral scanners, satellite imagery, thermal infrared, and radar. The capstone exercise offers each student the opportunity to perform real-time automated image classification using satellite data on his/her own micro-computer. The course focus is on applying remotely sensed data to solve current problems.

Lessons: 32 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Prerequisite(s): CS105 EV203
-Or-
CS155 EV203
-Or-
EV203 IT105
-Or-
EV203 IT155
-Or-
EV203X IT105

EV378 **CARTOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

Cartography teaches the principles of cartographic communication and enables the student to apply map design principles along with computer mapping techniques to solve contemporary problems in geography, economics, international relations, and applied sciences. Cadets will study the basic cartographic design process and use mapping and analysis software in the geographic sciences laboratory to produce topographic and thematic maps. A final course design project presents the opportunity for the cadets to demonstrate their ability to synthesize sound mapping principles.

Lessons: 23 @ 55 min (2.500 Att/wk) **Labs:** 17 @ 120 min

Special Requirements: Course project included in lab periods.

Prerequisite(s): CS105 EV203
-Or-
CS155 EV203
-Or-
EV203 IT105
-Or-
EV203 IT155
-Or-
EV203X IT105

EV379 **PHOTOGRAMMETRY** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

Photogrammetry, the art and science of making accurate measurements on photographs, is an important and fundamental discipline concerned with civilian and military mapping. Students, applying simple geometric principles to the photograph, determine object identity, size, spatial relationship, and position. An abundance of practical exercises, involving the use of sophisticated equipment, provide the opportunity to apply the fundamentals while arriving at solutions to real-world problems. An interesting field trip to a local mapping organization vividly displays how all these techniques may be blended to produce maps in the commercial business world.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 55 min

Special Requirements: None

Prerequisite(s): CS105 EV203
-Or-
CS155 EV203
-Or-
EV203 IT105
-Or-
EV203 IT155
-Or-
EV203X IT105

EV380 **SURVEYING** **3.5 Credit Hours (BS=0.5,ET=3.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

A framework for understanding and applying practical surveying methods is developed. Consideration of error theory and the concepts of precision of and accuracy yields understanding of the probabilistic nature of measurements. The principles of differential leveling, taping, electronic distance measurement and angular measurement are studied and applied using state-of-the-art surveying equipment and software tools. Plane surveys are principally explored, although the fundamentals of geodetic surveys are also presented. Traverse, triangulation, trilateration, level networks and the proper adjustment of related measurements are examined. Control survey, land survey, topographic survey, horizontal and vertical curve design, computer-aided mapping and GIS applications are included. Extensive use of laboratory periods permits application of surveying fundamentals, methods and planning skills to actual field situations. The principles of the global positioning system are explored and applications in the Army and surveying are applied in the final lab exercise.

Lessons: 21 @ 55 min (2.500 Att/wk) **Labs:** 19 @ 120 min

Special Requirements: None

EV384 **GEOGRAPHY OF NORTH AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

This course provides a regional geography of North America, with balanced coverage of the human and physical geography of the United States and Canada. Lectures are appropriately supplemented with movies, slides, and maps to facilitate understanding of important themes that are prevalent in various subregions. Emphasis is placed on cultural patterns and contemporary environmental issues.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One oral report.

Prerequisite(s): EV365

EV385 **INTRO TO ENVIRON ENGR** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course introduces cadets to the study of environmental engineering from a unit process and a materials balance approach. The focus is design-oriented problem solving to protect human health and the health of ecosystems using fundamental physical, chemical, and biological processes. Through the study of contaminant removal from water and air to integrated management techniques for solid/hazardous wastes, the cadet is exposed to the breadth of the discipline. In the laboratory, the science behind physical, chemical, and biological processes are applied to the engineering discipline. A military oriented design problem allows application of engineered solutions to topical water and air quality issues.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 120 min

Special Requirements: Two field trips; course design project.

Prerequisite(s): CH102 MA205
-Or-
CH152 MA205
-Or-
CH152 MA255
-Or-
CH102 MA255

Corequisite(s): PH204
-Or-
PH254
-Or-
PH202
-Or-
PH252

Disqualifier(s): EV350
-Or-
EV385B

EV386 **GEOGRAPHY OF EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

The course examines European cultural landscapes, focusing on the environmental and cultural diversity exhibited among the states of modern Europe. Nationalism and the territorial imperative, long recognized as major forces in Europe, are studied from a geographic perspective to include patterns and processes of both regional continuity and change. Emphasis is given to the rapidly developing urbanization and mutual interdependence among countries of Western Europe. West and East European agricultural/industrial resource bases and developmental strategies are compared and contrasted. Specific topics are tailored to current issues and include regional conflict, economic development and trade, and problems of energy and the environment. This course concludes with a study of contemporary European extraregional spatial relationships with other major world culture regions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One field trip; one research paper.

Prerequisite(s): EV365

Disqualifier(s): EV386F

EV387 **METEOROLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course introduces meteorological processes, systems, and patterns with emphasis on spatial distributions. The course begins with a comprehensive look at the structure of the atmosphere to include the energy budget, heat transfer mechanisms, as well as an examination of daily and seasonal patterns of temperature. A thorough look at atmospheric moisture and stability precedes a study of cloud and precipitation processes followed by a study of the atmosphere in motion, namely air pressure, governing forces, winds, small and local-scale wind systems and the general circulation of the planet. Specific phenomena are then examined, including mid-latitude cyclones, thunderstorms/lightning, tornadoes, severe thunderstorms, hurricanes, air pollution, and a brief look at climate and climate change. The end of the course focuses on the art and science of weather forecasting and its applicability to military operations. In-class labs.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Term project.

Prerequisite(s): EV203
-Or-
EV203X

EV388A **PHYSICAL GEOLOGY** **3.5 Credit Hours (BS=2.0,ET=1.5,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course primarily emphasizes learning to identify minerals and rocks and then applying this knowledge to analyze the significant geologic processes that act on and within the earth. These processes include plate tectonics, rock mechanics, geologic mapping, ground and surface water, and elements of mining and petroleum engineering. Field trips are conducted to illustrate how local geology has influenced development and construction in the Hudson Valley. The course is capstoned by an open-ended engineering problem which requires the creative application of geology to design a practical solution to a stated need. Cadets use a geologic exploration simulation to convert given resources optimally including safety and cost factors.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 12 @ 55 min

Special Requirements: Two field trips; one design project; compensatory time provided.

Prerequisite(s): EV203
-Or-
EV203X

Disqualifier(s): EV399A

EV388B **GEOMORPHOLOGY** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course studies the processes that create landforms on the surface of the earth and their regional and global distributions. The course focuses on processes and their inter-relationships with geologic structure, soils and climate. Processes emphasized include glaciers, streams, downslope motion caused by gravity, groundwater, coastlines, and eolian landscapes. Each student prepares a final report synthesizing these processes and how they relate to real-world applications.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two field trips; one written report and one oral report; compensatory time provided.

Prerequisite(s): EV203
-Or-
EV203X

EV389B **CLIMATOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1981-1

Offerings: 2016-1 2017-1

The course investigates the earth's atmospheric phenomena, giving special attention to the dynamic physical processes which produce weather and result in distinctive climates. The course focus is on how climate influences daily life and activities. Time is devoted to case studies of urban microclimates and attendant problems of atmospheric pollution and scientific efforts to alter the weather. Exercises allow the student to apply climate data and information to problem solving in the fields of engineering, agriculture, land use, and the military.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 55 min

Special Requirements: None

Prerequisite(s): EV203
-Or-
EV203X

EV390B **URBAN GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

This course examines the location, function, structure, growth and interaction of urban areas. Spatial techniques are used to explore the internal attributes of cities, as well as their connectivity to other places. While the primary focus is on urbanization in the United States, primate cities abroad are often used for comparative purposes. Emphasis is placed on contemporary urban problems, particularly environmental issues and social disparities.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One oral report.

EV391A **LAND USE PLAN & MGT** **3.0 Credit Hours (BS=0.0,ET=0.5,MA=0.0)**

Scope: 2012-1

Offerings: 2016-1 2017-1

An introduction to land use planning and management with focus on the land-law interfaces between the physical, cultural, and legal realms. The course surveys the policies and legislative basis for land use controls at the local, federal and regional levels to include national parks and forests, agricultural lands, rangelands, and military training areas. Natural resource management issues and strategies are explored. The importance of geographic concepts is emphasized in the conduct of applied case studies addressing land use conflicts and environmental strategies.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One field trip; one oral presentation; compensatory time provided.

Prerequisite(s): EV203
-Or-
EV203X

EV391B **ENVIRONMENTAL GEOLOGY** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on natural phenomena that pose hazards to people. The cause, nature, and occurrence frequency of natural hazards such as flooding, earthquakes, hurricanes, and volcanic activity will be examined. Emphasis will also be placed on how people perceive and respond to these hazards. Land use policies and practices in these hazard areas will also receive attention. Students participate in map based laboratory exercises and have the opportunity to write a short paper advising a government official how to mitigate local geohazards.

Lessons: 37 @ 55 min (2.500 Att/wk) **Labs:** 3 @ 55 min

Special Requirements: One research paper; compensatory time provided.

Prerequisite(s): EV203
-Or-
EV203X

EV394 **HYDROGEOLOGY/HYDRAULIC SYSTEMS** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course covers the principles governing the movement of subterranean water (groundwater), the interaction of this water with the porous medium, and the transport of chemical constituents (contaminants) in the subsurface. Lesson blocks explore traditional background elements of hydraulic engineering to include flow systems for the conveyance of groundwater and drainage systems for groundwater. Computer models are used to evaluate groundwater problems and conduct sensitivity analyses.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 12 @ 55 min

Special Requirements: One course project.

Prerequisite(s): EV203 MA206
-Or-
EV203X MA206

EV396 **ENVIRONMENTAL BIOLOGICAL SYS** **3.5 Credit Hours (BS=1.0,ET=2.5,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course will examine biology from a practical environmental engineering and environmental science perspective. The foci of the course are applied public health, microbiology and microbial energetics. Specific topics include the biological health issues associated with drinking water, microbial aspects of industrial and domestic waste treatment and protection or restoration of natural water bodies from environmental contaminants. Students are also introduced to medical geography and the spatial biological health issues associated with a deployment. Laboratory exercises are used to introduce the student to water quality analyses and practices commonly used in the fields of environmental engineering and the environmental sciences.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 12 @ 55 min

Special Requirements: None

Prerequisite(s): CH102 EV203 EV300
-Or-
CH102 EV203 EV385
-Or-
CH152 EV203 EV300
-Or-
CH152 EV203 EV385
-Or-
CH102 EV203 EV301
-Or-
CH152 EV203 EV301
-Or-
CH102 EV203X EV300
-Or-
CH152 EV203X EV300
-Or-

CH102 EV203X EV301
-Or-
CH152 EV203X EV301

EV397 **AIR POLLUTION ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course employs a design approach to air pollution control. It begins by defining air pollution problems, to include pollutant types, sources, legislation, and effects on both local and global scales. The course then examines the design of various means of controlling particulate and gaseous air pollution from both mobile and stationary sources. Finally, students study the link between meteorology and air pollution, as well as pollutant dispersion modeling in the atmosphere. The culminating course project involves a numerical approach to dispersion modeling that incorporates modeling and solution optimization.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Field Trip(s).

Prerequisite(s): EV203
-Or-
EV203X

EV398 **GEOG INFORMATION SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 1997-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Geographic information systems are hardware/software systems that permit the input, storage, retrieval, manipulation, analysis, and display of geocoded data. Used by environmentalists, engineers, land-use planners, architects, managers of large land holdings, and the military, these highly-intricate "decision support" systems assist managers in answering important "what if" questions. Using digitizers and microcomputers students will build a geocoded database and solve "real-world" problems.

Lessons: 33 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 55 min

Special Requirements: Short oral reports, one database design; compensatory time provided.

Prerequisite(s): EV203
-Or-
EV203X

EV399A **GEOLOGY FIELD COURSE** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-4

Offerings: No Course Offerings

The geology field course is a summer Individual Advanced Development Program normally run in early June. It is taught in a hands-on manner in various geologically appropriate settings throughout the United States. Geologic concepts are presented outdoors in the field where cadets can actively observe them. The course provides the cadet with knowledge of and appreciation for the science of geology as well as practical experience in field observations and an intimate look at how geology affects human civilization.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: TDY travel to the course location in the western USA; excursions to remote field locations; one graded geologic mapping exercise.

Prerequisite(s): EV203
-Or-
EV203X

Disqualifier(s): EV388A

EV400 **ENVIRONMENTAL ENGINEERING SEM** **1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This seminar will meet once each week and will include all first class cadets majoring in environmental engineering. The seminar topics will address a variety of fundamental engineering science, design, and professional practice topics including engineering ethics, economics, and licensing. Periodically, guest lecturers from the military, industrial, and academic communities will provide their prospective on these topics.

Lessons: 13 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): EV490

EV401 **PHYS & CHEM TREATMENT** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This course takes a process approach to environmental engineering using engineering science and design of drinking water treatment systems as the primary foci. Building upon concepts gained in environmental chemistry, cadets study physical and chemical processes used in environmental engineering. Discussion includes the theories behind these processes and the design procedures involved in their application. Cadets develop comprehensive concept design of drinking water treatment processes. While the focus of the course is drinking water treatment, the processes developed are also applicable to wastewater treatment, groundwater remediation, air pollution control, and the treatment of solid and hazardous wastes.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 12 @ 55 min

Special Requirements: One term project, one field trip.

Prerequisite(s): XS391

Corequisite(s):

-Or-

-Or-
ME311
-Or-
MC311

EV402 **BIOCHEMICAL TREATMENT** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course provides cadets with the opportunity to apply the principles of microbiology to the protection and improvement of the environment. This course builds on the concepts learned in EV396, Environmental Biological Systems, and directly applies those concepts to the treatment of wastewater, removal of nutrients from wastewater, anaerobic digestion, bioremediation, industrial waste treatment, and emerging applications of biological treatment and modeling. A comprehensive, multi-step design project serves as the design experience for this course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Engineering design project with a written report.

Prerequisite(s):

-Or-

-Or-
EV396 ME311
-Or-
EV396 MC311

EV450 **ENV ENG FOR COMMUNITY DEVELOP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is the capstone experience for a three-course environmental engineering sequence. It balances engineered solutions to technologic problems with economic, socio-cultural, and political considerations evaluated during a decision-making process. With a focus on water and sanitation challenges in the developing world, students assess various technologies and their ability to meet community needs. The course highlights the engineering design process to develop appropriate solutions and introduces decision modeling with consideration of social, political, and economic factors. A semester-long term project leverages real world case studies to provide cadet teams an opportunity to apply knowledge and creatively design sustainable solutions to ill-defined problems. Students must make logical assumptions throughout the project, present and evaluate solution designs, and prepare a formal written report defending their selected course of action.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Must be a First Class cadet. Each cadet will complete a paper and oral presentation on a contemporary water resources project.

Prerequisite(s): EV350

EV471 **ECOLOGY** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course examines ecosystems through the study of ecological principles related to an organism's relationship to its environment, community, and ecosystem. Species, population, community, and ecosystem level interactions and dynamics are emphasized. The fundamental influences of energy flow and material cycling are examined, as well as the unique role of wetlands within ecosystems. The course includes several field trips, which lead to a culminating term project designed to integrate previously acquired environmental science technical skills and ecological principles.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: In-class labs and out-of-class field trips; term paper examining aspects of one of the world's ecosystems.

Prerequisite(s): CH385 EV300 EV350
-Or-
CH385 EV300 EV385
-Or-
CH385 EV301 EV350
-Or-
CH385 EV301 EV385
-Or-
CH375 EV300 EV350
-Or-
CH375 EV300 EV385
-Or-
CH375 EV301 EV350
-Or-
CH375 EV301 EV385

EV477 **ADVANCED REMOTE SENSING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2002-1

Offerings: 2015-2 2016-2 2017-2

This course examines advanced remote sensing theory and digital image processing techniques suitable for the processing of remotely sensed data. Emphasis is on the processing and analysis of state-of-the-art high spatial and spectral resolution data gathered by airborne and satellite sensors. Topics covered include geometric and radiometric image rectification, registration and resampling techniques, image enhancements, data merging, image segmentation, and automated feature extraction. A wide range of practical exercises and in-class laboratory assignments provides hands-on experience with a variety of remotely sensed imagery ranging from multi-spectral to hyper-spectral data. The course culminates with a capstone term project that allows cadets to apply digital image processing skills to a scientific problem.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: In-class labs; term project. Compensatory time provided.

Prerequisite(s): EV203 EV377
-Or-
EV203X EV377

EV478 **MILITARY GEOSPATIAL OPERATIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course is designed to teach the most current state of geospatial operations in the military. It is built to provide the student an improved understanding of the cornerstone to the digital force - the "common operational picture" or COP. This course is divided into five major blocks of instruction: (1) a linked discussion of geospatial operations' development, organizations and data systems; (2) the geographic information system (GIS) as a military tool - system input, management, data analysis and production outputs; (3) Army geospatial operations in the garrison environment; (4) Army geospatial operations in combat environments; and (5) geospatial operations for joint/coalition forces. The course includes several relevant practical exercises and laboratories, a field trip, guest lectures and one panel discussion. Due to the currency of the material discussed a secret security clearance is required for all participants.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EV203
-Or-
EV203X

EV480 **HONORS SEMINAR IN GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2016-1 2017-1

This course will examine major research initiatives in the discipline and delineate their data requirements. The primary objective of this course is to identify and outline the senior thesis, which is the culminating event for the Honors Program. Hence, cadets participating in this course will explore research methods and data sources used by geographers, conduct a critical analysis of seminal literature in the field, define a research problem, identify and evaluate data sources, and assemble a research proposal. The final product of this course will be a written research proposal that will define the senior thesis (written during EV489B). The cadet will make a formal presentation of this proposal to senior geography faculty. The course is conducted in a seminar and one-and-one format. Lessons and labs are established by consultation between the cadet and faculty advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Senior Thesis or as determined by the faculty advisor.

Prerequisite(s): EV203
-Or-
EV203X

EV481 **WATER RESOURCES PLAN & DESIGN** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

The course is concerned with effective use of water as a manageable natural resource. It begins with instruction on the tools required by water resource managers to make sound decisions in their field. The course assesses current needs for water and the structural (engineered) and non-structural approaches available to meet these needs. Elements of engineering design and the design process are introduced. The bulk of the course is concerned with assessment of the impacts of various water resources development activities on the economic, socio-cultural and ecological sectors of the environment. Methods for conducting tradeoff analyses among the engineered and environmental aspects of projects are developed and applied in a term project. The course makes use of case studies of current water resource projects. Visiting speakers represent the views of the Federal government and concerned public interest groups.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Written and oral research reports on a contemporary water resources project.
Standing as First Class cadet.

EV482 **MILITARY GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings: 2015-2 2016-2 2017-2

History is replete with examples of the impact of terrain, weather and climate on military operations at all scales. National strategies are influenced heavily by geographic realities of relative location, spatial interaction, population dynamics and resource distribution. This course emphasizes the development of a geographic method for systematic analysis of the battlefield that is appropriate for platoon leader and corps commander alike. Students evaluate the elements of national power and examine their geostrategic influences, past and present. The role of the environment in shaping today's Army and its missions is discussed. Jungle, cold region, alpine, riverine, desert, temperate and urban operational environments are examined for their effect on military planning and execution. Finally, cadets review case studies of the impact of these diverse environments on military operations at the tactical level.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One oral presentation and one written research project.

Prerequisite(s): EV203
-Or-
EV203X

EV483 **COLLOQUIUM IN GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1981-1

Offerings: 2016-1 2017-1 2018-1

The colloquium is a directed readings course using small group discussions of important literature, methodological traditions, and contemporary research trends in the field of geography. Dependent on instructor preference and individual student interest, in-depth readings will be pursued in one or more of the following areas of geographic study: cultural, political, regional or military geography. Compensatory time is given to permit extra readings.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research proposal and its oral presentation.

Prerequisite(s): EV203 EV365
-Or-
EV203X EV365

EV485 **SPEC TOPICS-GEOG & ENVRNMNT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: 2016-2 2017-2

This course explores an advanced topic in Human and Regional Geography, Environmental Geography, Environmental Science, Environmental Engineering, or Geospatial Information Science. Specific subject matter will vary with the expertise of the visiting professor or senior faculty member conducting the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As specified by the professor.

Prerequisite(s): EV203
-Or-
EV203X

EV486 **ENVIRONMENT AND DEVELOPMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

Whereas physical geographers focus on the earth's surface and atmosphere, and human geographers concentrate on the spatial aspect of human activities, environmental geographers are interested in both how people adapt to specific environments and how they alter those environments through human activities. To understand these interactions and their implications, environmental geographers must fully appreciate natural processes and landform development within and on the surface of the Earth, as well as the implications of human intervention in the natural system.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): EV203 EV365
-Or-
EV203X EV365

EV487 **ENVIRONMENTAL SECURITY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-2

Offerings: 2015-2 2016-2 2017-2

This interdisciplinary seminar uses Environmental Security in a case study approach to study environmental issues potentially affecting U.S. National Security. Cadets will explore environmental security topics such as water, natural resource shortages, energy use and dependency, global climate change using an interdisciplinary approach from social, political, economic, and scientific-technological perspectives. The course culminates on a student team analysis of a developing country in terms of environmental security issues and the related US national security interests. The final project includes a formal brief and written paper.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Standing as a first class cadet required for enrollment.

EV488 **SOLID & HAZ WASTE TREAT & REMD** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course examines the treatment, storage and disposal of solid and hazardous wastes. Both regulatory requirements and evolving technology associated with solving modern solid waste disposal problems are discussed. Processes for the investigation and design methodologies remediation of contaminated waste sites are presented. Students design and conduct experiments to assess the efficiency of a harzardous waste treatment process or solve a problem associated with a variety of harzardous waste treatment technologies.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Design of a laboratory experiment.

Prerequisite(s): EV402

EV489A **ADV INDIV STUDY GEOGRAPHY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-1

Offerings: No Course Offerings

The course is an individually supervised research and study program designed to provide the cadet the opportunity to pursue advanced study of topics or regions in geography. The cadet prepares a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. Once approved, the proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet usually culminates in a substantive research paper and oral defense.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As determined by faculty advisor.

EV489A **ADVANCED INDIVIDUAL STUDY I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet prepares a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. Once approved, the proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in one of two outcomes: 1) a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense; or 2) enrollment in EV489B for the completion of the research and study program during the second academic term. Lessons and labs are established by consultation between the cadet and faculty advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Senior Thesis or as determined by faculty advisor. Project dependent BS, ES, ED credit.

EV489B **ADVANCED INDIVIDUAL STUDY II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-1 2017-2

The course is an individually supervised research and study program designed to provide cadets with the opportunity to pursue advanced topics within their discipline. The cadet uses a research and study proposal setting forth the objectives, scope, and anticipated accomplishments of his/her efforts for the semester. If required for a specific degree, the proposal will include a justification for engineering science or design credit. The proposal serves as a basis for the cadet's research and study program. Progress in research reports and observations by the faculty advisor form the basis for grades. The program for each cadet will culminate in a discipline-appropriate written product (e.g., senior thesis or design project) with oral defense. Lessons and labs are established by consultation between the cadet and faculty advisor.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Written report with oral defense. Project dependent BS, ES, ED credit.

Prerequisite(s): EV480
-Or-
EV489A

EV490 **ADV ENVIRON ENG DESIGN** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This is the final design course for the major in environmental engineering. Cadets experience the complete design experience including defining the project scope, identifying design constraints, comparing alternatives, development of plans and specifications, engineering economics, and project management. The course centers on a senior design project that requires the integration of concepts developed in previous courses. Working in teams, cadets examine projects through the feasibility and concept design phases to evolve and develop concepts that are not only technically feasible, but economically, socially, and politically acceptable. The evaluation of alternatives employs trade-off analysis and the use of multi-attribute decision models. The final product includes a formal oral briefing and written design specifications. In addition to project management, course lectures cover topical coverage of fundamental engineering topics relevant to the problems under study.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 12 @ 55 min

Special Requirements: One design problem. Standing as a first class cadet is required for enrollment.

Prerequisite(s): EV301
-Or-
EV385

EV498 **ADV GEOGRAPHIC INFORMATION SYS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course examines the analytical methods used in Geographic Information systems (GIS) and provides cadets with a clear understanding of the theoretical/conceptual aspects of algorithms found in GIS software. Lectures focus on the underlying mathematical basis for widely used spatial analytical techniques. Among the topics covered are neighborhood operations, map transformation, spatial interpolation, terrain analysis, network analysis, spatial overlay, fuzzy sets, neural networks, and expert systems. In-class practical exercises and laboratory assignments compliment the lectures by providing hands-on experience with a variety of advanced analytical techniques. The course culminates with a capstone term project that allows cadets to identify a scientific problem, formulate a hypothesis, use GIS to solve the problem, and then present the results of their analysis.

Lessons: 30 @ 55 min (2.500 Att/wk) **Labs:** 10 @ 55 min

Special Requirements: Term project. Compensatory time provided.

Prerequisite(s): EV398

XS391 **PRIN & APPL OF ENV CHEM** **3.0 Credit Hours (BS=0.5,ET=2.5,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This course examines chemical interactions of pollutants in air, soil, and water systems. The focus of the course is problem solving with the following topic coverage: approximately 80% applied aquatic chemistry, 15% environmental organic chemistry, and 5% applied analytical chemistry. Specific topics include the chemistry applied in drinking water production and the chemical aspects of industrial and hazardous waste treatment. The fate of heavy metals and organic contaminants in soil and aqueous systems is also discussed.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One in-class lab.

Prerequisite(s): CH102 MA104
-Or-
CH152 MA104

Department of History
84 Courses

HI105 **HISTORY OF THE UNITED STATES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

HI 105, History of the United States, addresses the social, political, economic, foreign relations, and sectional of the nation from its colonial roots through the end of the 20th century. The course consists of three blocks of instruction, each followed by a major examination. Although this course is complete in itself, it complements HI 108, Regional Studies in World History, by providing cadets an understanding of their own culture as a basis for studying foreign cultures. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

HI107 **WESTERN CIVILIZATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2016-2 2017-2

HI107, Western Civilization, is part of a two-semester sequence intended to develop a historical understanding of the civilization in which cadets live. The other part of the sequence (HI108, Regional Studies in World History) is an in-depth survey of another civilization. HI107 traces the human experience in the West from 1500 until roughly 2000. It begins with an examination of the early modern period to include the Renaissance and the Reformations, traces the development of modern European nation-states up through the end of the 19th century, and ends with an examination of the broad causes, conduct, and consequences of the three major wars of the 20th century: World War I, World War II, and the Cold War. The formative events of the West in each time period are examined in depth in order to provide cultural, social, economic, political, and military understanding of Western Civilization. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

Disqualifier(s): HI103
-Or-
HI153
-Or-
HI157

HI108 **REGIONAL STUDIES IN WORLD HIST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

HI108, Regional Studies in World History, is a detailed study of the development and critical events in the history of one of five regions: Africa (stem identifier A), East Asia (E), Latin America (L), the Middle East (M), or Russia (R). The focus on one region enables cadets to develop a deeper understanding of a different culture and unfamiliar ideas and concepts. The course also develops methods of historical research and analysis, critical thinking, lucid writing, and effective participation in classroom discussion. HI108 combines with either HI105 or HI107 to form the plebe history sequence of the Core Academic Program.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

Disqualifier(s): HI104
-Or-
HI154
-Or-
HI158

HI108A **WORLD HIST - AFRICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Temporary course for Language stem for HI108

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI108E **WORLD HIST - EAST ASIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Temporary course for Language stem for HI108

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI108L **WORLD HIST - LATIN AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Temporary course for Language stem for HI108

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI108M **WORLD HIST - MID EAST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Temporary course for Language stem for HI108

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI108R **WORLD HIST - RUSSIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings:

Temporary course for Language stem for HI108.

No Course Offerings

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI108U **WORLD HIST - EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings:

Temporary course for Language stem for HI108.

No Course Offerings

Lessons: 44 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

HI155 **ADVANCED HISTORY OF THE U.S.** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course encompasses the same chronological period and thematic coverage as HI105, but it does so through monographic and periodical literature and a greater emphasis on classroom discussion. These courses assume some familiarity with American history and consequently place special emphasis on historical analysis and criticism. Moreover, students acquire a broader understanding of American history and the historian's methods.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

HI157 **ADV HISTORY OF WESTERN CIV** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: No Course Offerings

This course encompasses the same chronological period and thematic coverage as HI107, but it does so through monographic and periodical literature and a greater emphasis on classroom discussion. These courses assume some familiarity with European history and consequently place special emphasis on historical analysis and criticism. Moreover, students acquire a broader understanding of European history and the historian's methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

Disqualifier(s): HI103
-Or-
HI107
-Or-
HI153

HI158 **ADV REG STUD IN WORLD HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course encompasses the same chronological period and thematic coverage as HI108, but it does so through monographic and periodical literature and a greater emphasis on classroom discussion. These courses assume some familiarity with history and consequently place special emphasis on historical analysis and criticism. Moreover, students acquire a broader understanding of history and the historian's methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several critical analyses of historical literature in the first term and a research paper of 1500 words in the second; compensatory time provided.

Prerequisite(s): HI157
-Or-
HI107

Disqualifier(s): HI104
-Or-
HI108
-Or-
HI154

HI158A **ADV WORLD HIST - AFRICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

Temporary course for Language stem for HI158.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI158E **ADV WORLD HIST - EAST ASIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2016-1

Temporary course for Language stem for HI158.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI158L **ADV WORLD HIST - LATIN AMR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2016-1

Temporary course for Language stem for HI158.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI158M **ADV WORLD HIST - MID EAST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2016-1

Temporary course for Language stem for HI158.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI158R **ADV WORLD HIST - RUSSIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2016-1

Temporary course for Language stem for HI158.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

HI158U **WORLD HIST - EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: No Course Offerings

Temporary course for Language stem for HI108.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

HI301 **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2016-3 2016-5 2017-1 2017-2 2018-1 2018-2

This two-term, upperclass core course traces the evolution of the art of war from the ancients through the napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: HI301: Two research papers, one of at least 300 words and one of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

Disqualifier(s): HI351

HI301H **HISTORY OF MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings:

Tempory course for History Majors enrolled in HI301 2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: HI301: Two research papers, one of at least 300 words and one of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.

HI301X **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2017-1 2018-1

This two term, upperclass core course traces the evolution of the art of war from the hundred years war through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

Disqualifier(s): HI351

HI302 **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2015-2 2015-3 2016-2 2016-3 2017-2 2017-3 2018-2

This two-term, upperclass core course traces the evolution of the art of war from the ancients through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: HI301: Two research papers, one of at least 300 words and one of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time provided.

Prerequisite(s): HI301
-Or-
HI351
-Or-
HI301H

Disqualifier(s): HI352

HI302D **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: No Course Offerings

This two-term, upperclass core course traces the evolution of the art of war from the ancients through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course is used to cohort cadets with Defense Studies Major

HI302H **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2016-2 2017-2

Tempory course for History Majors enrolled in HI302.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: HI301: Two Research papers, one of at least 300 words and on of 1500 words; HI302: A 1500-word research paper tied to a WWII colloquium; compensatory time privided.

Prerequisite(s): HI301
-Or-
HI301H
-Or-
HI301X

Disqualifier(s): HI302
-Or-
HI352

HI302X **HISTORY OF THE MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-2

Offerings: 2015-2 2018-2

This two term, upperclass core course traces the evolution of the art of war from the hundred years war through the Napoleonic era to the American civil war and the wars of the twentieth century. Emphasis is placed on the changing nature of warfare as nations adjust to social, political, economic and technological developments. Analysis focuses on causation, the interrelationship of events as warfare evolved over the ages, operational and logistical aspects of military history, and the role of society in warfare.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): HI301X

HI337 **CHINA-C. KINGDOM TO COMM RULE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1

This course traces the history of China from ancient times to the present. It briefly introduces the emergence of a distinct Chinese civilization, in thought, culture, and political structure. It then considers how China was transformed by the introduction of Buddhism and the experience of cosmopolitan empire under the Tang. Next it examines how China fared in the multi-state system that endured from 960 to the Mongol conquest, and then as the Late Imperial state under the Ming and 'foreign' Manchu rule. It considers the search for 'new China' in the Republican, Warlord, and Nationalist periods following the collapse of the Late Imperial state. It shows why Mao came to represent a new utopian vision and how that vision tragically failed. Finally, the course explores how the search for 'new China' and historical legitimacy continues today both on the mainland and in Taiwan.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI338 **WARFARE IN AGE OF REVOLUTIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course examines the theory and practice of warfare in Europe during the Age of Revolutions, roughly considered to be 1750 to 1814. Political revolutions such as the American and French Revolutions, along with other revolutions such as the Agricultural and the Industrial, and the intellectual ferment spawned by the Age of Enlightenment, all resulted in significant changes in the conduct of warfare. This course will examine those events, with particular focus on their relevance to the art of warfare. Themes include changes in military organization, doctrine, technology, and the accompanying social, political, and economic factors that influenced the armies of the day. The course will also cover the wars and campaigns that took place during this timeframe, including the American and French Revolutions and the wars of Napoleon.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI339 **THE MODERN MIDDLE EAST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2017-1

This course enables cadets to explore the social, political, economic, and military interactions in the formation of the Modern Middle East. The first block examines the decline of the Gunpowder Empires and the subsequent penetration of European colonialism into the Islamic world (India, North Africa, Egypt, and the Levant), with emphasis on the factors that led to military decline of the Turkic world and the relative economic and military advantages of the European powers. During this block, students will discuss the Middle East's modernizing and reform efforts that European colonialism helped to catalyze, to include democratization, constitutions, capitalism, and industrialization. The second block covers the events that follow the World Wars and subsequent decolonization of the Middle East against the backdrop of the Cold War. Cadets will closely examine the Arab-Israeli conflict, the rise of Arab Nationalism and the tension between military revolutionary dictatorship and attempts at constitutional monarchy and republics. The final phase will begin with the Iranian revolution of 1979 and the Soviet invasion of Afghanistan. It will consider the rise of political Islam as a revolutionary ideology and the post-Cold War challenges leading to current wars and insurrections.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI340 **COLONIAL AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course examines the international, political, social, cultural, and economic origins and development of colonial North America prior to the War for Independence, with attention to French and Spanish as well as British colonies. It explores the development of American identities and the significance of colonization and intercultural encounters for all the peoples, Native and European, of North America.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI341 **THE AGE OF EXPLORATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course concentrates on the on the 'age of exploration' and its impact on the Early Modern World, 1453-1715. It provides students interested in the history of Early Modern Europe, the Atlantic world, the history of Africa and colonial Latin America a general understanding of the ideologies and institutions that enabled Europe to colonize parts of Africa and the Americas during this important period in world history. Specific topics include: medieval precedents of early modern imperialism; theories of monarchy and empire; ideologies of conquest and colonization; the continuity of Native cultures and beliefs; the relevance of race and slavery in understanding European influence in Africa and the Americas; and the creation of an Atlantic economy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI342 **THE BRITISH ISLES SINCE 1688** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

This course examines the rise and fall of one of the greatest empires of modern history. How did a tiny, insular nation become the world's most formidable imperialistic power and then, in the afterglow of high Victorian achievement, evolve into a post-industrial welfare state? In answering this question students will have the opportunity to deal with the great military, social, economic, and political issues that shaped modern Europe. Key events and themes include the Glorious Revolution, the Seven Years' War, the loss of the American colonies, the impact of the French Revolution and Industrial Revolution, the rise of democracy, the triumph of socialism, the age of total war, and the transition to the Cold War.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI343 **MODERN GERMANY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course is a survey of the German lands from the dawn of the modern era through contemporary times. The course will combine social, political, economic, and cultural history in examining crucial themes and developments related to the German-speaking regions. Cadets will consider German nation and state formation; social, demographic, and economic transformation; imperialism, war and ideological change; the transformation of male and female roles; and trends in high and popular culture. The course will include a significant segment on twentieth-century Germany and the role the German state played in determining the course of world history, whether as the Nazi state that unleashed the Holocaust or as the West German Cold War bulwark. German history has much to teach us, and has led to enormous debates about the nature of the modern era.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI344 **MODERN DIPLOMACY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

The course focuses on the major diplomatic developments in Europe from 1814 through the end of the Cold War in 1991. It traces the emergence of the European state system after the Treaty of Westphalia and the impact of the revolution in France on European diplomatic relations. It examines the diplomatic system established at the Congress of Vienna through the crises and conflicts of the mid-19th century. The course also examines the various factors that led to the First World War, the developments of the interwar period, the origins and conduct of the Second World War, and the origins of the Cold War. The final lessons will explore Europe's role in the Cold War, the rise of international organizations, trans-national diplomacy, the end of the Cold War, and recent modifications to Europe's role in world affairs.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI345 **MODERN AFRICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1

This course takes a thematic approach to African history, describing the forces which led to the partitioning of the continent, the practices of European colonialism/imperialism, the emergence of independent African states, and political, economic, and social developments in contemporary Africa. The goal of the course is to focus on critical events, relationships, and themes on the continent that continue to effect current events.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI346 **MODERN SOUTH ASIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course enables cadets to explore the social, political, economic, religious, and cultural history of modern South Asia. The course will examine the foundation of Indian religious and cultural traditions, and the related social, political, and economic developments in early India. It then examines the late Mughal Empire, the domination of India by the British, the struggles for independence, and the partition of South Asia into India, Pakistan, and Bangladesh in the contemporary era.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI347 **ASIAN WARFARE AND POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2017-1

This course explores the interaction between warfare and political systems in East Asia. It begins with the transition from military monarchy to bureaucratic empire in the Warring States Period. It then maps the rise of nomadic confederations in the Inner Asian steppe and their strategic interaction with the Han state. It traces how the collapse of the Han state led to military turmoil in East Asia, the rise of hybrid states, a new cosmopolitan empire, and then a multi-state system. It considers how in Japan, the importation of the bureaucratic state led first to centralization and then to the rise of the samurai and a feudal structure. Next, the course examines the development of a new form of nomadic confederation under the Mongols, and how Mongol warfare led to a more centralized state in China, and turmoil and a federalist system in Japan. In the modern period, the course considers how the challenge of Western military force led to political turmoil and the rise of the Communists in China, but in Japan led to the building of the Imperial Army, noted for its competence and for its atrocities. The course concludes with reflection on how the experience of war in East Asia continues to affect the region's politics and political structures.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI348 **MODERN LATIN AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2017-1

This course surveys the cultural, economic, political, and social evolution of Latin America from the era of independence to the present. The course begins with a brief examination of Pre-Colombian and colonial events and structures. Students will study the economic development of modern Latin America and its influence on social, political, and military change. Case studies of national histories, such as Mexico, Cuba, Brazil, Argentina, and other countries help to illuminate the broad themes that underlie modern Latin American history. The course will examine Latin American relations with the United States and other nations of the world.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI349 **THE MIDDLE EAST TO 1798** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1

This course enables cadets to explore the social, political, economic, and military interactions in the development of the Islamic world before European colonization. The first block examines the growth of the Islamic world from the advent of Muhammad and through the early phases of military conquest, with emphasis on the why Islam was appealing in its formative era, how the religion was structured, and what factors allowed for its political, economic and military success. The second block covers the subsequent evolution of the Caliphal empires, emphasizing the changing nature of political authority and legitimacy, the evolution of political institutions, and the challenges to Caliphal hegemony. The third block will examine the arrival of the Steppe peoples into the Middle East (Mamluks, Seljuk Turks, Mongols), and how new political, social and military structures were introduced, eventually shaping the development of the late Turkic Gunpowder Empires: the Ottomans of Europe and the Near East, the Safavids of Iran and Central Asia, and the Mughals of India. Cadets will assess what created the military strength of these empires and what led to their decline.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI351 **ADV HISTORY OF MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1985-1

Offerings: No Course Offerings

HI351-352 parallels HI301-302. However, in addition to accelerated study of HI301-302 material, the cadet will study selected periods in greater depth and breadth. This course offers the cadet a more profound understanding of men and women as warriors and of the evolution of the art of war than would otherwise be available.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One 500-word critical analysis and one 1500-word research papeer; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

Disqualifier(s): HI301

HI352 **ADV HISTORY OF MILITARY ART** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1985-2

Offerings: No Course Offerings

HI351-352 parallels HI301-302. However, in addition to accelerated study of HI301-302 material, the cadet will study selected periods in greater depth and breadth. This course offers the cadet a more profound understanding of men and women as warriors and of the evolution of the art of war than would otherwise be available.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One 500-word critical analysis and one 1500-word research papeer; compensatory time provided.

Prerequisite(s): HI351
-Or-
HI301
-Or-
HI301H

Disqualifier(s): HI302

HI355 **WARFARE-AGE OF INDUSTRIALIZTN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

This course examines the history of warfare around the globe from the Congress of Vienna through World War I and its aftermath. It combines the study of military campaigns with the political, economic, social, and cultural factors shaping military developments. It explores the impact of changing technology on the conduct of war, the development of nationalism, wars between nation-states, and wars for national freedom. This course contains several themes particularly useful to any modern soldier. Among them are the nature and intensity of national wars and the effect of changing technology on society and the conduct of war.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI356 **WAR AT SEA AND IN THE AIR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

This course examines war at sea from the early days of galley warfare through the ages of sail, steam power, all-steel navies, nuclear power and missiles. War in the air is examined from the early days of balloons and lighter-than-air ships through missile age. Course themes include the evolution of military organizations, technology, strategy, leadership and the accompanying social, political, and economic factors that influenced the navies and air forces of the day. The course will also cover selected wars and campaigns in which naval and air power played an important role.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI357 **WARFARE SINCE 1945** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

The nature of warfare has changed dramatically since 1945. During the Cold War, American policies of containment and collective security collided with attempts at communist expansion. The threat of nuclear war led to an era of limited war, including revolutionary war, wars of national liberation, and civil wars. Cadets will examine the strategic conditions and political considerations influencing the use of force in all types of warfare. They will gain an appreciation for the experiences of soldiers and leaders in combat while analyzing military strategy and exploring the connection between war and society.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI358 **STRATEGY, POLICY & GENERALSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

This course examines how political and military leaders develop and execute policy and strategy. The course begins with an examination of the rise of military professionalism and the creation of military staffs in the nineteenth century. It explores how political and military leaders integrate not only military power, but also diplomatic, economic, technological, social, and political resources to achieve a nation's goals. In particular, the course examines the often contentious issues of civil-military relations, joint and coalition warfare, and organizational and doctrinal change. Cadets study the strategic challenges faced by senior civilians and military leaders, thus allowing them to analyze warfare within a broader political-military context.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI359 **ERA OF THE SECOND WORLD WAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

This course examines the Interwar Years, 1919-1939, and the Second World War from a global perspective while using a thematic approach to compare the different experiences of each of the major belligerents. Whether covering the Versailles Treaty, the rise of Adolf Hitler, the US Army during the Great Depression, home fronts, or the Holocaust, the cadets in the course will examine the social, political, cultural, and economic factors that contributed to how belligerents waged war, and, in turn, how war affected each of these factors across the globe. The course covers how and why the belligerents planned and executed particular strategies and operations in the European, Pacific, and China-Burma-India theaters to achieve their coalition and national goals. Finally, this course examines the interrelationship of sea, air, and land forces, and the complexities of providing logistical support to joint and combined operations on an unprecedented scale.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI361 **MEDIEVAL EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

The millennium between the "fall" of the Roman Empire and the Voyages of Discovery--the Middle Ages--has often been characterized as brutish and inferior. Yet, this tough, fascinating society offered immeasurable potential for growth and adaptation. The personages and events of the European medieval world spawned many of the ideas and institutions of modernity. Topics for study will include the barbarian invasions, Byzantine Empire, Carolingian Europe, feudalism, medieval technology, Christian Church, medieval warfare, Crusades, rise of universities, crises of the 14th century, growth of monarchical power, and economic and social change.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI362 **POLITICS/SOC-EARLY MOD EURO** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-1

Offerings: No Course Offerings

After tracing the legacy of the middle ages, this course concentrates on the development of the modern nation state in Europe, 1453-1648. Specific topics include the renaissance, humanism, the reformation, the age of religious wars, and the contrast between the growth of absolutist and constitutional governments. The latter portion of the course concentrates on the political, social, economic, diplomatic, and military trends that shaped modern Europe.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI364 **MODERN WESTERN EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2016-2

This course is an introduction to European history from 1789 to the present. The course considers how and why Europe -- a small, relatively poor, and politically fragmented place -- became the engine of globalization and an important civilization in its own right. Our approach is broadly cultural, using politics, economics, society, religion, and other arenas to understand the events and people of Medern Western Europe. Chief topics: French Revolution, liberalism and the industrial revolution, socialism and the rise of labor, modern colonialism, world wars, communism and capitalism, decolonization, Cold War, and the European Union.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI365 **THE ANCIENT WORLD** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2017-1

This course examines the political development, cultural ideas, and fundamental institutions of the ancient societies that form the basis of Western civilization. The course will focus on civic values that established standards regarding the role of the individual within the community, and how concepts of virtue, duty, and service evolved over time in response to internal and external challenges. It explores in detail significant historical questions such as how Athenian democracy contributed to, and was dramatically affected by, the Peloponnesian Wars, and why the Romans' victory in the Punic Wars planted the seeds for the ultimate demise of the Republic and the transition to the Empire. HI365 also serves as an introduction to historical methods of analyzing primary sources. Cadets will read extensively from histories written by ancient Greek and Roman authors and form their own interpretations of the events the writers cover, their historical methods, and their reliability.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI367 **IMPERIAL AND SOVIET RUSSIA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2017-1

This course examines the political, social, and cultural history of Russia as it emerged from the Mongol era up to the present day. It explores the development of the Tsarist political and social systems, the emergence of literary, artistic, and revolutionary movements, and the development of Russia's position in European politics from the time of Peter I through WWI. It also covers the rise of the Soviet Union, the leadership's attempts to implement communist ideology and responses to that attempt, Russia's relationship with various national and ethnic groups, and the emergence of the Soviet Union as a superpower. The course concludes with the collapse of the Soviet Union and the emergence of new states in the 1990s.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI368 **MOD CENTRAL & E. EUR,1896-1989** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1

Between 1896 and 1989, Central and Eastern Europe experienced two world wars, at least three major revolutions, and radical industrial and environmental dislocations. The region witnessed everything from the birth of its modern culture to the creation of new post-World War I nation-states, to the Holocaust, to massive forced population shifts, to the creation of the communist Eastern Bloc, to the popular overthrow of Communism in 1989. Radical regimes on the right and left brought incredible change, quashed hopes, and produced both progress and suffering of unprecedented proportion. This course will examine life in late-19th and 20th century Habsburg Europe and its successor states of Poland, Hungary, Czechoslovakia, and Yugoslavia. It will do so comparatively, highlighting themes of nation-creation, everyday life, social transition, war, revolution, and ethnic cleansing.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI369 **AMERICAN FRONTIERS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-2

Offerings: 2015-2 2017-2

HI 369 enables cadets to explore the social, political, economic, and military interactions between many diverse cultures in North America during the period of European and U.S. expansion since 1500. The course does this by examining the history of Native America and the “American” West, which included much of colonial British North America, and much of the American South through the 1830s, along with Spanish, French, and other European frontiers in North America. The course integrates Native American, Latino, and economic history in the study of migration, cultural contact, and “international” relations on the frontiers of North America. The course also explores change and diversity in cultural perspectives by examining myths of the West from a range of ethnic and other viewpoints. The course is an elective in the American History stem of the history program, but can be taken for credit in the International stem as well.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

HI370 **ANCIENT & MEDIEVAL WARFARE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-1

Offerings: 2016-2

This course focuses on warfare from the dawn of recorded history through the fourteenth century. Thus, it will provide cadets with opportunities to study the campaigns of Alexander, the military methods of the Romans, the military aspects of feudalism, the Scottish war of independence, and other topics which are not covered in the core military courses. Although the course includes in-depth analyses of certain battles and campaigns, it places more emphasis on "war and society" issues such as the relationship between military participation and social standing in human societies, the connections between armies and governments, and the impact of economic, technological and social change on military structures. Also, HI370 will shift some emphasis away from the operational level of war to the analysis of the strategic and tactical levels of war, and away from use of secondary sources to use of primary materials.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two critical analyses of at least 750 words each; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI372 **US FGN RELATIONS SINCE 1898** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

This course examines American foreign relations from the nation's entry into the world arena as a major power in 1898 through both World Wars, and the Cold War, to its station in today's multipolar world. It is a study of the forces, events, personalities, and principles that have shaped America's role in the world and provided the framework for the development of current foreign policy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI374 **HISTORY OF AFRICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2001-1

Offerings: No Course Offerings

This course begins with a survey of pre-colonial Africa, including the evolution of early human cultures, the rise and fall of African civilization and states, the spread of Islam, and the contact between Africans and Europeans. It will then focus on the region south of the Sahara, describing the forces which led to the partitioning of the continent, the practices of European colonialism/imperialism, the emergence of independent African states, and political, economic, and social developments in contemporary Africa.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI376 **EARLY MODERN WARFARE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2017-2

This course examines the history of warfare in Europe from the Renaissance through the campaigns of Frederick the Great. It combines the study of military campaigns with that of the political, economic, social, and cultural factors shaping military developments. It explores the so-called "Military Revolution" of the sixteenth and seventeenth centuries with particular emphasis on the relationships between military developments and state building, the rise of absolutism in France and the Wars of Louis XIV, and the rise of Prussia and the Wars of Frederick the Great. Study of the so-called "age of limited war" sets the stage for future study of the American Revolution and the Wars of the French Revolutions and Napoleon. This course contains several themes particularly useful to the modern soldier. Among them are the nature, intensity, and complexity of wars of religion.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI381 **HISTORY OF IRREGULAR WARFARE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

The course examines unconventional warfare from a historical perspective, particularly conflicts involving opponents with a significant disparity in their conventional military capabilities. Through several case studies, the course explores why belligerents succeed or fail in unconventional warfare and how ideology, technology, and social, political, and economic factors help determine the outcome of wars between regular and irregular forces. Covering a broad period of history, selected case studies include wars of conquest or colonization, revolutionary wars, and peacekeeping or constabulary operations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research paper of at least 1500 words; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI385 **WAR & ITS THEORISTS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1978-1

Offerings:

Along with great commanders in history, there have been men who theorized about the nature and conduct of war, the relationship between politics and strategy, and the impact of warfare upon society. The course examines the contributions of selected theorists (Clausewitz, Sun Tzu, Jomini, Mahan, Fuller, Liddell Hart, Brodie, etc.). The student reads the theorists' major writings, analyzes their principal ideas, and studies their influence on military affairs. This will help the student reach his or her own conclusions about fundamental questions concerning the conduct and fundamental nature of war, such as the relative strength of offense vs. defense, or of material vs. morale factors.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two 800-1000-word papers; compensatory time provided.

Prerequisite(s): HI108
-Or-
HI104
-Or-
HI154
-Or-
HI158

Corequisite(s): HI301
-Or-
HI351

HI390 **EARLY NATIONAL AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2001-2

Offerings:

Although the Constitution outlined the form of federal government in the United States, it left unanswered many questions concerning how that government should function. This course examines how, between 1790 and 1848, evolving political thought, economic development, changing social conditions, and sectionalism influenced successive generations' debates about the role of government in American life.

2015-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 2500-word research paper; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI391 **WORLD RELIGIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings:

This course analyses the emergence, development and present cultural expression of the major religions of the world, emphasizing their 19th and 20th century experience. It also examines the development of religion in the ancient world and in pre-literate and non-technical societies. Cadets study the world's religions as molded by and as molders of the social, political and economic forces unique to particular cultures. Special attention is paid to the role of each religion in the formulation and adaptation of public and foreign policy.

2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI394 **REVOLUTIONARY AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-2

Offerings:

This course examines the social, political, and economic origins and consequences of the American Revolution through the adoption of the Constitution. It explores the development of an American identity and the meaning of the Revolution for all Americans, to include women, African Americans, and the poor.

2016-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper or historiographic essay; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI395 **HIST OF CIVIL WAR AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on the causes and consequences of the American Civil War. Cadets will analyze the road to war, the war itself, and Reconstruction to place the entire period in its broader historical context. The course covers the ante-bellum South and North, focusing on the peculiar effect of slavery on society. Cadets will examine the home fronts to see the populace's reaction to war as both the Union and the Confederacy engage in conflict. In approaching Reconstruction, students will focus on the political, economic, and racial policies that were implemented to rebuild the nation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI396 **MAKING OF MODERN AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-1

Offerings: 2016-1

Between 1877 and 1945 the United States fought three major wars, experienced dramatic economic growth, suffered the Great Depression, underwent significant social change, and emerged as the premier world power. This course analyzes these and related issues, emphasizing how and why the United States developed during the last quarter of the 19th century and the first half of the 20th century, and stressing the promises and problems that accompanied the making of modern America.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper or critical analysis of a monograph; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI397 **COLD WAR AMERICA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1993-1

Offerings: 2017-1

This course examines the history of the United States from the end of World War II through the Reagan presidency. It assesses the political, social, and economic institutions of America in the dynamic context of relations with the Soviet Union. While the course deals primarily with domestic America, cadets will gain an appreciation for the close relationship between events at home and abroad.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI398 **SOCIETY & CULTURE IN AMER HIST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1983-1

Offerings: 2017-1

HI398 examines the evolution of American society from the perspective of the family and evaluates the influence of group identification--class, race, gender, and ethnicity. Other topics include consumerism, sports, religion, and wars as factors that modify and enrich the social and cultural spectrum.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper or analytical historiographical essay; compensatory time provided.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI399 **AMER POLITICAL TRADITION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1985-2

Offerings: No Course Offerings

This course traces the history of American politics and political culture from the puritans to Ronald Reagan. While primarily a study of ideas, it also explores how Americans have put political thought into practice. Students focus their attention on the role of government in establishing the balance between individual freedom and society's welfare. Political ideas are discussed in the context of events over the span of American history. HI399 examines what Americans expected from government and how their political leaders responded.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI460 **SENIOR FACULTY COURSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-2 2017-1 2017-2

This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI460A **SENIOR FACULTY COURSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2

This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI460

HI460B **SENIOR FACULTY COURSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-1

Offerings: 2016-1

This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500 word research paper

HI460C **SENIOR FACULTY COURSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2

This course is taught by a senior member in the Department of History in a field of that historian's expertise. The course offers students the opportunity to study under the guidance of a historian in topics not normally offered by the Department of History. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

HI461 **TOPICS IN GENDER HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1

This course examines the development of gender relations, concepts, and roles in historical perspective. Topics may include gender in the military and warfare, the European experience, the American experience, or international comparisons of gender. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI462 **THE HISTORY OF INNOVATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-2

Innovations in technology, science, thought and ideology have radically changed the course of history across the world. This course examines why these innovations occur and then how they are practically applied in a military, social, political, economic, and cultural context. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

Corequisite(s): IT305
-Or-
IT355

HI463 **RACE, ETHNICITY, NATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2017-2

We use the words ethnicity, race, and nation constantly, but what do these terms really mean? Why are people willing to kill or persecute each other in the name of these ideas? The course will allow cadets to investigate the development of the concepts of ethnicity, race, and nation. They will examine modern conditions such as the Enlightenment, science, the growth of the state, Social Darwinism, and imperialism, and study why these conditions gave rise to diverse but overlapping methods of creating boundaries and defining difference. Although the main focus of the course will be on Europe, the application of these ideas in a variety of global settings - on other continents - will be considered throughout the course. This course will include an exploration of the way in which history has been written; including examining the changing interpretations, traditions, methods, and frameworks of historians.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A 1500-word research paper.

Prerequisite(s): HI104
-Or-
HI108
-Or-
HI154
-Or-
HI158

HI498 **COLLOQUIUM IN HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The colloquium employs seminar discussions of important books and scholarly articles to enhance understanding of major historical issues. Subcourses are designed to provide in-depth study of various topics in American, European, military, and international and strategic history. Cadets select a subcourse topic as the basis for their reading program after consultation with their faculty advisor or departmental counselor. Subcourse topics may vary each year in accordance with student interest and faculty expertise. The colloquium satisfies the 400-level course requirement for the history fields of study. Cadets who major in history should complete a colloquium that will support their subsequent enrollment in HI499, Senior Thesis in History.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: An historiographical essay of 1500 words; compensatory time provided.

Prerequisite(s): HI108
-Or-
HI104
-Or-
HI158
-Or-
HI154

HI498A **COLLOQUIUM IN HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2002-1

Offerings: No Course Offerings

Colloquium in history

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): HI498

HI499 **SENIOR THESIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1984-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The course provides cadets selecting the major in history with an opportunity to enhance their skills in historical research and analysis. For this reason the course serves as excellent preparation for graduate study in history and related disciplines. Based upon their background and research interests cadets are organized into small thesis-writing seminars. Under the supervision of a seminar advisor, each cadet defines a topic, develops a research plan, accomplishes research, and drafts a thesis. The seminar meets occasionally to discuss issues in historiography and methodology, review progress in research, and critique draft papers. At the end of the semester cadets present their findings and defend their theses before a committee of faculty and fellow students.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research paper of 3500 words; compensatory time provided. Presentation and defense of thesis before a committee of faculty.

Prerequisite(s): HI498

XH405 **THE HOLOCAUST AND ITS LEGACY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: 2016-2 2017-2

This is a multi-disciplinary course administered through the Center for Holocaust and Genocide Studies. The Holocaust and its aftermath make enormous demands on us not just emotionally, but intellectually, requiring that we consider it from historical, military, psychological, philosophical, political, scientific, representational and legal perspectives. HX405 is a multi-disciplinary response to these challenges. The course will explore the causes, course, and consequences of the Holocaust, examining the processes that led to the Nazi genocide against the Jews, with a particular focus on the role of the military. It will examine the Holocaust from a variety of perspectives (perpetrators, victims, bystanders, resisters and rescuers), and consider the moral and ethical choices made by members of each group. The course will require an in-depth understanding of German and European history, and it will impart an appreciation for the cultures and mentalities of the interwar and wartime era. The course will utilize primary sources, films, documentaries, testimonies, and propaganda. It will conclude with consideration of the political and legal responses to the Holocaust in the later 1940s, and the later incorporation of the Holocaust into the global public consciousness.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research paper of 1500 words. Compensatory time provided.

XH415 **GENOCIDE AND ETHNIC CLEANSING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: No Course Offerings

This is a multi-disciplinary course administered through the Center for Holocaust and Genocide Studies. It is a multi-disciplinary attempt to understand the dynamics which produce mass atrocity. Cadets will learn of the causes, course, and consequences of selected genocides, examining the processes that led to genocide, with a particular focus on the roles played by militaries. The course opens with the intellectual theories about the phenomena of ethnic cleansing and genocide. It will then move to the analysis of how ethnic cleansing and genocide are tied to conflict and militaries. Drawing from a variety of scholarly disciplines and methodologies, cadets will investigate the moral, legal, historical, and diplomatic problems these terms pose. For the remainder of the course, cadets will examine more directly the case studies of specific incidences of ethnic cleansing and genocide. These case studies will vary year-to-year, but they will include at least two examples of ethnic cleansing or genocide on the American frontier, in German Southwest Africa, the Ottoman Empire, the Soviet Union, Rwanda, Cambodia, Yugoslavia, China and in Europe. Cadets will study primary sources, films, documentaries, testimonies, and propaganda. All iterations of the course will consider the development of Western mass politics and the emergence of racial nationalism and new imperialism in late 19th century Europe.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research paper of 1500 words. Compensatory time provided.

ZH315 **MODERN REGIONAL HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering modern historical developments of the area/region where the cadet is studying. This course covers broad historical processes and developments of the region over a long period of time. The course effectively encompasses a recognized historical era, for example "Modern", "Early Modern", or "Ancient".

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH325 **TOPICS IN REGIONAL HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce written historical submissions to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special topics in the area/region where the cadet is studying. Topics include (but are not limited to) specifics eras of history; cultural & ethnic aspects of history; art & literary history; and other scientific & technical history topics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH335 **MILITARY HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering modern military history developments of the area/region where the cadet is studying.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH345 **TOPICS IN MILITARY HISTORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special military history topics in the area/region where the cadet is studying. Topics include (but are not limited to) specific wars & campaigns; types of war (insurgency, air, naval, ect.); as well as other courses that incorporate military history with aspects of social science or military science.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH355 **FOREIGN PERSPECTIVES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering any aspect of United States History or Western Civilization from the perspective of the nation/region where the cadet is studying.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH365 **POLITICS AND DIPLOMACY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2016-2 2017-1 2017-2

For Cadets attending foreign military academies or other academic institutions. Cadets will attend classroom instruction and produce a historical research paper to be presented upon return to USMA. Instruction may be in English or foreign language. This class serves as the equivalent to a foreign course covering special political and diplomatic history topics in the area/region where the cadet is studying. Topics include internal political development and/or international relations and diplomatic history.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Law
15 Courses

LW310 **INTRO TO LEGAL METHOD** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2016-1 2017-1

This course provides an introduction to the study of jurisprudence and, thereby, an intellectual foundation for legal studies. Jurisprudence explores the theory and philosophy of law, its relations to morality, and its limits. The intent of the course is to provide cadets a platform on which to examine the nature of law, legal reasoning, and legal institutions. Topics covered include positivism and natural law theory, theories of criminal justice, concepts of liberty, responsibility, and human rights. Cadets also will learn the fundamentals of legal research and writing.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW399 **INDIV ADV DEVELOPMENT IN LAW** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1990-4

Offerings: 2016-7 2017-7

The Academic Individual Advanced Development (AIAD) program is designed to introduce cadets to the practice of law in the military. The course consists of a three-week internship in one of a variety of legal offices. Possible internships include clerkships with the Army Court of Criminal Appeals, the U.S. Court of Military Appeals, the U.S. Supreme Court, the Department of Defense, and the Department of the Army agencies. Cadets may also intern in Staff Judge Advocate or Trial Defense Offices at military installations worldwide.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Grades are determined based on a journal of daily activities, the quality of the work actually performed during the internship, and a briefing which is presented to the department faculty upon the cadet's return.

LW403 **CONSTITUTIONAL/MILITARY LAW** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2015-4 2016-1 2016-2 2016-4 2017-1 2017-2 2018-1 2018-2 2019-1

This course studies the United States Constitution and the Military Justice System. Cadets will acquire information and skills in order to recognize and resolve constitutional and legal problems. The course provides analytical models for dealing with problems regarding societal and military order. Finally, the course seeks to enable the cadet to make an intelligent commitment to the values and preferences embodied in the Constitution and our system of military and civilian law. Examples from military law are used to model fundamental principles examined in the course. Significant court decisions are explored to support the course goals. Specific substantive areas include: separation of powers, judicial review, war powers, equal protection, privacy, individual rights, searches and inspections, military justice processes, and military criminal law.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 110 min

Special Requirements: Two short papers.

Prerequisite(s): SS202
-Or-
SS252

LW410 **COMPARATIVE LEGAL SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course uses a comparative approach to study the three major legal systems of the world: the English common law system, the civil law system (and its branches) of continental Europe, and the Islamic legal system. These three systems are the foundation for the laws and legal systems of most of the world today, including Latin America, Africa, the Middle East and east Asia. Similarities and differences between these systems and the American legal system are explored. Social, political, and economic factors which distinguish these systems and more recently have begun to integrate them are covered. Emphasis is placed on the sources of law, the procedures for resolving legal disputes, and basic principles of civil and criminal justice.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW472 **CRIMINAL LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course will examine the legal, social, religious, cultural, and political motivations that justice systems use to characterize certain actions as “criminal.” The course will revolve around the traditional reasons for criminal law, namely blameworthiness and punishment, and also examine how institutions use criminal law to serve their narrow interests. This course will introduce theories surrounding criminal law and illustrate how cadets may apply law immediately in their roles as officers. The course will examine federal and state criminal codes and also the Uniform Code of Military Justice. From a legal perspective based on the U.S. Constitution and other criminal codes, some of the topics covered include the death penalty, insanity, corporate crime, conspiracy, murder, necessity, and self-defense.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW473 **ENVIRONMENTAL LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

Environmental law has become an integral part of the legal system in the United States today. This course provides an introduction to environmental issues and the framework of the major federal environmental statues (the National Environmental Policy Act, Clean Water Act, Clean Air Act, Endangered Species Act, etc.), and how the law works in practice. The course also covers environmental issues in the military and the growing subject of International Environmental Law. This course provides a solid understanding of the legislative, administrative and judicial system of environmental law today.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Four written partial reviews and a TEE. Two homework assignments.

LW474 **LAW OF ARMED CONFLICT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to develop in each student an understanding of basic law of armed conflict (LOAC), with an emphasis on issues that might arise on the battlefield at a tactical level. The ethical and historical background of LOAC will be examined, including Geneva Conventions and protocols, and how LOAC is enforced on international and national levels, to include prosecution under the Uniform Code of Military Justice. Illustrative examples will include the Nuremberg Tribunal, My Lai, and the Gulf War. The emphasis is on the LOAC responsibilities of the junior officer.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two research papers of moderate length (approximately five pages each) may be required. Topics will be determined in consultation with the instructor.

LW475 **ADV CONSTITUTIONAL LAW SEM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1980-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This seminar course covers a broad range of traditional and contemporary constitutional law topics. In addition to studying U.S. Supreme Court cases in particular areas of constitutional law, cadets are given an opportunity to study the historical foundations of the U.S. Constitution and underlying theories and principles of constitutionalism. The seminar format demands active participation in classroom debate, role playing, and critical thinking about complex issues of law and policy. As part of the seminar curriculum, each cadet will assume the role of a Supreme Court Justice. In this role, the cadet will study a real case pending before the Supreme Court and will write an abbreviated opinion reflecting the cadet's decision based on principled reasoning. The seminar typically travels to the Supreme Court to hear argument in the studied case as part of the opinion writing exercise.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Preparation of a Supreme Court "opinion" (10, double spaced, typewritten pages).

Prerequisite(s): LW403

LW481 **INTERNATIONAL LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The field of international law is one of the most dynamic areas of the law, and its principles are often applied in addressing the complex security problems facing our nation. This course will familiarize cadets with the body of rules and expectations which govern the rights and obligations of states and international organizations, during both times of peace and conflict. In particular, this course will emphasize the aspects of international law that are relevant to the operational and tactical problems that officers will confront as they deploy overseas. This course will integrate some themes from other courses in the Department of Law and reinforce some fundamental principles officers will confront as they seek to understand the relationship between law, diplomacy, and military operations.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW482 **NATIONAL SECURITY LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1980-2

Offerings: 2016-1 2017-1

This seminar examines the legal framework for national security decisions. Cadets will analyze the delicate balance of liberty and security that must exist to preserve a democratic society. Particular areas include: constitutional separation of powers and shared responsibility for national security; the legality and scope of war and other uses of armed force short of war; access to and protection of sensitive information; intelligence collection and clandestine activities; the role of the media, responses to terrorism and international organized crime; and the formulation of national security policy and law.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW488 **BUSINESS LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1978-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course introduces cadets to the basics of business and commercial law. Contractual principles under the common law and Uniform Commercial Code are emphasized. Current legal issues in the following areas are explored: consumer protection; real, personal, and intellectual property law; antitrust law; and employment discrimination. Included is a survey of the basic principles of government contracting law. Additionally, cadets engage in business negotiations exercises. This course employs both case study and problem-solving methods of instruction.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

LW490 **SPECIAL TOPICS IN THE LAW** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1999-2

Offerings: 2015-2 2016-2 2017-2

An in-depth seminar course concentrating on a single area of the law. The course is conducted by the Department's Visiting Professor or a Law faculty member when the visiting professor is unavailable.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One or more essays, as determined by the course instructor.

LW495 **JURISPRUDENCE AND LEGAL THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-2 2017-2

This is the capstone course for both the American Legal Studies and International and Comparative Legal Studies Majors. The course is an advanced seminar in legal philosophy as applied to contemporary domestic and international legal issues. It analyzes these issues using the perspectives of jurisprudence (the ideas and reasoning of jurists) and legal theory (using insight from disciplines such as science, economics, and political theory to address legal problems). It explores theoretical and practical approaches to identifying, developing, and preserving the rule of law. The course integrates legal coursework throughout the Academy curriculum and the Cadetý́s respective legal studies major.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Three written partial reviews and a final paper which analyzes a contemporary legal problem using the analytical tools of jurisprudence and legal theory.

Prerequisite(s): LW310 LW403

LW498 **THESIS I: PROPOSAL & RESEARCH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

The purpose of the Senior Thesis is to provide cadets with the opportunity to create a project that is academically, professionally, and personally meaningful to them and that reflects their thinking and abilities as developed at West Point and in the Department of Law. Through the scholarly project that results from this course, cadets will be expected to show how they and their work have progressed and that their work is of professional quality. Cadets will choose a faculty advisor with whom they will work over two semesters. In collaboration with the faculty advisor, cadets will explore their chosen areas of law with a goal of producing a project, usually a thirty page paper that is of professional quality. This paper will be completed during LW499. Cadets will meet individually with their advisors on a regular basis to discuss the law, progress on the thesis, and developmental issues.

Lessons: @ min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets will not be required to attend classes, but may be required to individually attend a small number of conferences with their advisors and will be expected to submit written progress reports to the advisors.

Prerequisite(s): LW310 LW403

LW499 **THESIS II: PAPER & DEFENSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

This course continues the work on the thesis commenced in LW498. At the end of the course, cadets will submit their theses to the Department of Law and orally defend their theses before a faculty committee.

Lessons: @ min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets will not be required to attend classes, but may be required to individually attend a small number of conferences with their advisors and will be expected to submit written progress reports to the advisors.

Prerequisite(s): LW498

Department of Mathematical Sciences
46 Courses

MA100 **PRECALCULUS MATHEMATICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2016-2 2017-1 2017-2

MA100 prepares cadets with background deficiencies in algebra and trigonometry for the core mathematics program. The course develops fundamental skills in algebra, trigonometry, and functions, through an introduction to mathematical modeling and problem solving. Since this course does not count toward graduation requirements; cadets enrolled in MA100 will forfeit an elective opportunity.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 24 @ 55 min

Special Requirements: None

MA101 **MATH MODELING/INTRO CALCULUS** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=4.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

MA101 continues the study of mathematical modeling and problem solving ? using effective problem solving strategies and modeling theory to solve complex and often ill-defined problems. The course exercises mathematical concepts while nurturing creativity, critical thinking, and learning through activities performed in disciplinary, interdisciplinary, and multidisciplinary settings. Special emphasis is placed on introducing calculus using continuous and discrete mathematics through applied settings. The course exploits a variety of technological tools to develop numerical, graphical, and analytical solutions that enhance understanding.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Prerequisite(s): MA100

Disqualifier(s): MA103

MA103 **MATH MODELING/INTRO CALCULUS** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=4.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

MA103 is the first course of the mathematics core curriculum, and it emphasizes applied mathematics through modeling - using effective problem solving strategies and modeling theory to solve complex and often ill-defined problems. The course exercises mathematical concepts while nurturing creativity, critical thinking, and learning through activities performed in disciplinary, interdisciplinary, and multidisciplinary settings. Special emphasis is placed on introducing calculus using continuous and discrete mathematics through applied settings. The course exploits a variety of technological tools to develop numerical, graphical, and analytical solutions that enhance understanding.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Disqualifier(s):

-Or-
MA153

MA104 **CALCULUS I** **4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This is the second semester of the mathematics core curriculum. This course and Calculus II, the third semester of the mathematics core curriculum, provide a foundation for the continued study of mathematics and for the subsequent study of the physical sciences, the social sciences, and engineering. Combined coverage includes single and multi-variable differential calculus, single and multi-variable integral calculus, and differential equations. Throughout both courses mathematical models motivate the study of topics such as optimization, accumulation, change in one and several variables, differential equations, motion in space, and other topics from the natural sciences, the social sciences, and the decision sciences. MA104 covers single and multi-variable differential calculus including 3-dimensional geometry and vectors.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Prerequisite(s): MA103
-Or-
MA153
-Or-
MA101

MA104X **CALCULUS I** **4.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1993-1

Offerings: 2015-2

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 16 @ 55 min

Special Requirements: None

MA153 **ADV MULTIVARIABLE CALCULUS** **4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This is the first course of a two-semester advanced mathematics sequence for selected cadets who have validated single variable calculus and demonstrated strength in the mathematical sciences. It is designed to provide a foundation for the continued study of mathematics, sciences, and engineering. This course consists of an advanced coverage of topics in multivariable calculus. Topics may include a study of infinite sequences and series, vectors and geometry of space, vector functions, partial derivatives, multiple integrals, and vector calculus. An understanding of course material is enhanced through the use of a computer algebra system.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Disqualifier(s): MA103
-Or-
MA101

MA205 **CALCULUS II** **4.5 Credit Hours (BS=0.0,ET=0.0,MA=4.5)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This is the third semester of the mathematics core curriculum. This course with Calculus I, the second semester of the mathematics core curriculum, provides a foundation for the continued study of mathematics and for the subsequent study of the physical sciences, the social sciences, and engineering. Combined coverage includes single and multi-variable differential calculus, single and multi-variable integral calculus, and differential equations. Throughout both courses mathematical models motivate the study of topics such as optimization, accumulation, change in one and several variables, differential equations, motion in space, and other topics from the natural sciences, the social sciences, and the decision sciences. MA205 covers single and multi-variable integral calculus and elementary ordinary differential equations. The sequence culminates with an introduction to the mathematics most applicable to each cadet?s major or engineering stem.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Prerequisite(s): MA104

Disqualifier(s): MA255

MA205X **CALCULUS II** **4.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1991-2

Offerings: 2016-1

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 16 @ 55 min

Special Requirements: None

MA206 **PROBABILITY & STATISTICS** **3.0 Credit Hours (BS=0.0,ET=0.5,MA=2.5)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This is the final course in the mathematics core curriculum. It provides a professional development experience upon which cadets can structure their reasoning under conditions of uncertainty and presents fundamental probability and statistical concepts that support the USMA core curriculum. Coverage includes data analysis; modeling, probabilistic models, simulation, random variables and their distributions, hypothesis testing, confidence intervals, and simple linear regression. Applied problems motivate concepts, and technology enhances understanding, problem solving, and communication.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several projects.

Prerequisite(s): MA205
-Or-
MA255

MA255 **MATH MODELING/INTRO DIF EQ** **4.0 Credit Hours (BS=0.0,ET=0.0,MA=4.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This is the second course of a two-semester advanced mathematics sequence for selected cadets who have validated single variable calculus and demonstrated strength in the mathematical sciences. It is designed to provide a foundation for the continued study of mathematics, sciences, and engineering. This course emphasizes the interaction between mathematics and the physical sciences through modeling with differential equations. Topics may include a study of first order differential equations, first order difference equations, second order linear equations, partial differential equations and Fourier series, systems of first order linear equations, numerical methods, and nonlinear equations and stability. An understanding of course material is enhanced through the use of a computer algebra system.

Lessons: 56 @ 55 min (4.000 Att/wk) **Labs:** 8 @ 55 min

Special Requirements: None

Prerequisite(s): MA153

Disqualifier(s): MA205

MA363 **VECTOR CALCULUS AND ODE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course continues the study of vector calculus from MA205 through the remainder of the vector differential operations, line and surface integrals, and the vector integral theorems of Green, Gauss, and Stokes. The focus then turns to series solutions of ordinary differential equations and solving systems of ordinary differential equations. Emphasis is placed upon analyzing a variety of practical applications that give rise to ordinary differential equations. Numerical methods of solution are also studied.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): MA205
-Or-
MA255

Disqualifier(s): MA366
-Or-
MA364

MA364 **ENGINEERING MATHEMATICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2015-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics to support continued study in science and engineering. Emphasis is placed upon using mathematics to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Calculus topics focus on three-dimensional space curves, vector fields and operations, divergence and curl, and line and surface integrals. Analytic and numerical solutions to differential equations and systems of differential equations are found using a variety of techniques. Linear algebra topics include solutions to homogeneous and non-homogeneous systems of equations. An introduction to classical partial differential equations is also included.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): MA205
-Or-
MA255

Disqualifier(s): MA363
-Or-
MA366

MA366 **APPLIED ENGINEERING MATH** **3.0 Credit Hours (BS=0.0,ET=1.0,MA=2.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course provides additional mathematical techniques and deepens the understanding of concepts in mathematics beyond the core math program to support continued study in environmental and chemical engineering. Emphasis is placed upon using mathematics that supports fundamental engineering principles to gain insight into natural and man-made phenomena that give rise to problems in differential equations and vector calculus. Calculus study focuses on vector fields, differential operators, and the vector integral theorems. Solutions via Fourier series, separation of variables, and numerical methods to differential equations that appear in environmental and chemical engineering are then studied.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): MA255
-Or-
MA205

Disqualifier(s): MA363
-Or-
MA364

MA371 **LINEAR ALGEBRA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2 2020-1

This course emphasizes both the computational and theoretical aspects of linear algebra one encounters in many subjects ranging from economics to engineering. The course covers solutions of linear systems of equations and the algebra of matrices. The foundational aspects of vector spaces and linear transformations to include linear dependence and independence, subspaces, bases and dimension, inner products, and orthonormalization are developed. This is rounded out with a detailed investigation of eigenvalues and eigenvectors as they relate to diagonalization, quadratic equations, and systems of differential equations. The Invertible Matrix Theorem is explored as the conceptual/theoretical thread of the course. A computer algebra system is used to explore concepts and compute solutions to problems. Applications of the course material are included in the form of special problems to illustrate its wide scope.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): MA205
-Or-
MA255

MA372 **INTRODUCTION TO DISCRETE MATH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

The purpose of this course is to introduce topics in Discrete Mathematics, providing a foundation for further study and application. The topics covered are useful to both the applied mathematician and the computer scientist. They include propositional logic, elements of set theory, combinatorics, relations, functions, partitions, methods of proof, induction and recursion, digraphs, trees, finite state machines, and algebraic systems. Specific applications to computer science are presented.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

MA376 **APPLIED STATISTICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course builds on the foundations presented in the core probability and statistics course to provide a broad introduction to some of the most common models and techniques in applied statistics. The mathematical basis for each of the models and techniques is presented with particular emphasis on the development of the required test statistics and their distributions. Topics covered include hypothesis testing, analysis of variance, categorical data analysis, regression analysis, and nonparametric methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One (or more) special problem(s).

Prerequisite(s): MA206

Disqualifier(s): SE375

MA381 **NONLINEAR OPTIMIZATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course provides an undergraduate presentation of nonlinear topics in mathematical programming that builds on multivariable Calculus II. The emphasis of this course is on developing a conceptual understanding of the fundamental topics introduced. These topics include general convexity, convex functions, derivative-based multivariable search techniques, minima and maxima of convex functions, gradients, hessian matrices, Lagrange Multipliers, Fritz-John and Kuhn-Tucker optimality conditions, and constrained and unconstrained optimization. Computer software is used to explore and expose various key ideas throughout the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One (or more) special problem(s).

Prerequisite(s): MA205
-Or-
MA255

MA383 **FOUNDATIONS OF MATH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course introduces the student to the methods and language of upper division mathematics. It presents formal set theory, and introduces the student to the methods of formulating and writing mathematical proofs. Finally, it provides the student a rigorous introduction to the theory of relations, functions, and infinite sets.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA205
-Or-
MA205X
-Or-
MA255

MA385 **CHAOS AND FRACTALS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course introduces topics in fractal geometry and chaotic dynamical systems, providing a foundation for applications and further study. The topics from fractal geometry include the military applications of image analysis and data storage. The chaotic dynamical systems studied in the course are one-, two-, and three-dimensional, nonlinear, discrete and continuous dynamical systems. Topics include the logistics equation, the Henon attractor, the Lorenz equations, bifurcation theory, Julia sets, and the Mandelbrot set. These topics have applications in many fields of science, and examples from biology, meteorology, engineering, and the social sciences are studied. The course integrates concepts introduced in the core mathematics courses.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One (or more) special problem(s).

Prerequisite(s): MA205
-Or-
MA255

MA386 **INTRO TO NUMERICAL ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course develops an understanding of the methods for solving mathematical problems using a digital computer. Algorithms leading to solution of mathematical problems will be examined for consistency, stability, and convergence. After a brief review of calculus theory, a study of error analysis and computer arithmetic will provide the framework for the study of the following topics: solutions of equations of one variable, solutions of linear and nonlinear systems of equations, the use of polynomials to approximate discrete data, curve fitting, numerical integration and differentiation, and the approximation of continuous functions. Special problems will incorporate computer graphics and the use of mathematical software libraries to produce numerical solutions of applied problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): CS105 MA205
-Or-
CS105 MA255
-Or-
CS155 MA205
-Or-
CS155 MA255
-Or-
IT105 MA205
-Or-
IT105 MA255
-Or-
IT155 MA205
-Or-
IT155 MA255

MA387 **MATHEMATICAL ANALYSIS I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

A one semester course providing a rigorous introduction to the calculus of a single variable. The course is designed to introduce the student to the foundations of the calculus necessary for advanced undergraduate and graduate studies in applied mathematics and engineering. Course coverage includes a treatment of the structure of the real number system, sequences, continuous functions, and differentiation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA383

MA388 **SABERMETRICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course builds on the statistical foundation of the core mathematics sequence by exploring the application of statistical concepts to sports analytics. Students develop skills and apply statistical techniques appropriate for baseball and other sports including: regression, forecasting, and stochastic processes. Guest lectures and a course trip section to discuss Sabermetrics at the baseball Hall of Fame in Cooperstown, NY are part of this course (when available). Software packages (Mathematica, Excel) are used as decision support tools to investigate application problems and augment understanding of course material.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MA391 **MATHEMATICAL MODELING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2003-1

Offerings:

This course is designed to give cadets the opportunity to develop skills in model construction and model analysis while addressing interesting scenarios with practical applications from a wide variety of fields. This course serves as the entry point for both the Mathematical Sciences major and the Operations Research major. The course addresses the complex process of translating real-world events into mathematical language, solving the resulting mathematical model (iterating as necessary), and interpreting the results in terms of real world issues. Topics include model development from data, regression, general curve fitting strategies, and deterministic and stochastic model development. Interdisciplinary projects based on actual modeling scenarios are used to integrate the various topics into a coherent theme.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special projects.

Prerequisite(s): MA205
-Or-
MA255

Corequisite(s): MA206

MA394 **FUNDAMENTALS/NETWORK SCIENCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2016-1 2016-2 2017-1

MA394 exposes cadets to the basic concepts of networks and gives them an opportunity to apply techniques learned in the course to real-world problems. Students will develop skills and problem-solving strategies for modeling complex networks associated with physical, informational, and social phenomena. Software packages are used as decision support tools to investigate application problems and augment understanding of the course material.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MA396 **NUM METH SOLUTIONS DIFF EQNS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2016-2 2017-2

The focus of this course is to find numerical solutions of differential equations that result when modeling physical phenomena. The numerical solution of both initial value problems and boundary-value problems that arise with ordinary differential equations are covered. Techniques for solving partial differential equations are introduced. Software packages (Mathematica, Maple, Matlab, etc.) have proved to be very useful tools for many numerical techniques and are used to augment an understanding of course material.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One (or more) special problem(s).

Prerequisite(s): CS105 MA205
-Or-
CS105 MA255
-Or-
CS155 MA255
-Or-
CS155 MA205
-Or-
IT105 MA205
-Or-
IT105 MA255
-Or-
IT155 MA205
-Or-
IT155 MA255

MA461 **GRAPH THEORY AND NETWORKS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course introduces the student to the techniques, algorithms, and structures used in graph theory and network flows in order to solve real world discrete optimization problems. Basic definitions relating to graphs and digraphs, together with a large number of examples and applications are provided. Cadets learn to implement new graph theory techniques in their area of study. Emphasis is on modeling, algorithms, and optimization.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two special problems.

Prerequisite(s): MA206

MA462 **COMBINATORICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course introduces the basic techniques and modes of combinatorial problem-solving important to the field of computer science and mathematical sciences such as operations research. Applications of combinatorics are also related to fields such as genetics, organic chemistry, electrical engineering and political science. Combinatorial enumeration and logical structure are stressed. Applications and examples provide the structure of progression through topics which include counting methods, generating functions, recurrence relations, and enumeration techniques.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Completion of the mathematics core curriculum required for enrollment.

Prerequisite(s): MA206

MA464 **APPLIED ALGEBRA W/ CRYPTOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

We study the underlying algebra of computer science structures as well as sets, set functions, Boolean algebra, finite state machines, groups, and modular arithmetic. We introduce and study mathematical aspects of cryptology with an emphasis on cryptanalysis of encryption ciphers. We study early paper-and-pencil systems through current computer algorithms for encryption. We employ algebraic principles in both design and analysis of encryption systems, be it matrix, linear feedback shift register sequence, or linear congruential random number generator sequence efforts. Further, we investigate the mathematics of breaking machine ciphers and of designing modern public-key crypto systems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

MA466 **ABSTRACT ALGEBRA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This is an introductory course in modern algebra for cadets who plan to do graduate work in mathematics or theoretical work in the physical sciences or engineering. The emphasis of the course is on group theory, considering such topics as cyclic and abelian groups, normal sub-groups and factor groups, series of groups, and solvable groups. Selected applications are interspersed with the material on group theory. The course concludes with an introduction to rings and fields. One special problem is provided to allow the student to do independent research in an area of the student's interest.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One special problem.

Prerequisite(s): MA206

MA476 **MATHEMATICAL STATISTICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course builds on the foundation presented in the core probability and statistics course to provide a mathematical presentation of the important topics in mathematical statistics. The course begins with a review of probability concepts from the core course, adding additional topics such as transformations of random variables and moment generating functions. To provide the mathematical basis for much of statistical practice, certain limit theorems and sampling distributions are proven. The central focus of the course is distribution theory, to include the theory of estimation and the theory of hypothesis testing.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One (or more) special problem(s).

Prerequisite(s): MA206

MA481 **LINEAR OPTIMIZATION** **3.0 Credit Hours (BS=0.0,ET=1.0,MA=2.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course emphasizes the applications of optimal solutions to linear algebraic systems using the simplex method of linear programming. This includes an in-depth development of the simplex method, the theory of duality, an analysis of the dual problem, convex hull concepts, integer programming, sensitivity analysis and the revised simplex procedure. Additional computational techniques that are applicable to specific mathematical models such as the transportation problem, assignment problem and network problems are also studied. Problems illustrating applications are emphasized throughout the course. Use of existing computer software to solve problems is also emphasized.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special problems.

Prerequisite(s): MA371

MA484 **PARTIAL DIFF EQUATIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

The course is devoted to the solution of the classical partial differential equations of mathematical physics and most engineering fields. For example, these equations describe such diverse phenomena as the flow of heat in a metal plate, the gravitational field of the solar system, the vibration of a structural beam, and the energy levels of the hydrogen atom. The subject matter has application in many fields and should be of interest to mathematics, science, and engineering concentrators. Specific topics covered are the heat, wave, and potential equations, Fourier series, series solutions to ordinary differential equations, special functions, and boundary value problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One special problem.

Prerequisite(s): MA205
-Or-
MA205X
-Or-
MA255

MA485 **APPLIED COMPLEX VARIABLES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2016-2 2017-2

This course presents a logical development of complex variable theory sufficient for the development and solution of a number of interesting and practical problems. Residue theory is developed and applied to problems in integration and in the solution of partial differential equations via transform techniques. Conformal mapping theory is used to solve partial differential equations for which the solution is a harmonic function satisfying prescribed boundary conditions. These classical Dirichlet-Neumann problems model phenomena arising in the study of electrostatic potential, equilibrium thermodynamics, incompressible fluids, elasticity, and other areas of continuum mechanics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One special problem.

Prerequisite(s): MA205
-Or-
MA255

MA487 **MATHEMATICAL ANALYSIS II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

Continuation of MA387. Course coverage includes Riemann and Stieltjes integration, infinite series, sequences and series of functions, uniform convergence, and power series.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA387

MA488 **SPECIAL TOPICS IN MATHEMATICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides an in-depth study of a special topic in mathematics not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior mathematical science faculty member.

Lessons: 40 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be determined by the program director.

MA488A **SPECIAL TOPICS IN MATHEMATICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2015-1

Offerings: 2015-2 2016-1 2017-1 2017-2

This course provides an in-depth study of a special topic in mathematics not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the visiting professor or a senior mathematical science faculty member.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be determined by the program director.

Prerequisite(s): MA488

Corequisite(s): MA205
-Or-
MA255

MA489 **ADV INDIV STUDY IN MATH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2017-1 2017-2

This is essentially a tutorial course or an individual project, offered only to a limited number of highly qualified cadets who have completed available mathematics elective courses and have expressed a wish to pursue advanced study in a field of mathematics. The course work will be tailored to suit the individual needs.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MA490 **APP PROB FROM MATH, SCI & ENGR** **3.0 Credit Hours (BS=0.0,ET=1.0,MA=2.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course is intended to serve as an integrative experience for cadets of all majors and FOSs. Cadets having completed the core math program will be given the opportunity to develop skills in model construction and analysis while addressing problems and scenarios with practical applications from science, social sciences, engineering, computer science and/or mathematics. Interdisciplinary projects based on actual modeling scenarios are used to integrate the various topics into a coherent theme

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special projects.

Prerequisite(s): MA206

MA491 **RESEARCH SEMNR-APPLD MATH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-1 2017-2

The student integrates the mathematical concepts and techniques learned in previous courses with the principles developed throughout the whole USMA Curriculum to solve a current problem of interest to the individual, to the Academy, or to agencies in the Department of the Army. Cadets may select problems from a list of suitable projects provided by the Department of Mathematical Sciences. Cadets choose a faculty advisor who has an interest and background in the problem. Cadets may work individually or in small teams, depending on the nature of the research. Regular workshop sessions will be held. Cadets will be given an opportunity to present their research at the Service Academies Student Mathematics Conference and/or other undergraduate conferences. Research reports will be reviewed, edited, and compiled into the USMA Transactions on Cadet Mathematical Research.

Lessons: 17 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Weekly meetings @ 55 min; one research paper (80 hours).

MA493A **OPNL CALC AND TRANSFORMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-2 2017-2

This course is the logical extension and synthesis of MA484 and MA485. It employs the integral calculus of complex functions and the theory of residues to investigate solutions to a number of partial differential equations arising from electrostatics, thermostatics, elasticity, gravitation, and other fields of continuum mechanics. The Poisson-Integral Formula is applied to the solution of boundary-value problems. Fourier and Laplace transforms are studied in detail and are used to develop general techniques for the solution of many ordinary, partial, and integral equations which result from the above applications.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Several special projects.

Prerequisite(s): MA484 MA485

MA493B **REAL VARIABLE THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2016-2 2017-2

Continuation of MA487. Topics include sequences and series of functions, equicontinuity power series, Fourier series, the exponential and logarithmic function, and the Gamma function. The last portion of the course will be devoted to individual research projects.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One special project.

Prerequisite(s): MA487

MA493C **TOPICS IN NUMERICAL ANLYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2016-2 2017-2

A continuation of MA396. Topics include boundary-value problems for ordinary and/or partial differential equations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One term-end research project.

Prerequisite(s): MA386 MA396

MA493D **INTRODUCTION TO TOPOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-2 2017-2

The course begins with cardinality and the modern definition of a function. Then the basic properties of topological spaces--compactness, connectedness, and continuity--will be emphasized. Special attention will be given to metric topologies on Euclidean spaces. Complete metric spaces and function spaces will be introduced.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA387

MA493E **TOPICS IN ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-2 2017-2

This course provides cadets the opportunity to pursue in detail subjects of special interest.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA487

MA498 **SR THESIS I: RSCRCH & PROPOSAL** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

The purpose of the Senior Thesis is to provide cadets with an unique opportunity to create a scholarly product that is academically, professionally, and personally meaningful to them and that reflects their thinking and abilities as developed at West Point and in the Department of Mathematical Sciences. Cadets will choose a faculty advisor with whom they will collaborate over two semesters. Cadets will meet on a regular basis with their advisor to discuss mathematics, progress on their research and thesis, and developmental issues. The objectives of the research are: (1) to synthesize and cohere the cadet's studies; (2) to apply methodological skills of research design, conceptual reasoning, analysis, and research gained to a selected area of substantive interest; (3) to extend the cadet's in-depth study of the selected area of interest beyond the level obtained in the Mathematical Sciences Major; (4) to design and conduct focused research beyond the constrained opportunities in elective courses; and (5) to develop cadet skills in conceptual reasoning, critical analysis, and effective writing.

Lessons: 17 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Weekly meeting @ 55 min; one research proposal and presentation.

MA499 **SR THESIS II: PAPER & DEFENSE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=3.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course continues the work on the thesis commenced in MA 498. At the end of the course, cadets will submit a written thesis to the Department of Mathematical Sciences. In addition, cadets will defend that thesis before a faculty committee. Cadets will be given an opportunity to present their research at the Service Academies Student Mathematics Conference and/or other undergraduate conferences. Theses will be reviewed, edited, and compiled into the USMA Transactions on Cadet Mathematical Research.

Lessons: 17 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Weekly meetings @ 55 min; one research paper and defense.

Department of Military Instruction
22 Courses

DS320 **LANDPOWER** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is a study in Landpower through the levels of war, culminating in an examination of contemporary Landpower issues facing the United States. It is an introductory course in Defense & Strategic Studies and covers foundational topics in the field, such as strategic theory, tactics, operational art and contemporary Landpower challenges. The course methodology introduces students to theory, principles and doctrinal concepts with which students will analyze historical cases and improve their intuition through Clausewitzian Critical Analysis. The course will also introduce a model for strategic problem solving, providing the students an ability to analyze and propose solutions to contemporary Landpower challenges that affect warfighting down to the tactical level. Students will apply course concepts through traditional coursework, such as papers and presentations, but also in combat simulations that develop a practical appreciation for the inherent difficulty in translating theory into practice. Finally, the course aims to develop research, writing and critical thinking skills within the field.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

DS345 **MILITARY INNOVATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This interdisciplinary course examines the subject of military innovation from a theoretical, strategic, historical, and policy oriented perspective. DS 345 addresses several key questions: Why do militaries innovate? How does this process of innovation occur? Why do attempts at military innovation succeed or fail? To answer these questions, this course introduces the innovation concept and ties innovation to the levels of war. It provides the historical narrative to military innovation, while emphasizing the contemporary operating environment by exploring the possibility of a recent Revolution in Military Affairs through emerging technologies and the international security environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: An analytical paper and class presentation on a cadet-selected recent or future operational concept.

Disqualifier(s): MS345

DS350 **MILITARY COMMUNICATIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

DS350 is a communication course grounded in application of sound communication techniques relevant to the tactical and strategic levels of war as well as communication techniques applicable for the proper delivery and reception of messages in a professional organization.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Four graded presentations (2 X Informative, 1 X Persuasive, 1 X research paper presentation.) One trip section to NYC to Fox News/CNN.

Disqualifier(s): MS350

DS360 **SP OPNS/LOW-INTENSITY CONFLICT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is divided into two sub-courses. The first sub-course examines the class of military operations commonly referred to as low intensity conflict (LIC). It explores the nature and dynamics of LIC with particular attention to the differences between LIC and conventional, mid to high intensity conflict. Specifically, cadets will examine insurgency and counterinsurgency, international terrorism, and peace operations and strategy and tactics appropriate for each. The second sub-course examines Special Operations Forces (SOF). This sub-course explores the unique methods of special operators and the close relationship between SOF and LIC. Cadets will examine how U.S. SOF are organized; how special operations in general succeed; and why SOF are particularly well suited to LIC. Several subject matter expert guest speakers are integrated into the instruction throughout the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and oral presentations.

Disqualifier(s): MS360

DS385 **SUSTAINING THE FORCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2012-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course introduces cadets to the principles of logistics and the critical factors that affect sustaining military operations. The first block focuses on the principles of logistics and characteristics of logistical support, identifying the fundamentals of logistical planning of both tactical missions and expeditionary operations. The second block focuses on sustaining combat operations at the tactical level of war, applying the principles of logistics to military operations from the perspective of both mounted and dismounted junior leaders. The third block of instruction focuses on case studies, examining operations in which logistics led to success or failure on the battlefield. Cadets will leave the class with an understanding of the fundamentals of logistical planning, and an understanding of the challenges of sustaining units in combat. Students will be equipped to conduct doctrinal analysis of the logistical planning and execution of past military operations, and identify the aspects of sustainment that contributed to victory or defeat.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Disqualifier(s): MS385

DS399 **STRATEGIC STUDIES INTERNSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-0

Offerings: 2015-7

The Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified requirements. Current AIADs that cadets may potentially execute for credit include the WWI Staff Ride, Joint Staff (J-5), US Army South (G-2) and the Combined Joint Task Force, Horn of Africa, though AIAD availability will vary by year. Instructors, students and host agencies will develop a specific academic plan, which will require curricular review, prior to executing the AIAD. Students will normally complete specially assigned readings, a daily reflective journal based on their practical experiences, and write a term paper that benefits the host organization or expands on the trip?s purpose. The assigned instructor will provide weekly feedback on student submissions.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Program Director approval

DS455 **COMPARATIVE MILITARY SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course's objective is to analyze the defense policies of various countries and the outcomes of those defense policies, to include national security objectives, national military objectives, military doctrine, force structure, and military capabilities. Countries studied will include actual and potential coalition partners and potential adversaries. Cadets will examine the political, economic, and social influences on each military establishment. Cultural influences on the development and implementation of the defense policies for countries studied will be examined, including the effects each country's culture has on the missions, structure, roles, and capabilities of the military. Cadets will develop their own framework of analysis to critically analyze the defense polices and cultures of other countries, and will be able to clearly articulate that analysis through written and oral means. Guest speakers include liaison officers and Foreign Area Officers to provide insight into the specific military establishments of those countries studied.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A comparative study with a 2500-word paper and a class presentation; compensatory time provided.

Disqualifier(s): MS455

DS460 **COUNTERINSURGENCY OPERATIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

DS460, Counterinsurgency Operations, exists in order that cadets will 1) demonstrate a theoretical and pragmatic understanding of insurgencies, to include their temperaments, composition, strategies, employment, and irregular battlefield operating systems; 2) demonstrate a theoretical and pragmatic understanding of counter-insurgency operations, and the interrelationships between the environment, operations, enemies, and strategies; 3) demonstrate a command of historical U.S. counter-insurgency doctrinal concepts, how they relate to theory and strategy, where they are inadequate, and where they are beneficial; 4) demonstrate sound analysis and application of key course concepts using historical case studies; and 5) improve oral and written communication skills. This course begins broadly and then narrows in order to integrate theory and strategy with tactics and practicality. The first sub-course introduces the insurgency, an understanding of which is essential to leading, organizing, and implementing successful operations against it. In the second sub-course, students examine counter-insurgency operations from theoretical, strategic, operational, tactical, and practical perspectives. The final sub-course presents three historical case studies intended to engage each student's learning with both analysis and application. At a minimum, DS460 requirements include: an oral presentation that evaluates the success or failure of an historical insurgency; a short biographical paper on the methods and persona of an historical irregular warrior; a WPR that requires cadets to think through a counterinsurgency scenario in branch specific roles; and a TEE that requires cadets to examine methodologies from successful historical case studies within the scenario of a failed historical case study.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Disqualifier(s): MS460

DS470 **MILITARY STRATEGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings:

Military Strategy provides an overview of the fundamentals of military strategy, strategic theory, and the history of military strategy through an Integrative Experience that prepares cadets to evaluate strategic decision-making by considering the relevant political, social, economic and technological context. By the end of the course, each graduate will be able to understand, analyze and effectively communicate both the relation of tactical action to American national policy and the use that is made of force in the international system because as commissioned officers they will directly contribute to the nation?s strategic performance in war. In order to achieve that goal, DS470 cadets will actively learn, apply and analyze case studies utilizing major theoretical and historical concepts in military strategy through individual critical thinking and creativity, group collaboration and peer instruction, and oral and written communication.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): SS307
-Or-
SS357

Disqualifier(s): MS470

DS489 **ADV IND STUD-DEF/STRAT STUDIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

The course provides an environment that is conducive to independent effort in a subject area of special interest to the cadet. Original research or specialized study can be accomplished in any of the many fields within Defense and Strategic Studies. The course is conducted in three phases. First, the cadet and the individual advisor from the Defense and Strategic Studies faculty will reach agreement on a subject area for research. Research methods will be studied under the direction of the faculty member. Research may involve field trips and personal interviews with experts in the area of study. In the second phase, the cadet will engage in independent research and prepare a draft analytical paper or report detailing the findings. During this period, frequent consultation with the faculty advisor occurs regarding the progress in the project. In the third phase, the cadet will present and define the findings before a faculty committee.

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One paper or report of variable length; oral defense.

Disqualifier(s): MS489

DS490 **SPECIAL TOPICS: STRAT STUDIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings:

The Special Topics Course provides cadets an opportunity for reading and analysis in depth within a topic area of special interest and timely relevance to Defense and Strategic Studies. The course director will determine the approach dependant on the topic and enrollment. Courses will normally develop the cadet?s understanding of the topic through study of theory, history, doctrine, and historical and contemporary case studies. A generous portion of the course will normally address modern complex problems related to the topic area and assignments will emphasize analytical writing. Topics will vary by semester. A past Special Topics Course was "Sea and Air Power."

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

DS495 **RESEARCH METHODS STRAT STUDIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2016-1 2017-1

This is a research methods course designed to support the interdisciplinary nature of the research-based courses in the Defense & Strategic Studies Program, DS496 Strategic Studies Thesis and DS498 Strategic Studies Capstone. In this course, students will learn different research methodologies for the strategic studies field and develop effective writing skills in a seminar format. Partway through the semester students will choose an interdisciplinary research topic related to the Defense & Strategic Studies field. The topic, approved by the Course Director, will either be as part of a student-selected thesis for DS496 or an assigned client-based project for DS497. Thesis students must also select faculty members from across the institution to serve as their thesis advisors as part of DS495. Student assignments include practical exercises, a research proposal, a literature review and a draft research methodology.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): DS320

DS496 **STRATEGIC STUDIES THESIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

Strategic Studies Thesis is an integrative course in strategy designed to provide Defense & Strategic Studies majors with practical experience in addressing real, complex and ambiguous strategic issues. Students will write and defend an interdisciplinary thesis that in some way relates to the military instrument of power. Thesis cadets will continue the work they began with their faculty advisors in DS495 ? Research Methods in Strategic Studies by revising their literature review and research methodology, then complete data collection, data analysis, thesis writing and ultimately conduct an oral defense of their thesis before an interdisciplinary faculty board. Finally, students will prepare for and participate in the Gettysburg Staff Ride, which is a culminating intellectual experience that ties together the broad array of interdisciplinary subjects within the program and promotes life-long learning about the profession at arms.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Program Director approval

Prerequisite(s): DS470 DS495 HI301 HI302

DS497 **STRATEGIC STUDIES CAPSTONE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-2

Offerings: 2015-2 2016-2 2017-2

This is an experiential learning course in military strategy designed to provide Defense & Strategic Studies majors with practical experience in solving real, complex and ambiguous strategic problems. Students will work in small groups to solve such a problem for an external client organization focusing on the use of the military instrument of power. Student groups will determine stakeholder needs, define the client?s problem and conduct appropriate research to develop a viable solution or set of recommendations. Groups will meet regularly with their client, complete a final written report and provide a formal presentation with an oral defense to the faculty. Alternatively, select students may work with an interdisciplinary team from another academic department?s capstone course to contribute analysis from the strategic studies perspective to the group?s project. Finally, students will prepare for and participate in the Gettysburg Staff Ride, which is a culminating intellectual experience that ties together the broad array of interdisciplinary subjects within the program and promotes life-long learning about the profession at arms.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): DS470
-Or-
SS457

ML100 **INTRO TO WARFIGHTING LAB** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-0

Offerings: 2016-0 2017-0 2018-0 2019-0

ML100 Introduction to Warfighting Laboratory is a three to four week program of instruction for Third Class cadets at the United States Military Academy. ML100 is offered during the summer term as part of Cadet Field Training (CFT I and CFT II). ML100 expands on the knowledge gained in the classroom by providing hands on application of concepts and lessons from MS100 in a tactical field environment. Cadets perform select BOLC-A tasks in order to further develop the military and tactical knowledge necessary for future field training and lays the foundation for subsequent Military Science courses. The purpose of ML100 is to develop, train, test, and validate specific BOLC-A tasks; ICW CFT it prepares Third Class cadets to assume duties as NCOs in the Corps of Cadets; instill the warrior ethos in each cadet; and inspire each cadet to professional excellence through physically- and mentally-demanding training.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ML300 **CLDT LAB** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-0

Offerings: 2016-0 2017-0 2018-0 2019-0

Cadets are enrolled in ML300 during their second or first class summer. This course trains, mentors, and assesses basic leadership skills focusing on Troop Leading Procedures (TLPs), effective communication, and tactical decision making in order to develop competent and confident small unit leaders capable of operating in an uncertain and rapidly changing environment. In a series of tactical scenarios that reflect the Decisive Action Training Environment, cadets experience a minimum of two assessed leadership positions which provides the cadet with a common experience to further enhance his/her leadership ability to solve difficult tactical problems.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MS100 **INTRODUCTION TO WARFIGHTING** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides cadets with the foundation of military and tactical knowledge necessary for future field training and development in subsequent military science courses. Cadets will gain a solid foundation built on basic Army concepts such as Shoot, Move, and Communicate. Cadets will also learn fundamental Army unit organizations, capabilities and missions, and develop an understanding of the roles of NCOs and Officers. Cadets who have successfully completed MS100, will understand their role as Soldiers and will be well prepared as they transition from follower to leader during the next chapter of their military education, Cadet Field Training.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MS200 **FUNDAMENTALS: ARMY OPERATIONS** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2

This course introduces cadets to the small unit leader's role in the Army by developing the critical thinking and problem-solving skills necessary for adaptive leaders in administrative, training, and tactical environments. Fundamentals of Army Operations builds upon the knowledge and experience cadets gain in MS100 and summer training. It explores Army leadership, troop leading procedures, and small-unit operations in order to develop and hone decision-making skills. Throughout the course, cadets demonstrate their knowledge through a series of tactical decision exercises. Cadets who successfully complete MS200 possess fundamental tactical planning and decision-making skills that prepare them for more challenging training in the field and in future military science courses.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MS200 **FUNDAMENTALS OF SMALL UNIT OPS** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-1

Offerings:

This course introduces cadets to the small unit leader's role in the Army by developing the foundational tactical knowledge, critical thinking and problem-solving skills necessary for adaptive leaders in current and future operational environments. Fundamentals of Army Operations builds upon the knowledge, competencies and experience cadets gain in MS100 and summer training. It explores Army leadership, troop leading procedures, and small-unit operations in order to develop and hone decision-making skills. Throughout the course, cadets demonstrate their knowledge through a series of tactical decision exercises, and oral and written assessments. Cadets who successfully complete MS200 possess fundamental tactical planning and decision-making skills that prepare them for more challenging training in the field and in future military science courses.

2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MS300 **PLATOON OPERATIONS** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2

This course builds upon basic tactical planning and decision-making skills taught during MS200. MS300 further develops the cadet's knowledge of doctrinal and war-fighting principles, general professional knowledge, and Troop Leading Procedures (TLPs) in order to instill an aggressive and flexible combined arms mentality. Cadets are challenged to apply knowledge, skills and common sense to solve complex situations that require critical thinking and creative problem-solving skills. Instruction in the fundamentals of Army Operations emphasizes both offensive and defensive tactics. Additionally, cadets are expected to demonstrate an increased understanding of the TLPs and mental agility through nearly daily execution of tactical decision-making exercises. In addition to tactics, cadets continue their general instruction in the various Army systems, procedures and functions that are important aspects of officership. Finally, cadets examine the small unit leader's role in ensuring that the moral and ethical decision making process is integrated into all operations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MS300 **PLATOON OPERATIONS** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2016-1

Offerings: 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3

This course builds upon foundational tactical planning and decision-making skills taught during MS200. MS300 further develops the cadet's knowledge of doctrinal tactical principles and general professional knowledge, using Troop Leading Procedures (TLPs) as a framework for planning and preparation. Cadets are challenged to apply tactical knowledge, competencies, and decision-making to solve complex situations that require critical thinking and creative problem-solving skills. Instruction in the fundamentals of small unit operations emphasizes both offensive and defensive tactics. Additionally, cadets are expected to demonstrate an increased understanding of the TLPs and mental agility through nearly daily execution of tactical decision-making exercises. In addition to tactics, cadets continue their general instruction in the various Army systems, procedures and functions that are important aspects of officership. Finally, cadets examine the small unit leader's role in ensuring that the moral and ethical decision making process is integrated into all operations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

MX400 **OFFICERSHIP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2 2018-1 2018-2 2019-1 2019-2

MX 400 is a capstone course that challenges cadets to reflect upon, integrate, and synthesize their experiences in the six Cadet Leader Development System domains as they commence the transformation to commissioned officership. Cadets will achieve a thorough intellectual understanding of the four clusters of expert knowledge of the military professional--military-technical, moral-ethical, political-cultural, and human development. Successful completion of this course will enable each cadet to achieve competence and confidence in a new self-identity in the four facets of the role of a commissioned officer--a Soldier, a leader of character, a servant of the Nation, and a member of the profession of arms. Each graduate will be capable of executing the fundamental practices of the military professional--the repetitive exercise of discretionary judgment in decision making and taking actions that fulfill the moral and legal responsibilities of commissioned officers. Upon graduation, each new 2LT will be fully prepared for the immediate challenges of junior officership and capable of a lifetime of professional growth as an officer in the United States Army.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Physical Education
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KN355 **FUNCTIONAL ANATOMY** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

A knowledge of basic and applied anatomy is essential to the study of human beings engaged in motor performance. An individual who understands the anatomical bases that underlie human movement and who can systematically analyze movement and determine interventions is more likely to improve technique and reduce the risk of injury. Therefore, this course is designed to introduce the structures of human anatomy and explain how these structures are involved in human movement. In support of class room instruction cadets will be introduced to basic laboratory techniques and collection, analysis and interpretation of data demonstrating anatomical and mechanical function of muscles, joints, and limbs. On successful completion of the course, cadets should be able to identify and understand the anatomical structures essential for human movement and apply their anatomical knowledge to human movement problems in athletic, educational, clinical, and/or work settings.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 110 min

Special Requirements: None

KN360 **BIOMECHANICS OF HUMAN MOVEMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

A knowledge of basic and applied biomechanics is essential to the study of human beings engaged in motor performance. An individual who understands the mechanical bases that underlie human movement and who can systematically analyze movement and determine interventions is more likely to improve technique and reduce the risk of injury. Specifically, this course will provide cadets with: 1) a basic knowledge of the biomechanical foundations of human movement; 2) the knowledge and skills necessary to complete a systematic analysis and evaluation of human motor performance; and, 3) the ability to determine and provide interventions that are likely to improve movement.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH202
-Or-
PH252

KN365 **NUTRITION FOR PERFORMANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

Performance Nutrition is designed to teach the basic concepts and functions of nutrition as well as their application to human performance. This includes emphasis in food chemistry, digestion, absorption, and utilization of nutrients, nutrient timing, and nutritive supplementation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PL100
-Or-
PL150

KN455 **PSYCHOLOGY OF EXERCISE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This course comprehensively examines theory and research related to exercise psychology, and introduces sport psychology as an associated discipline. The course is designed to provide a broad overview of exercise psychology and increase understanding of how psychological factors influence adherence and performance in exercise and sport. Additionally, the course addresses associated topics including addictive and unhealthy behaviors, burnout and overtraining, aggression in sport, and character development through sport.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN460 **EXERCISE PHYSIOLOGY** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This course is designed to apply the principles of chemistry, physics, anatomy, and physiology towards an understanding of the impact of work on the human body Study will include both mechanical and physiological response to acute bouts of work and functional adaptation to repeated bouts of work. In support of class room instruction students will be introduced to basic laboratory techniques and collection, analysis and interpretation of physiological data. In addition, material will be presented that will emphasize the influence of age, disease-states, or the environment on the physiological response as a clue to physiological mechanisms and significance.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 110 min

Special Requirements: None

Prerequisite(s): CH387 KN355

KN465 **MOTOR CONTROL AND LEARNING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course will present the principles underlying the control and learning of motor skills. Central, neural, and sensory mechanisms that facilitate or inhibit the production, control, acquisition, retention, and transfer of motor skills will be discussed. Emphasis is given to a sound theoretical base from which to design and implement optimal learning and performance conditions. Motor control variables such as motor programs, brain systems, the spinal cord, musculoskeletal factors, and visual systems are explored. Motor learning/performance variables such as transfer, modeling, feedback, practice schedule, mental practice, memory, and attention will be discussed. The course employs lecture, a literature review on a topic of interest in the field, and research methods to understand motor behavior principles.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): KN355 KN360

KN470 **FITNESS ASSESSMENT AND RX** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1 2017-2

This course is designed to increase theoretical and practical knowledge and understanding of the administrative, medical, and biological aspects of developing physical competency through physical activity and exercise. Students will apply the scientific theories behind exercise assessment and prescription towards developing functional independence across the spectrum of activities for daily living, recreation, sports performance, and prevention and rehabilitation of disease covering various populations across the life span.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN480 **T/P OF ADVANCED PERFORMANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

This integrative experience course was designed to provide cadets with advanced content knowledge in human adaptation to exercise and to serve as the USMA Integrative Experience. KN480 will address the overarching academic program goal: "to anticipate and respond effectively to the uncertainties of a changing technological, social, political, and economic world."

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): KN455 KN460

KN485 **TOPICS: EXERCISE/SPORT SCIENCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides in-depth study of a special topic in exercise and sport sciences not offered elsewhere in the USMA curriculum. Course content will be based on the special expertise of the Visiting Professor, Rotating PhD, or a senior DPE faculty member.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements:

KN491 **INDIV RESEARCH IN KINESIOLOGY** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Center for Physical Development Excellence will approve all individual research projects. The course will require a commitment of approximately 40 hours.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN492 **INDIV RESEARCH IN KINESIOLOGY** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Center for Physical Development Excellence will approve all individual research projects. The course will require a commitment of approximately 80 hours.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN493 **INDIV RESEARCH IN KINESIOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This elective course provides an opportunity for a cadet to conduct an in-depth research project, study program, or special project in exercise and sport science. The cadet will formalize a proposal, develop a viable research plan, and conduct the project under the guidance and supervision of a faculty advisor. The Director - Center for Physical Development Excellence will approve all individual research projects. The course will require a commitment of approximately 120 hours.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN494 **RESEARCH METHODS/DATA ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

This course is designed to survey the basic types of analytical, descriptive, and experimental research methods often found in exercise science research to help cadets understand the systematic nature of problem solving. Cadets will also learn to analyze, interpret, and apply exercise science data. Cadets will survey a variety of statistical procedures: descriptive, inferential, and correlational. Emphasis will be given to analyzing and interpreting data from a research perspective.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

KN495 **HONORS THESIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: 2015-2 2016-2 2017-2

This course provides Kinesiology majors with an opportunity to enhance their skills in clinical research and analysis. Under the supervision of a thesis advisor, cadets will implement the research proposal developed in KN494. Cadets will meet regularly as a group with their seminar advisors to discuss issues in design, methodology, and data analysis. At the end of the semester cadets will present their findings and defend their theses before a committee of faculty and fellow students.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): KN494

PE100 **PHYS ED FOUNDATIONS-MEN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1998-2

Offerings: 2016-1 2016-2 2017-1 2017-2

Lessons: 68 @ 45 min (0.000 Att/wk) **Labs:** 9 @ 45 min

Special Requirements: None

PE105 **FUNDAMENTAL COMBATIVE SKILLS** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-0

Offerings: 2017-0

In this 3.5 hour time block Cadets are taught rudimentary grappling techniques. In this block of instruction the New Cadets are introduced to the following positions: Guard, Top Mount, and Side Control. The New Cadets learn how to hold and escape from these positions and also learn submission holds to apply to their partner when they are in the dominant position.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE107 **FOUNDATIONS OF MOVEMENT** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

This introductory movement and fitness course is designed to improve a cadet's upper body strength, hip flexor strength, and core body stabilization and to prepare him or her for success in PE 117 (Military Movement). The class focuses on developing the specific strength and skills needed to pass PE 117 (Military Movement) and the Indoor Obstacle Course Test.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 20 @ 55 min

Special Requirements: None

PE108 **FOUNDATIONS OF FITNESS** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2007-3

Offerings: 2016-3 2017-3

The purpose of this course is to physically develop cadets utilizing progressive and sequential resistance exercises and cardiorespiratory conditioning exercises that will enable them to pass the Army Physical Fitness Test and Indoor Obstacle Course Test. This course will provide cadets, who have a deficient Physical Performance Score Cumulative, an opportunity to supplement/raise their PPSC. Cadets will develop a sense of self-responsibility for their personal fitness and a lifetime commitment to maintain their physical fitness. This course will only be offered during Summer Term Academic Program.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 20 @ 90 min

Special Requirements: None

PE109 **FUNDAMENTALS OF AQUATICS** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

This course has two phases: phase one is a remedial swimming exploration curriculum designed to prepare cadets classified as non-swimmers for the survival swimming curriculum. The remedial phase is designed to help cadets acquire in-water experiences, and gradually refine the basic motor skills needed to be comfortable, safe, and effective in and around the aquatic environment. Phase two emphasizes the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Successful completion fulfills the survival swimming graduation requirement for selected cadets.

Lessons: 40 @ 50 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE115 **FUNDAMENTALS OF COMBATIVES** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course exposes Cadets to variety of basic standing and ground skills. Cadets learn how to engage in the free movement range, clinch range, and grappling range. In the free movement range Cadets learn how to strike with their hands and defend themselves. In the Clinch range cadets learn how to close with their opponent, achieve the Clinch, then control their opponent using knees and movement. In the Grappling range Cadets learn how to move into and out of positions and apply submissions and chokes. Body mechanics, aggressiveness, and affective reactions are stressed.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE116 **BOXING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2 2017-3

A course in which the offensive and defensive skills of amateur boxing are taught. Course content includes stances, movement, basic punches (i.e. jab, cross, hook, and upper cut), defenses, strategies, and tactics. Instruction on refereeing, judging, and serving as a corner second are presented. Boxers are evaluated, assessed and provided feedback on their ability to box. The course exposes participants to the coping strategies necessary to deal with a physical threat.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE117 **MILITARY MOVEMENT** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2 2017-3

This is a 19-lesson course designed to expose cadets to a variety of basic movement skills. The course serves as a basis for many other athletic and military activities that cadets will encounter during their time at USMA as well as in their Army career. Focus is placed on applied movement tasks for all cadets. This course takes a basic Movement Theme approach, meaning cadets are required to learn a variety of relevant skills from within the general themes of rolling, hanging, climbing, crawling, jumping, vaulting, landing, mounting, supporting and swinging. In addition, the environment (or apparatus) where a skill is performed is changed or modified to challenge the cadet and broaden the movement experience. Movement environments are designed around specific events such as tumbling, vaulting, vertical ropes, horizontal ropes, the indoor obstacle course (IOCT), horizontal bars, elephant vault, ankles to the bar (ATB), pull-ups, rock climbing, and trampoline.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE205 **ADVANCED COMBATIVE SKILLS** **0.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-0

Offerings: 2017-0

This four hour time block is designed to enhance Cadets' grappling ability. Cadets review fundamental grappling skills from the previous summer and are taught new grappling skills in positioning and submissions to further develop their ability to perform well in future Combatives classes.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE215 **FUNDAMENTALS/PERSONAL FITNESS** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2015-4 2016-1 2016-2 2017-1 2017-2

This course provides cadets with the knowledge and experience to develop a personal fitness plan that links to the Army doctrinal approach to physical readiness. Cadets will participate in a variety of active learning experiences designed to develop, monitor, maintain, and assess physical fitness for their future Army careers and lifetime of physical activity.

Lessons: 20 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Disqualifier(s): PE150

PE220 **AEROBIC FITNESS** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The course provides cadets with information and experiences to create an aerobic optimal performance plan. Cadets are exposed to numerous aerobic fitness activities and participate in events focused on military applications. The principles of exercise physiology serve as the foundation for the course as students design and participate in various aerobic conditioning assessment activities.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE222 **BADMINTON/PICKLEBALL** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2

This is a 19 lesson course featuring nine lessons of Pickleball and ten lessons of Badminton. Pickleball is a sport played by two, three, or four people. Pickleball uses a wooden paddle and whiffleball and is very similar to tennis. The course focus is on the rules of play and basic skill development of service and service return, forehand and backhand drives, volley and half-volley, drop shot, lob, and overhead smash. Additional instruction in basic offensive/defensive strategy and tactics is provided. Badminton is a sport played by two, three, or four people on the same size court as pickleball. Badminton uses a lightweight strung racquet and shuttlecock (birdie). The course focus is also on the rules of play and basic skill development of service and service return, forehand, backhand, drop shot, lob, and overhead smash. Offensive/defensive strategy and tactics are discussed. Grading is determined by a final exam in each.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE223 **BASKETBALL** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to provide cadets with the skills and knowledge necessary for playing, coaching, and officiating basketball. It is intended to assist students in developing fundamental skills for playing as well as nurturing an appreciation for basketball as a lifetime sport. A variety of offensive and defensive team strategies are taught. In addition, the leadership skills of coaching and officiating basketball will be learned. Grading for the course is based upon an officiating practical exercise, demonstrated individual skills, performance on the James Naismith Basketball Obstacle Course, instructor's assessment of each cadet's game performance and a written term end exam.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE224 **ADVANCED CLOSE QUARTERS COMBAT** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-2

This course is designed to educate and expose Cadets in the realm of edge weapons and impact weapons. Cadets learn realistic offensive tactics, defensive tactics, weapon movement patterns, and footwork in order to engage an enemy who has an edge weapon or impact weapon or to use an edge weapon or impact weapon on the enemy in a hostile situation. The cadets are evaluated on their functional ability to perform the skill learned in the course and also on their ability to show tactful aggression and fear management.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE226 **COMBAT GRAPPLING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-2 2017-2

This course is designed to provide the cadets with realistic grappling applications and ground fighting skills to enhance their knowledge and warrior ethos to prepare them as future soldiers for unarmed combat and CQC situations. This course focuses on five different grappling positions: Mount, Guard, Side Control, Rear Mount, and scarf hold. Cadets learn how to maintain the positions, escape from the positions, submit from the positions, and strike from the positions. Cadets are evaluated in their function ability to perform skill-sets learned in class, and are also evaluated in their ability to manage their fear, keep their composure, and dominate their opponent.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE228 **MODERN ARMY COMBATIVES L1 CERT** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-2

PE 228 is designed to certify cadets to teach U.S. Army Level I Combative Skills. Cadets develop a foundation of basic combative grappling skills and an aggressive mind set needed to engage and defeat an enemy in Close Quarters Combat (CQC). The course focuses on 15 basic grappling skills. Cadets are evaluated on their demonstration and knowledge of the required skills. Successful completion of the course qualifies the individual to conduct Skill Level I Combatives training for soldiers.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE230 **CYCLING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

Cycling as a lifetime sport, is designed to take the beginner through a progressive program of bicycle training and instruction to include: proper mounting, balance, turning, ascending, and descending individually and in a group. The course labs are hands-on and focused on learning through practical application and drills on the bike. All riders are also introduced to basic bike maintenance and required to demonstrate baseline skills in preventive maintenance checks and services (PMCS). Classroom instruction is focused on the introduction of cycling principles and as a feedback forum for the riding labs.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE232 **EMERGENCY WATER SAFETY** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The purpose of this course is to introduce cadets who are already proficient swimmers, to first responder training in methodologies generic to Water Rescue, CPR, and Emergency First Aid. Cadets are exposed to a variety of distress and drowning scenarios, and will be able to demonstrate strategies and site specific response techniques essential to safely performing a water related assist and/or rescue. Course focus is on military application in both still water and theatre specific environments, with a special emphasis on emergency management protocol. Written evaluation, five skill-specific performance components, and successful completion of two comprehensive exit scenarios are required for successful course completion.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE234 **LIFEGUARDING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course focuses on a holistic approach to the duties and responsibilities of a trained professional lifeguard and exposes cadets to key elements and strategies related to accident prevention, surveillance methodology, and performance. Additional content and activities focus on emergency response, search and rescue, and duty specific incident/accident management. Cadets who successfully complete certification requirements may obtain professional accreditation/licensure in Lifeguarding, CPR/PR, Oxygen Administration, and Automated External Defibrillation (AED). Additional accreditation/licensure may also be available in both Open Water and Water park Lifeguarding. Written evaluation, four skill-specific performance evaluations, and successful completion of three comprehensive exit scenarios are required for successful course completion.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 18 @ 50 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE236 **GROUP EXERCISE LEADERSHIP** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

Using music as the controlling factor, this course is designed to give participants an opportunity to experience different modalities of exercise such as high/low impact, step, kickboxing, circuit training, spinning, yoga/pilates and water exercise in an Exercise to Music group fitness setting. Participants will be assessed on knowledge of applicable fitness principles, exercise safety, lesson construction and a team-teaching experience of one's choice.

2016-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE238 **GOLF** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course is designed to provide the beginner and novice golfer with the skills, knowledge, and techniques needed to play golf. The basic techniques taught are the full swing, pitching, chipping, and putting. Course grading is based upon a series of skill tests, a written examination, and a golf swing analysis.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE242 **ICE SKATING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is designed to provide cadets who have little or no previous skating experience with the basic skills necessary to safely participate as a recreational skater. The forward and backward stroke, snow plow, "T" stop, and hockey stop, as well as forward and backward crossovers are presented. Additional skills taught are turns, spins and jumps. Grading is based upon the cadet's ability to demonstrate the skills taught during the course. A compulsory skating routine is also used for evaluating student proficiency. Additionally, a short creative routine of optional figures chosen by the cadet is evaluated.

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE244 **JUDO** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

The purpose of this course is to introduce judo as a competitive sport and the application of judo skills for self defense and combatives training. The course content will include falling skills and basic throwing, pinning, and submission skills. Judo customs, courtesies, terminology, and competitive rules will be introduced. Students will gain an entry level knowledge and understanding of the basic skills, safety concerns, and rules needed to participate in competitive Judo. Students will be graded on a demonstration of basic skills and knowledge of competitive rules and terminology.

2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE246 **RAQUETBALL** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course introduces the basic skill and strategy fundamentals of racquetball. Cadets learn to identify and demonstrate the basic fundamentals of: personal playing safety; rules of play; forehand and backhand stroke techniques; kill, passing, and defensive shots; serve, serve return techniques and strategies. Singles play, doubles and ýcut throatý are examined. Grading is determined by performance on two skills tests (rally & ceiling shot), and a written final exam.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE248 **INDOOR ROCK CLIMBING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course develops fundamental rock climbing skills, techniques and safety awareness. This course introduces basic rock climbing systems, rappelling, belaying, knots, top roping, and assorted climbing skills. Course grading is based on climbing skills, rappelling skills, knowledge of basic rock climbing systems, and the application of judgment and safety practices in various situations.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE250 **SCUBA** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to provide cadets with the basic skills and knowledge needed to safely participate in SCUBA diving and pursue certification as a National Association of Underwater Instructors (NAUI) Basic SCUBA Diver. Successful completion of this course leads to Confined Water Certification and the ability to enroll in Open Water training. The requirements of this course include the successful demonstration of skin and SCUBA diving skills, the ability to practice and adhere to safe diving activities, and the completion of a comprehensive, written final examination. Cadets who possess Scuba certification or are members of the Cadet Sky Diving Club are ineligible for this course.

Lessons: 6 @ 50 min (0.000 Att/wk) **Labs:** 12 @ 50 min

Special Requirements: None

PE252 **SKIING-ALPINE** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course is designed to teach beginning skiers to ski in balance and control in all terrain and snow conditions. Knowledge of skiing equipment, proper body position, stopping, gliding, edging, sliding, turning, and carving is taught. The course grade is based upon skiing performance assessments administered on the slope.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE254 **SKIING-CROSS COUNTRY** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2016-2

This course introduces cadets to the basic skills and techniques of cross-country skiing. It emphasizes skill development and the benefits of skiing as a lifetime fitness activity. Cadets are required to successfully demonstrate the diagonal stride, skating, turning, uphill techniques, and downhill techniques. Course grading is determined by instructor, peer and self-assessment of skiing ability and a written examination.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE256 **SNOWBOARDING** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course is designed to provide cadets with the basic skills and knowledge needed to safely participate in snowboarding. The course focuses on teaching beginning snowboarders to ride in balance and control in various terrain and snow conditions. Knowledge of boarding equipment, as well as skills in proper stance and balance, stopping, gliding, edging, turning, carving and basic freestyle maneuvers will be covered.

2015-2 2016-2 2017-2

Lessons: 18 @ 50 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE258 **SOCCER** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings:

This course is designed to provide cadets with the skills and knowledge necessary for playing soccer. A variety of individual skills and techniques are taught, as well as individual/team offensive and defensive strategies. The value of ýsmall sidedý games are used as building blocks that lead to full 11 aside matches. Grading for the course is based upon a written examination, and tournament play.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE260 **SPORTS PHYSIOLOGY** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

The objectives of this course are to introduce cadets to applied concepts of Sports Physiology, conduct personal fitness assessments in DPE's Center for Physical Development Excellence facility, and perhaps complete an independent study examining a sports physiology issue. The cadet becomes familiar with the varied aspects of Sports Physiology and is able to demonstrate baseline and advanced knowledge of 'core principles.' Critical thinking and analysis is used in all endeavors. The personal assessments conducted in the lab and the independent study approach provides cadets with insightful physiological information that can enhance their personal fitness performance.

2016-2

Lessons: 18 @ 50 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE262 **STRENGTH DEVELOPMENT** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course provides cadets with the knowledge and hands-on experience for conducting a variety of resistance training exercises. Cadets develop the critical skills needed for teaching safe and proper resistance training techniques that will benefit both them and their soldiers. Cadets are assessed in the following areas: demonstrated proficiency performing multi-joint strength exercises; Olympic exercises and plyometrics. This course is designed to instill a lifetime desire for continued participation in a resistance-type training programs.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 6 @ 50 min (0.000 Att/wk) **Labs:** 12 @ 50 min

Special Requirements: None

PE264 **TENNIS** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is designed to develop basic tennis skills including the forehand and backhand groundstrokes, serve, and volley. Students also learn the basic rules and etiquette of tennis as well as simple singles and doubles strategies. Grading is based on skills tests, an in-class tournament, instructor stroke evaluations, and a written final examination.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE266 **VOLLEYBALL** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings:

This course is designed to teach cadets the fundamentals of volleyball. The individual skills taught are the underhand pass, set, serve, block, and spike. Additionally, the course covers defensive and offensive formations, the transition game, officiating techniques and United States Volleyball Association (USVA) rules. Grading is based upon skill testing on the underhand pass, set and serve, a written test, and a round robin tournament.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE268 **CURRENT LIFETIME ACTIVITY** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: No Course Offerings

The lifetime sports skills series are credit courses intended to provide cadets an opportunity to learn additional sports skills which can be incorporated into lifetime fitness goals and activities. They will further the development of neuromuscular and kinesthetic abilities through the acquisition of and participation in sport skills and can be part of the cadet personal fitness programs. Specific lifetime sport activities are selected on the basis of current trends, resources, instructor expertise, and cadet needs.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 18 @ 50 min

Special Requirements: None

PE320 **SURVIVAL SWIMMING - ELEMENTARY** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

The Survival Swimming-Elementary course is designed to develop aquatic proficiency for cadets who swam 150 yards in 4 minutes or more on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE321 **SURVIVAL SWIMMING - LOW** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The Survival Swimming-Low Intermediate course is designed to develop aquatic proficiency for cadets who swam 150 yards between 3 minutes 16 seconds and 3 minutes 59 seconds on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE322 **SURVIVAL SWIMMING - HIGH** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The Survival Swimming-High Intermediate course is designed to develop aquatic proficiency for cadets who swam 150 yards between 2 minutes 30 seconds and 3 minute 15 seconds on their initial entry swim classification test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE323 **SURVIVAL SWIMMING - ADVANCED** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-3 2017-2

The Survival Swimming-Advanced course is designed to develop aquatic proficiency for cadets who swam 150 yards in less than 2 minutes 30 seconds on their initial entry swim test. The Program of Instruction (POI) is divided into two areas: basic swimming and combat/survival swimming. Emphasis in all levels is on the military applications of swimming and survival skills to include the elements of breath control, buoyancy positions, stroke assessment, and swimming endurance. Grading is primarily based on criterion-referenced scales in basic and survival swimming skills.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 19 @ 50 min

Special Requirements: None

PE360 **COMBAT APPLICATIONS** **0.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2 2018-1 2018-2

This course provides cadets with a comprehensive set of basic combatives skills suited for a combat scenario. Cadets will learn to respond appropriately to aggression by utilizing proper body mechanics, skills, aggressiveness, and fear management. Two combat ranges of hand-to-hand fighting are taught: 1) Grappling range - cadets learn to fight and win on the ground and, 2) Clinch range - cadets learn to close the distance and control the fight between themselves and an attacker. Cadets will be evaluated on their ability to perform selected combative skills and their capacity to exhibit the warrior ethos and fear management.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 20 @ 55 min

Special Requirements: None

Disqualifier(s): PE460

PE450 **ARMY FITNESS DEVELOPMENT** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2 2018-1 2018-2

This course prepares future company grade officers for their roles as fitness leaders by equipping them with the knowledge to plan, implement, and assess unit physical training in a variety of conditions and by giving them opportunities to apply this knowledge.

Lessons: 20 @ 55 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PE150
-Or-
PE215

Disqualifier(s): PE350

PE471 **ADV SP DEV/PHY IND ADV DEV** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-7

Offerings: 2015-7 2016-7 2017-7

Advanced Sport Development is an intense physical program designed for cadets with an interest in total fitness and a comprehensive scuba experience. This program consists of four subcourses: Aerobic Fitness (mountain biking, hiking, kayaking, etc.),, Sports Physiology, Muscular Fitness, and SCUBA.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

PE472 **OUTER LIMITS - MOUNTAIN LEADER** **2.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-4

Offerings: 2015-7 2016-7 2017-7

The Outer Limits – Mountain Leader course is designed to provide cadets with the basic skills and knowledge needed to safely participate in basic to advanced rock climbing. Successful completion of this course allows cadets to participate in many levels of basic to advanced levels of lead rock climbing and prepare them for future experiences in a variety of climbing adventures to include ice climbing and mountaineering co-related adventures.

Lessons: 15 @ 300 min (5.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Physics and Nuclear Engineering

33 Courses

NE300 **FUNDAMENTALS OF NUCLEAR ENGR** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides the student with an understanding of the fundamental physical principles involved in radioactive decay, radiation interaction with matter, nuclear fission and the nuclear fuel cycle. The course covers neutron interactions with matter, fission, neutron diffusion, neutron moderation, and reactor criticality. This course is essential for the nuclear engineer and is an excellent choice for the applied scientist.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One research paper is included.

Corequisite(s): PH202
-Or-
PH252

NE350 **RADIOLOGICAL ENGR DESIGN** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course focuses on nuclear engineering systems including radiation protection, shielding, and the uses of radioactive sources in industrial processes. Specific topics emphasize the operation of radiation detectors, shielding principles, health effects of radiation, radiological dispersion devices, and nuclear incidents. A design project applies the concepts presented in this course to the solution of practical problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One design project.

Prerequisite(s): NE300

NE355 **NUCLEAR REACTOR ENGINEERING** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on nuclear reactor systems, the release of nuclear energy in the reactor core, and its removal as heat for producing electric power. Specific topics emphasize reactor kinetics, heterogeneous reactors, control rods and shim, reactor poisons, heat transfer, and alternative energy systems. The fundamentals of transport theory and the solution to the transport equation using Monte Carlo N-Particle (MCNPX) transport code are introduced. The laboratory component includes a student-designed lab.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: One paper and a student-designed lab project.

Prerequisite(s): NE300

NE389 **INDIVIDUAL STUDY IN NE** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is an individually supervised research and study program to familiarize cadets with advanced nuclear or radiological engineering procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in nuclear or radiological engineering. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets must complete either a written research report or present an oral report to members of the department faculty at the end of the semester.

NE400 **NUCLEAR ENGINEERING SEMINAR** **1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)**

Scope: 2008-2

Offerings: 2015-2 2016-2 2017-2

This seminar will meet once each week and will include all first class cadets majoring in nuclear engineering. The seminar topics will address the concerns of professional nuclear engineers such as engineering ethics, economics, and licensing procedures. Guest lecturers will discuss topics of current interest in the field of nuclear engineering to include DoD initiatives in the FA52 (Nuclear Combating Weapons of Mass Destruction). Much of the seminar material will be presented by guest lecturers from the military, industrial, and academic communities.

Lessons: 16 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

NE450 **NUCLEAR WEAPONS EFFECTS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course focuses on the operation of nuclear and fusion weapons, and the effects of a nuclear weapon detonation. Specific topics emphasize blast effects, thermal radiation, initial radiation and fallout, electromagnetic pulse, biological effects of radiation, and the policy issues associated with weapons of mass destruction. Extension problems with design components apply the concepts presented in NE450 to the solution of practical problems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Extension problems with design components.

Prerequisite(s): NE300

NE452 **INSTRUMENTATION AND SHIELDING** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2008-1

Offerings: 2016-1 2017-1

This course focuses on nuclear instrumentation and radiation detectors, and on biological and material radiation protection through shielding. Specific topics include a study of radiation, and radiation detection devices to include: ionization chambers, proportional counters, Geiger-Mueller counters, scintillation detectors, semiconductor diode detectors, germanium and sodium iodide gamma-ray detectors, and neutron detectors. Radiation shielding, as a force protection measure, includes the design, analysis, and confirmation of radiation shields using point kernel and removal diffusion methods. Emphasis is placed on practical application of the radiation detection instruments and the associated acquisition software.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): NE350
-Or-
NE355
-Or-
NE300

NE474 **RADIOLOGICAL SAFETY** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course focuses on application of radiation interactions with matter, biological effects of ionizing radiation, and radiological dose assessment. Specific topics emphasize radiation transformations, kinetics and particle interactions, early and late biological effects of radiation, internal and external exposure and dose calculations, radiation safety regulations, and application of health physics principles to reduce hazards in nuclear engineering.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): NE300

Disqualifier(s): NE374

NE489 **ADV IND STDY NUCLEAR ENGNRG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings:

This course is an individually supervised research and study program to familiarize students with advanced nuclear or radiological engineering procedures and techniques. The primary purpose is to acquaint students with the essential features of independent research in nuclear or radiological engineering. With the approval of the Head of the Department, the cadet chooses a research project currently in progress in the Department and is supervised by a faculty member conducting the research.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets must complete a written research report and present an oral report to members of the department faculty at the end of the semester. Cadets enrolled in NE489 are expected to present their research at a national or regional undergraduate conference.

Prerequisite(s): NE355 PH365

NE489A **ADV IND STUDY NUCLEAR ENGNRG** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2017-2

Same as NE489.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Same as NE489.

Prerequisite(s): NE489

NE495 **ADV NUC SYSTEM DESIGN PROJ I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2010-1

Offerings: 2016-1 2017-1

This is the first course in a two-semester capstone design experience. The course provides experience in the integration of math, science, and engineering principles into a comprehensive nuclear system design project. The design project emphasizes a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, and perform appropriate analysis to support the technical feasibility of the design, make decisions leading to an optimal system design, and brief their interim results during in-process reviews (IPRs). Topics such as engineering economics and the Code of Federal Regulations are introduced. Computational codes such as MCNP and other nuclear industry codes specific to the project will be introduced.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Comprehensive team design project; compensatory time provided. Permission of the Head of the Department of Physics and Nuclear Engineering required.

NE496 **ADV NUC SYSTEM DESIGN PROJ II** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

This is the second course in a two-semester capstone design experience. The course provides experience in the integration of math, science, and engineering principles into a comprehensive nuclear system design project. The design project emphasizes a multidisciplinary approach to total system design providing multiple paths to a number of feasible and acceptable solutions which meet the stated performance requirements. Design teams are required to develop product specifications, generate alternatives, make practical engineering approximations, and perform appropriate analysis to support the technical feasibility of the design, make decisions leading to an optimal system design, and brief their interim results during in-process reviews (IPRs). During this course, the design project is completed and presented to the project sponsor.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Comprehensive team design project; compensatory time provided.

Prerequisite(s): NE495

PH201 **PHYSICS I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings:

This is the first course of a two-semester, calculus-based physics sequence. This course consists of an introduction to nuclear physics and a comprehensive study of classical mechanics, which is designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a survey of nuclear physics and a detailed study of the laws of motion, conservation of energy, and conservation of momentum. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): MA104

Corequisite(s): MA205 -Or- MA255

PH202 **PHYSICS II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2007-2

Offerings:

This is the second course of a two-semester, calculus-based physics sequence. It consists of a comprehensive study of electromagnetism and optics designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a detailed study of electrostatics, magnetism, circuits, geometric optics, and wave optics. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

2015-2 2015-4 2016-1 2016-2 2016-4 2017-1 2017-2 2017-3 2017-4

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): PH201 -Or- PH251

PH251 **ADVANCED PHYSICS I** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings:

This is the first course of a two-semester, calculus-based advanced physics sequence for selected cadets with demonstrated strengths in mathematics and science. This course consists of an introduction to nuclear physics and a comprehensive study of classical mechanics, which is designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a survey of nuclear physics and a detailed study of the laws of motion, conservation of energy, and conservation of momentum. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

2016-1 2017-1

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): MA104

Corequisite(s): MA205 -Or- MA255

Disqualifier(s): PH201

PH252 **ADVANCED PHYSICS II** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2007-2

Offerings:

This is the second course of a two-semester, calculus-based advanced physics sequence for selected cadets with demonstrated strengths in mathematics and science. It consists of a comprehensive study of electromagnetism and optics designed to promote scientific literacy and to develop the use of scientific modes of thought to solve complex problems. Topics include a detailed study of electrostatics, magnetism, circuits, geometric optics, and wave optics. An integrated laboratory program illustrates basic scientific techniques and serves to stimulate intellectual curiosity. The core physics program is designed to demonstrate the relevance of physics to military technology and to help prepare future Army leaders to anticipate and adapt to technological change.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (3.000 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): PH251
-Or-
PH201

Disqualifier(s): PH202

PH361 **EXPERIMENTAL PHYSICS** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

This course provides instruction and experimental experiences designed to exercise the student's knowledge of classical and modern physics and to extend his or her familiarity with equipment and techniques used in a physical science laboratory. Cadets, working in groups, execute and report on experimental projects. The program of instruction includes familiarization with electronics and instrumentation, data analysis, and laboratory procedures and practices. Knowledge and skills acquired in this course are essential for subsequent laboratory work in solid state physics, nuclear physics, and optics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): PH204
-Or-
PH254
-Or-
PH202
-Or-
PH252

Corequisite(s): PH365

PH363 **MATHEMATICAL PHYSICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1 2017-1

This course introduces the physics major to the methods and foundations of mathematical physics. Topics covered include ordinary differential equations, Sturm-Liouville theory, orthogonal functions, the partial differential equations of classical and quantum physics, and integral transforms. Mathematical methods are taught in the context of physical modeling.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA205 PH204
-Or-
MA205 PH254
-Or-
MA255 PH204
-Or-
MA255 PH254
-Or-
MA205 PH202
-Or-
MA205 PH252
-Or-
MA255 PH202
-Or-
MA255 PH252

PH365 **MODERN PHYSICS** **3.0 Credit Hours (BS=2.0,ET=1.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

This course introduces special relativity and the fundamental concepts of quantum physics with application to atomic physics and nuclear physics in order to prepare cadets for advanced study of science and engineering, especially quantum mechanics, statistical physics, nuclear physics, solid state physics, laser physics, medical radiation physics, and nuclear engineering. This course will also be of interest to any cadet who wishes to gain a deeper appreciation of the natural world or of the technology of the 21st Century.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s):

-Or-

-Or-
PH204
-Or-
PH254
-Or-
PH202
-Or-
PH252

PH366 **APPLIED QUANTUM PHYSICS** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course uses the experimental and laboratory skills developed in PH361 to explore the applications of the 20th Century developments studied in PH365. The topics covered will vary but may include molecular structure, the properties of solids including metals and semiconductors, nuclear physics, and elementary particle physics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): PH361 PH484

PH381 **INTRMED CLASSICAL MECHANICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2016-1 2017-1

This course continues the development of physical principles introduced in the core physics curriculum. Direct application of Newton's laws is used to analyze phenomena such as projectile motion with air resistance, charged particle motion, and motion in a central force field. Harmonic, driven, and damped oscillations are studied in depth, as are systems of coupled oscillators. The formalism of Lagrangian mechanics is studied in depth. The mathematical tools of classical mechanics are introduced, to include vector fields, line integrals, the calculus of variations, linear algebra, and eigenvalue equations. Cadets will be required to develop and demonstrate the ability to use a computer algebra system to solve advanced problems and plot the solutions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH363

PH382 **INTERMEDIATE ELECTRODYNAMICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-2 2017-2

This course continues the study of classical electrodynamics introduced in the introductory physics sequence by developing the differential forms of the Maxwell equations and applying them to boundary value problems in two and three dimensions. In addition, scalar and vector potentials are introduced, multipole field expansions are developed for complex sources, electromagnetic fields in dielectric and magnetic media are studied, the propagation of electromagnetic waves in conducting and nonconducting media is considered and electromagnetic radiation is introduced. The course concludes with the study of the connection between special relativity and electrodynamics. This course provides an essential foundation for courses in optics, lasers, quantum mechanics, statistical mechanics, and solid state physics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH363

PH389 **INDIVIDUAL STUDY IN PHYSICS** **1.5 Credit Hours (BS=1.5,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings:

This course is an individually supervised research and study program to familiarize cadets with advanced scientific procedures and techniques. The primary purpose is to acquaint students with the essential skills required for independent research in physics. With the approval of the Head of the Department, the cadet chooses a research project of interest and is supervised by a faculty member conducting the research.

2015-2 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets must complete either a written research report or present an oral report to members of the department faculty at the end of the semester.

Prerequisite(s): PH202 -Or- PH252

PH456 **SCIENCE AND POLICY** **3.0 Credit Hours (BS=2.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2016-1 2017-1

This course challenges cadets to draw upon their core academic experience to analyze complex policy issues. The relationship and interaction between social, political, economic, and technological dimensions of these issues are explored. Emphasis is given to gaining an understanding of both the power and limitations of science and scientific thinking when confronting problems in the policy arena.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Enrollment in this course requires approval of the Head of the Department of Physics.

PH472 **SPACE AND ASTROPHYSICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2012-2

Offerings: 2015-2 2016-2 2017-2

This course is an introduction to two related-but not identical-disciplines of physics: space physics and astrophysics. Space physics is concerned with understanding the environment between the sun and the Earth's upper atmosphere. Coronal mass ejections, the solar wind, magnetospheric storms, and auroral precipitation are among the many phenomena studied in the context of space physics. Astrophysics is a study of stellar structure and evolution, galactic structure, and cosmology. Phenomena of interest include quasars, black holes, supernovas, and the cosmic microwave background radiation. The relative emphasis given to the two disciplines varies depending on the background of the instructor.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): PH202 -Or- PH252

PH477 **LASERS AND OPTICS** **3.5 Credit Hours (BS=3.5,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-2 2017-2

This course provides intermediate development in the concepts of geometric, wave, and quantum optics and their application to laser systems. Primary coverage includes common optical devices, light transmission through optical media, diffraction, interference and polarization. This course then provides a combined theoretical and experimental investigation into the realm of coherent optical radiation generation, amplification, propagation, and application. Cadets apply the basic principles of electromagnetism, optics, and modern physics to analyze specific laser systems, and experiments are performed to demonstrate properties of specific optical and laser systems. The theory of laser gain and amplification is investigated using semiclassical methods.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: None

Prerequisite(s): PH361 PH365

Corequisite(s): PH382

PH481 **STATISTICAL PHYSICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

This course applies basic concepts of probability and statistics to systems consisting of a large number of particles to determine measurable macroscopic quantities such as temperature, pressure, energy, and heat capacity. Emphasis is placed on the calculation of the canonical and grand canonical partition functions for various model physical systems. Particular attention is focused on three ideal gas systems: a gas consisting of massive Maxwell-Boltzmann particles, a gas consisting of massless bosons (i.e., photons), and a gas consisting of fermions.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206 PH484

PH482 **ADVANCED CLASSICAL MECHAN** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2007-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course continues the development of concepts introduced in PH381. Hamiltonian mechanics is explored using the calculus of variations to provide a foundation for connecting classical mechanics, quantum mechanics, and statistical mechanics. The two-body central force problem, the mechanics of rotating systems, and scattering theory are studied in depth. The mathematical techniques associated with cylindrical, spherical, and curvilinear coordinates are introduced, as are the basic principles of nonlinear dynamics and chaos. Cadets will be required to develop and demonstrate the ability to use a computer algebra system to solve advanced problems and plot the solutions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH381

PH484 **QUANTUM MECHANICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course begins with a basic introduction to the fundamental postulates of quantum theory. These postulates are then used to develop Heisenberg's uncertainty principle and Schroedinger's equation. Solutions to Schroedinger's equation are sought, first for relatively simple systems such as square wells and harmonic oscillators, and then for the hydrogen atom. The properties of the hydrogen atom are studied in detail. The course also covers approximation methods used for physical systems with small perturbing forces acting on them.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH363 PH365

PH489 **ADV INDIV STUDY IN PHYSICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is an individually supervised research and study program to familiarize students with advanced scientific procedures and techniques. The primary purpose is to acquaint students with the essential features of independent research in physics. With the approval of the Head of the Department, the cadet chooses a research project currently in progress in the Department, and is supervised by a faculty member conducting the research.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets must complete a written research report and present an oral report to members of the department faculty at the end of the semester. Cadets enrolled in PH489 are expected to present their research at a national or regional undergraduate conference.

Prerequisite(s): PH361 PH365

PH489A **ADV INDIV STUDY IN PHYSICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings:

This course is a second course in an individually supervised research and study program to familiarize students with advanced scientific procedures and techniques. The primary purpose is to foster the student's continued development of the essential features of independent research in physics. With the approval of the Head of the Department, the student continues with a research project currently in progress in the Department, and is supervised by a faculty member conducting the research.

2015-2 2016-2 2017-1 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s):

-Or-
PH365

Corequisite(s): PH489

PH489B **ADV INDIV STUDY IN PHYSICS** **3.0 Credit Hours (BS=1.0,ET=2.0,MA=0.0)**

Scope: 1990-2

Temp

Offerings:

2015-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): PH489

PH495 **SPECIAL TOPICS IN PHYSICS** **3.0 Credit Hours (BS=3.0,ET=0.0,MA=0.0)**

Scope: 2011-2

This course is taught by the Class of 1967 Endowed Chair or another faculty member who is not occupying an authorized USMA position, including any visiting scholar with a distinguished record of academic and professional achievement in the field of engineering, science, and technology. The Special Topics in Physics course focuses on topical issues that reflect the technical expertise of the Chair or visiting scholar. Students will apply math, science, and engineering fundamentals they have learned to these studies.

Offerings:

2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Social Sciences
78 Courses

SS201 **ECONOMICS-PRINCPLES/PROBLEMS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2017-1 2017-2

This standard course presents the basic principles of economic analysis and their application to contemporary economic problems and supports the further study of economics and related disciplines in the social sciences. The course is organized into two primary branches: microeconomics, the study of the behavior of individual households and firms in making decisions, primarily through the supply and demand model related to a market economy and applying this theory to contemporary issues in both domestic and global markets; and macroeconomics, the study of the performance, structure, behavior, and decision-making of the whole economy including issues of national income, output, consumption, unemployment, inflation, as well as fiscal and monetary policy. In addition, the course covers personal financial planning decisions, with emphasis on military benefits, and anticipated life events that would be typical of a Soldier whom cadets will work with upon graduation. Cadets examine the implications of economics on national security and defense, and the use of economic analysis to improve decisions they will make as Army officers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 8 @ 120 min

Special Requirements: Spreadsheet analysis requirement.

Corequisite(s): MA104

Disqualifier(s): SS251

SS202 **AMERICAN POLITICS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2017-1 2017-2

This course explores the American political system - how it works, its strengths, its weaknesses, its conflicts, its controversies. The course emphasizes how our democracy makes decisions about politics & policy to balance the many competing values and demands of a free society. The course begins with the study of the constitutional foundations of American government and then examines political behavior, institutions of government, and the policy making process. The course integrates the study of civil-military relations and the broader study of political science as a discipline throughout the semester.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: One political analysis paper of 2500 words; compensatory time provided.

Disqualifier(s): SS252

SS251 **ADVANCED ECONOMICS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This advanced version of SS201 presents the basic principles of economic analysis with a greater focus on their application to contemporary economic problems. The course is organized into two primary branches: microeconomics, the study of the behavior of individual households and firms in making decisions, primarily through the supply and demand model related to a market economy and applying this theory to contemporary issues in both domestic and global markets; and macroeconomics, the study of the performance, structure, behavior, and decision-making of the whole economy including issues of national income, output, consumption, unemployment, inflation, as well as fiscal and monetary policy. In addition, the course covers personal financial planning decisions, with emphasis on military benefits, and anticipated life events that would be typical of a Soldier whom cadets will work with upon graduation. Cadets examine the implications of economics on national security and defense, and the use of economic analysis to improve decisions they will make as Army officers.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Spreadsheet project requiring analysis of an economic problem with individual submission and group presentation throughout the course.

Prerequisite(s): MA104

Disqualifier(s): SS201

SS252 **ADVANCED AMERICAN POLITICS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1979-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course provides selected students the opportunity to examine political power, political organization, and political action. The structure of the course is similar to that discussed in SS202 listed above. Students will learn how political scientists analyze the events and behaviors called "politics" using theoretical perspectives. Students will sharpen their critical thinking and writing skills through a research project, case studies, and class presentations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: Analytical writing requirements; compensatory time provided.

Disqualifier(s): SS202

SS307 **INTERNATIONAL RELATIONS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2016-3 2017-1 2017-2 2017-3 2018-1 2018-2

The objectives of this course are to provide cadets with an introduction to the fundamental concepts of international politics and the analytical tools necessary to evaluate "why states do what they do." In accomplishing these objectives, SS307 builds upon a cadet's prior academic training in history, English and philosophy, economics, and political science. Emphasizing intellectual pluralism, SS307 focuses on the value of self-consciously applying different theoretical perspectives to international events to obtain improved understanding. Cadets examine key issues such as the consequences of anarchy, the need for security, the role of power, the use of force, international trade and markets, alternative political philosophies, foreign policy making, and the influence of culture in international affairs.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: One 3500-4000 word analytical research paper; compensatory time provided.

Prerequisite(s): SS201 SS202
-Or-
SS201 SS252
-Or-
SS202 SS251
-Or-
SS251 SS252

Disqualifier(s): SS357

SS357 **ADV INTERNATIONAL RELATIONS** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This advanced version of SS307 presents cadets with an introduction to the fundamental concepts of international politics and the analytical tools necessary to evaluate “why states do what they do” with a more in-depth focus on their application to current international events. SS357 also introduces students to a wider range of theoretical approaches and applications. Emphasis is on rigorous, critical analysis, and classroom discussion.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 7 @ 120 min

Special Requirements: One 3000 word analytical research paper; compensatory time provided.

Prerequisite(s): SS201 SS202
-Or-
SS201 SS252
-Or-
SS202 SS251
-Or-
SS251 SS252

Disqualifier(s): SS307

SS360 **POLITICAL ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is an introduction to the field of political science for American Politics, Policy and Strategy majors. It serves two main purposes. First, this course is an introduction to research design and the myriad methodologies employed by scholars as they engage in debates within the political science community. The course will cover many aspects of research design but will focus primarily on the ability to ask good questions and to craft research plans to best answer those questions. Second, it is an introduction to some of the major debates within the subfields of American politics, policy, and strategy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One research design project.

Corequisite(s): SS307
-Or-
SS357

SS364 **GAME THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

Game theory is designed to provide students with the tools necessary to think through the various courses of action available as they face a uncertain situations, determine market reaction to each alternative, identify the costs and benefits of each course of action and select the course of action that minimizes cost while maximizing benefits. The purpose of this course is to introduce cadets to the application of strategic thinking to tactical scenarios. This course consists of two components that are taught concurrently. The first component is the introduction of basic game theory and the second component is the application of those theories to tactical and strategic choice scenarios.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: A research paper is required.

Prerequisite(s): MA206 SS307
-Or-
MA206 SS357

SS366 **COMPARATIVE POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The objectives of this course are to analyze the sources of stability or instability in political regimes, and to examine the conditions that promote either democracy or dictatorship. Our first task is to describe different regimes--what do we mean when we call one democratic and another authoritarian? We approach this first task by building a regime model. As we do so we seek to understand what makes political regimes stable or unstable by analyzing their effectiveness, popular legitimacy, and institutional adaptability. All regimes are challenged by change, but some remain stable in the face of change, while others are transformed. Why? And is it possible to argue that there is a “best” type of regime? Are there universally valid criteria -- across time and space -- that we can use to compare regimes? Why do regimes succeed, fail, and change? As well as being central to the discipline of political science, these questions also play an important role in world politics and the formulation of US foreign policy. Since we are both students of political science and professionals who will serve as policy executors, the study of comparative politics offers significant rewards. After building the model we take it through various regions of the world, using the comparative method, analyzing the variables which change from regime to regime in liberal democracies, communist and post-communist states, newly industrializing and less developed countries, and the Islamic world.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper, oral presentations.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS368 **ECONOMETRICS I** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1989-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is designed to teach students how to quantify, test, and employ economic theories as they are used in real world applications. The course covers the use of economic theory and data in the construction, estimation, and interpretation of econometric models. Special emphasis is placed on estimation of parameters of economic models and statistical inference using estimated models to determine the validity of economic theories. The primary mathematical tool employed in the course is multiple regression analysis. A number of applications demonstrate the use of the techniques studied.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Computer lab exercises conducted during regular class periods.

Prerequisite(s): MA206

SS370 **MASS MEDIA & AMER POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-2 2017-2

This seminar introduces cadets to what is perhaps the single most influential private institution in the American political system, oftentimes referred to as the fourth branch or fourth estate of American government. This course examines the major concepts, theoretical frameworks, and substantive issues surrounding the study of the media as a conduit between the people and the government and as a political actor in it s own right. In particular, the roles, motivations, and effects of the constitutionally protected media on American political institutions and policymaking are extensively probed. The latter part of the course is dedicated to the study of the relationship between the military and the media, and prominent guest speakers are featured throughout the course to add context and practical application to the theories learned in class. The class includes a trip section to New York City to meet with journalists and news executives from national media outlets to round out the educational experience.

Lessons: 20 @ 110 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper.

Prerequisite(s): SS202
-Or-
SS252

SS372 **POLITICS AND GOV OF CHINA** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

Lecture/seminar course designed to introduce the cadets to the politics and government of China. In particular, cadets will study the domestic politics of China beginning with the rise of the Chinese Communist movement. China's unique culture and the Mao years are examined as well as their impact on the past and emerging political system. Recent reforms and their implications for political, social, economic and military structures and processes will be examined as well as the tensions that have evolved. External developments such as Hong Kong's reversion to China, developments in Taiwan, changes in Central Asia, as well as China's emergence as a regional and world power will be considered. What are the different approaches to analyzing Chinese politics and government? What factors determine state legitimacy and influence internal choices? How does China's domestic situation influence its external relations?

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: 3,000-word study of Chinese domestic issue, with graded bibliography and outline; two group presentations; compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS373 **THE AMERICAN PRESIDENCY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2016-1 2017-1

This seminar examines the concept of executive power and authority with particular emphasis on the institution of the presidency in the American political system. The course will analyze the constitutional origins and evolution of the presidency. We will place particular emphasis on the formal rules and informal norms that developed since the Founding and frame presidential behavior. We will analyze the various factors that influence the perpetual transformation of the institutional organization and operation of the modern executive branch. The course will examine the dynamic relationships the executive branch maintains with other branches of government, the media, the public, and other key stakeholders and how these relationships shape the development of public policy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Case study of presidential leadership, with graded bibliography and outline; compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

SS374 **POL & GOV OF KOREAS & JAPAN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings:

Seminar course designed to introduce the cadets to the politics and government in Japan and the Koreas. Students draw on an appreciation and understanding of culture, history, sociology, economic and political science foundations in studying the actors and relationships in Northeast Asia. Focusing on how ethnic, social, cultural, and economic factors determine state legitimacy and influence internal state choices, students explore the cooperation and competition between Japan, Korea and the U.S. The course incorporates an examination of US foreign policy toward Japan and Korea and explores the prospects for productive, stable relationships.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Three analysis papers, a book review, and policy memorandum.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS375 **GOV & POL RUSSIA & NEIGHBORS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings:

This course surveys the post-Soviet landscape. It explores the political, social, economic, and cultural terrain of Russia and the other states that emerged after the collapse of the Soviet Union in 1991. The course begins with a review of Russian and Soviet history - the foundation to understanding the dramatic implosion of the Soviet Union and the tumultuous events which followed. The course also employs theories and concepts to help the student assess why democratization and marketization have been so difficult in this part of the world. The course concludes with an examination of US foreign policy toward the region and the prospects for productive, stable ties with Russia and its neighbors.

2015-2 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and oral presentation.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS376 **AMERICAN POLITICAL DEVELOPMENT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings:

American Political Development focuses on the causes, nature, and consequences of key transformative periods and central patterns in American political history that affect the relationship between the state, politics, and institutional development. The course explores patterns in the public policy process and examines historical processes to analyze American political institutions and policy outcomes from a political standpoint. Students focus on the degree to which ideas and institutions from the Founding period created stability in American politics and investigate the role of events, ideas, and other forces in leading to periods of change. After starting with an in-depth review of the American Founding, we will examine the major epochs of state development to understand their causes and effects on political institutions, politics, and public policy. Special emphasis will be placed on the rise of the unique American regulatory and welfare state. Lastly, we will examine how the course of American political development contributes to the features of today?s political environment and what these patterns of development suggest for the future of American politics.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): SS202
-Or-
SS252

SS377 **POLITICS & GOV OF EUROPE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings:

This course focuses on the political systems and cultures of the European Union (EU) and its Member States. First, the student is introduced to the EU, its historical development and institutional design. Implications of deepening European integration on international relations theory and state sovereignty are explored indepth. This block culminates with a study of Transatlantic security issues. Students will explore possibilities for cooperation or role competition between the military forces of the EU and NATO, with a focus on the influence of the US on the European continent. This theme continues to be highlighted throughout the remainder of the course. After this introductory block, students will get an overview of European state politics and look at several country case studies, both for current and aspiring member states of the EU, including a focus on democratization and the post-Communist legacy in Eastern Europe. Themes that run through each case study include how history affects political culture and institutional design within European states, and how these differing cultures and systems have been integrated into, or conflicted with, an increasingly centralized EU. Concepts learned in the course will be continuously applied to discussion of current challenges facing the EU and its Member States.

2016-1 2017-1

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Each cadet will write a research paper on a topic of their choice.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS378 **ADV INTL RELATIONS THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course uses the foundation provided by SS307/357 to provide cadets with an in-depth assessment of the field of international relations. The course begins by evaluating alternative theoretical perspectives, including realism, liberalism/institutionalism, and constructivism. Cadets are introduced to classic as well as contemporary works, which are examined in terms of their cultural, political, and academic context. Cadets examine topical cases pertaining to war, wealth, and state formation/transformation. Throughout the course, cadets explore the value and limitations of IR theory in framing and implementing policy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two short papers (1000-1500 words each), book review, compensatory time provided.

Prerequisite(s): SS307
-Or-
SS357

SS379 **LEGISLATIVE POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-2 2017-2

This course deals principally with the U.S. Congress but also considers other legislatures to include those of state governments. It focuses on the role of legislatures in political systems. The course addresses the development of the U.S. Congress, the behavior of legislators, the workings of committees, and the responsibilities of legislative leaders. Case studies, practical exercises, and guest lecturers are used to highlight these topics. Emphasis is also placed on the Congressional Budget Process as well as the impact of Congress on military, economic, and international issues, domestic, foreign and economic policy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Analytical papers and briefings; compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

SS380 **MANPOWER-LABOR ECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course studies the nature and determinants of pay and employment. The course emphasizes the role of institutions which are significant in determining the pattern and speed of adjustment in the labor market. The traditional tools of micro and macroeconomics and econometrics are employed. Military manpower is examined as an application of the theories developed during the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and oral presentations.

Prerequisite(s): SS368 SS382

SS381 **CULTURAL/POLIT ANTHROPOLOGY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-1 2017-1

The overall course goal is to provide a rich and interesting introduction to the field of anthropology. Anthropology is a holistic discipline encompassing elements of political science, economics, sociology, linguistics, and psychology. Emphasizing that one's culture is a "learned" condition, students explore the concept of cultural relativism and gain an appreciation for the diversity of human cultures and the interrelation of social, political and economic organizations. Students also examine the sub-discipline of Applied Anthropology which seeks to solve contemporary social/political problems such as ethnic conflict. A highlight of this course, students actively conduct anthropological fieldwork within the West Point community. Students develop their personal abilities to recognize their own personal biases and therefore better understand, interact and communicate with peoples from other cultural backgrounds. This is a crucial skill for future Army officers in the 21st century as recent deployment patterns have shown soldiers operating in non-traditional situations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Fieldwork reports, including a 10-12 page final report including an annotated bibliography, conceptual paper, and fieldwork observations and conclusions; compensatory time provided for additional field research.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307 SS366
-Or-
SS357 SS366

SS382 **MICROECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 1980-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is a theory course in which cadets develop a thorough understanding of microeconomic modeling and models; it is a prerequisite for most downstream economics courses. The course develops a methodology that economists use to study the interaction among individual economic agents (such as consumers, firms and the government) and the allocation of scarce resources among these agents. The goal is for cadets to understand optimization, markets, and to some extent policy-making, using an integrated, theoretical model. Ultimately the consequence of a change in the market environment, in public policy or in the global economy can be assessed vis-+-vis its impact on individual economic agents.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA205 SS201
-Or-
MA205 SS251
-Or-
MA255 SS201
-Or-
MA255 SS251

SS383 **POLITICS & GOVT-MIDDLE EAST** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

The Middle East is an area of constant and significant change. This course provides an overview of the Middle East (including the Arab world, Iran, Israel and Turkey) and focuses on the historical and political dynamics, which influenced and continue to shape change in the region. Several issues will be treated in detail including: religion and state in Islam; political competition among the Arab states; the Palestinian question and the Arab-Israeli conflict; oil and the Gulf states; and the meaning of non-regional power influence in the region.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets will write a term paper.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS384 **POLITICS & GOVT-LATIN AMER** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

This course provides an introduction to the study of the politics, political institutions, and international relations of Latin America including Mexico, Central America, the Caribbean, and South America. It surveys the state of Latin America in the post-Cold War world with an emphasis on modernization, democratic stabilization, and economic interdependence through the comparison of the interrelated nature of polity, society, and economy with cases from each region. The course is divided into five blocks. Block I provides an introduction, conceptual overview, and historical background. Block II focuses on the role of the state, regime types, and modernization using case studies of key countries in the region. Block III addresses the problems of poverty and economic development. Block IV addresses social issues, including revolutionary movements, and critical problems such as class, race, and gender. Block V provides an overview of U.S. policy towards the region, including security relations, the role of the military and contemporary issues such as counter-terrorism and counter-narcotics policy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two book reviews (800 - 1000 words) and two policy papers (800-1000 words); compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS385 **COMPARATIVE ECONOMIC SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-1 2017-1

This course provides cadets with the tools and knowledge for analyzing the effectiveness of different economic systems and efforts to change them. The major course objectives include an examination of the following: the historical evolution of prominent economic philosophy and theory on the functioning of capitalist and non-capitalist systems; the methods of defining and evaluating economic systems in terms of the rules and the cultural, political, legal, financial, and labor institutions that comprise an economy; the methods of institutional and cultural change and the challenges they face in the transition from a command or traditional economy to a market economy; and the paths less developed countries may pursue towards economic development. At the end of the course students understand how differences among nations' economic systems might result in differences in their economic outcomes and how nations might go about changing their systems.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One critical book review (1250 words); small group in-class presentations; compensatory time provided.

Prerequisite(s): SS201
-Or-
SS251

SS386 **POLITICAL THOUGHT AND IDEAS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course examines the fundamental questions of Western political philosophy. In order to better understand why these problems are of vital relevance to contemporary civilization in the late modern West, students consider six themes: the nature of politics and how theorists, citizens, and statesmen have understood political things; the nature of freedom and the conditions necessary for its establishment, maintenance, preservation, and improvement; republicanism in antiquity and modernity; liberal democracy and constitutional order; the relationship between religion and politics; and, the fundamental presuppositions of traditional, modern, and contemporary social science. This course allows students to achieve critical understanding of the ancient and modern founda-tions of Western political thought and how these ideas have contributed to American republicanism, lib-eral democracy, and representative government; to clarify a range of modern political problems at home and abroad that challenge civilization; to acquire a competence reading, writing about, and discussing classic works of political philosophy, fostering life-long learning on masterpieces of human reflection; to develop cross-disciplinary capacity to study politics by (a) integrating basic chronological knowledge of what has happened in Western intellectual life, (b) understanding how to study ideas as vital compo-nents of traditional liberal education and officer development, (c) writing a Seminar Essay that synthe-sizes course learning, (d) making use of language study, grammar, etymology, and philology, and (e) keeping a Commonplace Book; to apply political thought to contemporary circumstances; and, to con-trast Western principles with a major non-Western tradition of political thought.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Colloquium and seminar essays, participation in the Discussion Leader Model, and Commonplace Book.

Prerequisite(s): SS202
-Or-
SS252

SS387 **ECONOMICS OF PUBLIC POLICY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course adds depth to the cadet's understanding of the fundamentals of micro- and macroeconomics. In particular, the course examines practical and theoretical issues in social welfare, public expenditures, taxation, and public choice. The course develops understanding of the value of economic models in addressing complex policy questions that occur in a fluid political environment, sharpens analytic skills, and provides a bridge to the higher level theoretical models used in the study of the national political economy.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Analysis paper-- public expenditure program.

Prerequisite(s): SS201
-Or-
SS251

SS388 **MACROECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is dedicated to the study of aggregate economic activity. The course examines the determinants of long run growth, and then addresses short run economic fluctuations. The course uses various models, including the Solow Growth Model, the IS-IM model, and the Aggregate Demand - Aggregate Supply model. The microeconomic foundations for macroeconomics are discussed, and current macroeconomic policy issues are debated. These issues are discussed within the context of both open and closed economies.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One policy analysis paper (1000 words); compensatory time provided.

Prerequisite(s): SS201
-Or-
SS251

SS391 **FINANCE FOR ARMY LEADERS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

This course addresses most of the major personal financial planning issues that you will face as an individual and as an Army Leader. The course incorporates all of the latest concepts and procedures used in sound financial planning and effective money management. The course includes the principles of financial planning, budgeting and time value of money and progresses through investment alternatives, mutual fund selection and evaluation. Taxes, personal risk management, estate planning along with major purchase planning are covered during the course. The course culminates in development of a formal written financial plan based on the cadet’s projected future situation several years after graduation. Prerequisites include familiarity with applied statistics and regression analysis. Armed with the knowledge and tools from this course, SS391 will provide you a set of analytic tools and will help you develop a way of thinking which will assist you in making numerous decisions required of an Army officer.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: The group projects require analysis and application of concepts learned in previous economics and political science courses (SS360/SS368 are required).

Prerequisite(s): SS360
-Or-
SS368

SS394 **FINANCIAL STATEMENT ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings:

This course is an organizational leader's introduction to the world of business and finance, focusing on financial accounting and financial statement analysis, essential topics for cadets concentrating in economics, engineering management, and general management. Cadets study the accounting model in detail, spanning analysis and recording of business transactions to the production of the financial statements, and learn to apply economic reasoning in performing financial ratio analysis of the underlying business enterprise. The course culminates with a capstone project involving financial statement analysis of a major U.S. corporation in relation to one of its principal competitors that enables cadets to apply the subject matter as users of financial statements in a real-world context. This course is the first of a two-course financial economics sequence which culminates with SS494 - Principles of Finance.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Financial Statement Analysis.

Prerequisite(s): SS201
-Or-
SS251

SS399 **SOCSCI INTERNSHIP/PRACTCAL EXP** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-4

Offerings: 2015-2 2015-7

The Academic Individual Advanced Development (AIAD) program is designed to give cadets practical experience in their field of study and to reflect on their experiences by completing specified academic requirements. Recent internships involve participation in the American, European and Russian (AMEURU) program hosted by the University of Maastricht, the Tri-Service Global Spectrum trip to Vietnam, study at the German Marshall Center, the American Institute on Political and Economic Systems (AIPES) in the Czech Republic, the International Institute for Political and Economic Studies (IIPES) in Greece, and the International Studies Program (ISP) in Eastern Europe. Scope, depth and material covered will meet the requirement of a 3-credit hour course in Social Sciences. Grades are determined based on preparatory briefings and essays, a journal of daily activities, the quality of the work performed during the internship, and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Admission to the course requires an interview with the AIAD coordinator.

SS457 **ADV STUDIES IN GRAND STRATEGY** **3.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2015-2 2016-2 2017-2

This seminar aims to examine the theory and practice of grand strategy. It does so in historical, theoretical, and contemporary practice context and from a variety of analytical perspectives. In this course, we generally define grand strategy as the calculated relation of means to large ends. We focus on how parts relate to the whole in whatever an individual, a corporation, a nation, or a collective of nation-states might be seeking to accomplish. The strategists and their strategies we consider range over some two and a half millennia. Some of them represent the "best" thinking and writing on this subject; others exemplify success and failure in the implementation of grand strategy. From a careful examination of them, we will endeavor to extract a set of principles for the making of grand strategy that will be useful in any future leadership role in which we may be called upon to connect desired ends with available means.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

SS460 **SEMINAR IN REGIONAL ECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2016-2 2017-2

The Seminar in Regional Economic Studies aims to provide students with a basic understanding of selected contemporary foreign economic systems and an analytical framework for the study of the modern foreign economies. Students will develop the ability to comprehend and analyze major theoretical and policy issues in selected countriesý economic development and the implications for the global economy. The course will analyze foreign economies from both micro- and macroeconomic approaches. In the microeconomic analysis, the course will pay special attention to the political economy and institutional aspects of each country. The macroeconomic portion will focus on understanding the changing macroeconomic conditions and policies in the respective country. Issues related to economic growth, business cycles, monetary and fiscal policies, financial markets, exchange rates determination, foreign direct investment and global competitiveness will be explored. This course will also use economic theory to explain the growth of sub-national regions in the selected countries. Students will gain an understanding of traditional and recent theories of national and regional growth. From term to term, the course will place particular emphasis on the economic growth problems of China, Europe, East Asia and the Middle East.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

SS462 **ECON OF STABILIZATION & GROWTH** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course aims to introduce the fundamental concepts in economic growth, to explain and discuss the theories of economic growth, to understand the sources of economic growth, to assess the difference in growth and wealth among countries and to increase student interest in economic growth theory. It is a course designed for economics majors with an explicit purpose of familiarizing future officers with the basic theory of economic growth and development and applying theses theories to post-conflict environments. The course achieves immediate relevance by examining the role of the military in economic development and understanding how economic development can help them be more effective members of the military profession. The course is designed as a seminar with the expectation of adequate preparation and spirited class discussion.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

SS464 **HOMELAND SECURITY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-2 2017-1 2017-2

The purpose of SS464 is to address the complex challenges of homeland security through an interdisciplinary approach. The goal of this course is to provide future leaders with a thorough understanding of the homeland security policy area. This course explores how the evolving nature of the terorist threat, particularly catastrophic terrorism, poses unprecedented and complex challenges to how America provides for its security. The course examines how homeland security policy intersects with other domestic and foreign policy issues, how our federalist system of government affects homeland security, and how moral, ethical, and civil liberties concerns complicate the development of effective homeland security policies. By analyzing the threat and developing an understanding of the unique policy problems and tools of homeland security, the course enables students to critically assess national efforts in such areas as border security, domestic counterterrorism policy, critical infrastructure protection, and emergency preparedness and response. Students will learn about the major policy and institutional reforms underway in the homeland security policy area, examine whether these changes are improving or will improve U.S. security policy, and develop their own views on the direction of national homeland security policy. The course will enable students to think critically about how the United States' overseas efforts to combat terrorism, preempt emerging threats, and counter the proliferation of weapons of mass destruction relate to domestic homeland security efforts. By the end of the course, students will gain a solid intellectual foundation to think critically and creatively about America's efforts to prevent terrorist attacks within the United States, reduce our vulnerability to terrorist attack, and minimize the damage and recover from attacks that may occur.

Lessons: 20 @ 110 min (1.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Admission to the course will be capped with priority given to Terrorism Studies Minor students.

Prerequisite(s): SS307

SS465 **TERRORISM: NEW CHALLENGES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The purpose of SS465, is to address the challenges of terrorism in the current and future global security environment through an interdisciplinary approach. Specifically, this course examines the unique challenge terrorism poses to liberal democratic states, policy makers and to military professionals. By analyzing the different perspectives of terrorism, given a variety of political and strategic contexts, students better understand terrorist motivations, strategies, means and ends. Finally, the course explores how a liberal democratic state can best fight terrorism in this new threat environment.

Lessons: 20 @ 110 min (1.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Admission to the course is subject to the approval of the Comparative Politics Academy Professor.

Prerequisite(s): SS307
-Or-
SS357

Disqualifier(s): SS474

SS466 **ADVANCED TERRORISM STUDIES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings:

The Advanced Terrorism Studies course represents a unique opportunity for students to conduct in-depth and integrated study on the most pressing past, present and future terrorist challenges to the United States and its interests. The objectives of this course are: (1) to synthesize and apply the cadet's studies across core, area, and elective course work to the thematic issue of terrorism; (2) to apply methodological skills of research design, conceptual reasoning, analysis, and research gained to terrorism; (3) to extend the cadet's in-depth study of the selected area of interest beyond the level obtained in course work with regards to terrorism; (4) to design and conduct focused research; and (5) to develop cadet skills in conceptual reasoning, critical analysis, and effective writing.

2015-2 2016-1 2016-2 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Ten 2-3 page analyses of current events; one 20-page research paper; significant class participation.

Prerequisite(s): SS465
-Or-
SS474

SS468 **POLITICAL PARTICIPATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2017-1

This course provides a broad understanding of the dynamics of political participation. The goals of this course are two-fold. First, it comprehensively examines both individual and group participation, as well as the many ways in which participation manifests itself in the democratic process, namely in the form of electoral (voting, campaigning) and non-electoral behavior ("civicness", group action, etc). As such, this course will include topics in public opinion, the electoral process, and voting behavior. Second, the approach is both empirical - and theoretical. This course examines results of electoral behavior (primarily U.S. national and state elections), complemented with competing theoretical approaches which serve to explain and better understand this behavior.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One 2000-word paper. Compensatory time provided.

Prerequisite(s): SS202 SS360
-Or-
SS202 SS386
-Or-
SS252 SS360
-Or-
SS252 SS386

SS469 **ECONOMETRICS II** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2016-1 2017-1

This course is designed to teach students advanced concepts in estimation and statistical inference. Building upon the material covered in SS368, students will learn how to test for failure of the data to meet the assumptions of the basic regression model and how to allow for these departures from the standard assumptions during estimation. Among the topics covered will be Generalized Least Squares, Time Series, Instrumental Variables, and Simultaneous Equations estimation. Application of the techniques to the estimation of economic models using actual economic data is an integral part of the instruction. The course makes substantial use of statistical software packages.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: End-of-semester research paper and presentation required.

Prerequisite(s): MA476
-Or-
SS368

SS470 **MONEY AND BANKING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2016-1 2017-1

SS470 is a senior level economics course whose primary purpose is to provide depth in the student's background and understanding of macroeconomics and international economics. The focus of the course is on the financial sector of the economy, which provides the means to transfer savings from firms, households, and governments to investors who want to purchase new capital goods. The course begins by discussing the various types of financial institutions and examines the importance of financial intermediation. The course then identifies how to measure the risks faced by financial institutions and how to manage these same risks.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: The final eight lessons of the course comprise an extended computer banking simulation, allowing cadets to apply the theories from previous lessons.

Prerequisite(s): SS388

SS472 **THE AM STATE & THE SOLDIER** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2015-2 2016-2 2017-2

This seminar explores the unique role of the soldier within our democratic republic. We begin by situating the profession of arms within the Executive branch as an agent to its direct principal, the Legislative branch. We proceed by examining the similarities and differences between the military and other agents of the administrative state. We explore the militaryýs role in providing professional expertise in the policy process and examine current trends that threaten to undermine this advisory position. Using a historical framework, we will examine the evolution of civil-military relations in times of war, peace, and perpetual conflict. We will place particular emphasis on the theories and norms of civil-military relations in a post-9/11 world including navigating the tensions inherent to the dual role of the soldier as war fighter and state builder..

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One major research paper; compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

SS473 **AMERICAN FOREIGN POLICY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course examines the development, implementation, and consequences of American foreign policy. It analyzes the actors who make American foreign policy, concentrating both on government sources such as the president, Congress, and the foreign policy bureaucracy, as well as external sources such as public opinion, interest groups, and the media. The course examines key events in U.S. foreign policy history through the lens of 'policy choice.' What choices did U.S. foreign policy makers confront? What policy did they choose to implement and why? What were the consequences of that policy? Utilizing the lessons from these historical case studies, the course then examines the current challenges and dilemmas that confront the United States. Some of these include U.S. relations with China, Russia, and the European Union, energy politics, the Arab-Israeli crisis, weapons of mass destruction and rogue states, terrorism, democracy promotion, and the global response to US foreign policy. In exploring each of these current challenges and dilemmas, this course attempts to understand the policies and strategies the U.S. utilizes to secure its interests and achieve its objectives.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: 3,500-word case study of American foreign policy, with graded bibliography and outline; compensatory time provided.

Prerequisite(s): SS307
-Or-
SS357

SS475 **DEMOCRATIZATION** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-1 2017-1 2017-2

This course explores the fundamental political concepts of democracy and democratization. The assigned readings examine the normative and practical underpinnings of democracy, as well as the specific causes – and potential reversals -- of the “Third Wave” of democratization that has spread throughout the world over the past three decades. The course also debates effective American policy choices for newly emergent democracies that often suffer from instability and inequality. SS475 places particular emphasis on the states of Eastern Europe and the former Soviet Union, and on the problem of constructing a new post-Soviet security architecture in a context of democratization. The course also applies democratization concepts to the Middle East with case studies in Iraq and Afghanistan.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and oral presentation.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307 SS366
-Or-
SS357 SS366

SS476 **CONFLICT ANAL/RESOL/NEGOTIATN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-2

Offerings: 2015-2 2016-2 2017-2

This course provides a broad overview of the nature of global conflict in the 21st century and investigates conflict prevention, conflict intervention and management, and post-settlement operations. The course also provides students an introduction to the field of conflict resolution and inter-cultural communication, and is centered around hands-on skills-building with individual and team negotiation practical exercises which allow students to develop individual mediation and negotiation skills. In addition to graded role-play simulations, requirements include a WPR, and a final conflict analysis paper and presentation in which the students investigate an international conflict and critique and/or develop a strategy for managing the conflict utilizing the theory, methodology and tools discussed in class.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): SS307
-Or-
SS357

SS477 **ECONOMICS OF NATIONAL SECURITY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This is a capstone course for the economics major that is designed to integrate microeconomics, macroeconomics, and econometrics and apply tools learned in those courses to address policy relevant issues in the economics of national security. The course also applies microeconomic analysis to case studies on defense personnel policies and weapon-system acquisition. The course discusses defense budgeting, including tracking the current Presidential budget submission, from the perspective of public finance and examines the economic impact of defense spending. Students use relevant databases, econometrics, and the skills they have learned as economics majors to prepare and present projects that analyze major defense and public policy decisions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Group case studies; compensatory time provided.

Prerequisite(s): SS368 SS382 SS388

SS478 **DIST PROF OF SECURITY STUD SEM** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-2 2017-2

This course is taught by a visiting scholar with a distinguished record of academic achievement and professional service in the national security arena. The seminar focuses on topical issues that reflect the professor's area of expertise. Dr. Kori Schake, a former Director of Defense Strategy and Requirements for the National Security Council and presently a distinguished fellow at the Hoover Institution, serves as our current visiting scholar. In the seminar, students take part in detailed discussions, deliver presentations, conduct research, and prepare analytical papers. Students also benefit from guest speakers who share their experiences and expertise with the seminar. Previous Distinguished Professors include General (Retired) Barry R. McCaffrey, former Director of the White House Office of National Drug Control Policy; General (Retired) John Galvin, former commander of SACEUR and noted author; Professor Richard Shultz, Director of International Security Studies at the Fletcher School of Law and Diplomacy; Professor Linda Brady, Director of the School of International Affairs at Georgia Institute of Technology; and Admiral (Retired) Stansfield Turner, former President of the Naval War College and Director of the Central Intelligence Agency.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Research paper and oral presentations.

Prerequisite(s): SS307
-Or-
SS357

SS480 **ADV AM POLITICS, POLICY, STRAT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course examines the major concepts, theoretical frameworks, and substantive dilemmas of the public policymaking process. The aim of this course is to arm students with a myriad of tools to understand, evaluate, and contextualize specific political problems in the public policy arena. SS480 is the capstone course for American Politics majors in the Social Sciences Department. Students will be expected to integrate the concepts of not only "Sosh" basic, toolbox, and elective courses, but knowledge acquired from other courses from other disciplines as well. Public policy spans the disciplines of politics, economics, sociology, philosophy, and psychology, as policymakers wrestle with developing and implementing value-laden decisions in a world of scarcity and uncertainty. As such, the student of public policy must use a variety of social science tools - and increasingly, physical science tools as well as to dissect policy problems, develop

viable and feasible alternatives, and fashion methods of adoption and implementation. Consequently, this course is designed to build upon the student's conceptual and analytical base in the quest to establish and refine a systematic approach to public policy analysis, formulation, adoption, and implementation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Analytical writing requirments; compensatory time provided.

Prerequisite(s): SS202 SS360 SS386
-Or-
SS252 SS360 SS386

SS481 **AM GRAND STRAT/DEFENSE POLICY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This seminar is a survey of the politics that shape America's policy decisions over war and peace. We study the domestic influences of foreign policy and the international political dynamics that shape why and how America intervenes. It is an examination of American Grand Strategy using theoretical, historical, and practical perspectives. Drawing from various literatures, we examine and evaluate the choices our nation makes in defense policy decisions. We address questions concerning military innovation and adaptation, change and transition in the armed services, defense resources, and capacities of actors in the defense policy arena. Using the lens of "grand strategy," we examine how defense policy decisions are influenced by a broad and complex array of political and economic factors and how these decisions shape future domestic and foreign policy environments.

Lessons: 40 @ 55 min (1.250 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Analytical writing requirements; compensatory time provided.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS360

SS483 **NATIONAL SECURITY SEMINAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

The International Politics capstone seminar provides an overview of U.S. national security policy and examines the military, political, and economic factors that influence its formulation. It establishes a conceptual framework for exploring how national interests are translated into national security policy and force structure. The course addresses three central issues: (1) the appropriate ends of national security policy, (2) the means by which we should pursue those ends, and (3) matching means with ends. Since many factors impact on strategic decisions, the course includes discussion of international, domestic, and organizational influences on national security policy. Theoretical readings combine with case studies of past and current U.S. strategic choices to illuminate critical points. The course closes by applying the lens of strategy to conduct an analysis of current proposals to revamp the structure of the Army.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Policy paper; Book Review, and one or more formal oral presentations.

Prerequisite(s): SS307
-Or-
SS357

SS484 **INTERNATIONAL ECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-1 2016-2 2017-2

This course integrates economic principles taken in SS382 and SS388. International Economics promotes understanding of the economic causes and effects of international trade, examines the justifications for and effectiveness of a variety of trade policies, explains and critiques the international flow of money, and explores the impact of these topics upon individual firms in the marketplace. The course’s methodology rests on theoretical concepts and models such as profit maximization, market equilibrium, preference maximization, and macroeconomic equilibrium. The course is divided into four blocks. The first three blocks investigate the theory of international trade in goods and comparative advantage, the practice of international trade and international political economy, and the workings of international monetary markets. The final block compels cadets to apply their estimates of the international macroeconomic environment to choices made by national governments.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One in-class case study and one analytical paper (1500 words); compensatory time provided.

Prerequisite(s): SS382 SS388

SS485 **POLIT & DEV SUB-SAHARAN AFR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-2

Offerings: 2015-2 2016-2 2017-2

This comparative and thematic introduction explores the important linkage between politics and economic development in Sub-Saharan Africa. At the heart of the course are the concepts of social and political development at the local and national levels of analysis. Readings and discussion will focus on key institutions and processes in contemporary Africa such as the state, political parties, the military, and economic actors. Students will also assess the impact of international politics and the world economy on key Sub-Saharan African countries in transition to democracy and the market system. Students will pursue country interests through oral presentations and a research paper.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One group case study and oral presentation; compensatory time given.

Prerequisite(s): SS202
-Or-
SS252

Corequisite(s): SS307
-Or-
SS357

SS486 **INTERNATIONAL SECURITY SEMINAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This Comparative Politics capstone seminar examines the special historical, domestic, and external security issues that non-Western states face, and then examines how such issues influence these states' formulation of their national security policies. Students explore how non-Western state regimes might use limited diplomatic, information, military, and economic means to achieve their regime goals. Students apply newly learned or previously learned IR or CP theories to analyze a non-Western state's national security strategy, and then attempt to anticipate what such states might do under current domestic and international conditions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One oral group presentation, one individual 3000 word research paper, and a shorter preliminary paper; compensatory time provided.

Prerequisite(s): SS307
-Or-
SS357

SS487 **INT'L POLITICAL ECONOMY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2004-2

Offerings: 2015-2 2016-2 2017-2

This course develops, integrates, and applies the theoretical insights of political science and economics to contemporary issues of international trade, finance, and security. The theoretical concepts introduced in the first block build upon the ideas introduced in SS307, International Relations, SS202, American Politics, and SS201, Economics. The theory developed in the first block will be used to analyze and evaluate important historical and contemporary questions of international political economy. Specific issues areas explored include international monetary relations, regional economic integration (NAFTA, EC), Third World debt and development, protectionism, and the link between security and economics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One analytic paper of 2500 words based on selected readings.

Prerequisite(s): SS307
-Or-
SS357

SS489 **ADV INDIV STUDY IN SOC SCI** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings:

The course provides an environment that is conducive to independent effort in a subject area of special interest to the cadet. Original research or specialized study can be accomplished in the fields of economics, political science, international affairs, and comparative politics. The course is conducted in three phases. First, the cadet and the individual tutor from the social sciences faculty will reach agreement on a subject area for research. Research methods will be studied under the direction of the faculty member. Research may involve field trips and personal interviews with experts in the area of study. In the second phase, the cadet will engage in independent research and prepare a draft analytical paper or report detailing the findings. During this period, frequent consultation with the faculty advisor occurs regarding the progress in the project. In the third phase, the cadet will present and defend the findings before a faculty committee. This course encompasses both individual projects and those writing a senior thesis.

2017-1

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One paper or report of variable length; oral defense.

SS490A **COLLOQUIUM (AMER POLITICS)** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-2 2017-2

The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS202
-Or-
SS252

SS490B **COLLOQUIUM (COMP POLITICS)** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-2 2017-1 2017-2

The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS307 SS366
-Or-
SS357 SS366

SS490C **COLLOQUIUM (INTER RELATIONS)** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-1 2016-2 2017-2

The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS307
-Or-
SS357

SS490D **COLLOQUIUM (ECONOMICS)** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2016-2 2017-2

The colloquium provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which the instructor meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the colloquium topic. Topics will vary by year but recent SS490 colloquiums include: Nationalism and Ethnic Conflict; Politics and Film; the Politics of Intelligence; Politics and Government of South and Southeast Asia; Philosophy, Religion, and Terror; and Winning the Peace.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers of 1000-2000 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS201
-Or-
SS251

SS491 **SENIOR STUDIES-INTNL RELATIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2015-2 2016-2 2017-2

This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS307
-Or-
SS357

SS492 **DIST PROF DEF ECON SEMINAR** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: No Course Offerings

This course is taught by the Bernard Rogers Distinguished Professor of Defense Economics, a scholar with a distinguished record of academic achievement and professional service in the arena of Defense Economics. This course is focused on topical issues that allow students to benefit from the specific expertise of the Rogers Chair. Students typically take part in seminar discussions, conduct research, and prepare analytical papers. Potential topics are Army procurement policy, contract design, the growth of military technology, the Department of Defense budget process, and corporate finance in the defense sector.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): SS368 SS382 SS388

SS493 **SENIOR STUDIES - AMER POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings:

This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoring in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Politics of Race, Gender, Sexuality and Politics, Studies in Grand Strategy, State and Local Politics, and Judicial Politics.

2016-2 2017-2

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: One research paper (minimum length of twenty typed, double-spaced pages).

Prerequisite(s): SS360 SS386

SS494 **PRINCIPLES OF FINANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2015-1

Offerings: 2015-2 2016-2 2017-1 2017-2

This course applies economic principles to the financial decisions that businesses make every day, and to the capital markets in which households and firms interact. The course covers topics including project analysis using net present value techniques, risk and return of assets and projects, efficient capital markets, corporate capital structure and dividend policy, and valuation of assets. Cadets will learn methods to analyze individual projects as well as business enterprises as a whole. As the U. S. Military continues to privatize many functions, knowledge of techniques used by corporations is becoming essential for our future Army leaders. This course is the second of a two-course financial economics sequence for which SS394 ? Financial Statement Analysis is a prerequisite, except for cadets with permission of the instructor.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Financial analysis.

Prerequisite(s): SS201 SS394
-Or-
SS251 SS394

SS495 **SENIOR STUDIES - COMP POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2005-1

Offerings: 2016-2 2017-2

This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoriong in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS307
-Or-
SS357

SS497 **ISSUES IN MICROECONOMIC THEORY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-2

Offerings: 2016-2 2017-2

This course provides cadets an opportunity for reading and analysis in depth in a topic area of special interest and timely relevance to their concentration. The course employs the seminar approach in which a senior faculty member meets with small groups to discuss assigned readings, and cadets present their own analyses to the group. Course directors develop topics and determine the semesters in which they will be offered. Department Academic Counselors then forward course offerings and descriptions to Social Science majors and those majoriong in areas related to the senior studies topic. Topics will vary by year but recent senior studies include: Homeland Security, Advanced Terrorism, and Environmental Economics.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: These will vary by topic. Typically three analytical papers or projects of 3000-4500 words based on selected readings; class attendance adjusted to provide research time.

Prerequisite(s): SS360
-Or-
SS368

SS498 **SENIOR THESIS: SOCIAL SCIENCES** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-2 2017-2

This course is taken in the spring term of the senior year and comprises the second and final phase of the Senior Thesis in Economics, International Relations, Comparative Politics, or American Politics. Cadets enrolled in SS498 normally will complete their major?s integrative experience course (SS477 or SS492 for Economics, SS483 for International Relations, SS486 for Comparative Politics, or SS481 for American Politics) in the fall semester of their senior year, where they will complete a prospectus, literature review, annotated bibliography, outlines, and initial draft of their senior thesis. In SS498, students will continue work on an independent study basis with their thesis advisor and committee, conducting further research and updating drafts to produce a final written thesis product generally ranging from 30-50 pages in length. Students defend their thesis before a committee in the last two weeks of classes.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Cadets must receive approval from their major's Program Director in order to enroll in SS498.

XH397 **GRAND STRATEGY FIELD STUDY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-7

Offerings: 2015-7 2016-7 2017-7

The Grand Strategy Field Study AIAD experience is designed to give cadets practical experience in this field of study and to reflect on their experiences by completing specified academic requirements. Scope, depth and material covered will meet the requirement of a 3-credit hour course in the Grand Strategy Program. Grades are determined based on preparatory briefings and essays, a journal of daily activities, the quality of the work performed during the internship, and a final paper, briefing, or exam that incorporates their experience with a topic from their field of study, due upon return.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

XH407 **ADVANCED CRITICAL THOUGHT** **1.5 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

The purpose of XH407 Advanced Critical Thought is to build upon the foundation of critical thought established in XH497 Critical Thought. Cadets apply the concepts developed in XH497 to contemporary issues facing the United States Army, Department of Defense, Nation, and wider world. Cadets continue to refine their understanding of their place in the society and develop skills to convey this sense of self to others, both verbally and in writing. Cadets will continue to be advised by both Department of Social Sciences faculty and academic advisors in their home departments.

Lessons: 10 @ 110 min (1.250 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Admission to the course requires an interview and the approval of the department head.

Prerequisite(s): XH497

XH467 **WINNING THE PEACE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

This course aims to help create "soldier statesmen" at the Company Grade level for the US Army. Subject matter experts from across the staff and faculty of the US Military Academy, US governmental agencies, and other international actors, discuss situations deployed leaders will likely face in the future, including counterinsurgency, cultural awareness, interagency dynamics, military-to-military engagement and exchange, governance and economics, and legal, moral, and ethical considerations, among others. This course helps future officers develop the basic knowledge and skills needed to become strategically adept in a complex and evolving strategic landscape. We also spend two nights and three days in a multi-ethnic US city interacting with Egyptian Copts, Muslims, Hindus, and various Christian denominations to more fully understand how groups with different beliefs can live and work together. This course is open to any interested sophomore, junior, or senior.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Three analysis papers; reflective and mentor journal, corresponding with recent graduates; group research and analysis project for the multi-ethnic city trip.

Prerequisite(s): SS307
-Or-
SS357

XH497 **CRITICAL THOUGHT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2003-1

Offerings: 2015-2 2016-2 2017-2

The purpose of XH497, Critical Thought is to improve cadets' ability to evaluate complex issues involving ethical judgements and choice among scarce resources, reach reasoned positions on these issues, and effectively argue their positions verbally and in writing. The process of pursuing this goal will make cadets better officers, scholars, and citizens. The course will employ several methods to assist in this pursuit. First, it will achieve breadth by focusing on current issues from a variety of fields, examining the "hard choices" that confront society, government, military leaders, and individual citizens. Among the disciplines from which the course will draw are Philosophy, Law, Political Science, Economics, Physics, Biology, and English. Each cadet will also be assigned an individual mentor from among the faculty of the Departments of Social Sciences, History, Law, or English. Requirements include a briefing on a current issue in the cadet's major field, a book review, and a personal statement summarizing academic and other goals.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Admission to the course requires an interview and the approval of the department head.

Prerequisite(s): SS307
-Or-
SS357

ZH337 **REGIONAL POLITICAL SYSTEMS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course covering the politics, societies, and structures of states in different regions of the world. The course also covers the study of the relationship between the state and society in these regions. Regions includeýbut are not limited toýthe Middle East, East Asia, Southwest Asia, Central Asia, North Africa, South Africa, Latin America, South America, and Europe.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH347 **INT'L ORGNZTNS & INSTITUTIONS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about international regimes, international institutions, and / or international organizations and the structure, role, and relevance of these actors in the international system. In addition, course content may include material about the relationship between international organizations and institutions and states. International organizations and institutions studied may includeýbut are not limited toýthe United Nations, NATO, the European Union, International Economic Organizations, the International Criminal Court, and the Kyoto Protocol / other Climate Change Institutions.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH367 **TOPICS IN MICROECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-2 2017-1 2017-2

For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of microeconomics. Topics includeýbut are not limited toýhistory of economic thought, manpower and labor economics, public and social policy issues, energy and natural resource issues, gender, law, and applied microeconomic issues.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH377 **TOPICS IN MACROECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings: 2015-2 2016-2 2017-1 2017-2

For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of macroeconomics. Topics includeýbut are not limited toýinternational trade, foreign exchange, the international monetary system, global capital markets, and globalization.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH407 **TOPICS/AMERICAN FOREIGN POLICY** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course covering the development, implementation, and consequences of American foreign policy. It analyzes the actors who make American foreign policy, concentrating both on government sources such as the President, Congress, and the foreign policy bureaucracy, as well as external sources such as public opinion, interest groups, and the media. Topics include - but are not limited to - U.S. relations with China, Russia, and the European Union, energy politics, the Arab-Israeli crisis, weapons of mass destruction and rogue states, terrorism, democracy promotion, and the global response to US foreign policy. In exploring each of these current challenges and dilemmas, this course attempts to understand the policies and strategies the U.S. utilizes to secure its interests and achieve its objectives.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH427 **TOPICS IN COMPARATIVE POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course covering the history and development of state social structures, political cultures, and systems and structures of government. Topics includeýbut are not limited toýdemocratization, regional anthropology, and conflict resolution.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH447 **TOPICS: INTERNATIONAL POLITICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2010-2

Offerings: No Course Offerings

For cadets attending foreign military academies and academic institutions. Instruction may be in English or in a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about topics covered in the study of international relations. Topics includeýbut are not limited toýinternational security studies, international political economy, economic development, and the history of the development of modern international relations and the international system.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH467 **TOPICS-INTERNATIONAL ECONOMICS** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings:

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about international economic systems, international institutions, and / or international organizations and the structure, role, and relevance of these actors in the global economic system. In addition, course content may include material about the relationship between international organizations and institutions and states. International organizations and institutions studied may includeýbut are not limited toýthe United Nations, World Bank, International Monetary Fund, the European Union, World Trade Organization, the Bretton Woods system and International Financial Organizations. Topics includeýbut are not limited toýinternational political economy, economic development, regional economics, and the history of the modern international economic system.

2015-2 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

ZH477 **TOPICS-INT'L BUSINESS/FINANCE** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2011-1

Offerings:

For cadets attending foreign military academies and academic institutions. Instruction may be in English or a foreign language. Cadets will attend classes and produce papers and other academic work as required by the course instructor and the institutionýs academic requirements. This class serves as the equivalent to a foreign course about international and foreign financial systems, international accounting and foreign business practices. In addition, course content may include material about the relationship between businesses, institutions and states in foreign countries. Topics includeýbut are not limited toýcorporate finance, financial statements and accounting, currency issues, central banking, and commercial and retail banking.

2015-2 2016-2 2017-1 2017-2

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Department of Systems Engineering
27 Courses

EM381 **ENGINEERING ECONOMY** **3.0 Credit Hours (BS=0.0,ET=2.5,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course prepares cadets to consider the economic dimension in the evaluation of engineering alternatives; a consideration vital to the Systems Decision Process, engineering management, systems acquisition and many other application areas. While emphasis is on the analytical consideration of money and its impact on the areas above, the course also incorporates professional ethics in the engineering economic analysis process. The course is taught in four lesson blocks. The Time Value of Money (TVM) block -includes the quantitative methods for economic analysis of engineering alternatives by introducing cost concepts, interest concepts, the cash flow diagram and developing interest formulas. The Analysis Methods block develops techniques for project evaluation and comparison and ways to account for risk and uncertainty. The After Tax Cash Flow block incorporates the real-world effect of taxes, depreciation and inflation into the analysis methods. The Capital Budgeting block completes a comprehensive introduction to engineering economy by introducing the concept of economic service life and project financing. A one lesson introduction to personal finance is included to demonstrate how many of the concepts used in the business world can also be applied for personal planning. Course concepts are applied using Excel in both graded and ungraded labs. Cadets will spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): MA205
-Or-
MA255

EM384 **ANYL METH FOR ENGR MANAGEMENT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

EM384 focuses on the application of deterministic and probabilistic models used by analysts to make engineering and management decisions. Cadets learn to apply various modeling techniques to represent and solve real-world organizational problems in the military and industry. Topics include: linear and integer programming, network modeling, decision making under uncertainty, queuing, and simulation modeling. Cadets apply concepts and tools using Microsoft Excel within a computer lab environment. The techniques taught in this course have been applied to an increasingly wide variety of complex problems in business, government, military, health care, and education. Ethical responsibilities in describing the results of analyses to decision makers are integrated throughout the course. Cadets develop communication skills through two written reports and make innovative use of spreadsheets to develop and analyze models. Cadets are tested on the application of course concepts from the four blocks of instruction during two graded labs, two out-of-classroom projects, two problem sets, and two in-class WPRs. Cadets will spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT105
-Or-
IT155
-Or-
CS105
-Or-
CS155

Corequisite(s): MA206

EM402 **ENGINEERING MANAGEMENT DSN I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

This is the first course in a two-semester capstone design for EM majors. EM402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 110 min

Special Requirements: None

Prerequisite(s): EM381 EM384 SE301

Corequisite(s): EM411

EM403 **ENGINEERING MANAGEMENT DSN II** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

Engineering Management Design II is the second course in a two-semester capstone experience for EM majors. EM403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty mentor to continue work on the same project begun in EM402, culminating the integrative experience in their education.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 110 min

Special Requirements: None

Prerequisite(s): EM402

EM411 **PROJECT MANAGEMENT** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

This course develops skills required to lead an organization to the achievement of their objectives through the proper application of the management of planning, implementing and controlling the organization activities, personnel and resources. The course focuses on the Implementation phase of the Systems Decision Process (SDP). Topics include project selection, roles and responsibilities of the project manager, planning the project, budgeting the project, scheduling the project, allocating resources to the project, monitoring and controlling the project, evaluating and terminating the project, risk assessment and management, organizational structure and human resources. Case studies illustrate problems and how to solve them. Course assignments are designed to help students learn and apply project management techniques taught in the course. The class design project will provide students with the opportunity to integrate project management software, Microsoft Project, into the preparation of an Engineering Management Project Plan. Cadets spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

EM420 **PRODUCTION OPERATIONS MGMT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2015-5 2016-1 2016-2 2017-1 2017-2

This course deals with the quantitative aspects of design and analysis of production operations management. Emphasis is on identification, analysis, and solution implementation of production problems using applied quantitative techniques within each of the four phases of the Systems Decision Process (SDP). Practical exercises reinforce the problem-solving techniques necessary for today's successful military and civilian engineering managers and systems engineers. Specific methods and techniques taught and applied are operations strategy, product design and selection, supply chain management, total quality management, forecasting, capacity planning, facility location, facility layout, work system design, inventory management, material requirements planning, and scheduling. This course is required for those pursuing the Engineering Management major, the Systems Engineering major, and the Systems Management major. Cadets will spend two to four lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

EM481 **SYSTEMS SIMULATION** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-1

Offerings:

Cadets learn and explore discrete event simulation techniques and tools used to analyze and improve complex systems. Applications include operations, transportation, manufacturing and logistics systems. Topics include functional modeling with functional flow diagrams and IDEF0 models, simulation theory, the modeling process, input data analysis, generation and testing of random numbers, verification and validation of simulation models, experimental design, output analysis, and application using simulation software. The course concepts provide cadets the tools to evaluate military and civilian systems. Emphasis is placed on using simulation in the Systems Decision Process (SDP). Cadets demonstrate proficiency and develop communication skills through design projects and briefings. Cadets spend several lessons in a computer lab environment.

2015-2 2016-1 2016-2 2017-1 2017-2

Lessons: 25 @ 55 min (2.500 Att/wk) **Labs:** 15 @ 120 min

Special Requirements: In-process rerviews and two design problems; compensatory time provided.

Prerequisite(s): MA206

Disqualifier(s): SE481

EM482 **SUPPLY CHAIN ENG & INFO MGMT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-1

Offerings: 2016-1 2017-1

This course teaches cadets the strategic importance of supply chain design, planning, operation, business processes, and information management systems. Cadets will become familiar with engineering a supply chain network---from conducting inventory management to establishing proper sourcing and transportation strategies to understanding capacity and facility locations to constructing the proper information technology framework needed to be successful. Cadets will develop the ability to evaluate how information flows can be a substitute for the stock of physical resources. Additionally, cadets will understand why such information systems succeed or fail through the explanation of concepts, insights, practical tools and the information technology that supports decision making. This course will focus on understanding the key drivers of a supply chain such as inventory, facilities, transportation, sourcing, pricing, and information. Cadets will learn the three types of information technology, how to mitigate risks of information technology and strategies for implementing process enabling information technology. Cadets will also learn to assess the impact of strategic alliances and globalization on supply chain strategies and best practices, to include smart pricing, customer value, and new product and supply chain design.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Disqualifier(s): SM482

SE300 **INTRO TO SYSTEMS ENGINEERING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2006-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

SE300 serves as the "roadmap" course for all cadets taking the three-course Systems Engineering sequence. This course presents the methodological framework and techniques for designing, implementing, managing and reengineering large-scale systems or processes. Cadets learn engineering design and engineering management processes and gain an appreciation for the future environments and systems life-cycles. Cadets analyze case studies and complete practice problems to illustrate mastery of course topics. Cadets also use spreadsheet software for modeling and analyzing design alternatives. Cadets will spend eight to twelve lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): MA206

SE301 **FNDTN ENGIN DSGN & SYS MGMT** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

SE301 serves as the "roadmap" course for all cadets taking the Engineering Management, Information Systems Engineering, Systems Engineering, or Systems Management majors. This course presents the methodological framework and techniques for designing, implementing, managing and reengineering complex systems or processes. Cadets learn engineering design and engineering management processes and gain an appreciation for future environments and system life-cycles. Cadets analyze case studies and complete practice problems to illustrate mastery of course topics. Cadets also use spreadsheet software for modeling and analyzing design alternatives. SE301 introduces a Systems Engineering Management Process while incorporating material from courses in the USMA core curriculum and also previews the modeling and decision making tools that cadets will learn in follow-on Department of Systems Engineering courses. The course is designed to allow cadets the opportunity to learn engineering design and engineering management processes on an individual level so that each cadet will have the experience necessary to succeed in future Systems Engineering courses. Cadets will spend eight to twelve lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Corequisite(s): MA206

SE350 **SYSTEMS MODELING AND DESIGN** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

SE350 is the second foundation course of a three-course sequence for non-engineering cadets. It focuses on the application of deterministic and stochastic models to help cadets analyze and understand different alternatives. Cadets learn to apply various modeling techniques that represent and solve real-world problems in the military, government, and industry. SE350 utilizes traditional classroom setting and computer labs, applying the fundamental principles and assumptions of analytical models. Cadets practice uses of spreadsheets to develop and analyze models. A key goal is for cadets to communicate their analysis and recommendations to a decision maker. Ethical responsibilities in describing the results of analyses to decision-makers are integrated throughout the course. Cadets are expected to apply their knowledge of course material in several computer lab exercises throughout the course.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206 SE300

SE370 **COMPUTER AIDED SYSTEMS ENG** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

Cadets learn how to use information and technology in support of systems decision-making. They learn the basics of data collection and storage through a database design exercise. They learn how to manipulate data in spreadsheets to support decisions. The course introduces cadets to 2-dimensional and 3-dimensional virtual design and visualization. They also get an introduction to geospatial data analysis and display in support of military operations. Cadets learn how to effectively use technology while interacting with decision-makers. Communication skills are developed through both written and oral projects and development of interactive graphical presentations. Cadets will spend most lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Two design projects.

Prerequisite(s):
CS105 SE300
-Or-
CS155 SE300
-Or-
IT105 SE300
-Or-
IT155 SE300
-Or-
CS105 SE301
-Or-
CS155 SE301
-Or-
IT105 SE301
-Or-
IT155 SE301

SE375 **STATISTICS FOR ENGINEERS** **3.0 Credit Hours (BS=0.0,ET=2.0,MA=1.0)**

Scope: 2014-1

Offerings: 2015-2 2015-3 2016-1 2016-2 2017-1 2017-2

This course is an integral part of the Systems Engineering major that emphasizes both the statistical analyses of data and a statistical methodology important to systems analysis and design. The over-arching course goal is to develop cadets into critical consumers and providers of statistical information as it relates to the techniques, activities, and modeling applications that typify systems engineering concerns.. The course builds on the core probability and statistics course and introduces statistics applications fundamental to the design and analysis of simulations and engineering systems. Specific topics include point and interval estimation, parametric and non-parametric tests of hypotheses, analysis of variance, linear regression, and survey design of experiments, specifically analysis of power and determination of sample size. The course emphasizes the importance of knowing and understanding the assumptions associated with the use of inferential statistics as well as the usefulness of statistical software packages. The basic principles learned in this course will facilitate data analysis in support of Army acquisition and system redesign

decision-making. Ethical implications in the analysis and presentation of experimental results, as well as interactions with decision makers, are addressed.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206

Disqualifier(s): MA376

SE385 **DECISION ANALYSIS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-1 2016-2 2017-2

The course presents basic techniques of decision-making concentrating on both theoretical and modeling aspects. This course develops innovative systems engineers who can integrate the art and science of decision making for single and multiple objective environments to support the Decision Making phase of the Systems Decision Process (SDP). The focus of the course is modeling problem structure, uncertainty, risk and preference in the context of decision-making. Topics include influence diagrams, decision trees, sensitivity analysis, assessing subjective probability, value of information, risk and uncertainty. Cadets will also use value focused thinking to support decisions in multiple objective and resource allocation environments. A series of several computer laboratory exercises provides a key bridge between the mathematical theory and the application of skills to open-ended decision problems. Communication skills are developed with both written reports and oral presentations.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course design project; compensatory time provided.

Prerequisite(s): MA206 SE301

SE387 **DETERMINISTIC MODELS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1 2017-2

This course is the first of a two-course sequence that emphasizes modeling and analysis of real-world systems. This course focuses on modeling techniques without consideration of uncertainty or probabilistic effects. The course introduces the deterministic modeling process and many of the classical deterministic models used by systems engineers, operations researchers, and management professionals to identify and analyze alternatives as part of the Systems Decision Process (SDP). Emphasis is placed on creative application of the modeling process to include formulation, solution methods, analysis of results, and interpretation. Topics include deterministic life cycle cost modeling, linear programming, sensitivity analysis, networks, transportation models, dynamic programming and integer programming. Cadets will spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): IT105
-Or-
IT155
-Or-
CS105
-Or-
CS155

Disqualifier(s): EM384

SE388 **STOCHASTIC MODELS** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This course is the second of a two-course sequence that emphasizes modeling and analysis of real-world systems. Continuing from the modeling process introduced in SE387, this course introduces the stochastic modeling process and many of the classical stochastic models used by systems engineers, operations researchers and management professionals to capture and describe quantitative effects of uncertainty on decision-making as part of the Systems Decision Process (SDP). Topics include stochastic life cycle cost modeling, conditional probability models, basic inference chains, Markov Chains, Poisson Processes, birth and death processes, counting processes, queuing systems, and simulation. This course prepares cadets for the modeling required in follow-on courses, including SE481, EM484, SE485 and SE402/403. Cadets will spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): MA206 SE387

SE400 **PROFESSIONAL ENGINEERING SEMIN** **1.0 Credit Hours (BS=0.0,ET=1.0,MA=0.0)**

Scope: 2009-2

Offerings: 2015-2 2016-2 2017-2

This seminar course for SE and EM majors meets once a week to address the concerns of professional engineers such as engineering ethics and licensing procedures. The seminar also includes presentations by guest lecturers from the military, DoD industrial base, and academic communities.

Lessons: 13 @ 55 min (1.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

SE402 **SYSTEMS DESIGN & MANAGEMENT I** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-1

Offerings: 2016-1 2017-1

Systems Design and Management I is the first course in a two-semester capstone experience for Systems Engineering, Systems Management, Engineering Management, and Operations Research majors. SE402 integrates the principles, concepts and models explored in previous core and engineering topic courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system. Cadets work under the supervision of a faculty member to address a problem presented by a real-world client, providing them an integrative experience for their education in engineering design.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 110 min

Special Requirements: None

Prerequisite(s): SE388
-Or-
EM384

SE403 **SYSTEMS DESIGN & MANAGEMENT II** **3.5 Credit Hours (BS=0.0,ET=3.5,MA=0.0)**

Scope: 2014-2

Offerings: 2015-2 2016-2 2017-2

Systems Design and Management II is the second course in a two-semester capstone experience for Systems Engineering, Systems Management, Engineering Management, and Operations Research majors. SE403 integrates the principles, concepts and models explored in previous core and engineering courses. The course applies the principles of systems design, engineering management, and/or reengineering to a real-world system of direct concern to a real-world client. Cadets work under the supervision of a faculty member to continue work on the same project begun in SE402, culminating the integrative experience in their education.

Lessons: 34 @ 55 min (2.500 Att/wk) **Labs:** 6 @ 110 min

Special Requirements: None

Prerequisite(s): SE301 SE388
-Or-
SE402

SE450 **APPLIED SYS DSGN/DECISN MAKING** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2009-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This course is the third course of the three-course systems engineering sequence. The course serves as the culminating systems engineering experience for non-engineering cadets and integrates the principles, concepts, and models explored in previous courses. Cadets apply the Systems Decision Process to devise technological problem solutions that are effective and adaptable. Cadets work in groups to complete a culminating engineering design experience involving the solution of an incompletely defined problem with no single correct answer. Cadets must consider the economic, political, social and ethical constraints of the system and use creativity to generate potential design alternatives. Cadet groups will use models to analyze the alternative solutions and make a recommendation based on economic analysis and system performance. The course requires assessment of the recommended solution and a written plan for implementation.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

Prerequisite(s): SE350

SE485 **COMBAT MODELING** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2009-1

Offerings: 2016-1 2017-1

This course explores the theoretical and practical issues in combat modeling and simulation - the study of combat systems, tactics, and the battlefield environment in conflicts between opposing forces. The course focuses on models and algorithms used in state-of-the-art combat simulations, and techniques for analyzing their effects. Major topics of investigation include functional analysis to support modeling using functional flow diagrams and/or IDEF0 models, combat attrition models, search and detection methods, terrain representation, and measures of effectiveness. Cadets learn to manipulate 3D visual and system characteristic databases to build and test virtual prototypes of new combat system designs. Application of design of experiments and statistical analysis methods assist cadets in assessing the effectiveness of weapons systems, doctrine, and tactics on the future battlefield. The cadet can apply the concepts learned in this course to evaluate potential new Army combat systems, force structures, or doctrinal changes. The techniques taught in this course are a significant part of the Systems Decision Process (SDP) as they encourage creative and independent thought that applies mathematical, physical, and computer sciences to solve future technological problems. Ethical implications in the development and use of combat models also are discussed.

Lessons: 30 @ 55 min (2.500 Att/wk) **Labs:** 10 @ 110 min

Special Requirements: Three practical design exercises relating to combat simulation; database manipulation; design of experiments; and advanced distribution simulation.

Prerequisite(s): EM384
-Or-
MA376
-Or-
SE375

SE489 **AD IND STY IN SYS ENG/ENG MGMT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2016-1 2016-2 2017-1 2017-2

This is a tutorial course in which an individual cadet or a group of cadets study in depth an advanced topic in systems engineering or engineering management under the direct mentorship of a faculty advisor. The scope of the course is tailored to the desires of the cadet(s) in consultation with a faculty advisor. Cadets will coordinate with a faculty mentor who has an interest and background in the research area and who will assist in scoping and developing course content. Communication skills are developed and assessed through both written reports and oral presentations.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As determined by faculty advisor.

SE490 **AD TOPICS IN SYS ENG/ENG MGMT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-2

Offerings: 2017-1 2017-2

This course provides in-depth study of a special topic or topics in systems engineering or engineering management not offered elsewhere in the USMA curriculum. This course is intended to broaden a cadet's or group of cadets' exposure to the systems engineering or engineering management discipline. The Department of Systems Engineering visiting professor or senior faculty member assigned to the course is responsible for developing the course topic or topics and advertising the course to prospective cadets.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be announced.

SE491 **RSRCH PROJ IN SYS ENG/ENG MGMT** **3.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2008-1

Offerings: 2015-2 2015-4 2016-1 2016-2 2017-1 2017-2

The cadet, or cadet team, integrates the concepts and techniques learned in previous Systems Engineering or Engineering Management courses to solve a current problem of interest to the Academy, the Department of the Army, or other agencies in the Department of Defense. Subject to approval from the course and program directors, cadets may select project topics which are follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. Cadets will coordinate with a faculty mentor who has an interest and background in the research area and who will assist in scoping the project and directing the research effort. Cadets may work individually or in small teams, depending on the nature of the research. The course will culminate with a student presentation and a written report.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: As determined by Faculty Advisor.

SE492 **IND ADV DEVELOPMENT COURSE** **1.0 Credit Hours (BS=0.0,ET=0.0,MA=0.0)**

Scope: 2001-4

Offerings: No Course Offerings

This course offers the opportunity for cadets to receive academic credit for study and/or work completed during the Academic Individual Advanced Development (AIAD) program. The content of the course and the nature of academic credit will be determined by the Head of Department in consultation with the cadet and the summer host agency. Communication skills are developed with both written reports and oral presentations.

Lessons: 0 @ 0 min (0.000 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: To be announced.

SM440 **COMPLEX SYSTEMS ARCHITECTURE** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2013-2

Offerings: 2015-2 2016-1 2016-2 2017-2

SM440 focuses on preparing students to effectively model, analyze, and understand complex, ill-defined problems as systems in an effort to design and implement effective solutions. The course covers principles and methods for technical System Architecture from industry and DoD including IDEFϕ modeling, the Unified Modeling Language, and the Department of Defense Architectural Framework (DoDAF). The course will include a review of Model-based Systems Engineering (MBSE) methodologies. The course also teaches how to resolve ambiguity to identify system goals and boundaries; applying systems thinking to model a system?s interaction with its environment; the creative process of mapping form to function; the analysis of complexity and methods of decomposition and re-integration. Cadets apply concepts and tools using advanced modeling software which includes CORE, MS Visio, and Magic Draw. The techniques taught in this course have been applied to an increasingly wide variety of complex, ill-defined problems in business, government, military, health care, and national capacity development. Ethical responsibilities in describing the results of analyses to decision makers are integrated throughout the course. Cadets develop communication skills through two written reports and make innovative use of modeling packages to develop and analyze systems. A course project will challenge cadets to apply their modeling and analysis skills to a real world complex, ill-defined problem in political, military, economic, social, cultural, and informational contexts. Cadets will spend eight to twelve lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: None

SM484 **SYSTEM DYNAMICS SIMULATION** **3.0 Credit Hours (BS=0.0,ET=3.0,MA=0.0)**

Scope: 2012-1

Offerings: 2016-1 2017-1

This course is a simulation elective for the Systems Engineering, Engineering Management, Operations Research, and Systems Management majors. Simulation modeling can be used to study the effects of changes to existing systems or processes, or evaluate the performance of new systems prior to their implementation. The techniques taught in this course are a significant part of the Systems Decision Process (SDP) as they introduce the concept of dynamic systems thinking and analysis. By their nature, large scale systems are dynamic. These systems involve complex cause and effect relationships that form feedback loops between the variables of interest. These systems produce outcomes that are not always intuitive. The cadets use the properties of dynamic systems and analytical techniques to design continuous models of complex systems or processes, implement these models, and perform an analysis of the results. Topics include applications of System Dynamics, client/modeler relationships, problem articulation, functional modeling through causal loop diagrams and stock and flow diagrams, modeling and simulation in a PC-based continuous event simulation package, policy design, policy testing, and policy implementation. These concepts and principles are applied to military and civilian applications such as physical systems, human decision processes, population, and economic/business processes. Cadets develop communication skills by presenting their design results in both written reports and oral presentations. The course also addresses ethical implications in the development and application of dynamic models as well as interactions with decision makers. Cadets will spend several lessons in a computer lab environment.

Lessons: 40 @ 55 min (2.500 Att/wk) **Labs:** 0 @ 0 min

Special Requirements: Course design project.

Disqualifier(s): EM484

PART IV: MAJORS

2017 MAJOR Offerings

Majors available to the Class of 2017 are listed below along with the department that has primary responsibility for them.

By Department:

Dept	Code	Description	Transcript Description
MADN-BSL	EPS0	Engineering Psychology Major	Engineering Psychology
MADN-BSL	EPS0H	Engineering Psychology Major w/ Honors	Engineering Psychology w/ Honors
MADN-BSL	LDR1	Leader Development Science Major	Leader Development Science
MADN-BSL	LDR1H	Leader Development Science Major w/ Honors	Leader Development Science w/ Honors
MADN-BSL	MNG0	Management Major	Management
MADN-BSL	MNG0H	Management Major w/ Honors	Management w/ Honors
MADN-BSL	NSC0N	Network Science Minor	Network Science Minor
MADN-BSL	PSY0	Psychology Major	Psychology
MADN-BSL	PSY0H	Psychology Major w/ Honors	Psychology w/ Honors
MADN-BSL	SOC0	Sociology Major	Sociology
MADN-BSL	SOC0H	Sociology Major w/ Honors	Sociology w/ Honors
MADN-CHEM	CEN0	Chemical Engineering Major	Chemical Engineering
MADN-CHEM	CES0	Chemical Engineering Studies Major	Chemical Engineering Studies
MADN-CHEM	CEN0H	Chemical Engineering Major w/ Honors	Chemical Engineering w/ Honors
MADN-CHEM	CHM0	Chemistry Major	Chemistry
MADN-CHEM	CHM0H	Chemistry Major w/ Honors	Chemistry w/ Honors
MADN-CHEM	KIN0	Kinesiology Major	Kinesiology
MADN-CHEM	KIN0H	Kinesiology Major w/ Honors	Kinesiology w/ Honors
MADN-CHEM	LSC0	Life Science Major	Life Science
MADN-CHEM	LSC0H	Life Science Major w/ Honors	Life Science w/ Honors
MADN-CME	CVN0	Civil Engineering Major	Civil Engineering
MADN-CME	CNG0	Civil Engineering Studies Major	Civil Engineering Studies
MADN-CME	CVN0H	Civil Engineering Major w/Honors	Civil Engineering w/ Honors
MADN-CME	MEN0	Mechanical Engineering Major	Mechanical Engineering
MADN-CME	MES0	Mechanical Engineering Studies Major	Mechanical Engineering Studies
MADN-CME	MEN0H	Mechanical Engineering Major w/ Honors	Mechanical Engineering w/ Honors
MADN-DEP	APL0	Art, Philosophy, and Literature Major	Art, Philosophy & Literature
MADN-DEP	APL0H	Art, Philosophy, and Literature Major w/ Honors	Art, Philosophy, and Literature w/ Honors
MADN-EECS	CSC0	Computer Science Major	Computer Science
MADN-EECS	CSC0H	Computer Science Major w/ Honors	Computer Science w/ Honors
MADN-EECS	CYB0N	Cyber Security Minor	Cyber Security Minor
MADN-EECS	EIT0	Electronic & Information Technology Systems Major	Elec & Info Tech Sys
MADN-EECS	EEN0	Electrical Engineering Major	Electrical Engineering
MADN-EECS	EEN0H	Electrical Engineering Major w/ Honors	Electrical Engineering w/ Honors
MADN-EECS	ITE0	Information Technology Major	Information Technology
MADN-EECS	ITE0H	Information Technology Major w/ Honors	Information Technology w/ Honors
MADN-FL	FSI0	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa
MADN-FL	FSI0H	Foreign Area Studies Major: Africa w/ Honors	Foreign Area Studies: Africa w/ Honors
MADN-FL	FSA0	Foreign Area Studies Major: East Asia	Foreign Area Studies: E. Asia
MADN-FL	FSA0H	Foreign Area Studies Major: East Asia w/ Honors	Foreign Area Studies: E. Asia w/ Honors

MADN-FL	FSU0	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia
MADN-FL	FSU0H	Foreign Area Studies Major: Eurasia w/ Honors	Foreign Area Studies: Eurasia w/ Honors
MADN-FL	FSE0	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe
MADN-FL	FSE0H	Foreign Area Studies Major: Europe w/ Honors	Foreign Area Studies: Europe w/ Honors
MADN-FL	FSL0	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America
MADN-FL	FSL0H	Foreign Area Studies Major: Latin America w/ Honors	Foreign Area Studies: Latin America w/ Honors
MADN-FL	FSM0	Foreign Area Studies Major: Middle East	Foreign Area Studies: Mid East
MADN-FL	FSM0H	Foreign Area Studies Major: Middle East w/ Honors	Foreign Area Studies: Mid East w/ Honors
MADN-FL	FLA0	Foreign Language Major: Arabic	Foreign Lang: Arabic
MADN-FL	FAC0	Foreign Language Major: Arabic & Chinese	Foreign Lang: Arabic & Chinese
MADN-FL	FAC0H	Foreign Language Major: Arabic & Chinese w/ Honors	Foreign Lang: Arabic & Chinese w/ Honors
MADN-FL	FAF0	Foreign Language Major: Arabic & French	Foreign Lang: Arabic & French
MADN-FL	FAF0H	Foreign Language Major: Arabic & French w/ Honors	Foreign Lang: Arabic & French w/ Honors
MADN-FL	FAZ0	Foreign Language Major: Arabic & Persian	Foreign Lang: Arabic & Persian
MADN-FL	FAZ0H	Foreign Language Major: Arabic & Persian w/ Honors	Foreign Lang: Arabic & Persian w/ Honors
MADN-FL	FAP0	Foreign Language Major: Arabic & Portuguese	Foreign Lang: Arabic & Portuguese
MADN-FL	FAP0H	Foreign Language Major: Arabic & Portuguese w/ Honors	Foreign Lang: Arabic & Portuguese w/ Honors
MADN-FL	FAR0	Foreign Language Major: Arabic & Russian	Foreign Lang: Arabic & Russian
MADN-FL	FAR0H	Foreign Language Major: Arabic & Russian w/ Honors	Foreign Lang: Arabic & Russian w/ Honors
MADN-FL	FAS0	Foreign Language Major: Arabic & Spanish	Foreign Lang: Arabic & Spanish
MADN-FL	FAS0H	Foreign Language Major: Arabic & Spanish w/ Honors	Foreign Lang: Arabic & Spanish w/ Honors
MADN-FL	FLA0H	Foreign Language Major: Arabic w/ Honors	Foreign Lang: Arabic w/ Honors
MADN-FL	FLC0	Foreign Language Major: Chinese	Foreign Lang: Chinese
MADN-FL	FCF0	Foreign Language Major: Chinese & French	Foreign Lang: Chinese & French
MADN-FL	FCF0H	Foreign Language Major: Chinese & French w/ Honors	Foreign Lang: Chinese & French w/ Honors
MADN-FL	FCG0	Foreign Language Major: Chinese & German	Foreign Lang: Chinese & German
MADN-FL	FCG0H	Foreign Language Major: Chinese & German w/ Honors	Foreign Lang: Chinese & German w/ Honors
MADN-FL	FCZ0	Foreign Language Major: Chinese & Persian	Foreign Lang: Chinese & Persian
MADN-FL	FCZ0H	Foreign Language Major: Chinese & Persian w/ Honors	Foreign Lang: Chinese & Persian w/ Honors
MADN-FL	FCP0	Foreign Language Major: Chinese & Portuguese	Foreign Lang: Chinese & Portuguese
MADN-FL	FCP0H	Foreign Language Major: Chinese & Portuguese w/ Honors	Foreign Lang: Chinese & Portuguese w/ Honors
MADN-FL	FCR0	Foreign Language Major: Chinese & Russian	Foreign Lang: Chinese & Russian
MADN-FL	FCR0H	Foreign Language Major: Chinese & Russian w/ Honors	Foreign Lang: Chinese & Russian w/ Honors
MADN-FL	FCS0	Foreign Language Major: Chinese & Spanish	Foreign Lang: Chinese & Spanish
MADN-FL	FCS0H	Foreign Language Major: Chinese & Spanish w/ Honors	Foreign Lang: Chinese & Spanish w/ Honors
MADN-FL	FLC0H	Foreign Language Major: Chinese w/ Honors	Foreign Lang: Chinese w/ Honors
MADN-FL	FLF0	Foreign Language Major: French	Foreign Lang: French
MADN-FL	FFG0	Foreign Language Major: French & German	Foreign Lang: French & German
MADN-FL	FFG0H	Foreign Language Major: French & German w/ Honors	Foreign Lang: French & German w/ Honors
MADN-FL	FFZ0	Foreign Language Major: French & Persian	Foreign Lang: French & Persian
MADN-FL	FFZ0H	Foreign Language Major: French & Persian w/ Honors	Foreign Lang: French & Persian w/ Honors
MADN-FL	FFP0	Foreign Language Major: French & Portuguese	Foreign Lang: French & Portuguese
MADN-FL	FFP0H	Foreign Language Major: French & Portuguese w/ Honors	Foreign Lang: French & Portuguese w/ Honors
MADN-FL	FFR0	Foreign Language Major: French & Russian	Foreign Lang: French & Russian
MADN-FL	FFR0H	Foreign Language Major: French & Russian w/ Honors	Foreign Lang: French & Russian w/ Honors
MADN-FL	FFS0	Foreign Language Major: French & Spanish	Foreign Lang: French & Spanish
MADN-FL	FFS0H	Foreign Language Major: French & Spanish w/ Honors	Foreign Lang: French & Spanish w/ Honors

MADN-FL	FLF0H	Foreign Language Major: French w/ Honors	Foreign Lang: French w/ Honors
MADN-FL	FLG0	Foreign Language Major: German	Foreign Lang: German
MADN-FL	FGA0	Foreign Language Major: German & Arabic	Foreign Lang: German & Arabic
MADN-FL	FGA0H	Foreign Language Major: German & Arabic w/ Honors	Foreign Lang: German & Arabic w/ Honors
MADN-FL	FGZ0	Foreign Language Major: German & Persian	Foreign Lang: German & Persian
MADN-FL	FGZ0H	Foreign Language Major: German & Persian w/ Honors	Foreign Lang: German & Persian w/ Honors
MADN-FL	FGP0	Foreign Language Major: German & Portuguese	Foreign Lang: German & Portuguese
MADN-FL	FGP0H	Foreign Language Major: German & Portuguese w/ Honors	Foreign Lang: German & Portuguese w/ Honors
MADN-FL	FGR0	Foreign Language Major: German & Russian	Foreign Lang: German & Russian
MADN-FL	FGR0H	Foreign Language Major; German & Russian w/ Honors	Foreign Lang: German & Russian w/ Honors
MADN-FL	FGS0	Foreign Language Major: German & Spanish	Foreign Lang: German & Spanish
MADN-FL	FGS0H	Foreign Language Major: German & Spanish w/ Honors	Foreign Lang: German & Spanish w/ Honors
MADN-FL	FLG0H	Foreign Language Major: German w/ Honors	Foreign Lang: German w/ Honors
MADN-FL	FLP0	Foreign Language Major: Portuguese	Foreign Lang: Portuguese
MADN-FL	FPZ0	Foreign Language Major: Portuguese & Persian	Foreign Lang: Portuguese & Persian
MADN-FL	FPZ0H	Foreign Language Major: Portuguese & Persian w/ Honors	Foreign Lang: Portuguese & Persian w/ Honors
MADN-FL	FPR0	Foreign Language Major: Portuguese & Russian	Foreign Lang: Portuguese & Russian
MADN-FL	FPR0H	Foreign Language Major: Portuguese & Russian w/ Honors	Foreign Lang: Portuguese & Russian w/ Honors
MADN-FL	FPS0	Foreign Language Major: Portuguese & Spanish	Foreign Lang: Portuguese & Spanish
MADN-FL	FPS0H	Foreign Language Major: Portuguese & Spanish w/ Honors	Foreign Lang: Portuguese & Spanish w/ Honors
MADN-FL	FLP0H	Foreign Language Major: Portuguese w/ Honors	Foreign Lang: Portuguese w/ Honors
MADN-FL	FLR0	Foreign Language Major: Russian	Foreign Lang: Russian
MADN-FL	FRZ0	Foreign Language Major: Russian & Persian	Foreign Lang: Russian & Persian
MADN-FL	FRZ0H	Foreign Language Major: Russian & Persian w/ Honors	Foreign Lang: Russian & Persian w/ Honors
MADN-FL	FRS0	Foreign Language Major: Russian & Spanish	Foreign Lang: Russian & Spanish
MADN-FL	FRS0H	Foreign Language Major: Russian & Spanish w/ Honors	Foreign Lang: Russian & Spanish w/ Honors
MADN-FL	FLR0H	Foreign Language Major: Russian w/ Honors	Foreign Lang: Russian w/ Honors
MADN-FL	FLS0	Foreign Language Major: Spanish	Foreign Lang: Spanish
MADN-FL	FSZ0	Foreign Language Major: Spanish & Persian	Foreign Lang: Spanish & Persian
MADN-FL	FSZ0H	Foreign Language Major: Spanish & Persian w/ Honors	Foreign Lang: Spanish & Persian w/ Honors
MADN-FL	FLS0H	Foreign Language Major: Spanish w/ Honors	Foreign Lang; Spanish w/ Honors
MADN-FL	RST0N	Regional Studies Minor	Regional Studies Minor
MADN-GEnE	EVE0	Environmental Engineering Major	Environmental Engineering
MADN-GEnE	EES0	Environmental Engineering Studies Major	Environmental Engineering Studies
MADN-GEnE	EVE0H	Environmental Engineering Major w/ Honors	Environmental Engineering w/ Honors
MADN-GEnE	EGE0	Environmental Geography Major	Environmental Geography
MADN-GEnE	EGE0H	Environmental Geography Major w/ Honors	Environmental Geography w/ Honors
MADN-GEnE	ESC0	Environmental Science Major	Environmental Science
MADN-GEnE	ESC0H	Environmental Science Major w/ Honors	Environmental Science w/ Honors
MADN-GEnE	GIS0	Geospatial Information Science Major	Geospatial Information Science
MADN-GEnE	GIS0H	Geospatial Information Science Major w/ Honors	Geospatial Information Science w/ Honors
MADN-GEnE	GEO0	Human Geography Major	Human Geography
MADN-GEnE	GEO0H	Human Geography Major w/ Honors	Human Geography w/ Honors
MADN-HIST	DSS1	Defense and Strategic Studies Major	Defense and Strategic Studies
MADN-HIST	DSS1T	Defense and Strategic Studies Major w/ Thesis	Defense and Strategic Studies w/ Thesis
MADN-HIST	DSS1H	Defense and Strategic Studies Major w/ Thesis (Honors)	Defense/Strategic Studies w/Thesis (Honors)

MADN-HIST	HNT1	History Major: International	History: International
MADN-HIST	HNT1T	History Major: International w/ Thesis	History: International w/ Thesis
MADN-HIST	HNT1H	History Major: International w/ Thesis (Honors)	History: International w/ Thesis (Honors)
MADN-HIST	HMH1	History Major: Military	History: Military
MADN-HIST	HMH1T	History Major: Military w/ Thesis	History: Military w/ Thesis
MADN-HIST	HMH1H	History Major: Military w/ Thesis (Honors)	History: Military w/ Thesis (Honors)
MADN-HIST	HUS1	History Major: United States	History: United States
MADN-HIST	HUS1T	History: United States w/ Thesis	History: United States w/ Thesis
MADN-HIST	HUS1H	History Major: United States w/ Thesis (Honors)	History: United States w/ Thesis (Honors)
MADN-LAW	LLS1	Law and Legal Studies Major	Law and Legal Studies
MADN-LAW	LLS1H	Law and Legal Studies Major w/ Honors	Law and Legal Studies w/ Honors
MADN-MATH	AST0N	Applied Statistics Minor	Applied Statistics Minor
MADN-MATH	MSC0H	Mathematical Sciences Major w/ Honors	Mathematical Sciences w/ Honors
MADN-MATH	MSC0	Mathematical Sciences Major	Mathematical Sciences
MADN-MATH	MST0	Mathematical Studies Major	Mathematical Studies
MADN-MATH	ORE0	Operations Research Major	Operations Research
MADN-MATH	ORS0	Operations Research Studies Major	Operations Research Studies
MADN-MATH	ORE0H	Operations Research Major w/ Honors	Operations Research w/ Honors
MADN-PNE	ISC0	Interdisciplinary Science Major	Interdisciplinary Science
MADN-PNE	ISC0H	Interdisciplinary Science Major w/ Honors	Interdisciplinary Science w/ Honors
MADN-PNE	NEN0	Nuclear Engineering Major	Nuclear Engineering
MADN-PNE	NES0	Nuclear Engineering Science Major	Nuclear Engineering Science
MADN-PNE	NEN0H	Nuclear Engineering Major w/ Honors	Nuclear Engineering w/ Honors
MADN-PNE	NTP0N	Nuclear Technology and Policy Studies Minor	Nuclear Technology and Policy Studies Minor
MADN-PNE	PHY0	Physics Major	Physics
MADN-PNE	PHY0H	Physics Major w/ Honors	Physics w/ Honors
MADN-SE	ECE0	Engineering Management (CE) Major	Engineering Management
MADN-SE	ECE0H	Engineering Management (CE) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	EEE0	Engineering Management (EE) Major	Engineering Management
MADN-SE	EEE0H	Engineering Management (EE) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	ENV0	Engineering Management (ENV) Major	Engineering Management
MADN-SE	ENV0H	Engineering Management (ENV) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	ENG0	Engineering Management (GE) Major	Engineering Management
MADN-SE	ENG0H	Engineering Management (GE) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	EME0	Engineering Management (ME) Major	Engineering Management
MADN-SE	EME0H	Engineering Management (ME) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	ENE0	Engineering Management (NE) Major	Engineering Management
MADN-SE	ENE0H	Engineering Management (NE) Major w/ Honors	Engineering Management w/ Honors
MADN-SE	SMA1	Systems Design and Management Major	Systems Design and Management
MADN-SE	SMA1H	Systems Design and Management Major w/ Honors	Systems Design and Management w/ Honors
MADN-SE	SEN0	Systems Engineering Major	Systems Engineering
MADN-SE	SEN0H	Systems Engineering Major w/ Honors	Systems Engineering w/ Honors
MADN-SOC	ECN1	Economics Major	Economics
MADN-SOC	ECN1T	Economics Major w/ Thesis	Economics w/ Thesis
MADN-SOC	ECN1H	Economics Major w/ Thesis (Honors)	Economics w/ Thesis (Honors)
MADN-SOC	GST0N	Grand Strategy Minor	Grand Strategy Minor
MADN-SOC	PIR1T	Political Science Major: International Relations w/ Thesis	Pol Science Major: Int'l Relations w/ Thesis
MADN-SOC	PAP1H	Political Science Major: American Politics w/ Thesis (Honors)	Pol Science: Amer Politics w/ Thesis (Honors)

MADN-SOC	PCP1H	Political Science Major: Comparative Politics w/ Thesis (Honors)	Pol Science: Comp Politics w/ Thesis (Honors)
MADN-SOC	PIR1H	Political Science Major: International Relations w/ Thesis (Honors)	Pol Science: Int'l Relations w/ Thesis (Honors)
MADN-SOC	PAP1T	Political Science: American Politics w/ Thesis	Political Science: Amer Politics w/ Thesis
MADN-SOC	PAP1	Political Science Major: American Politics	Political Science: American Politics
MADN-SOC	PCP1T	Political Science: Comparative Politics w/ Thesis	Political Science: Comp Politics w/ Thesis
MADN-SOC	PCP1	Political Science Major: Comparative Politics	Political Science: Comparative Politics
MADN-SOC	PIR1	Political Science Major: International Relations	Political Science: Int'l Relations
MADN-SOC	TST0N	Terrorism Studies Minor	Terrorism Studies Minor

By Major:

Code	Description	Transcript Description	Dept
APL0	Art, Philosophy, and Literature Major	Art, Philosophy & Literature	MADN-DEP
APL0H	Art, Philosophy, and Literature Major w/ Honors	Art, Philosophy, and Literature w/ Honors	MADN-DEP
AST0N	Applied Statistics Minor	Applied Statistics Minor	MADN-MATH
CEN0	Chemical Engineering Major	Chemical Engineering	MADN-CHEM
CEN0H	Chemical Engineering Major w/ Honors	Chemical Engineering w/ Honors	MADN-CHEM
CES0	Chemical Engineering Studies Major	Chemical Engineering Studies	MADN-CHEM
CHM0	Chemistry Major	Chemistry	MADN-CHEM
CHM0H	Chemistry Major w/ Honors	Chemistry w/ Honors	MADN-CHEM
CNG0	Civil Engineering Studies Major	Civil Engineering Studies	MADN-CME
CSC0	Computer Science Major	Computer Science	MADN-EECS
CSC0H	Computer Science Major w/ Honors	Computer Science w/ Honors	MADN-EECS
CVN0	Civil Engineering Major	Civil Engineering	MADN-CME
CVN0H	Civil Engineering Major w/Honors	Civil Engineering w/ Honors	MADN-CME
CYB0N	Cyber Security Minor	Cyber Security Minor	MADN-EECS
DSS1	Defense and Strategic Studies Major	Defense and Strategic Studies	MADN-HIST
DSS1H	Defense and Strategic Studies Major w/ Thesis (Honors)	Defense/Strategic Studies w/Thesis (Honors)	MADN-HIST
DSS1T	Defense and Strategic Studies Major w/ Thesis	Defense and Strategic Studies w/ Thesis	MADN-HIST
ECE0	Engineering Management (CE) Major	Engineering Management	MADN-SE
ECE0H	Engineering Management (CE) Major w/ Honors	Engineering Management w/ Honors	MADN-SE
ECN1	Economics Major	Economics	MADN-SOC
ECN1H	Economics Major w/ Thesis (Honors)	Economics w/ Thesis (Honors)	MADN-SOC
ECN1T	Economics Major w/ Thesis	Economics w/ Thesis	MADN-SOC
EEE0	Engineering Management (EE) Major	Engineering Management	MADN-SE
EEE0H	Engineering Management (EE) Major w/ Honors	Engineering Management w/ Honors	MADN-SE
EEN0	Electrical Engineering Major	Electrical Engineering	MADN-EECS
EEN0H	Electrical Engineering Major w/ Honors	Electrical Engineering w/ Honors	MADN-EECS
EES0	Environmental Engineering Studies Major	Environmental Engineering Studies	MADN-GEnE
EGE0	Environmental Geography Major	Environmental Geography	MADN-GEnE
EGE0H	Environmental Geography Major w/ Honors	Environmental Geography w/ Honors	MADN-GEnE
EIT0	Electronic & Information Technology Systems Major	Elec & Info Tech Sys	MADN-EECS
EME0	Engineering Management (ME) Major	Engineering Management	MADN-SE
EME0H	Engineering Management (ME) Major w/ Honors	Engineering Management w/ Honors	MADN-SE
ENE0	Engineering Management (NE) Major	Engineering Management	MADN-SE
ENE0H	Engineering Management (NE) Major w/ Honors	Engineering Management w/ Honors	MADN-SE

ENG0	Engineering Management (GE) Major	Engineering Management	MADN-SE
ENG0H	Engineering Management (GE) Major w/ Honors	Engineering Management w/ Honors	MADN-SE
ENV0	Engineering Management (ENV) Major	Engineering Management	MADN-SE
ENV0H	Engineering Management (ENV) Major w/ Honors	Engineering Management w/ Honors	MADN-SE
EPS0	Engineering Psychology Major	Engineering Psychology	MADN-BSL
EPS0H	Engineering Psychology Major w/ Honors	Engineering Psychology w/ Honors	MADN-BSL
ESC0	Environmental Science Major	Environmental Science	MADN-GEnE
ESC0H	Environmental Science Major w/ Honors	Environmental Science w/ Honors	MADN-GEnE
EVE0	Environmental Engineering Major	Environmental Engineering	MADN-GEnE
EVE0H	Environmental Engineering Major w/ Honors	Environmental Engineering w/ Honors	MADN-GEnE
FAC0	Foreign Language Major: Arabic & Chinese	Foreign Lang: Arabic & Chinese	MADN-FL
FAC0H	Foreign Language Major: Arabic & Chinese w/ Honors	Foreign Lang: Arabic & Chinese w/ Honors	MADN-FL
FAF0	Foreign Language Major: Arabic & French	Foreign Lang: Arabic & French	MADN-FL
FAF0H	Foreign Language Major: Arabic & French w/ Honors	Foreign Lang: Arabic & French w/ Honors	MADN-FL
FAP0	Foreign Language Major: Arabic & Portuguese	Foreign Lang: Arabic & Portuguese	MADN-FL
FAP0H	Foreign Language Major: Arabic & Portuguese w/ Honors	Foreign Lang: Arabic & Portuguese w/ Honors	MADN-FL
FAR0	Foreign Language Major: Arabic & Russian	Foreign Lang: Arabic & Russian	MADN-FL
FAR0H	Foreign Language Major: Arabic & Russian w/ Honors	Foreign Lang: Arabic & Russian w/ Honors	MADN-FL
FAS0	Foreign Language Major: Arabic & Spanish	Foreign Lang: Arabic & Spanish	MADN-FL
FAS0H	Foreign Language Major: Arabic & Spanish w/ Honors	Foreign Lang: Arabic & Spanish w/ Honors	MADN-FL
FAZ0	Foreign Language Major: Arabic & Persian	Foreign Lang: Arabic & Persian	MADN-FL
FAZ0H	Foreign Language Major: Arabic & Persian w/ Honors	Foreign Lang: Arabic & Persian w/ Honors	MADN-FL
FCF0	Foreign Language Major: Chinese & French	Foreign Lang: Chinese & French	MADN-FL
FCF0H	Foreign Language Major: Chinese & French w/ Honors	Foreign Lang: Chinese & French w/ Honors	MADN-FL
FCG0	Foreign Language Major: Chinese & German	Foreign Lang: Chinese & German	MADN-FL
FCG0H	Foreign Language Major: Chinese & German w/ Honors	Foreign Lang: Chinese & German w/ Honors	MADN-FL
FCP0	Foreign Language Major: Chinese & Portuguese	Foreign Lang: Chinese & Portuguese	MADN-FL
FCP0H	Foreign Language Major: Chinese & Portuguese w/ Honors	Foreign Lang: Chinese & Portuguese w/ Honors	MADN-FL
FCR0	Foreign Language Major: Chinese & Russian	Foreign Lang: Chinese & Russian	MADN-FL
FCR0H	Foreign Language Major: Chinese & Russian w/ Honors	Foreign Lang: Chinese & Russian w/ Honors	MADN-FL
FCS0	Foreign Language Major: Chinese & Spanish	Foreign Lang: Chinese & Spanish	MADN-FL
FCS0H	Foreign Language Major: Chinese & Spanish w/ Honors	Foreign Lang: Chinese & Spanish w/ Honors	MADN-FL
FCZ0	Foreign Language Major: Chinese & Persian	Foreign Lang: Chinese & Persian	MADN-FL
FCZ0H	Foreign Language Major: Chinese & Persian w/ Honors	Foreign Lang: Chinese & Persian w/ Honors	MADN-FL
FFG0	Foreign Language Major: French & German	Foreign Lang: French & German	MADN-FL
FFG0H	Foreign Language Major: French & German w/ Honors	Foreign Lang: French & German w/ Honors	MADN-FL
FFP0	Foreign Language Major: French & Portuguese	Foreign Lang: French & Portuguese	MADN-FL
FFP0H	Foreign Language Major: French & Portuguese w/ Honors	Foreign Lang: French & Portuguese w/ Honors	MADN-FL
FFR0	Foreign Language Major: French & Russian	Foreign Lang: French & Russian	MADN-FL
FFR0H	Foreign Language Major: French & Russian w/ Honors	Foreign Lang: French & Russian w/ Honors	MADN-FL
FFS0	Foreign Language Major: French & Spanish	Foreign Lang: French & Spanish	MADN-FL
FFS0H	Foreign Language Major: French & Spanish w/ Honors	Foreign Lang: French & Spanish w/ Honors	MADN-FL
FFZ0	Foreign Language Major: French & Persian	Foreign Lang: French & Persian	MADN-FL
FFZ0H	Foreign Language Major: French & Persian w/ Honors	Foreign Lang: French & Persian w/ Honors	MADN-FL
FGA0	Foreign Language Major: German & Arabic	Foreign Lang: German & Arabic	MADN-FL
FGA0H	Foreign Language Major: German & Arabic w/ Honors	Foreign Lang: German & Arabic w/ Honors	MADN-FL
FGP0	Foreign Language Major: German & Portuguese	Foreign Lang: German & Portuguese	MADN-FL

FGP0H	Foreign Language Major: German & Portuguese w/ Honors	Foreign Lang: German & Portuguese w/ Honors	MADN-FL
FGR0	Foreign Language Major: German & Russian	Foreign Lang: German & Russian	MADN-FL
FGR0H	Foreign Language Major; German & Russian w/ Honors	Foreign Lang: German & Russian w/ Honors	MADN-FL
FGS0	Foreign Language Major: German & Spanish	Foreign Lang: German & Spanish	MADN-FL
FGS0H	Foreign Language Major: German & Spanish w/ Honors	Foreign Lang: German & Spanish w/ Honors	MADN-FL
FGZ0	Foreign Language Major: German & Persian	Foreign Lang: German & Persian	MADN-FL
FGZ0H	Foreign Language Major: German & Persian w/ Honors	Foreign Lang: German & Persian w/ Honors	MADN-FL
FLA0	Foreign Language Major: Arabic	Foreign Lang: Arabic	MADN-FL
FLA0H	Foreign Language Major: Arabic w/ Honors	Foreign Lang: Arabic w/ Honors	MADN-FL
FLC0	Foreign Language Major: Chinese	Foreign Lang: Chinese	MADN-FL
FLC0H	Foreign Language Major: Chinese w/ Honors	Foreign Lang: Chinese w/ Honors	MADN-FL
FLF0	Foreign Language Major: French	Foreign Lang: French	MADN-FL
FLF0H	Foreign Language Major: French w/ Honors	Foreign Lang: French w/ Honors	MADN-FL
FLG0	Foreign Language Major: German	Foreign Lang: German	MADN-FL
FLG0H	Foreign Language Major: German w/ Honors	Foreign Lang: German w/ Honors	MADN-FL
FLP0	Foreign Language Major: Portuguese	Foreign Lang: Portuguese	MADN-FL
FLP0H	Foreign Language Major: Portuguese w/ Honors	Foreign Lang: Portuguese w/ Honors	MADN-FL
FLR0	Foreign Language Major: Russian	Foreign Lang: Russian	MADN-FL
FLR0H	Foreign Language Major: Russian w/ Honors	Foreign Lang: Russian w/ Honors	MADN-FL
FLS0	Foreign Language Major: Spanish	Foreign Lang: Spanish	MADN-FL
FLS0H	Foreign Language Major: Spanish w/ Honors	Foreign Lang; Spanish w/ Honors	MADN-FL
FPR0	Foreign Language Major: Portuguese & Russian	Foreign Lang: Portuguese & Russian	MADN-FL
FPR0H	Foreign Language Major: Portuguese & Russian w/ Honors	Foreign Lang: Portuguese & Russian w/ Honors	MADN-FL
FPS0	Foreign Language Major: Portuguese & Spanish	Foreign Lang: Portuguese & Spanish	MADN-FL
FPS0H	Foreign Language Major: Portuguese & Spanish w/ Honors	Foreign Lang: Portuguese & Spanish w/ Honors	MADN-FL
FPZ0	Foreign Language Major: Portuguese & Persian	Foreign Lang: Portuguese & Persian	MADN-FL
FPZ0H	Foreign Language Major: Portuguese & Persian w/ Honors	Foreign Lang: Portuguese & Persian w/ Honors	MADN-FL
FRS0	Foreign Language Major: Russian & Spanish	Foreign Lang: Russian & Spanish	MADN-FL
FRS0H	Foreign Language Major: Russian & Spanish w/ Honors	Foreign Lang: Russian & Spanish w/ Honors	MADN-FL
FRZ0	Foreign Language Major: Russian & Persian	Foreign Lang: Russian & Persian	MADN-FL
FRZ0H	Foreign Language Major: Russian & Persian w/ Honors	Foreign Lang: Russian & Persian w/ Honors	MADN-FL
FSA0	Foreign Area Studies Major: East Asia	Foreign Area Studies: E. Asia	MADN-FL
FSA0H	Foreign Area Studies Major: East Asia w/ Honors	Foreign Area Studies: E. Asia w/ Honors	MADN-FL
FSE0	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe	MADN-FL
FSE0H	Foreign Area Studies Major: Europe w/ Honors	Foreign Area Studies: Europe w/ Honors	MADN-FL
FSI0	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa	MADN-FL
FSI0H	Foreign Area Studies Major: Africa w/ Honors	Foreign Area Studies: Africa w/ Honors	MADN-FL
FSL0	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America	MADN-FL
FSL0H	Foreign Area Studies Major: Latin America w/ Honors	Foreign Area Studies: Latin America w/ Honors	MADN-FL
FSM0	Foreign Area Studies Major: Middle East	Foreign Area Studies: Mid East	MADN-FL
FSM0H	Foreign Area Studies Major: Middle East w/ Honors	Foreign Area Studies: Mid East w/ Honors	MADN-FL
FSU0	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia	MADN-FL
FSU0H	Foreign Area Studies Major: Eurasia w/ Honors	Foreign Area Studies: Eurasia w/ Honors	MADN-FL
FSZ0	Foreign Language Major: Spanish & Persian	Foreign Lang: Spanish & Persian	MADN-FL
FSZ0H	Foreign Language Major: Spanish & Persian w/ Honors	Foreign Lang: Spanish & Persian w/ Honors	MADN-FL
GEO0	Human Geography Major	Human Geography	MADN-GEnE

GEO0H	Human Geography Major w/ Honors	Human Geography w/ Honors	MADN-GEnE
GIS0	Geospatial Information Science Major	Geospatial Information Science	MADN-GEnE
GIS0H	Geospatial Information Science Major w/ Honors	Geospatial Information Science w/ Honors	MADN-GEnE
GST0N	Grand Strategy Minor	Grand Strategy Minor	MADN-SOC
HMH1	History Major: Military	History: Military	MADN-HIST
HMH1H	History Major: Military w/ Thesis (Honors)	History: Military w/ Thesis (Honors)	MADN-HIST
HMH1T	History Major: Military w/ Thesis	History: Military w/ Thesis	MADN-HIST
HNT1	History Major: International	History: International	MADN-HIST
HNT1H	History Major: International w/ Thesis (Honors)	History: International w/ Thesis (Honors)	MADN-HIST
HNT1T	History Major: International w/ Thesis	History: International w/ Thesis	MADN-HIST
HUS1	History Major: United States	History: United States	MADN-HIST
HUS1H	History Major: United States w/ Thesis (Honors)	History: United States w/ Thesis (Honors)	MADN-HIST
HUS1T	History: United States w/ Thesis	History: United States w/ Thesis	MADN-HIST
ISC0	Interdisciplinary Science Major	Interdisciplinary Science	MADN-PNE
ISC0H	Interdisciplinary Science Major w/ Honors	Interdisciplinary Science w/ Honors	MADN-PNE
ITE0	Information Technology Major	Information Technology	MADN-EECS
ITE0H	Information Technology Major w/ Honors	Information Technology w/ Honors	MADN-EECS
KIN0	Kinesiology Major	Kinesiology	MADN-CHEM
KIN0H	Kinesiology Major w/ Honors	Kinesiology w/ Honors	MADN-CHEM
LDR1	Leader Development Science Major	Leader Development Science	MADN-BSL
LDR1H	Leader Development Science Major w/ Honors	Leader Development Science w/ Honors	MADN-BSL
LLS1	Law and Legal Studies Major	Law and Legal Studies	MADN-LAW
LLS1H	Law and Legal Studies Major w/ Honors	Law and Legal Studies w/ Honors	MADN-LAW
LSC0	Life Science Major	Life Science	MADN-CHEM
LSC0H	Life Science Major w/ Honors	Life Science w/ Honors	MADN-CHEM
MEN0	Mechanical Engineering Major	Mechanical Engineering	MADN-CME
MEN0H	Mechanical Engineering Major w/ Honors	Mechanical Engineering w/ Honors	MADN-CME
MES0	Mechanical Engineering Studies Major	Mechanical Engineering Studies	MADN-CME
MNG0	Management Major	Management	MADN-BSL
MNG0H	Management Major w/ Honors	Management w/ Honors	MADN-BSL
MSC0	Mathematical Sciences Major	Mathematical Sciences	MADN-MATH
MSC0H	Mathematical Sciences Major w/ Honors	Mathematical Sciences w/ Honors	MADN-MATH
MST0	Mathematical Studies Major	Mathematical Studies	MADN-MATH
NEN0	Nuclear Engineering Major	Nuclear Engineering	MADN-PNE
NEN0H	Nuclear Engineering Major w/ Honors	Nuclear Engineering w/ Honors	MADN-PNE
NES0	Nuclear Engineering Science Major	Nuclear Engineering Science	MADN-PNE
NSC0N	Network Science Minor	Network Science Minor	MADN-BSL
NTP0N	Nuclear Technology and Policy Studies Minor	Nuclear Technology and Policy Studies Minor	MADN-PNE
ORE0	Operations Research Major	Operations Research	MADN-MATH
ORE0H	Operations Research Major w/ Honors	Operations Research w/ Honors	MADN-MATH
ORS0	Operations Research Studies Major	Operations Research Studies	MADN-MATH
PAP1	Political Science Major: American Politics	Political Science: American Politics	MADN-SOC
PAP1H	Political Science Major: American Politics w/ Thesis (Honors)	Pol Science: Amer Politics w/ Thesis (Honors)	MADN-SOC
PAP1T	Political Science: American Politics w/ Thesis	Political Science: Amer Politics w/ Thesis	MADN-SOC
PCP1	Political Science Major: Comparative Politics	Political Science: Comparative Politics	MADN-SOC
PCP1H	Political Science Major: Comparative Politics w/ Thesis (Honors)	Pol Science: Comp Politics w/ Thesis (Honors)	MADN-SOC
PCP1T	Political Science: Comparative Politics w/ Thesis	Political Science: Comp Politics w/ Thesis	MADN-SOC

PHY0	Physics Major	Physics	MADN-PNE
PHY0H	Physics Major w/ Honors	Physics w/ Honors	MADN-PNE
PIR1	Political Science Major: International Relations	Political Science: Int'l Relations	MADN-SOC
PIR1H	Political Science Major: International Relations w/ Thesis (Honors)	Pol Science: Int'l Relations w/ Thesis (Honors)	MADN-SOC
PIR1T	Political Science Major: International Relations w/ Thesis	Pol Science Major: Int'l Relations w/ Thesis	MADN-SOC
PSY0	Psychology Major	Psychology	MADN-BSL
PSY0H	Psychology Major w/ Honors	Psychology w/ Honors	MADN-BSL
RST0N	Regional Studies Minor	Regional Studies Minor	MADN-FL
SEN0	Systems Engineering Major	Systems Engineering	MADN-SE
SEN0H	Systems Engineering Major w/ Honors	Systems Engineering w/ Honors	MADN-SE
SMA1	Systems Design and Management Major	Systems Design and Management	MADN-SE
SMA1H	Systems Design and Management Major w/ Honors	Systems Design and Management w/ Honors	MADN-SE
SOC0	Sociology Major	Sociology	MADN-BSL
SOC0H	Sociology Major w/ Honors	Sociology w/ Honors	MADN-BSL
TST0N	Terrorism Studies Minor	Terrorism Studies Minor	MADN-SOC

PART IV: FIELD TABLES

Department of Behavioral Sciences and Leadership

2017 Engineering Psychology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EPS0	Engineering Psychology	Engineering Psychology Major	Engineering Psychology	11	0

2017 Engineering Psychology Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 10 of 10
MA376	APPLIED STATISTICS
PL386	EXPERIMENTAL PSYCHOLOGY
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL392	COGNITIVE PSYCHOLOGY
PL394	ANTHROPOMETRICS & BIOMECHANICS
PL475	HUMAN-COMPUTER INTERACTION
PL485	HUMAN FACTORS ENGINEERING
PL488E	COLLOQUIUM-BSL-ENGIN PSYCH
PL490	ENGINEERING PSYCHOLOGY

2017 Engineering Psychology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EPS0H	Engineering Psychology w/ Honors	Engineering Psychology Major w/ Honors	Engineering Psychology w/ Honors	0	2

2017 Engineering Psychology Major w/ Honors Tracks

Subject Area	Description
Complete any one of the following two-course tracks.	
Engineering Psychology Research	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
OR	
Decision Making	Choose 2 of 3
DS310	TACTICS

SE382	DECISION SUPPORT SYSTEMS
SE385	DECISION ANALYSIS
OR	
Human Performance	Choose 2 of 2
CH375	INTRODUCTION TO BIOLOGY
CH387	HUMAN PHYSIOLOGY
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Leader Development Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LDR1	Leader Development Science	Leader Development Science Major	Leader Development Science	11	0

2017 Leader Development Science Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 7 of 7
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL387	FOUNDATIONS OF COUNSELING
PL398	LEADERSHIP THEORY & DEVEL
PL471	LEADERSHIP IN COMBAT
PL479	LEADING ORGNZS THRU CHANGE
PL499	LEADERS IN ACTION
AND	
Electives	Choose 2 of 4
In order to graduate with honors, one of the two must be PL361.	
HI387	GENERALSHIP-ART OF COMMAND
MG472	INTERNATIONAL MANAGEMENT
PL361	RESEARCH METHODS I
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 Leader Development Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LDR1H	Leader Development Science w/ Honors	Leader Development Science Major w/ Honors	Leader Development Science w/ Honors	2	0

2017 Leader Development Science Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Management Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MNG0	Management	Management Major	Management	11	0

2017 Management Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 8 of 8
MG380	MARKETING
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
MG395	FUNDAMENTALS OF ACCOUNTING
MG410	MANAGERIAL FINANCE
MG420	OPERATIONS MANAGEMENT
MG421	STRATEGIC MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Electives	Choose 1 of 8

In order to graduate with honors PL361 must be taken.

EM381	ENGINEERING ECONOMY
LW488	BUSINESS LAW
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
MG472	INTERNATIONAL MANAGEMENT
PL361	RESEARCH METHODS I
SS382	MICROECONOMICS
SS388	MACROECONOMICS
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 Management Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MNG0H	Management w/ Honors	Management Major w/ Honors	Management w/ Honors	2	0

2017 Management Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
AND	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Network Science Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NSC0N	Network Science Minor	Network Science Minor	Network Science Minor	1	4

2017 Network Science Minor Tracks

Subject Area	Description
Description of Minor	

The Network Science minor (NS) is an interdisciplinary program of study that combines formal mathematical modeling with theoretical contributions gleaned from academic disciplines as diverse as sociology, economics, biology, policy analysis, electrical engineering, international relations, organizational theory, and computer science. NS has five components: (1) a required introductory course on the fundamentals of network science, (2) an elective on network science theory, (3) an elective on modeling networks, (4) an elective on the application of network science to real-world problems, and (5) an integration course, during which cadets complete an independent study project demonstrating their understanding of the previous four components.

Cadets wishing to complete the final integration course during the fall semester must register for PL497 (Seminar in Behavioral Sciences). Cadets wishing to complete the final integration course during the spring semester must register for PL498 (Advanced Study in Behavioral Sciences). All NS minors must successfully complete the following four modules in this final integration course:

1. Research question module

Students must conduct a review of the theoretical literature of a topical discipline (e.g. sociology, biology, international relations, or computer science) in order to formulate a research question that addresses a gap or shortcoming in existing scholarship. When formulating research questions, students should draw on the knowledge they acquired during the theory course.

2. Research design module

Students must formulate and implement a practical and theoretically sound approach to network science that is capable of answering the research question determined during the first module. When designing and implementing their approach to research, students should draw on the knowledge of network mathematics that they obtained in the fundamentals course, as well as any relevant data-collection skills acquired in the applications course and any relevant modeling skills acquired in the modeling course.

3. Results module

Students must present their findings in two formats. They must complete a research paper of at least 5,000 words (exclusive of citations and notes), and they must present their work at a minimum of one academic forum, such as a national academic conference or Projects Day.

4. Reflection module

Students must write a paper of at least 1250 words on the topic of their experience in the network science minor. This paper should comment on how the fundamentals course, the theory course, the modeling course, and the applications course contributed to (a) their ability to complete the final integration course, (b) their development as a network scientist, and (c) their development as an officer.

Foundations of Network Science Course	Choose 1 of 1

All cadets minoring in network science must enroll in this class. There are no exceptions.

MA394	FUNDAMENTALS/NETWORK SCIENCE
AND	
Theory Elective	Choose 1 of 6

You must select one course that deals with the theoretical aspects of network science. MA488 (Special Topics) can count toward NS when Game Theory is the specific subject of the course. Additional courses not listed below can be substituted with the approval of the network science minor's advisor.

IT350	NETWORK ENGR & MGT
MA371	LINEAR ALGEBRA
MA372	INTRODUCTION TO DISCRETE MATH
MA461	GRAPH THEORY AND NETWORKS
MA488	SPECIAL TOPICS IN MATHEMATICS
PL384	SOCIOLOGICAL THEORY
AND	
Modeling Elective	Choose 1 of 9

You must select one course that deals with the modeling aspects of network science. Courses other than those listed below can be substituted with the approval of the network science minor's advisor.

CS384	DATA STRUCTURES
CS385	DESIGN & ANALYS-ALGORITHMS
EM481	SYSTEMS SIMULATION
MA391	MATHEMATICAL MODELING

SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
SS387	ECONOMICS OF PUBLIC POLICY

AND

Applications Elective Choose 1 of 25

You must select one course that deals with applying the principles of network science to real-world problems. MA488 (Special Topics) can count toward NS when Network Modeling for Irregular Warfare is the specific subject of the course. Additional courses not listed below can be substituted with the approval of the network science minor's advisor.

CE350	INFRASTRUCTURE ENGINEERING
CE490	TOPICS IN CIVIL ENGINEERING
CS482	CYBER SECURITY ENGINEERING
CS484	COMPUTER NETWORKS
CS486	ARTIFICIAL INTELLIGENCE
DS455	COMPARATIVE MILITARY SYSTEMS
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV390B	URBAN GEOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV478	MILITARY GEOSPATIAL OPERATIONS
IT384	NETWORK SYSTEM PROG
IT460	CYBER OPERATIONS
MA488	SPECIAL TOPICS IN MATHEMATICS
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL396	SNA FOR PUBLIC POLICY
PL398	LEADERSHIP THEORY & DEVEL
PL475	HUMAN-COMPUTER INTERACTION
SM440	COMPLEX SYSTEMS ARCHITECTURE
SS368	ECONOMETRICS I
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS465	TERRORISM: NEW CHALLENGES
XH467	WINNING THE PEACE

AND

Integration Elective Choose 1 of 2

All cadets minoring in network science must complete a one-semester independent study project that satisfies the four modules outlined in the minor's learning outcomes. Specifically, these modules are (1) the formulation of a research question, (2) the formulation and implementation of a research design, (3) the presentation of results from completed research, and (4) the completion of a reflection paper describing the cadet's experience in the minor. See the description of the minor for additional information on these modules. Cadets can complete this independent study as either PL497, which is offered in the fall, or as PL498, which is offered during the spring term.

PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI

2017 Psychology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSY0	Psychology	Psychology Major	Psychology	9	2

2017 Psychology Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 7 of 7
PL361	RESEARCH METHODS I
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL387	FOUNDATIONS OF COUNSELING
PL462	EXPERIMENTAL APP IN PSYCHOLOGY
PL488B	COLLOQUIUM-BSL-PSYCHOLOGY
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG
AND	
Elective	Choose 1 of 5
Complete one course from the following list.	
CH375	INTRODUCTION TO BIOLOGY
CH387	HUMAN PHYSIOLOGY
PL390	BIOLOGICAL PSYCHOLOGY
PL391	SENSATION/PERCEPTN/PSYCPHYS
PL392	COGNITIVE PSYCHOLOGY
AND	
Elective	Choose 1 of 13
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
MG472	INTERNATIONAL MANAGEMENT
PL360	PSYCH ELITE PERFORMANCE
PL371	INTRODUCTORY SOCIOLOGY
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL470	TOPICS-BEHAVIOR SCI/LDRSHIP
PL471	LEADERSHIP IN COMBAT
PL476	EDUCATIONAL PSYCHOLOGY
SS370	MASS MEDIA & AMER POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY

2017 Psychology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PSY0H	Psychology w/ Honors	Psychology Major w/ Honors	Psychology w/ Honors	2	0

2017 Psychology Major w/ Honors Tracks

Subject Area	Description
Complete one of the following two-course tracks:	
Psychological Research	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
OR	
Biological Psychology	Choose 2 of 2
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
AND	

Complete the requirements for the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Sociology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SOC0	Sociology	Sociology Major	Sociology	11	0

2017 Sociology Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 7 of 7
LX300	3RD SEMESTER FOREIGN LANG
PL361	RESEARCH METHODS I
PL371	INTRODUCTORY SOCIOLOGY
PL377	SOCIAL INEQUALITY
PL384	SOCIOLOGICAL THEORY
PL482	ARMED FORCES AND SOCIETY
PL488D	COLLOQUIUM-BSL-SOCIOLOGY
AND	
Sociology Electives	Choose 2 of 4
PL372	SOCIOLOGY OF THE FAMILY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI

AND	
Enrichment Electives	Choose 1 of 30
DS455	COMPARATIVE MILITARY SYSTEMS
EP333	CULTURAL STUDIES
EP365	ETHICS-MILITARY PROFESSION
EP369	CONTEMPORARY CREATIVITY
EP374	THE ARTS OF WAR
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI363	EUROPE IN TRNSITION & REVOL
HI377	HISTORY OF ASIAN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI383	MIDDLE EASTERN WARFARE
HI385	WAR & ITS THEORISTS
HI386	KOREA,VIETNM,AMER MIL EXPER
HI391	HISTORY OF WORLD RELIGIONS
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
LN380	NATURE OF MODERN LANGUAGES
LW474	LAW OF ARMED CONFLICT
LW495	LEGAL PHILOS & JURISPRUDNCE
MG379	LEADING TEAMS
MG472	INTERNATIONAL MANAGEMENT
PL373	LIFE CYCLE & HUMAN DEVEL
PL376	PERSONALITY & AB PSYCH
PL383	EXPERIMENTAL SOCIAL PSYCHOLOGY
PL387	FOUNDATIONS OF COUNSELING
PL398	LEADERSHIP THEORY & DEVEL
PL470	TOPICS-BEHAVIOR SCI/LDRSHIP
PL479	LEADING ORGNZS THRU CHANGE
SS370	MASS MEDIA & AMER POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS472	THE AM STATE & THE SOLDIER

2017 Sociology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SOC0H	Sociology w/ Honors	Sociology Major w/ Honors	Sociology w/ Honors	2	0

2017 Sociology Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
PL497	SEMINAR IN BEHAVIORAL SCI
PL498	ADV STUDY-BEHAVIOR SCI
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

Department of Chemistry & Life Science

2017 Chemical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CEN0	Chemical Engineering	Chemical Engineering Major	Chemical Engineering	15	3

2017 Chemical Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 15 of 15
CH362	MASS & ENERGY BALANCES
CH363	SEPARATION PROCESSES
CH364	CHEMICAL REACTION ENGINEERING
CH365	CHEMICAL ENG THERMODYNAMICS
CH383	ORGANIC CHEMISTRY I
CH400	CHEM ENG PROFESSIONAL PRACTICE
CH402	CHEM ENG PROCESS DESIGN
CH459	CHEM ENGR LABORATORY
CH485	HEAT AND MASS TRANSFER
EE301	FUNDAMENTALS OF ELEC ENGIN
MA366	APPLIED ENGINEERING MATH
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
XE472	DYNAMIC MODELING AND CONTROL
AND	
Elective	Choose 3 of 17
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGNRNG
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
MC306	DYNAMICS
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SM484	SYSTEM DYNAMICS SIMULATION
XE475	MECHATRONICS
AND	

Prerequisites must be satisfied. Additional electives are available on approval of the program director and must meet minimum engineering content of 3.0 credit hours per course.

2017 Chemical Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CEN0H	Chemical Engineering w/ Honors	Chemical Engineering Major w/ Honors	Chemical Engineering w/ Honors	1	0

2017 Chemical Engineering Major w/ Honors Tracks

Subject Area	Description
Required Course	Choose 1 of 1
CH489	INDIVIDUAL RESEARCH I
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Chemical Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CES0	Chemical Engineering Studies	Chemical Engineering Studies Major	Chemical Engineering Studies	14	0

2017 Chemical Engineering Studies Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 11 of 11
CH362	MASS & ENERGY BALANCES
CH363	SEPARATION PROCESSES
CH364	CHEMICAL REACTION ENGINEERING
CH365	CHEMICAL ENG THERMODYNAMICS
CH383	ORGANIC CHEMISTRY I
CH402	CHEM ENG PROCESS DESIGN
EE301	FUNDAMENTALS OF ELEC ENGIN
MA366	APPLIED ENGINEERING MATH
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
XE472	DYNAMIC MODELING AND CONTROL

AND	
Elective	Choose 2 of 32

Prerequisites must be satisfied. Additional electives are available on approval of the program director.

CE364	MECHANICS OF MATERIALS
CH371	INTRO TO ANALYTICAL CHEM
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH459	CHEM ENGR LABORATORY
CH471	APPLICATIONS OF POLYMER CHEM
CH472	INORGANIC CHEMISTRY
CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
CH485	HEAT AND MASS TRANSFER
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGNRNG
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MA371	LINEAR ALGEBRA
MA396	NUM METH SOLUTIONS DIFF EQNS
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC380	ENGINEERING MATERIALS
ME472	ENERGY CONVERSION SYSTEMS
ME480	HEAT TRANSFER
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE450	NUCLEAR WEAPONS EFFECTS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE481	SYSTEMS SIMULATION
SM484	SYSTEM DYNAMICS SIMULATION
XE475	MECHATRONICS

2017 Chemistry Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CHM0	Chemistry	Chemistry Major	Chemistry	12	0

2017 Chemistry Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	

Required Courses	Choose 10 of 10
CH371	INTRO TO ANALYTICAL CHEM
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH471	APPLICATIONS OF POLYMER CHEM
CH472	INORGANIC CHEMISTRY
CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
CH487	ADVANCED CHEMISTRY LABORATORY
AND	
Electives	Choose 1 of 8
CH362	MASS & ENERGY BALANCES
CH364	CHEMICAL REACTION ENGINEERING
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CH457	MICROBIOLOGY
CH479	METHODS & APPS OF BIOTECH
PH365	MODERN PHYSICS

2017 Chemistry Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CHM0H	Chemistry w/ Honors	Chemistry Major w/ Honors	Chemistry w/ Honors	2	0

2017 Chemistry Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Kinesiology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
KIN0	Kinesiology	Kinesiology Major	Kinesiology	11	0

2017 Kinesiology Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 10 of 10
CH375	INTRODUCTION TO BIOLOGY
CH387	HUMAN PHYSIOLOGY
KN355	FUNCTIONAL ANATOMY
KN360	BIOMECHANICS OF HUMAN MOVEMENT
KN365	NUTRITION FOR PERFORMANCE
KN455	PSYCHOLOGY OF EXERCISE
KN460	EXERCISE PHYSIOLOGY
KN465	MOTOR CONTROL AND LEARNING
KN470	FITNESS ASSESSMENT AND RX
KN480	T/P OF ADVANCED PERFORMANCE

2017 Kinesiology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
KIN0H	Kinesiology w/ Honors	Kinesiology Major w/ Honors	Kinesiology w/ Honors	2	0

2017 Kinesiology Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
KN494	RESEARCH METHODS/DATA ANALYSIS
KN495	HONORS THESIS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Life Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LSC0	Life Science	Life Science Major	Life Science	12	0

2017 Life Science Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 10 of 10
CH371	INTRO TO ANALYTICAL CHEM
CH375	INTRODUCTION TO BIOLOGY
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CH457	MICROBIOLOGY
CH473	BIOCHEMISTRY
CH479	METHODS & APPS OF BIOTECH
AND	
Electives	Choose 1 of 9
CH362	MASS & ENERGY BALANCES
CH460	HUMAN ANATOMY
CH471	APPLICATIONS OF POLYMER CHEM
CH474	INSTRU METHODS OF ANALYSIS
CH481	PHYSICAL CHEMISTRY I
KN355	FUNCTIONAL ANATOMY
NE474	RADIOLOGICAL SAFETY
PH365	MODERN PHYSICS
PL390	BIOLOGICAL PSYCHOLOGY

2017 Life Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LSC0H	Life Science w/ Honors	Life Science Major w/ Honors	Life Science w/ Honors	2	0

2017 Life Science Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

Department of Civil and Mechanical Engineering

2017 Civil Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CNG0	Civil Engineering Studies	Civil Engineering Studies Major	Civil Engineering Studies	14	0

2017 Civil Engineering Studies Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 10 of 10
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE403	STRUCTURAL ANALYSIS
CE404	DSN STEEL AND WOOD STRUCTURES
CE450	CONSTRUCTION MANAGEMENT
CE483	DSN CONC AND MASON STRUCTURES
CE492	DESIGN-STRUCTURAL SYSTEMS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
AND	
Enrichment Electives	Choose 3 of 28
CE390	CIVIL ENGINEERING SITE DESIGN
CE399	CIVIL ENG PRAC-FIELD ENG
CE472	ADV SOIL MECHNCS/FNDTN ENGRNG
CE489	ADV IND STUDY CIVIL ENGRING
CE490	TOPICS IN CIVIL ENGINEERING
CE491	ADV STRUCTURAL ANALYSIS
CE495	TRANSPORTATION ENGINEERING
CH371	INTRO TO ANALYTICAL CHEM
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV380	SURVEYING
EV385	INTRO TO ENVIRON ENGR
EV388A	PHYSICAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV398	GEOG INFORMATION SYSTEMS
EV401	PHYS & CHEM TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
MA364	ENGINEERING MATHEMATICS
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MC306	DYNAMICS
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
MC478	STRUCTURAL MECHANICS

MC486	VIBRATION ENGINEERING
ME370	COMPUTER AIDED DESIGN
PH365	MODERN PHYSICS
SE375	STATISTICS FOR ENGINEERS
XS391	PRIN & APPL OF ENV CHEM

2017 Civil Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CVN0	Civil Engineering	Civil Engineering Major	Civil Engineering	18	0

2017 Civil Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 14 of 14
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE390	CIVIL ENGINEERING SITE DESIGN
CE400	CIVIL ENGR PROF PRACTICE
CE403	STRUCTURAL ANALYSIS
CE404	DSN STEEL AND WOOD STRUCTURES
CE450	CONSTRUCTION MANAGEMENT
CE483	DSN CONC AND MASON STRUCTURES
CE492	DESIGN OF CE SYSTEMS
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC364	MECHANICS OF MATERIALS
AND	
Math and Basic Science Elective	Choose 1 of 6
CH371	INTRO TO ANALYTICAL CHEM
MA364	ENGINEERING MATHEMATICS
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
PH365	MODERN PHYSICS
SE375	STATISTICS FOR ENGINEERS
AND	
Civil Engineering Field Electives	Choose 2 of 16
CE472	ADV SOIL MECHNCS/FNDTN ENGRNG
CE489	ADV IND STUDY CIVIL ENGRING
CE490	TOPICS IN CIVIL ENGINEERING
CE491	ADV STRUCTURAL ANALYSIS
CE495	TRANSPORTATION ENGINEERING
EV385	INTRO TO ENVIRON ENGR
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV401	PHYS & CHEM TREATMENT

EV481	WATER RESOURCES PLAN & DESIGN
MC306	DYNAMICS
MC312	THERMAL-FLUID SYSTEMS II
MC478	STRUCTURAL MECHANICS
MC486	VIBRATION ENGINEERING
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
ME491	MECHANICAL POWER PLANTS
AND	
Engineering Electives	Choose 1 of 15

Cadets may select a third course from the Civil Engineering Field Electives list in lieu of a course from the Engineering Electives list

CE399	CIVIL ENG PRAC-FIELD ENG
CE489A	ADV IND STUDY CIVIL ENGRING
CH371	INTRO TO ANALYTICAL CHEM
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV380	SURVEYING
EV388A	PHYSICAL GEOLOGY
EV398	GEOG INFORMATION SYSTEMS
MA364	ENGINEERING MATHEMATICS
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MC380	ENGINEERING MATERIALS
PH365	MODERN PHYSICS
SE375	STATISTICS FOR ENGINEERS
XE495	TOPICS: ADVANCED TECHNOLOGY
XS391	PRIN & APPL OF ENV CHEM

2017 Civil Engineering Major w/Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CVN0H	Civil Engineering w/ Honors	Civil Engineering Major w/Honors	Civil Engineering w/ Honors	0	0

2017 Civil Engineering Major w/Honors Tracks

Subject Area	Description

Requirements for Graduation

To graduate with Individual Honors a cadet must submit an individual paper or report which can be any of the following:

(1) A project report for an individual CE489 Advanced Study Project.

(2) An individual paper written for a regional or national student paper competition.

(3) An individual paper, suitable for publication or presentation at a professional conference, drawn from one of the following sources:

..... A CE489 Advanced Study Project.

..... A Senior Design Project.

..... An engineering-related Academic Individual Advanced Development (AIAD) assignment.

..... An experience relevant to the cadet's program of study and approved by the associated Program Director.

Cadets desiring to aspire to Individual Honors will coordinate with their Department Academic Counselor to develop a plan no later than the end of second class year for completing the individual paper or report. The Department Academic Counselor will certify the completion of the significant individual paper component of the Academic Honors Program.

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Mechanical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MEN0	Mechanical Engineering	Mechanical Engineering Major	Mechanical Engineering	16	2

2017 Mechanical Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 15 of 15
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
MC486	VIBRATION ENGINEERING
ME370	COMPUTER AIDED DESIGN
ME400	MECHANICAL ENGINEERING SEMINAR
ME403	MANUFACTURING/MACHINE COMP DSN
ME404	MECHANICAL ENGINEERING DESIGN
ME480	HEAT TRANSFER
ME496	MECHANICAL SYSTEM DESIGN
AND	
Sub-disciplines	
Choose one of the following sub-disciplines.	
Aeronautical Systems	Choose 2 of 2
ME387	INTRO APPLIED AERODYNAMICS
ME481	AIRCRAFT PERFOR/STAT STBLTY
OR	
Automotive Systems	Choose 2 of 2
ME491	MECHANICAL POWER PLANTS
ME492	PWR TRAINS & VEH DYNAMICS

OR	
Biomechanics	Choose 2 of 2
CH375	INTRODUCTION TO BIOLOGY
CH387	HUMAN PHYSIOLOGY
OR	
Power and Energy	Choose 2 of 7
One of the two courses must be ME472.	
CH362	MASS & ENERGY BALANCES
CH364	CHEMICAL REACTION ENGINEERING
EE377	ELECTRICAL POWER ENGNRNG
ME472	ENERGY CONVERSION SYSTEMS
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE355	NUCLEAR REACTOR ENGINEERING
OR	
Engineering Management	Choose 2 of 2
EM381	ENGINEERING ECONOMY
EM420	PRODUCTION OPERATIONS MGMT
OR	
Mechatronics	Choose 2 of 2
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
OR	
General	Choose 2 of 9
ME387	INTRO APPLIED AERODYNAMICS
ME388	HELICOPTER AERONAUTICS
ME472	ENERGY CONVERSION SYSTEMS
ME489	ADV STUDY IN MECH ENGRNG
ME489A	ADV STUDY IN MECH ENGRNG
ME490	TOPICS IN MECHANICAL ENGNRG
ME491	MECHANICAL POWER PLANTS
ME492	PWR TRAINS & VEH DYNAMICS
XE472	DYNAMIC MODELING AND CONTROL
AND	
Technical Elective	Choose 1 of 21
Cadets who take either the Biomechanics or the Power and Energy subdiscipline must take one of the ten courses offered by the D/C&ME.	
CE403	STRUCTURAL ANALYSIS
CH364	CHEMICAL REACTION ENGINEERING
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH471	APPLICATIONS OF POLYMER CHEM
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGNRNG
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC486	VIBRATION ENGINEERING
ME387	INTRO APPLIED AERODYNAMICS
ME388	HELICOPTER AERONAUTICS
ME389	INTRO TO ADV STUDY IN MECH ENG
ME472	ENERGY CONVERSION SYSTEMS
ME489	ADV STUDY IN MECH ENGRNG
ME490	TOPICS IN MECHANICAL ENGNRG
ME491	MECHANICAL POWER PLANTS

NE355	NUCLEAR REACTOR ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Mechanical Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MEN0H	Mechanical Engineering w/ Honors	Mechanical Engineering Major w/ Honors	Mechanical Engineering w/ Honors	0	0

2017 Mechanical Engineering Major w/ Honors Tracks

Subject Area	Description

Requirements for Graduation

To graduate with Individual Honors a cadet must submit an individual paper or report. The paper topic must be approved by the Program Director and can be based on any of the following:

(1) An individual paper written for a regional or national student paper competition.

(2) An individual paper, suitable for publication or presentation at a professional conference, drawn from one of the following sources:

..... ME489 Advanced Study in Mechanical Engineering.

..... Capstone Design Project.

..... An engineering-related Academic Individual Advanced Development (AIAD) assignment.

..... A topic of interest relevant to the cadet's program of study.

Cadets desiring to aspire to Individual Honors will coordinate with their Department Academic Counselor to develop a plan no later than the end of second class year for completing the individual paper or report. The Program Director will certify the completion of the significant individual paper component of the Academic Honors Program.

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Mechanical Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MES0	Mechanical Engineering Studies	Mechanical Engineering Studies Major	Mechanical Engineering Studies	14	0

2017 Mechanical Engineering Studies Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 11 of 11
EE301	FUNDAMENTALS OF ELEC ENGIN
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME370	COMPUTER AIDED DESIGN
ME403	MANUFACTURING/MACHINE COMP DSN
ME404	MECHANICAL ENGINEERING DESIGN
ME496	MECHANICAL SYSTEM DESIGN
AND	
Technical Elective	Choose 2 of 18
CE403	STRUCTURAL ANALYSIS
CH364	CHEMICAL REACTION ENGINEERING
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE377	ELECTRICAL POWER ENGNRNG
EM381	ENGINEERING ECONOMY
EM420	PRODUCTION OPERATIONS MGMT
MA364	ENGINEERING MATHEMATICS
ME387	INTRO APPLIED AERODYNAMICS
ME388	HELICOPTER AERONAUTICS
ME472	ENERGY CONVERSION SYSTEMS
ME489	ADV STUDY IN MECH ENGRNG
ME490	TOPICS IN MECHANICAL ENGNRG
ME491	MECHANICAL POWER PLANTS
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE355	NUCLEAR REACTOR ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL

Department of Electrical Engineering and Computer Science

2017 Computer Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CSC0	Computer Science	Computer Science Major	Computer Science	17	0

2017 Computer Science Major Tracks

Subject Area	Description
Required Courses	Choose 14 of 14
CS301	FUND OF COMPUTER SCIENCE
CS384	DATA STRUCTURES
CS385	DESIGN & ANALYS-ALGORITHMS
CS393	DATABASE SYSTEMS
CS400	COMPUTER SCIENCE SEMINAR
CS401	SOFTWARE SYSTEMS DESIGN I
CS403	OBJECT ORIENTED CONCEPTS
CS474	FUNDAMENTLS-COMPUTER THEORY
CS478	PROGRAMMING LANGUAGES
CS481	OPERATING SYSTEMS
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE375	COMPUTER ARCHITECTURE W/MICRO
MA372	INTRODUCTION TO DISCRETE MATH
XE402	INTEGRATIVE SYSTEM DESIGN
AND	
Networking Group	Choose 1 of 2
CS484	COMPUTER NETWORKS
IT350	NETWORK ENGR & MGT
AND	
Computer Science Major Electives	Choose 2 of 16
CS394	DISTRIB APPLICATION ENGRNG
CS473	COMPUTER GRAPHICS
CS482	CYBER SECURITY ENGINEERING
CS483	DIGITAL FORENSICS
CS484	COMPUTER NETWORKS
CS485	SPEC TOPICS IN COMPUTER SCI
CS486	ARTIFICIAL INTELLIGENCE
CS489	ADV IND STUDY COMPUTER SCI
CS489A	ADV IND STUDY COMPUTER SCI
CS490	COMPUTR SCI SUMMER RESEARCH
EE487	EMBEDDED SYSTEMS DEVELOPMENT
IT350	NETWORK ENGR & MGT
IT383	USER INTERFACE DEVELOPMENT
MA386	INTRO TO NUMERICAL ANALYSIS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
XE492	DISRUPTIVE INNOVATIONS

2017 Computer Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CSC0H	Computer Science w/ Honors	Computer Science Major w/ Honors	Computer Science w/ Honors	0	0

2017 Computer Science Major w/ Honors Tracks

Subject Area	Description
Research Requirement	
Consists of both a written document and an oral presentation of a depth and quality suitable for submission to a professional conference. The research will normally be accomplished as an extension of a project begun in a 400-level Computer Science course. The research must reflect individual effort, although it may build on an existing group project (especially the context of CS401/402). Neither the research work nor the resulting paper and presentation need be completed during the same semester they are begun, but must be complete by the end of the TEE period of semester 8. The research must be conducted under the supervision/mentorship of a member of the faculty, normally the instructor of the corresponding course. The mentor/topic must be approved by the CS Program Director NLT the end of the 1st week of semester 8. The final written document and oral presentation must be approved by both the research mentor and the Computer Science Program Director.	
Grade Requirements	
Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

2017 Cyber Security Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
CYB0N	Cyber Security Minor	Cyber Security Minor	Cyber Security Minor	0	5

2017 Cyber Security Minor Tracks

Subject Area	Description
Cyber Foundations Course Track	

You must select one of the following two Cyber Foundation tracks. Cadets who are not taking the cyber engineering three-course engineering sequence (3CES), to include Computer Science majors, must select the non-sequencer track. Computer Science majors also pursuing a Cyber Security minor must use CS484 to satisfy their networking elective requirement and pick a different course in lieu of IT300 from the Sequencer/IT Major Track. Cadets who are taking the cyber engineering (3CES), as well as Information Technology majors, must select the sequencer track.

Non-Sequencer/CS Major Track	Choose 3 of 3
CS482	CYBER SECURITY ENGINEERING
IT300	PROGRAMMING FUNDAMENTALS
IT350	NETWORK ENGR & MGT
OR	
Sequencer/IT Major Track	Choose 3 of 5
IT460	CYBER OPERATIONS
LW482	NATIONAL SECURITY LAW
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS486	INTERNATIONAL SECURITY SEMINAR
AND	
Cyber Depth Elective	Choose 2 of 6

You must select two courses that are not counted as part of your major or your Cyber Foundations courses.

CS483	DIGITAL FORENSICS
IT384	NETWORK SYSTEM PROG
IT392	NETWORK SERVICES MGT
IT460	CYBER OPERATIONS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
XE492	DISRUPTIVE INNOVATIONS

2017 Electrical Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEN0	Electrical Engineering	Electrical Engineering Major	Electrical Engineering	14	3

2017 Electrical Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 11 of 11
EE302	INTRO ELECTRICAL ENGIN
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EE375	COMPUTER ARCHITECTURE W/MICRO
EE377	ELECTRICAL POWER ENGNRNG
EE381	SIGNALS AND SYSTEMS
EE383	ELECTROMAGN FIELDS & WAVES
EE401	ELECTRONIC SYSTEM DESIGN I
EE462	ELECTRONIC DESIGN
MA364	ENGINEERING MATHEMATICS
XE402	INTEGRATIVE SYSTEM DESIGN
AND	

Engineering Breadth Course	Choose 1 of 1
MC311	THERMAL-FLUID SYSTEMS I
AND	
EECS Electives	Choose 1 of 14
CS301	FUND OF COMPUTER SCIENCE
CS393	DATABASE SYSTEMS
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE480	OPTICAL FIBER COMMUNICATIONS
EE482	WIRELESS COMM SYS ENGINEERING
EE483	PHOTONICS ENGINEERING
EE485	SPEC TOPICS IN EE
EE486	SOLID STATE ELECTRONICS
EE487	EMBEDDED SYSTEMS DEVELOPMENT
EE489	ADV IND STUDY IN ELECT ENGR
XE442	ALTERNATIVE ENERGY ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
XE492	DISRUPTIVE INNOVATIONS
AND	

Depth Option

Choose one of the following five depth options.

Depth Option 1 Robotics	Choose 4 of 4

If this Depth Option is chosen EE477 replaces the EECS Elective.

EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE487	EMBEDDED SYSTEMS DEVELOPMENT
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS
OR	
Depth Option 2 Communications	Choose 3 of 3
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE480	OPTICAL FIBER COMMUNICATIONS
EE482	WIRELESS COMM SYS ENGINEERING
OR	
Depth Option 3 Alternative Energy	Choose 3 of 3
EE486	SOLID STATE ELECTRONICS
XE442	ALTERNATIVE ENERGY ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
OR	
Depth Option 4 OptoElectronics	Choose 3 of 3
EE480	OPTICAL FIBER COMMUNICATIONS
EE483	PHOTONICS ENGINEERING
EE486	SOLID STATE ELECTRONICS
OR	
Depth Option 5 Information Assurance	Choose 4 of 4

If this Depth Option is chosen EE477 replaces the EECS Elective.

CS301	FUND OF COMPUTER SCIENCE
CS482	CYBER SECURITY ENGINEERING
EE477	DIGITAL COMMUNICATIONS SYSTEMS
IT350	NETWORK ENGR & MGT
AND	
EE Professional Component	Choose 1 of 1
EE400	EE PROFESSIONAL CONSIDERATIONS

2017 Electrical Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEN0H	Electrical Engineering w/ Honors	Electrical Engineering Major w/ Honors	Electrical Engineering w/ Honors	0	0

2017 Electrical Engineering Major w/ Honors Tracks

Subject Area	Description
Research and/or Engineering Design Requirements	
To qualify for Honors, cadets will be required to participate in either an undergraduate research experience or report on their engineering design experience. Both of these include writing a research paper or engineering paper suitable for submission to a conference or engineering design competition. Research-focused programs will typically include enrollment in the Advanced Individual Study in Electrical Engineering, EE489, the grade for which will be based on a research paper suitable for submission to a conference. The engineering design experience can result from participation in the Engineering System Design I and II series. The requirement for the engineering paper will be completed within the EE401-EE402 coursework.	
Grade Requirements	
Cadets must complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

2017 Electronic & Information Technology Systems Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EIT0	Elec & Info Tech Sys	Electronic & Information Technology Systems Major	Elec & Info Tech Sys	10	4

2017 Electronic & Information Technology Systems Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
EITS Foundations	
All EITS majors take four foundational courses.	

Digital Logic Course	Choose 1 of 1
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
AND	
Into to Programming Course	Choose 1 of 2
CS301	FUND OF COMPUTER SCIENCE
IT300	PROGRAMMING FUNDAMENTALS
AND	

Engineering Sequence

EITS majors pick the final two courses of either the Cyber Engineering sequence or the Electrical Engineering sequence.

Electrical Engineering Track	Choose 2 of 2
EE350	BASIC ELECTRICAL ENGINEERING
EE450	MILITARY ELECTRONIC SYSTEMS
OR	
Cyber Engineering Track	Choose 2 of 2
CS482	CYBER SECURITY ENGINEERING
IT350	NETWORK ENGR & MGT
AND	

Integrative Experience	Choose 1 of 3
CS401	SOFTWARE SYSTEMS DESIGN I
EE401	ELECTRONIC SYSTEM DESIGN I
IT401	IT SYSTEM DESIGN
AND	

Depth Threads

A table of 3-course depth threads, consisting of the following courses, will be provided by your DAC. Not including previously specified courses, complete 8 courses within three depth threads.

Courses	Choose 8 of 44
CS301	FUND OF COMPUTER SCIENCE
CS384	DATA STRUCTURES
CS385	DESIGN & ANALYS-ALGORITHMS
CS393	DATABASE SYSTEMS
CS403	OBJECT ORIENTED CONCEPTS
CS473	COMPUTER GRAPHICS
CS474	FUNDAMENTLS-COMPUTER THEORY
CS478	PROGRAMMING LANGUAGES
CS481	OPERATING SYSTEMS
CS482	CYBER SECURITY ENGINEERING
CS483	DIGITAL FORENSICS
CS484	COMPUTER NETWORKS
CS486	ARTIFICIAL INTELLIGENCE
EE302	INTRO ELECTRICAL ENGIN
EE350	BASIC ELECTRICAL ENGINEERING
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EE375	COMPUTER ARCHITECTURE W/MICRO
EE377	ELECTRICAL POWER ENGNRNG
EE381	SIGNALS AND SYSTEMS
EE383	ELECTROMAGN FIELDS & WAVES
EE450	MILITARY ELECTRONIC SYSTEMS
EE462	ELECTRONIC DESIGN
EE477	DIGITAL COMMUNICATIONS SYSTEMS
EE480	OPTICAL FIBER COMMUNICATIONS
EE482	WIRELESS COMM SYS ENGINEERING
EE483	PHOTONICS ENGINEERING

EE486	SOLID STATE ELECTRONICS
EE487	EMBEDDED SYSTEMS DEVELOPMENT
EV377	REMOTE SENSING
IT300	PROGRAMMING FUNDAMENTALS
IT350	NETWORK ENGR & MGT
IT383	USER INTERFACE DEVELOPMENT
IT384	NETWORK SYSTEM PROG
IT392	NETWORK SERVICES MGT
IT394	DISTRIB APPLICATION DEVELOPMNT
IT460	CYBER OPERATIONS
MA364	ENGINEERING MATHEMATICS
MA372	INTRODUCTION TO DISCRETE MATH
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
XE442	ALTERNATIVE ENERGY ENGINEERING
XE472	DYNAMIC MODELING AND CONTROL
XE475	MECHATRONICS

2017 Information Technology Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ITE0	Information Technology	Information Technology Major	Information Technology	14	2

2017 Information Technology Major Tracks

Subject Area	Description
Complete the Fundamental Skills Thread	Choose 3 of 3
IT300	PROGRAMMING FUNDAMENTALS
IT305	THEORY & PRAC OF MIL IT SYS
IT384	NETWORK SYSTEM PROG
AND	
Complete the System Integration Depth Thread	Choose 3 of 3
CS393	DATABASE SYSTEMS
IT383	USER INTERFACE DEVELOPMENT
IT394	DISTRIB APPLICATION DEVELOPMNT
AND	
Complete the Network Integration Depth Thread	Choose 3 of 3
CS482	CYBER SECURITY ENGINEERING
IT350	NETWORK ENGR & MGT
IT392	NETWORK SERVICES MGT
AND	
Complete the Computer Architecture Depth Thread	Choose 2 of 2

EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE375	COMPUTER ARCHITECTURE W/MICRO
AND	
Complete an IT Application Depth Thread	
	Choose 2 of 2
EV398	GEOG INFORMATION SYSTEMS
EV498	ADV GEOGRAPHIC INFORMATION SYS
OR	
	Choose 2 of 2
EV377	REMOTE SENSING
EV477	ADVANCED REMOTE SENSING
OR	
	Choose 2 of 2
DS345	MILITARY INNOVATION
DS385	SUSTAINING THE FORCE
OR	
	Choose 2 of 2
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
OR	
	Choose 2 of 2
EM411	PROJECT MANAGEMENT
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Complete the Integrative Capstone Experience and IT Seminar	Choose 3 of 3
IT400	IT SEMINAR
IT401	IT SYSTEM DESIGN
XE402	INTEGRATIVE SYSTEM DESIGN

2017 Information Technology Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ITE0H	Information Technology w/ Honors	Information Technology Major w/ Honors	Information Technology w/ Honors	0	0

2017 Information Technology Major w/ Honors Tracks

Subject Area	Description
IT Honors Major	

A cadet majoring in Information Technology will normally declare entry into the Information Technology (IT) Honors Program at the beginning of the spring term of the Second Class year. This requires a 3.0 cumulative grade point average in the Academy Core Curriculum at the time of entry.

Successful completion requires:

(a) Successful completion of the IT major with a 3.5 academic program score (APS)

(b) Successful completion of the Academy Core Curriculum with a 3.0 APS average.

(c) Successful completion of the research requirement consisting of enrollment in a 3.0 credit IT independent study course that is not otherwise part of the IT major requirements. The independent study course will include completion of both a written report and an oral presentation. The report and presentation should be of a depth and quality suitable for professional publication.

30 Course Academy Core Curriculum

IT305, IT300, CS393, and IT394 will be included as part of the core curriculum mentioned in (b) above.

The IT major mentioned in (a) is the remaining 12 1/3 courses of the IT academic major.

Department of English and Philosophy

2017 Art, Philosophy, and Literature Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
APL0	Art, Philosophy & Literature	Art, Philosophy, and Literature Major	Art, Philosophy & Literature	7	4

2017 Art, Philosophy, and Literature Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
EP333	CULTURAL STUDIES
EP433	SENIOR SEMINAR
AND	
Art History Elective	Choose 1 of 4
EP360	EASTERN ART
EP361	W. ART I: ANCIENT TO MEDIEVAL
EP371	TOPICS IN ART HISTORY
EP382	W. ART II RENAISSANCE - MODERN
AND	
Track Elective	Choose 1 of 2
EP344	CRITICISM
EP359	LOGICAL REASONING
AND	

Literature and Philosophy Electives

Cadets must take either the Literature or the Philosophy track. Cadets who take the Literature track will have selected EP344. Cadets who take the Philosophy track will have selected EP359.

Literature Electives	Choose 4 of 14

Cadets choose from this group if they have selected EP344.

EP341	BRITISH LITERATURE I
EP342	FILM AND FILM THEORY
EP343	AMERICAN LITERATURE I
EP346	BRITISH LITERATURE II
EP348	AMERICAN LITERATURE II
EP351	WORLD LITERATURE
EP367	DRAMA
EP374	THE ARTS OF WAR
EP385	THE NOVEL
EP390	SPECIAL TOPICS IN LITERATURE
EP391	POETRY
EP392	MINORITY LITERATURES
EP394	SHAKESPEARE
EP490	INDEPENDENT STUDY: LITERATURE
OR	

Philosophy Electives	Choose 4 of 14
Cadets choose from this group if they have selected EP359.	
EP363	POLITICAL PHILOSOPHY
EP365	ETHICS-MILITARY PROFESSION
EP366	PHILOSOPHY OF MIND
EP373	TOPICS IN ETHICS
EP375	17TH & 18TH CENTURY PHILOSOPHY
EP376	KANT & 19TH CENTURY PHILOSOPHY
EP377	20TH CENTURY PHILOSOPHY
EP380	EASTERN THOUGHT
EP381	PHILOSOPHY OF RELIGION
EP383	REALITY AND KNOWLEDGE
EP386	PHILOSOPHY OF SCIENCE
EP388	ANCIENT PHILOSOPHY
EP395	SPECIAL TOPICS IN PHILOSOPHY
EP495	INDEPENDENT STUDY: PHILOSOPHY
AND	

Departmental Elective	Choose 1 of 26
Choose an additional literature or philosophy elective.	
EP341	BRITISH LITERATURE I
EP342	FILM AND FILM THEORY
EP343	AMERICAN LITERATURE I
EP344	CRITICISM
EP346	BRITISH LITERATURE II
EP348	AMERICAN LITERATURE II
EP351	WORLD LITERATURE
EP359	LOGICAL REASONING
EP363	POLITICAL PHILOSOPHY
EP365	ETHICS-MILITARY PROFESSION
EP366	PHILOSOPHY OF MIND
EP367	DRAMA
EP373	TOPICS IN ETHICS
EP374	THE ARTS OF WAR
EP375	17TH & 18TH CENTURY PHILOSOPHY
EP376	KANT & 19TH CENTURY PHILOSOPHY
EP377	20TH CENTURY PHILOSOPHY
EP380	EASTERN THOUGHT
EP381	PHILOSOPHY OF RELIGION
EP383	REALITY AND KNOWLEDGE
EP385	THE NOVEL
EP386	PHILOSOPHY OF SCIENCE
EP388	ANCIENT PHILOSOPHY
EP391	POETRY
EP392	MINORITY LITERATURES
EP394	SHAKESPEARE
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 Art, Philosophy, and Literature Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
APL0H	Art, Philosophy, and Literature w/ Honors	Art, Philosophy, and Literature Major w/ Honors	Art, Philosophy, and Literature w/ Honors	2	0

2017 Art, Philosophy, and Literature Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
Cadets must achieve at least a B in EP487 in order to proceed into EP488. The thesis adviser will normally recommend the cadet for Honors consideration if the EP488 grade is A- or better.	
EP487	SENIOR THESIS I
EP488	SENIOR THESIS II
AND	
Complete the requirements of the major as shown above; attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.	
AND	
Approval of the Department Head	
On the basis of recommendations by the cadet's DAC and senior-thesis adviser.	

Department of Foreign Languages

2017 Foreign Language Major: Arabic & Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAC0	Foreign Lang: Arabic & Chinese	Foreign Language Major: Arabic & Chinese	Foreign Lang: Arabic & Chinese	3	11

2017 Foreign Language Major: Arabic & Chinese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Arabic Primary	Choose 6 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Chinese Primary	Choose 6 of 11
LN440C Chinese in Cultural Context may replace an LC or LN course.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If Chinese is the primary language, choose one course from the Chinese Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES

HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAC0H	Foreign Lang: Arabic & Chinese w/ Honors	Foreign Language Major: Arabic & Chinese w/ Honors	Foreign Lang: Arabic & Chinese w/ Honors	1	0

2017 Foreign Language Major: Arabic & Chinese w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAF0	Foreign Lang: Arabic & French	Foreign Language Major: Arabic & French	Foreign Lang: Arabic & French	3	11

2017 Foreign Language Major: Arabic & French Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES

LN490	LANGUAGE & CULTURE CAP SEM

AND

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Primary	Choose 6 of 12

LN440A Arabic in Cultural Context may replace an LA or LN course.

LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

French Primary	Choose 6 of 11

LN440F French in Cultural Context may replace an LF or LN course.

LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

French Secondary	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH

LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If French is the primary language, choose one course from the French Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAF0H	Foreign Lang: Arabic & French w/ Honors	Foreign Language Major: Arabic & French w/ Honors	Foreign Lang: Arabic & French w/ Honors	1	0

2017 Foreign Language Major: Arabic & French w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAP0	Foreign Lang: Arabic & Portuguese	Foreign Language Major: Arabic & Portuguese	Foreign Lang: Arabic & Portuguese	3	11

2017 Foreign Language Major: Arabic & Portuguese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Primary	Choose 6 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Portuguese Primary	Choose 6 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Portuguese Secondary	Choose 4 of 11
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

AND

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If Portuguese is the primary language, choose one course from the Portuguese Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST

SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAP0H	Foreign Lang: Arabic & Portuguese w/ Honors	Foreign Language Major: Arabic & Portuguese w/ Honors	Foreign Lang: Arabic & Portuguese w/ Honors	1	0

2017 Foreign Language Major: Arabic & Portuguese w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAR0	Foreign Lang: Arabic & Russian	Foreign Language Major: Arabic & Russian	Foreign Lang: Arabic & Russian	3	11

2017 Foreign Language Major: Arabic & Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2

IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS

AND

Required Courses Choose 2 of 2

LN380 may be replaced with a 400-level language course or with a Free Elective.

LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM

AND

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Primary Choose 6 of 12

LN440A Arabic in Cultural Context may replace an LA or LN course.

LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Russian Primary Choose 6 of 11

LN4440R Russian in Cultural Context may replace an LR or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary Choose 4 of 14

LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS

LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If Russian is the primary language, choose one couse from the Russian Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAR0H	Foreign Lang: Arabic & Russian w/ Honors	Foreign Language Major: Arabic & Russian w/ Honors	Foreign Lang: Arabic & Russian w/ Honors	1	0

2017 Foreign Language Major: Arabic & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write a thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAS0	Foreign Lang: Arabic & Spanish	Foreign Language Major: Arabic & Spanish	Foreign Lang: Arabic & Spanish	3	11

2017 Foreign Language Major: Arabic & Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Primary	Choose 6 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Spanish Primary	Choose 6 of 11

LN440E Spanish in Cultural Context may replace an LS or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Spanish Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If Spanish is the primary language, choose one course from the Spanish Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES

HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAS0H	Foreign Lang: Arabic & Spanish w/ Honors	Foreign Language Major: Arabic & Spanish w/ Honors	Foreign Lang: Arabic & Spanish w/ Honors	1	0

2017 Foreign Language Major: Arabic & Spanish w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty mamber.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAZ0	Foreign Lang: Arabic & Persian	Foreign Language Major: Arabic & Persian	Foreign Lang: Arabic & Persian	3	11

2017 Foreign Language Major: Arabic & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
Arabic Primary	Choose 6 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Secondary Language Track	
You must select four courses from the list below	
Persian Secondary	Choose 4 of 6
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	
Free Elective	Choose 1 of 12
Choose one course from the list of free electives.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST

SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FAZ0H	Foreign Lang: Arabic & Persian w/ Honors	Foreign Language Major: Arabic & Persian w/ Honors	Foreign Lang: Arabic & Persian w/ Honors	1	0

2017 Foreign Language Major: Arabic & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write a thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCF0	Foreign Lang: Chinese & French	Foreign Language Major: Chinese & French	Foreign Lang: Chinese & French	3	11

2017 Foreign Language Major: Chinese & French Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Primary	Choose 6 of 11

LN440C Chinese in Cultural Context may replace an LC or LN course.

LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

French Primary	Choose 6 of 11

LN440F French in Cultural Context may replace an LF or LN course.

LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

French Secondary	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If Chinese is the primary language, choose one course from the Chinese Primary track. If French is the primary language, choose one course from the French Primary track.

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCF0H	Foreign Lang: Chinese & French w/ Honors	Foreign Language Major: Chinese & French w/ Honors	Foreign Lang: Chinese & French w/ Honors	1	0

2017 Foreign Language Major: Chinese & French w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCG0	Foreign Lang: Chinese & German	Foreign Language Major: Chinese & German	Foreign Lang: Chinese & German	3	11

2017 Foreign Language Major: Chinese & German Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Chinese Primary	Choose 6 of 11
LN440C Chinese in Cultural Context may replace an LC or LN course.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
German Primary	Choose 6 of 11
LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

German Secondary	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If Chinese is the primary language, choose one course from the Chinese Primary track. If German is the primary language, choose one course from the German Primary track.

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES

HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCG0H	Foreign Lang: Chinese & German w/ Honors	Foreign Language Major: Chinese & German w/ Honors	Foreign Lang: Chinese & German w/ Honors	1	0

2017 Foreign Language Major: Chinese & German w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write a thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCP0	Foreign Lang: Chinese & Portuguese	Foreign Language Major: Chinese & Portuguese	Foreign Lang: Chinese & Portuguese	3	11

2017 Foreign Language Major: Chinese & Portuguese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS

AND

Required Courses	Choose 2 of 2

LN380 may be replaced with a 400-level language course or with a Free Elective.

LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM

AND

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Primary	Choose 6 of 11

LN440C Chinese in Cultural Context may replace an LC or LN course.

LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Portuguese Primary	Choose 6 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Portuguese Secondary	Choose 4 of 11
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)

LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	

Free Elective

If Chinese is the primary language, choose one course from the Chinese Primary track. If Portuguese is the primary language, choose one course from the Portuguese Primary track.

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCP0H	Foreign Lang: Chinese & Portuguese w/ Honors	Foreign Language Major: Chinese & Portuguese w/ Honors	Foreign Lang: Chinese & Portuguese w/ Honors	1	0

2017 Foreign Language Major: Chinese & Portuguese w/ Honors Tracks

Subject Area	Description

Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member>	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCR0	Foreign Lang: Chinese & Russian	Foreign Language Major: Chinese & Russian	Foreign Lang: Chinese & Russian	3	11

2017 Foreign Language Major: Chinese & Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Chinese Primary	Choose 6 of 11
LN440C Chinese in Cultural Context may replace an LC or LN course.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Primary	Choose 6 of 11
LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN

LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

AND

Free Elective

If Chinese is the primary language, choose one course from the Chinese Primary track. If Russian is the primary language, choose one course from the Russian Primary track.

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR	
Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCR0H	Foreign Lang: Chinese & Russian w/ Honors	Foreign Language Major: Chinese & Russian w/ Honors	Foreign Lang: Chinese & Russian w/ Honors	1	0

2017 Foreign Language Major: Chinese & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCS0	Foreign Lang: Chinese & Spanish	Foreign Language Major: Chinese & Spanish	Foreign Lang: Chinese & Spanish	3	11

2017 Foreign Language Major: Chinese & Spanish Tracks

Subject Area	Description

IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2

LN380 may be replaced with a 400-level language course or with a Free Elective.

LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Primary	Choose 6 of 11

LN440C Chinese in Cultural Context may replace an LC or LN course.

LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Spanish Primary	Choose 6 of 11

LN440E Spanish in Cultural Context may replace an LS or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Chinese Secondary	Choose 4 of 13
LC203	CHINESE I (STANDARD)
LC204	CHINESE II (STANDARD)
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Spanish Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

AND

Free Elective

If Chinese is the primary language, choose one course from the Chinese Primary track. If Spanish is the primary language, choose one course from the Spanish Primary track.

Chinese Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCS0H	Foreign Lang: Chinese & Spanish w/ Honors	Foreign Language Major: Chinese & Spanish w/ Honors	Foreign Lang: Chinese & Spanish w/ Honors	1	0

2017 Foreign Language Major: Chinese & Spanish w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Chinese & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCZ0	Foreign Lang: Chinese & Persian	Foreign Language Major: Chinese & Persian	Foreign Lang: Chinese & Persian	3	11

2017 Foreign Language Major: Chinese & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
Chinese Primary	Choose 6 of 11
LN440C Chinese in Cultural Context may replace an LC or LN course.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Secondary Language Track

You must select four courses from the list below.

Persian Secondary	Choose 4 of 6
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN

AND

Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FCZ0H	Foreign Lang: Chinese & Persian w/ Honors	Foreign Language Major: Chinese & Persian w/ Honors	Foreign Lang: Chinese & Persian w/ Honors	1	0

2017 Foreign Language Major: Chinese & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS

AND

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: French & German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFG0	Foreign Lang: French & German	Foreign Language Major: French & German	Foreign Lang: French & German	3	11

2017 Foreign Language Major: French & German Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
French Primary	Choose 6 of 11
LN440F French in Cultural Context may replace an LF or LN course.	
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
German Primary	Choose 6 of 11
LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Secondary Language Track	
You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.	
French Secondary	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA

LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

German Secondary	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If French is the primary language, choose one course from the French Primary track. If German is the primary language, choose one course from the German Primary track.

French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY

SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French & German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFG0H	Foreign Lang: French & German w/ Honors	Foreign Language Major: French & German w/ Honors	Foreign Lang: French & German w/ Honors	1	0

2017 Foreign Language Major: French & German w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: French & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFP0	Foreign Lang: French & Portuguese	Foreign Language Major: French & Portuguese	Foreign Lang: French & Portuguese	3	11

2017 Foreign Language Major: French & Portuguese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

French Primary	Choose 6 of 11

LN440F French in Cultural Context may replace an LF or LN course.

LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Portuguese Primary Choose 6 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

French Secondary Choose 4 of 13

LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Portuguese Secondary Choose 4 of 11

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

AND

Free Elective

If the primary language is French, choose one course from the French Primary track. If Portuguese is the primary language, choose one course from the Portuguese Primary track.

French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFP0H	Foreign Lang: French & Portuguese w/ Honors	Foreign Language Major: French & Portuguese w/ Honors	Foreign Lang: French & Portuguese w/ Honors	1	0

2017 Foreign Language Major: French & Portuguese w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: French & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFR0	Foreign Lang: French & Russian	Foreign Language Major: French & Russian	Foreign Lang: French & Russian	3	11

2017 Foreign Language Major: French & Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
French Primary	Choose 6 of 11
LN440F French in Cultural Context may replace an LF or LN course.	
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Primary	Choose 6 of 11
LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

French Secondary	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Free Elective

If French is the primary language, choose one course from the French Primary track. If Russian is the primary language, choose one course from the Russian Primary track.

French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY

HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFR0H	Foreign Lang: French & Russian w/ Honors	Foreign Language Major: French & Russian w/ Honors	Foreign Lang: French & Russian w/ Honors	1	0

2017 Foreign Language Major: French & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: French & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFS0	Foreign Lang: French & Spanish	Foreign Language Major: French & Spanish	Foreign Lang: French & Spanish	3	11

2017 Foreign Language Major: French & Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES

LN490	LANGUAGE & CULTURE CAP SEM

AND

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

French Primary	Choose 6 of 11

LN440F French in Cultural Context may replace an LF or LN course.

LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Spanish Primary	Choose 6 of 11

LN440E Spanish in Cultural Context may replace an LS or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

French Secondary	Choose 4 of 13
LF203	FRENCH I (STANDARD)
LF204	FRENCH II (STANDARD)
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Spanish Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH

LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Free Elective

If French is the primary language, choose one course from the French Primary track. If Spanish is the primary language, choose one course from the Spanish Primary track.

French Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFS0H	Foreign Lang: French & Spanish w/ Honors	Foreign Language Major: French & Spanish w/ Honors	Foreign Lang: French & Spanish w/ Honors	1	0

2017 Foreign Language Major: French & Spanish w/ Honors Tracks

Subject Area	Description

Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: French & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFZ0	Foreign Lang: French & Persian	Foreign Language Major: French & Persian	Foreign Lang: French & Persian	3	11

2017 Foreign Language Major: French & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
French Primary	Choose 6 of 11
LN440F French in Cultural Context may replace an LF or LN course.	
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Secondary Language Track	
You must select four courses from the list below.	
Persian Secondary	Choose 4 of 6
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)

LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	
Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FFZ0H	Foreign Lang: French & Persian w/ Honors	Foreign Language Major: French & Persian w/ Honors	Foreign Lang: French & Persian w/ Honors	1	0

2017 Foreign Language Major: French & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: German & Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGA0	Foreign Lang: German & Arabic	Foreign Language Major: German & Arabic	Foreign Lang: German & Arabic	3	11

2017 Foreign Language Major: German & Arabic Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Primary	Choose 6 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
German Primary	Choose 6 of 11
LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

Arabic Secondary	Choose 4 of 14
LA203	ARABIC I (STANDARD)
LA204	ARABIC II (STANDARD)
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II

LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

German Secondary	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

AND

Free Elective

If Arabic is the primary language, choose one course from the Arabic Primary track. If German is the primary language, choose one course from the German Primary track.

Arabic Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: German & Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGA0H	Foreign Lang: German & Arabic w/ Honors	Foreign Language Major: German & Arabic w/ Honors	Foreign Lang: German & Arabic w/ Honors	0	0

2017 Foreign Language Major: German & Arabic w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: German & Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGP0	Foreign Lang: German & Portuguese	Foreign Language Major: German & Portuguese	Foreign Lang: German & Portuguese	3	11

2017 Foreign Language Major: German & Portuguese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

German Primary	Choose 6 of 11

LN440G German in Cultural Context may replace an LG or LN course.

LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Portuguese Primary	Choose 6 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

German Secondary	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Portuguese Secondary	Choose 4 of 11
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	

Free Elective

If German is the primary language, choose one course from the German Primary track. If Portuguese is the primary language, choose one course from the Portuguese Primary track.

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: German & Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGP0H	Foreign Lang: German & Portuguese w/ Honors	Foreign Language Major: German & Portuguese w/ Honors	Foreign Lang: German & Portuguese w/ Honors	1	0

2017 Foreign Language Major: German & Portuguese w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: German & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGR0	Foreign Lang: German & Russian	Foreign Language Major: German & Russian	Foreign Lang: German & Russian	3	11

2017 Foreign Language Major: German & Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
German Primary	Choose 6 of 11
LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Primary	Choose 6 of 11
LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

German Secondary	Choose 4 of 13
LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Free Elective

If German is the primary language, choose one course from the German Primary track. If Russian is the primary language, choose one course from the Russian Primary track.

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE

EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major; German & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGR0H	Foreign Lang: German & Russian w/ Honors	Foreign Language Major; German & Russian w/ Honors	Foreign Lang: German & Russian w/ Honors	1	0

2017 Foreign Language Major; German & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: German & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGS0	Foreign Lang: German & Spanish	Foreign Language Major: German & Spanish	Foreign Lang: German & Spanish	3	11

2017 Foreign Language Major: German & Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2

LN380 may be replaced with a 400-level language course or with a Free Elective.

LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM

AND

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.

German Primary Choose 6 of 11

LN440G German in Cultural Context may replace an LG or LN course.

LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Spanish Primary Choose 6 of 11

LN440E Spanish in Cultural Context may replace an LS or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.

German Secondary Choose 4 of 13

LG203	GERMAN I (STANDARD)
LG204	GERMAN II (STANDARD)
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

OR

Spanish Secondary Choose 4 of 13

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)

LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Free Elective

If German is the primary language, choose one course from the German Primary track.
If Spanish is the primary language, choose one course from the Spanish Primary track.

German Primary Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: German & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGS0H	Foreign Lang: German & Spanish w/ Honors	Foreign Language Major: German & Spanish w/ Honors	Foreign Lang: German & Spanish w/ Honors	1	0

2017 Foreign Language Major: German & Spanish w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: German & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGZ0	Foreign Lang: German & Persian	Foreign Language Major: German & Persian	Foreign Lang: German & Persian	3	11

2017 Foreign Language Major: German & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
German Primary	Choose 6 of 11
LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Secondary Language Track	
You must select four courses from the list below.	
Persian Secondary	Choose 4 of 6

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	

Free Elective	Choose 1 of 15
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: German & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FGZ0H	Foreign Lang: German & Persian w/ Honors	Foreign Language Major: German & Persian w/ Honors	Foreign Lang: German & Persian w/ Honors	1	0

2017 Foreign Language Major: German & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Arabic Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLA0	Foreign Lang: Arabic	Foreign Language Major: Arabic	Foreign Lang: Arabic	11	0

2017 Foreign Language Major: Arabic Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Electives	Choose 7 of 11
If LA371/475 satisfied the core language requirement, choose one fewer Arabic course for a total of 6 in this track. LN440A Arabic in Cultural Context may replace an LA or LN course.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Free Electives	Choose 1 of 13
If LA371/475 satisfied the core language requirement, choose two courses from this list.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Arabic w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLA0H	Foreign Lang: Arabic w/ Honors	Foreign Language Major: Arabic w/ Honors	Foreign Lang: Arabic w/ Honors	2	0

2017 Foreign Language Major: Arabic w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 11
Take an additional advanced-level elective, not already taken, from this list.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
AND	
Honors Thesis	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Comlete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Language Major: Chinese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLC0	Foreign Lang: Chinese	Foreign Language Major: Chinese	Foreign Lang: Chinese	11	0

2017 Foreign Language Major: Chinese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Electives	Choose 7 of 10
If LC371/475 satisfied the core language requirement, choose one fewer Chinese course for a total of 6 in this track. LN440C Chinese in Cultural Context may replace an LC or LN course.	

LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Free Electives	Choose 1 of 14
If LC371/475 satisfied the core language requirement, choose two courses from this track.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Chinese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLC0H	Foreign Lang: Chinese w/ Honors	Foreign Language Major: Chinese w/ Honors	Foreign Lang: Chinese w/ Honors	2	0

2017 Foreign Language Major: Chinese w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 10
Take an additional advanced-level elective, not already taken, from this list.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS

AND	
Honors Thesis	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Language Major: French Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLF0	Foreign Lang: French	Foreign Language Major: French	Foreign Lang: French	11	0

2017 Foreign Language Major: French Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Electives	Choose 7 of 10
If LF371/475 satisfied the core language requirement, choose one fewer French course for a total of 6 from this track. LN440F French in Cultural Context may replace an LF or LN course.	
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Free Electives	Choose 1 of 14
If LF371/475 satisfied the core language requirement, choose two courses from this track.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP361	MASTERPIECES BEFORE GIOTTO
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI344	MODERN DIPLOMACY

HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: French w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLF0H	Foreign Lang: French w/ Honors	Foreign Language Major: French w/ Honors	Foreign Lang: French w/ Honors	2	0

2017 Foreign Language Major: French w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 10
Take an additional advanced-level elective, not already taken, from this list.	
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
AND	
Honors Thesis	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Language Major: German Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLG0	Foreign Lang: German	Foreign Language Major: German	Foreign Lang: German	11	0

2017 Foreign Language Major: German Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
German Language	Choose 7 of 10
If LG371/475 satisfied the core language requirement, choose one fewer German course for a total of 6 from this track. LN440G German in Cultural Context may replace an LG or LN course.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
Free Electives	Choose 1 of 15
If LG371/475 satisfied the core language requirement, choose two courses from this track.	
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI361	MEDIEVAL EUROPE
HI376	EARLY MODERN WARFARE
HI391	WORLD RELIGIONS
LN482H	SPOKEN HEBREW
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: German w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt

FLG0H	Foreign Lang: German w/ Honors	Foreign Language Major: German w/ Honors	Foreign Lang: German w/ Honors	2	0

2017 Foreign Language Major: German w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 10
Take an additional advanced-level elective, not already taken, from this list.	
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
AND	
Honors Thesis	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Language Major: Portuguese Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLP0	Foreign Lang: Portuguese	Foreign Language Major: Portuguese	Foreign Lang: Portuguese	11	0

2017 Foreign Language Major: Portuguese Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Portuguese Language	Choose 7 of 8
If LP371/475 satisfied the core language requirement, choose one fewer Portuguese course for a total of 6 from this track. LN440P Portuguese in Cultural Context may replace an LP or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	
Free Electives	Choose 1 of 12

If LP371/475 satified the core language requirement, choose two courses from this track.

DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Portuguese w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLP0H	Foreign Lang: Portuguese w/ Honors	Foreign Language Major: Portuguese w/ Honors	Foreign Lang: Portuguese w/ Honors	2	0

2017 Foreign Language Major: Portuguese w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 8

Take an additional advanced-level elective, not already taken, from this list.

LN487	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	
Honors Thesis	Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

2017 Foreign Language Major: Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLR0	Foreign Lang: Russian	Foreign Language Major: Russian	Foreign Lang: Russian	11	0

2017 Foreign Language Major: Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Russian Language	Choose 7 of 10
If LR371/475 satisfied the core language requirement, choose one fewer Russian course for a total of 6 from this track. LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	
Free Electives	Choose 1 of 14
If LR371/475 satisfied the core language requirement, choose two courses from this track.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLR0H	Foreign Lang: Russian w/ Honors	Foreign Language Major: Russian w/ Honors	Foreign Lang: Russian w/ Honors	2	0

2017 Foreign Language Major: Russian w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 10
Take an additional advanced-level elective, not already taken, from this list.	
LN487	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	
Honors Thesis	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

2017 Foreign Language Major: Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLS0	Foreign Lang: Spanish	Foreign Language Major: Spanish	Foreign Lang: Spanish	11	0

2017 Foreign Language Major: Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	

Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Spanish Language	Choose 7 of 10
If LS371/475 satisfied the core language requirement, choose one fewer Spanish course for a total of 6 from this track. LN440S Spanish in Cultural Context may replace an LS or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	
Free Electives	Choose 1 of 13
If LS371/475 satisfied the core language requirement, choose two courses from this track.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FLS0H	Foreign Lang; Spanish w/ Honors	Foreign Language Major: Spanish w/ Honors	Foreign Lang; Spanish w/ Honors	2	0

2017 Foreign Language Major: Spanish w/ Honors Tracks

Subject Area	Description
Additional Elective	Choose 1 of 10
Take an additional advanced-level elective, not already taken, from this list.	
LN487	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA

LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	
Honors Thesis	Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and a minimum APSC of 3.5 in the major.

2017 Foreign Language Major: Portuguese & Russian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPR0	Foreign Lang: Portuguese & Russian	Foreign Language Major: Portuguese & Russian	Foreign Lang: Portuguese & Russian	3	11

2017 Foreign Language Major: Portuguese & Russian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2

LN380 may be replaced with a 400-level language course or with a Free Elective.

LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	

Primary Language Track

You must select one of the following two primary language sequences as your primary language track. Your primary and secondary langauge tracks cannot be the same language.

Portuguese Primary	Choose 6 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
OR	
Russian Primary	Choose 6 of 11

LN440R Russian in Cultural Context may replace an LR or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

AND

Secondary Language Track

You must select one of the following two secondary language sequences as your seconday language track. Your primary and secondary language tracks cannot be the same language.

Portuguese Secondary	Choose 4 of 11
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

OR

Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

AND

Free Elective

If Portuguese is the primary language, choose one course from the Portuguese Primary track. If Russian is the primary language, choose one course from the Russian Primary track.

Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER

SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Portuguese & Russian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPR0H	Foreign Lang: Portuguese & Russian w/ Honors	Foreign Language Major: Portuguese & Russian w/ Honors	Foreign Lang: Portuguese & Russian w/ Honors	1	0

2017 Foreign Language Major: Portuguese & Russian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Portuguese & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPS0	Foreign Lang: Portuguese & Spanish	Foreign Language Major: Portuguese & Spanish	Foreign Lang: Portuguese & Spanish	3	11

2017 Foreign Language Major: Portuguese & Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Portuguese Primary	Choose 6 of 9
LN440P Portuguese in Cultural Context may replace an LP or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
OR	
Spanish Primary	Choose 6 of 11
LN440E Spanish in Cultural Context may replace an LS or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	
Secondary Language Track	
You must select one of the following two secondary language sequences as your secondary language track. Your primary and secondary language tracks cannot be the same language.	
Portuguese Secondary	Choose 4 of 11
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP203	PORTUGUESE I (STANDARD)
LP204	PORTUGUESE II (STANDARD)
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD

LP492	LIT OF PORT-SPKG WORLD
OR	
Spanish Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	

Free Elective

If Portuguese is the primary language, choose one course from the Portuguese Primary track. If Spanish is the primary language, choose one course from the Spanish Primary track.

Portuguese Primary Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES
OR	
Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Portuguese & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPS0H	Foreign Lang: Portuguese & Spanish w/ Honors	Foreign Language Major: Portuguese & Spanish w/ Honors	Foreign Lang: Portuguese & Spanish w/ Honors	1	0

2017 Foreign Language Major: Portuguese & Spanish w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Portuguese & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPZ0	Foreign Lang: Portuguese & Persian	Foreign Language Major: Portuguese & Persian	Foreign Lang: Portuguese & Persian	3	11

2017 Foreign Language Major: Portuguese & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
Portuguese Primary	Choose 6 of 9
LN440P Portuguese in Cultural Context may replace an LP or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
AND	
Secondary Language Track	

You must select four courses from the list below.

Persian Secondary	Choose 4 of 6
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	

Free Elective	Choose 1 of 11
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI345	MODERN AFRICA
HI348	MODERN LATIN AMERICA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Portuguese & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FPZ0H	Foreign Lang: Portuguese & Persian w/ Honors	Foreign Language Major: Portuguese & Persian w/ Honors	Foreign Lang: Portuguese & Persian w/ Honors	1	0

2017 Foreign Language Major: Portuguese & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Russian & Spanish Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRS0	Foreign Lang: Russian & Spanish	Foreign Language Major: Russian & Spanish	Foreign Lang: Russian & Spanish	3	11

2017 Foreign Language Major: Russian & Spanish Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Russian Primary	Choose 6 of 11
LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
OR	
Spanish Primary	Choose 6 of 11
LN440E Spanish in Cultural Context may replace an LS or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	
Secondary Language Track	
You must select one of the following two primary language sequences as your primary language track. Your primary and secondary language tracks cannot be the same language.	
Russian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR203	RUSSIAN I (STANDARD)
LR204	RUSSIAN II (STANDARD)
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN

LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION

OR

Spanish Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS203	SPANISH I (STANDARD)
LS204	SPANISH II (STANDARD)
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

AND

Free Elective

If Russian is the primary language, choose one course from the Russian Primary track.
If Spanish is the primary language, choose one course from the Spanish Primary track.

Russian Primary Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

OR

Spanish Primary Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Russian & Spanish w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRS0H	Foreign Lang: Russian & Spanish w/ Honors	Foreign Language Major: Russian & Spanish w/ Honors	Foreign Lang: Russian & Spanish w/ Honors	1	0

2017 Foreign Language Major: Russian & Spanish w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Language Major: Russian & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRZ0	Foreign Lang: Russian & Persian	Foreign Language Major: Russian & Persian	Foreign Lang: Russian & Persian	3	11

2017 Foreign Language Major: Russian & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six courses from the list below.	
Russian Primary	Choose 6 of 11
LN440R Russian in Cultural Context may replace an LR or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS

LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	

Secondary Language Track

You must select four courses from the list below.

Persian Secondary	Choose 4 of 6
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	

Free Elective	Choose 1 of 13
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS375	GOV & POL RUSSIA & NEIGHBORS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Russian & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FRZ0H	Foreign Lang: Russian & Persian w/ Honors	Foreign Language Major: Russian & Persian w/ Honors	Foreign Lang: Russian & Persian w/ Honors	1	0

2017 Foreign Language Major: Russian & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1

Write an honors thesis under the direction of a senior faculty member.

LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Foreign Area Studies Major: East Asia Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSA0	Foreign Area Studies: E. Asia	Foreign Area Studies Major: East Asia	Foreign Area Studies: E. Asia	11	0

2017 Foreign Area Studies Major: East Asia Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
SS366	COMPARATIVE POLITICS
AND	
Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR
AND	
Chinese Electives	Choose 4 of 11
LN440C Chinese in Cultural Context may replace an LC or LN course from the following courses.	
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
History Elective	Choose 1 of 2
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
AND	
Social Science Elective	Choose 1 of 2
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN

2017 Foreign Area Studies Major: East Asia w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSA0H	Foreign Area Studies: E. Asia w/ Honors	Foreign Area Studies Major: East Asia w/ Honors	Foreign Area Studies: E. Asia w/ Honors	2	0

2017 Foreign Area Studies Major: East Asia w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
As part of LN488 cadets will write an honors thesis under the direction of a senior faculty member.	
HI377	HISTORY OF ASIAN WARFARE
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Area Studies Major: Europe Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSE0	Foreign Area Studies: Europe	Foreign Area Studies Major: Europe	Foreign Area Studies: Europe	6	5

2017 Foreign Area Studies Major: Europe Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV386	GEOGRAPHY OF EUROPE
SS366	COMPARATIVE POLITICS
SS377	POLITICS & GOV OF EUROPE
AND	
Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM

SS486	INTERNATIONAL SECURITY SEMINAR
AND	

Language Track

You must choose one of the following four language tracks.

French Language	Choose 5 of 12

Choose 4 of 11 French, 1 of 1 History. LN440F French in Cultural Context may replace an LF or LN course.

HI364	MODERN WESTERN EUROPE
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Portuguese Language	Choose 5 of 10

Choose 4 of 9 Portuguese, 1 of 1 History. LN440P Portuguese in Cultural Context may replace an LP or LN course.

HI344	MODERN DIPLOMACY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD
OR	
German Language	Choose 5 of 12

Choose 4 of 11 German, 1 of 1 History. LN440G German in Cultural Context may replace an LG or LN course.

HI343	MODERN GERMANY
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Spanish Language	Choose 5 of 12

Choose 4 of 11 Spanish, 1 of 1 History. LN440E Spanish in Cultural Context may replace an LS or LN course.

HI344	MODERN DIPLOMACY
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE

LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT

2017 Foreign Area Studies Major: Europe w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSE0H	Foreign Area Studies: Europe w/ Honors	Foreign Area Studies Major: Europe w/ Honors	Foreign Area Studies: Europe w/ Honors	2	0

2017 Foreign Area Studies Major: Europe w/ Honors Tracks

Subject Area	Description
Additional History Elective	Choose 1 of 2
If your language track within the major is French or German, take HI366. If your language track is Portuguese or Spanish, take HI361.	
HI361	HISTORY OF MEDIEVAL EUROPE
HI366	DIPLOMATIC HISTORY-EUROPE
AND	
Honors Thesis	Choose 1 of 1
As part of LN488 complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Area Studies Major: Africa Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSI0	Foreign Area Studies: Africa	Foreign Area Studies Major: Africa	Foreign Area Studies: Africa	4	7

2017 Foreign Area Studies Major: Africa Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
EV365	GEOGRAPHY OF GLOBAL CULTURES

EV375	GEOGRAPHY OF AFRICA
SS366	COMPARATIVE POLITICS
AND	

Language Track

Choose one of the following two language tracks.

French Electives	Choose 4 of 12

LN440F French In Cultural Context may replace an LF or other LN course listed below.

LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
LN440F	FRENCH IN CULTURAL CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
OR	
Portuguese Electives	Choose 4 of 9

LN440P Portuguese In Cultural Context may replace an LP or other LN course listed below.

LN440P	PORTUGUESE IN CULTURAL CONTEXT
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
AND	

History Elective	Choose 1 of 2
HI345	MODERN AFRICA
HI391	WORLD RELIGIONS
AND	
Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR
AND	

Law or Social Science Elective

Choose either the Law or a Social Science elective.

Law Elective	Choose 1 of 1
LW410	COMPARATIVE LEGAL SYSTEMS
OR	
Social Science Elective	Choose 1 of 2
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS485	POLIT & DEV SUB-SAHARAN AFR

2017 Foreign Area Studies Major: Africa w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSI0H	Foreign Area Studies: Africa w/ Honors	Foreign Area Studies Major: Africa w/ Honors	Foreign Area Studies: Africa w/ Honors	2	0

2017 Foreign Area Studies Major: Africa w/ Honors Tracks

Subject Area	Description
Additional History Elective	
Take an additional History OR Law OR Social Science course not already taken in the major.	
AND	
Honors Thesis	Choose 1 of 1
In LN488 complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Area Studies Major: Latin America Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSL0	Foreign Area Studies: Latin America	Foreign Area Studies Major: Latin America	Foreign Area Studies: Latin America	7	4

2017 Foreign Area Studies Major: Latin America Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 5 of 5
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
SS366	COMPARATIVE POLITICS
SS384	POLITICS & GOVT-LATIN AMER
AND	

Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR
AND	

Language Track

Choose one of the following two language tracks.

Spanish Language	Choose 4 of 11

LN440E Spanish in Cultural Context may replace an LS or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
OR	
Portuguese Language	Choose 4 of 9

LN440P Portuguese in Cultural Context may replace an LP or LN course.

LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

2017 Foreign Area Studies Major: Latin America w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSL0H	Foreign Area Studies: Latin America w/ Honors	Foreign Area Studies Major: Latin America w/ Honors	Foreign Area Studies: Latin America w/ Honors	2	0

2017 Foreign Area Studies Major: Latin America w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2

Take an additional History course, and in LN488 complete an honor thesis under the direction of a senior faculty member.

HI381	HISTORY OF IRREGULAR WARFARE
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Area Studies Major: Middle East Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSM0	Foreign Area Studies: Mid East	Foreign Area Studies Major: Middle East	Foreign Area Studies: Mid East	10	1

2017 Foreign Area Studies Major: Middle East Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV376	GEOGRAPHY OF THE MIDDLE EAST
SS366	COMPARATIVE POLITICS
AND	
Arabic Electives	Choose 4 of 12
LN440A Arabic in Cultural Context may replace an LA or LN course listed below.	
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
AND	
History Elective	Choose 1 of 2
HI339	THE MODERN MIDDLE EAST
HI391	WORLD RELIGIONS
AND	
Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR
AND	
Law Elective	Choose 1 of 1
LW410	COMPARATIVE LEGAL SYSTEMS
OR	
Social Science Elective	Choose 1 of 1
SS383	POLITICS & GOVT-MIDDLE EAST

2017 Foreign Area Studies Major: Middle East w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSM0H	Foreign Area Studies: Mid East w/ Honors	Foreign Area Studies Major: Middle East w/ Honors	Foreign Area Studies: Mid East w/ Honors	2	0

2017 Foreign Area Studies Major: Middle East w/ Honors Tracks

Subject Area	Description
Additional History Elective	Choose 1 of 3
Take an additional History course not already taken in the major.	
HI380	HISTORY OF THE MIDDLE EAST
HI383	MIDDLE EASTERN WARFARE
HI391	HISTORY OF WORLD RELIGIONS
AND	
Honors Thesis	Choose 1 of 1
In LN488 complete an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Comlete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Area Studies Major: Eurasia Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSU0	Foreign Area Studies: Eurasia	Foreign Area Studies Major: Eurasia	Foreign Area Studies: Eurasia	11	0

2017 Foreign Area Studies Major: Eurasia Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
SS366	COMPARATIVE POLITICS
AND	

Integrative Experience	Choose 1 of 3
EV482	MILITARY GEOGRAPHY
LN490	LANGUAGE & CULTURE CAP SEM
SS486	INTERNATIONAL SECURITY SEMINAR
AND	
Russian Electives	Choose 4 of 11
LN440R Russian in Cultural Context may replace an LR or LN course in the list below.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
AND	
History Elective	Choose 1 of 5
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
AND	
Social Science Elective	Choose 1 of 2
SS375	GOV & POL RUSSIA & NEIGHBORS
SS385	COMPARATIVE ECONOMIC SYSTEMS

2017 Foreign Area Studies Major: Eurasia w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSU0H	Foreign Area Studies: Eurasia w/ Honors	Foreign Area Studies Major: Eurasia w/ Honors	Foreign Area Studies: Eurasia w/ Honors	2	0

2017 Foreign Area Studies Major: Eurasia w/ Honors Tracks

Subject Area	Description
Additional History Elective	Choose 1 of 5
Choose one additional history elective not already taken in the major.	
HI366	DIPLOMATIC HISTORY-EUROPE
HI367	HIST IMPERIAL/SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
HI389	GRAND STRATEGY IN 20TH CENT
HI391	HISTORY OF WORLD RELIGIONS
AND	
Honors Thesis	Choose 1 of 1
As part of LN488 complete an honors thesis under the direction of a senior faculty member.	

LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain a minimum APSC of 3.0 in the core curriculum and 3.5 in the major.

2017 Foreign Language Major: Spanish & Persian Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSZ0	Foreign Lang: Spanish & Persian	Foreign Language Major: Spanish & Persian	Foreign Lang: Spanish & Persian	3	11

2017 Foreign Language Major: Spanish & Persian Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 2 of 2
LN380 may be replaced with a 400-level language course or with a Free Elective.	
LN380	NATURE OF MODERN LANGUAGES
LN490	LANGUAGE & CULTURE CAP SEM
AND	
Primary Language Track	
You must select six of the courses from the list below.	
Spanish Primary	Choose 6 of 11
LN440E Spanish in Cultural Context may replace an LS or LN course.	
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
AND	
Secondary Language Track	
You must select four of the courses from the list below.	
Persian Secondary	Choose 4 of 13
LN487	ADV IND STUDY-FOREIGN LANGS
LN488	ADV IND STUDY-FOREIGN LANGS
LZ203	PERSIAN I (STANDARD)
LZ204	PERSIAN II (STANDARD)
LZ371	INTENSIVE INTERMEDIATE PERSIAN
AND	

Free Elective	Choose 1 of 12
DS455	COMPARATIVE MILITARY SYSTEMS
EP351	WORLD LITERATURE
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI348	MODERN LATIN AMERICA
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS465	TERRORISM: NEW CHALLENGES

2017 Foreign Language Major: Spanish & Persian w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
FSZ0H	Foreign Lang: Spanish & Persian w/ Honors	Foreign Language Major: Spanish & Persian w/ Honors	Foreign Lang: Spanish & Persian w/ Honors	1	0

2017 Foreign Language Major: Spanish & Persian w/ Honors Tracks

Subject Area	Description
Honors Thesis Course	Choose 1 of 1
Write an honors thesis under the direction of a senior faculty member.	
LN488	ADV IND STUDY-FOREIGN LANGS
AND	

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Regional Studies Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
RST0N	Regional Studies Minor	Regional Studies Minor	Regional Studies Minor	0	5

2017 Regional Studies Minor Tracks

Subject Area	Description

The course of instruction for the Regional Studies Minor will consist of five courses that form a coherent, multidisciplinary study of a geographical region. Two of the courses must be in a foreign language at the 300 or 400 level. The other three courses must be regional electives, one of which must be a comparative course that considers the culture of the target region alongside that of the United States.

Language Courses

Take two courses at the 300-level (or higher) in one of the following languages. Courses meeting the core curriculum requirements may not be applied to the Regional Studies Minor.

Arabic	Choose 2 of 10
LA371	INTENSIVE INTERMEDIATE ARABIC
LA472	COLLOQUIAL ARABIC
LA475	ARABIC RDG/WRTG THRU MEDIA
LA476	MILITARY SPKG/RDG - ARABIC
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LA485	ARABIC LITERATURE I
LA486	ARABIC LITERATURE II
LA492	ARABIC LITERATURE III
OR	
Chinese	Choose 2 of 9
LC371	INTENSIVE INTERMEDIATE CHINESE
LC475	CHINESE RDG/WRTG THRU MEDIA
LC476	MILITARY SPKG/RDG - CHINESE
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LC485	CHINESE LITERATURE I
LC486	CHINESE LITERATURE II
LC492	CHINESE LITERATURE III
OR	
French	Choose 2 of 9
LF371	INTENSIVE INTERMEDIATE FRENCH
LF475	FRENCH RDG/WRTG THRU MEDIA
LF476	MILITARY SPKG/RDG - FRENCH
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LF485	SURVEY OF FRENCH LIT I
LF486	SURVEY OF FRENCH LIT II
LF492	MASTERWORKS OF FRENCH LIT
OR	
German	Choose 2 of 9
LG371	INTENSIVE INTERMEDIATE GERMAN
LG475	GERMAN RDG/WRTG THRU MEDIA
LG476	MILITARY SPKG/RDG - GERMAN
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG485	SURVEY OF GERMAN LIT I
LG486	SURVEY OF GERMAN LIT II
LG492	20TH & 21ST CENTURY GERMANY
OR	
Portuguese	Choose 2 of 7
LP371	INTENSIVE INTERMED. PORTUGUESE
LP475	PORTUGUESE RDG/WRTG THRU MEDIA
LP476	MILITARY SPKG/RDG - PORTUGUESE
LP481	SHORT STORY IN PORTUGUESE
LP482	CIVIL OF PORT-SPKG WORLD
LP492	LIT OF PORT-SPKG WORLD

OR	
Russian	Choose 2 of 9
LR371	INTENSIVE INTERMEDIATE RUSSIAN
LR475	RUSSIAN RDG/WRTG THRU MEDIA
LR476	MILITARY SPKG/RDG - RUSSIAN
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
LR485	SURVEY OF RUSSIAN LITERATURE I
LR486	SURVEY OF RUSSIAN LIT. II
LR492	RUSSIAN LIFE IN FICTION
OR	
Spanish	Choose 2 of 9
LS371	INTENSIVE INTERMEDIATE SPANISH
LS475	SPANISH RDG/WRTG THRU MEDIA
LS476	MILITARY SPKG/RDG - SPANISH
LS483	SPANISH CIV AND CULTURE
LS484	SPANISH AMERICAN CIV AND CULT
LS485	SPANISH-AMERICAN LITERATURE
LS486	THE LITERATURE OF SPAIN
LS492	20TH/21ST CENTURY HISPANIC LIT
OR	
Persian	Choose 2 of 2
LZ371	INTENSIVE INTERMEDIATE PERSIAN
LZ475	PERSIAN RDG/WRTG THRU MEDIA
AND	

Take two courses from one of the following regional blocks. The block chosen should be related to the language studied.

East Asia	Choose 2 of 5
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI347	ASIAN WARFARE AND POLITICS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
OR	
Eurasia	Choose 2 of 6
EV371	GEOGRAPHY OF RUSSIA
HI344	MODERN DIPLOMACY
HI358	STRATEGY, POLICY & GENERALSHIP
HI367	IMPERIAL AND SOVIET RUSSIA
HI381	HISTORY OF IRREGULAR WARFARE
SS375	GOV & POL RUSSIA & NEIGHBORS
OR	
Europe	Choose 2 of 5
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI364	MODERN WESTERN EUROPE
SS377	POLITICS & GOV OF EUROPE
OR	
Latin America	Choose 2 of 3
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
SS384	POLITICS & GOVT-LATIN AMER

OR	
Middle East	Choose 2 of 3
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
SS383	POLITICS & GOVT-MIDDLE EAST
AND	
Comparative Studies Course	Choose 1 of 6
DS455	COMPARATIVE MILITARY SYSTEMS
EV365	GEOGRAPHY OF GLOBAL CULTURES
HI391	WORLD RELIGIONS
LW410	COMPARATIVE LEGAL SYSTEMS
SS366	COMPARATIVE POLITICS
SS385	COMPARATIVE ECONOMIC SYSTEMS

Department of Geography and Environmental Engineering

2017 Environmental Engineering Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EES0	Environmental Engineering Studies	Environmental Engineering Studies Major	Environmental Engineering Studies	14	0

2017 Environmental Engineering Studies Major Tracks

Subject Area	Description
Required Courses	Choose 11 of 11
EE301	FUNDAMENTALS OF ELEC ENGIN
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV388A	PHYSICAL GEOLOGY
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV401	PHYS & CHEM TREATMENT
EV402	BIOCHEMICAL TREATMENT
EV481	WATER RESOURCES PLAN & DESIGN
EV490	ADV ENVIRON ENG DESIGN
MC311	THERMAL-FLUID SYSTEMS I
XS391	PRIN & APPL OF ENV CHEM
AND	
Directed Electives	Choose 2 of 4
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV488	SOLID & HAZ WASTE TREAT & REMD
MA366	APPLIED ENGINEERING MATH
MC300	FUND OF ENGR MECH AND DESIGN
AND	
Environmental Field Electives	Choose 1 of 29
CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE450	CONSTRUCTION MANAGEMENT
CH362	MASS & ENERGY BALANCES
EE377	ELECTRICAL POWER ENGNRNG
EM380	ENGINEERING MATERIALS
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EV377	REMOTE SENSING
EV380	SURVEYING
EV388B	GEOMORPHOLOGY
EV391B	ENVIRONMENTAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV398	GEOG INFORMATION SYSTEMS
EV399A	GEOLOGY FIELD COURSE
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV488	SOLID & HAZ WASTE TREAT & REMD
EV489A	ADVANCED INDIVIDUAL STUDY I

EV489B	ADVANCED INDIVIDUAL STUDY II
MC300	FUND OF ENGR MECH AND DESIGN
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME350	INTRO THERMAL SYS W/ ARMY APPL
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS

2017 Environmental Geography Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EGE0	Environmental Geography	Environmental Geography Major	Environmental Geography	14	0

2017 Environmental Geography Major Tracks

Subject Area	Description
Engineering Sequence	Choose 3 of 3
Complete the 3-course Environmental Engineering Core Engineering Sequence.	
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV350	ENVIRONMENTAL TECHNOLOGIES
EV450	ENV ENG FOR COMMUNITY DEVELOP
AND	
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Foundation Courses	Choose 3 of 3
EV303	FOUNDATIONS IN GEOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV486	ENVIRONMENT AND DEVELOPMENT
AND	
Physical Geography Stem	Choose 1 of 2
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
AND	
Physical Geography Elective	Choose 1 of 5
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV391B	ENVIRONMENTAL GEOLOGY
AND	
Geography Tools and Landscape Analysis	Choose 1 of 3
EV377	REMOTE SENSING

EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
AND	
Culture Stem	Choose 1 of 1
EV365	GEOGRAPHY OF GLOBAL CULTURES
AND	
Regional Geography Elective	Choose 1 of 7
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
AND	
General Elective	Choose 1 of 29
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	ENVIRONMENTAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV397	AIR POLLUTION ENGINEERING
EV483	COLLOQUIUM IN GEOGRAPHY
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV487	ENVIRONMENTAL SECURITY
EV489A	ADVANCED INDIVIDUAL STUDY I
LX300	3RD SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS
SS368	ECONOMETRICS I
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS485	POLIT & DEV SUB-SAHARAN AFR
AND	
Integrative Experience	Choose 1 of 1
EV482	MILITARY GEOGRAPHY

2017 Environmental Geography Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EGE0H	Environmental Geography w/ Honors	Environmental Geography Major w/ Honors	Environmental Geography w/ Honors	2	0

2017 Environmental Geography Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
EV480	HONORS SEMINAR IN GEOGRAPHY
EV489B	ADVANCED INDIVIDUAL STUDY II
AND	

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Environmental Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ESC0	Environmental Science	Environmental Science Major	Environmental Science	14	0

2017 Environmental Science Major Tracks

Subject Area	Description
Engineering Sequence	Choose 3 of 3
Complete the 3-course Environmental Engineering Core Engineering Sequence.	
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV350	ENVIRONMENTAL TECHNOLOGIES
EV450	ENV ENG FOR COMMUNITY DEVELOP
AND	
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Foundation Courses	Choose 5 of 5
CH375	INTRODUCTION TO BIOLOGY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV388A	PHYSICAL GEOLOGY
EV471	ECOLOGY
EV487	ENVIRONMENTAL SECURITY

AND	
Atmosphere Course	Choose 1 of 2
EV387	METEOROLOGY
EV389B	CLIMATOLOGY
AND	
Tools Elective	Choose 1 of 3
CH387	HUMAN PHYSIOLOGY
EV377	REMOTE SENSING
EV398	GEOG INFORMATION SYSTEMS
AND	
Depth Electives	Choose 2 of 7
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
EV391A	LAND USE PLAN & MGT
EV391B	ENVIRONMENTAL GEOLOGY
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV398	GEOG INFORMATION SYSTEMS
XS391	PRIN & APPL OF ENV CHEM
AND	
Field Elective	Choose 1 of 40
CE380	HYDROLOGY/HYDRAULIC DESIGN
CH357	MICROBIOLOGY
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH460	HUMAN ANATOMY
CH481	PHYSICAL CHEMISTRY I
DS350	MILITARY COMMUNICATIONS
EM381	ENGINEERING ECONOMY
EP386	PHILOSOPHY OF SCIENCE
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388B	GEOMORPHOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	ENVIRONMENTAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV398	GEOG INFORMATION SYSTEMS
EV399A	GEOLOGY FIELD COURSE
EV401	PHYS & CHEM TREATMENT
EV482	MILITARY GEOGRAPHY
EV488	SOLID & HAZ WASTE TREAT & REMD
EV489A	ADVANCED INDIVIDUAL STUDY I
LW481	INTERNATIONAL LAW
MA363	VECTOR CALCULUS AND ODE
MA366	APPLIED ENGINEERING MATH
MA391	MATHEMATICAL MODELING
MA396	NUM METH SOLUTIONS DIFF EQNS

MA476	MATHEMATICAL STATISTICS
MC302	STATICS & DYNAMICS
SS479	ENVIRONMENTAL ECONOMICS
SS480	ADV AM POLITICS, POLICY, STRAT
XS391	PRIN & APPL OF ENV CHEM

2017 Environmental Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ESC0H	Environmental Science w/ Honors	Environmental Science Major w/ Honors	Environmental Science w/ Honors	1	0

2017 Environmental Science Major w/ Honors Tracks

Subject Area	Description
Course Requirements (2)	Choose 1 of 1
Take an additional course from the Field Elective list in the major, and take EV489A which requires individual research, a written report, and a formal presentation of research, analysis, and conclusions.	
EV489A	ADVANCED INDIVIDUAL STUDY I
AND	
Grade Requirements	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

2017 Environmental Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EVE0	Environmental Engineering	Environmental Engineering Major	Environmental Engineering	18	0

2017 Environmental Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 15 of 15
EE301	FUNDAMENTALS OF ELEC ENGIN
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV388A	PHYSICAL GEOLOGY
EV394	HYDROGEOLOGY/HYDRAULIC SYSTEMS
EV396	ENVIRONMENTAL BIOLOGICAL SYS
EV397	AIR POLLUTION ENGINEERING
EV400	ENVIRONMENTAL ENGINEERING SEM
EV401	PHYS & CHEM TREATMENT
EV402	BIOCHEMICAL TREATMENT

EV481	WATER RESOURCES PLAN & DESIGN
EV488	SOLID & HAZ WASTE TREAT & REMD
EV490	ADV ENVIRON ENG DESIGN
MA366	APPLIED ENGINEERING MATH
MC311	THERMAL-FLUID SYSTEMS I
XS391	PRIN & APPL OF ENV CHEM
AND	
Environmental Field Electives	Choose 3 of 27

Cadets who will graduate with honors must select EV489A as one of the three courses.

CE350	INFRASTRUCTURE ENGINEERING
CE371	SOIL MECHANICS/FNDTN ENGNRG
CE380	HYDROLOGY/HYDRAULIC DESIGN
CE450	CONSTRUCTION MANAGEMENT
CH362	MASS & ENERGY BALANCES
EE301	FUNDAMENTALS OF ELEC ENGIN
EE377	ELECTRICAL POWER ENGNRNG
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EV377	REMOTE SENSING
EV380	SURVEYING
EV398	GEOG INFORMATION SYSTEMS
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV489A	ADVANCED INDIVIDUAL STUDY I
EV489B	ADVANCED INDIVIDUAL STUDY II
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
MC300	FUND OF ENGR MECH AND DESIGN
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
MC380	ENGINEERING MATERIALS
ME350	INTRO THERMAL SYS W/ ARMY APPL
ME370	COMPUTER AIDED DESIGN
ME472	ENERGY CONVERSION SYSTEMS
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS
XE442	ALTERNATIVE ENERGY ENGINEERING

2017 Environmental Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EVE0H	Environmental Engineering w/ Honors	Environmental Engineering Major w/ Honors	Environmental Engineering w/ Honors	0	0

2017 Environmental Engineering Major w/ Honors Tracks

Subject Area	Description
Required Course	
One of the Field Elective courses taken in the major must be EV489A, which requires individual research, a written report, and a formal presentation of research, analysis, and conclusions.	

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Human Geography Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEO0	Human Geography	Human Geography Major	Human Geography	11	0

2017 Human Geography Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
EV303	FOUNDATIONS IN GEOGRAPHY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV398	GEOG INFORMATION SYSTEMS
EV482	MILITARY GEOGRAPHY
AND	
Regional Geography	Choose 1 of 7
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
AND	
Physical Geography	Choose 1 of 4
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV391B	ENVIRONMENTAL GEOLOGY
AND	
Geography Tools	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG
AND	
Geography Elective	Choose 2 of 4
Any regional geography course may be substituted for one of these courses.	
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV483	COLLOQUIUM IN GEOGRAPHY
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV486	ENVIRONMENT AND DEVELOPMENT
AND	

Human Geography Elective	Choose 1 of 69
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS455	COMPARATIVE MILITARY SYSTEMS
EP333	CULTURAL STUDIES
EP392	MINORITY LITERATURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV387	METEOROLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	ENVIRONMENTAL GEOLOGY
EV397	AIR POLLUTION ENGINEERING
EV478	MILITARY GEOSPATIAL OPERATIONS
EV483	COLLOQUIUM IN GEOGRAPHY
EV485	SPEC TOPICS-GEOG & ENVRNMNT
EV486	ENVIRONMENT AND DEVELOPMENT
EV487	ENVIRONMENTAL SECURITY
EV489A	ADVANCED INDIVIDUAL STUDY I
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI340	COLONIAL AMERICA
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI349	THE MIDDLE EAST TO 1798
HI360	HIST OF THE CLASSICAL WORLD
HI361	HISTORY OF MEDIEVAL EUROPE
HI362	HISTORY OF EARLY MODERN EUROPE
HI363	EUROPE IN TRNSITION & REVOL
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	HIST IMPERIAL/SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI369	AMERICAN FRONTIERS
HI372	HIST OF US FGN REL,20TH CEN
HI390	EARLY NATIONAL AMERICA
HI391	HISTORY OF WORLD RELIGIONS
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
LW481	INTERNATIONAL LAW
LX400	4TH SEMESTER FOREIGN LANG
MA376	APPLIED STATISTICS

PL361	RESEARCH METHODS I
PL377	SOCIAL INEQUALITY
SS360	POLITICAL ANALYSIS
SS366	COMPARATIVE POLITICS
SS368	ECONOMETRICS I
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTMS
SS485	POLIT & DEV SUB-SAHARAN AFR

2017 Human Geography Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GEO0H	Human Geography w/ Honors	Human Geography Major w/ Honors	Human Geography w/ Honors	2	0

2017 Human Geography Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
EV480	HONORS SEMINAR IN GEOGRAPHY
EV489B	ADVANCED INDIVIDUAL STUDY II
AND	

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Geospatial Information Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GIS0	Geospatial Information Science	Geospatial Information Science Major	Geospatial Information Science	11	0

2017 Geospatial Information Science Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2

IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 7 of 7
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV377	REMOTE SENSING
EV378	CARTOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
EV477	ADVANCED REMOTE SENSING
EV482	MILITARY GEOGRAPHY
EV498	ADV GEOGRAPHIC INFORMATION SYS
AND	
Spatial Data Acquisition Block	Choose 1 of 2
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
AND	
Geospatial Information Science Electives	Choose 2 of 20
Cadets cannot choose both EV388A and EV399A	
EV300	ENVIRONMENTAL SCIENCE
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV379	PHOTOGRAMMETRY
EV380	SURVEYING
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV388A	PHYSICAL GEOLOGY
EV388B	GEOMORPHOLOGY
EV389B	CLIMATOLOGY
EV390B	URBAN GEOGRAPHY
EV391A	LAND USE PLAN & MGT
EV391B	ENVIRONMENTAL GEOLOGY
EV397	AIR POLLUTION ENGINEERING
EV399A	GEOLOGY FIELD COURSE
EV478	MILITARY GEOSPATIAL OPERATIONS
EV481	WATER RESOURCES PLAN & DESIGN

2017 Geospatial Information Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GIS0H	Geospatial Information Science w/ Honors	Geospatial Information Science Major w/ Honors	Geospatial Information Science w/ Honors	2	0

2017 Geospatial Information Science Major w/ Honors Tracks

Subject Area	Description

Senior Thesis/Project Requirement

Completion of a senior thesis or project is required. To graduate w/ Honors the following two options are available.

Required Courses	Choose 2 of 2
EV489A	ADVANCED INDIVIDUAL STUDY I
EV489B	ADVANCED INDIVIDUAL STUDY II

OR

Alternate Course

EV489A is designed to satisfy the research/design project requirement. EV489A and an additional course from the GIS electives list in lieu of EV489B may be taken.

AND

Grade Requirements

Cadets must complete the requirements of the major as shown above, and achieve a final APSC of at least 3.0 in the core curriculum and a final APSC of at least 3.5 in the major.

Department of History

2017 Defense and Strategic Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS1	Defense and Strategic Studies	Defense and Strategic Studies Major	Defense and Strategic Studies	2	9

2017 Defense and Strategic Studies Major Tracks

Subject Area	Description

Departmental Description

The Defense & Strategic Studies Major is an interdisciplinary approach that combines military science, history, economics, political science, geography, leadership, information technology, and law to understand the nature of war and the role of the military as an instrument of national power. Using a foundation in strategic theory and historical case studies, cadets examine issues relating to the different levels of war, military decision-making, defense policy and changes in warfare. DS320 Landpower provides an introduction to the field, DS470 Military Strategy provides the program's integrative experience, and four required choices further develop vital exposure to theories, concepts and knowledge within the field. DS497 Strategic Studies Capstone and, for select cadets, DS496 Strategic Studies Thesis provide culminating, practical experiences with contemporary strategy. The Defense & Strategic Studies Major provides future Army Officers the broadest array of intellectual tools for success at every level of the profession.

Mission

The Defense & Strategic Studies Major provides cadets a greater theoretical and practical understanding of the use of force for policy ends, producing leaders of character for the U.S. Army with a significant edge in professional military development.

Website Address

http://www.usma.edu/dmi/SitePages/Defense%20Strategic%20Studies.aspx

IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Course	Choose 1 of 1
DS320	LANDPOWER
AND	
Integrative Experience	Choose 1 of 1
DS470	MILITARY STRATEGY
AND	
	Choose 1 of 2
DS496	STRATEGIC STUDIES THESIS
DS497	STRATEGIC STUDIES CAPSTONE
AND	
	Choose 1 of 2
DS345	MILITARY INNOVATION
DS455	COMPARATIVE MILITARY SYSTEMS
AND	
	Choose 1 of 2
HI358	STRATEGY, POLICY & GENERALSHIP
HI385	WAR & ITS THEORISTS

AND	
	Choose 1 of 2
EV482	MILITARY GEOGRAPHY
SS473	AMERICAN FOREIGN POLICY
AND	
	Choose 1 of 2
DS350	MILITARY COMMUNICATIONS
LX400	4TH SEMESTER FOREIGN LANG
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG
AND	
Approved Electives	Choose 2 of 51
DS345	MILITARY INNOVATION
DS350	MILITARY COMMUNICATIONS
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS385	SUSTAINING THE FORCE
DS399	STRATEGIC STUDIES INTERNSHIP
DS455	COMPARATIVE MILITARY SYSTEMS
DS460	COUNTERINSURGENCY OPERATIONS
DS489	ADV IND STUD-DEF/STRAT STUDIES
DS490	SPECIAL TOPICS: STRAT STUDIES
DS495	RESEARCH METHODS STRAT STUDIES
EP365	ETHICS-MILITARY PROFESSION
EP374	THE ARTS OF WAR
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV482	MILITARY GEOGRAPHY
HI338	WARFARE IN AGE OF REVOLUTIONS
HI347	ASIAN WARFARE AND POLITICS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
IT460	CYBER OPERATIONS
LA476	MILITARY SPKG/RDG - ARABIC
LC476	MILITARY SPKG/RDG - CHINESE
LF476	MILITARY SPKG/RDG - FRENCH
LG476	MILITARY SPKG/RDG - GERMAN
LP476	MILITARY SPKG/RDG - PORTUGUESE
LR476	MILITARY SPKG/RDG - RUSSIAN
LS476	MILITARY SPKG/RDG - SPANISH
LW474	LAW OF ARMED CONFLICT
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
MG379	LEADING TEAMS
MG390	NEGOTIATION FOR LEADERS
MS460	COUNTERINSURGENCY OPERATIONS
PL387	FOUNDATIONS OF COUNSELING

PL471	LEADERSHIP IN COMBAT
PL482	ARMED FORCES AND SOCIETY
SE485	COMBAT MODELING
SS370	MASS MEDIA & AMER POLITICS
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT ANAL/RESOL/NEGOTIATN
SS481	AM GRAND STRAT/DEFENSE POLICY

2017 Defense and Strategic Studies Major w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS1H	Defense/Strategic Studies w/Thesis (Honors)	Defense and Strategic Studies Major w/ Thesis (Honors)	Defense/Strategic Studies w/Thesis (Honors)	1	1

2017 Defense and Strategic Studies Major w/ Thesis (Honors) Tracks

Subject Area	Description
Elective	
Take one additional 300- or 400-level approved elective course.	
AND	
Required Course	Choose 1 of 1
DS495	RESEARCH METHODS STRAT STUDIES
AND	
Individual Research Requirement	
Complete DS496 rather than DS497 for the base major.	
AND	
Grade Requirements	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major. Earn at least an A- in DS496.	

2017 Defense and Strategic Studies Major w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
DSS1T	Defense and Strategic Studies w/ Thesis	Defense and Strategic Studies Major w/ Thesis	Defense and Strategic Studies w/ Thesis	1	0

2017 Defense and Strategic Studies Major w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1

DS495	RESEARCH METHODS STRAT STUDIES
AND	

Inidividual Research Requirement

Complete DS496 rather than DS497 for the base major.

2017 History Major: Military Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH1	History: Military	History Major: Military	History: Military	11	0

2017 History Major: Military Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Course	Choose 1 of 1
HI498	COLLOQUIUM IN HISTORY
AND	
Integrative Experience	Choose 1 of 9
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
AND	
Military History	Choose 5 of 10
HI338	WARFARE IN AGE OF REVOLUTIONS
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
AND	
Out-of-Stem History Electives	Choose 2 of 30

For cadets who will graduate w/ Honors one of these courses must be from the HI400 series unless a HI400 series course has been selected elsewhere. Cadets who will graduate w/ Thesis may substitute any elective from the USMA curriculum at large for one of these courses. Cadets not selecting Honors or Thesis may substitute any history elective, stem immaterial, for one of these courses.

HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI340	COLONIAL AMERICA
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI391	WORLD RELIGIONS
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 History Major: Military w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH1H	History: Military w/ Thesis (Honors)	History Major: Military w/ Thesis (Honors)	History: Military w/ Thesis (Honors)	1	1

2017 History Major: Military w/ Thesis (Honors) Tracks

Subject Area	Description
Elective	
Take one elective at large from the USMA curriculum.	

AND	
Required Course	Choose 1 of 1
HI499	SENIOR THESIS
AND	

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculm and an APSC of at least 3.5 in the major. Earn an A- in HI499.

2017 History Major: Military w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HMH1T	History: Military w/ Thesis	History Major: Military w/ Thesis	History: Military w/ Thesis	1	0

2017 History Major: Military w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
HI499	SENIOR THESIS

2017 History Major: International Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HNT1	History: International	History Major: International	History: International	5	6

2017 History Major: International Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Course	Choose 1 of 1
HI498	COLLOQUIUM IN HISTORY
AND	
Integrative Experience	Choose 1 of 13
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI344	MODERN DIPLOMACY
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS

HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI368	MOD CENTRAL & E. EUR,1896-1989
HI391	WORLD RELIGIONS
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION

AND

International History	Choose 5 of 21
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI341	THE AGE OF EXPLORATION
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
LW481	INTERNATIONAL LAW
SS473	AMERICAN FOREIGN POLICY
SS483	NATIONAL SECURITY SEMINAR

AND

Out-of-Stem History Electives	Choose 2 of 23

For cadets who will graduate w/ Honors one of these courses must be from the HI400 series unless a HI400 series course has been selected elsewhere. Cadets who will graduate w/ Thesis may substitute any elective from the USMA curriculum at large for one of these courses. Cadets not selecting Honors or Thesis may substitute any history elective, stem immaterial, for one of these courses.

HI338	WARFARE IN AGE OF REVOLUTIONS
HI340	COLONIAL AMERICA
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI369	AMERICAN FRONTIERS
HI370	ANCIENT & MEDIEVAL WARFARE
HI372	US FGN RELATIONS SINCE 1898
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA

HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 History Major: International w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HNT1H	History: International w/ Thesis (Honors)	History Major: International w/ Thesis (Honors)	History: International w/ Thesis (Honors)	1	1

2017 History Major: International w/ Thesis (Honors) Tracks

Subject Area	Description
Elective	
Take any elective chosen at large from the USMA curriculum.	
AND	
Required Course	Choose 1 of 1
HI499	SENIOR THESIS
AND	
Grade Requirements	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculm and an APSC of at least 3.5 in the major. Earn an A- in HI499.	

2017 History Major: International w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HNT1T	History: International w/ Thesis	History Major: International w/ Thesis	History: International w/ Thesis	1	0

2017 History Major: International w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
HI499	SENIOR THESIS

2017 History Major: United States Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS1	History: United States	History Major: United States	History: United States	11	0

2017 History Major: United States Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Course	Choose 1 of 1
HI498	COLLOQUIUM IN HISTORY
AND	
Integrative Experience	Choose 1 of 9
HI372	US FGN RELATIONS SINCE 1898
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
AND	
US History	Choose 5 of 9
HI340	COLONIAL AMERICA
HI369	AMERICAN FRONTIERS
HI372	US FGN RELATIONS SINCE 1898
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
AND	
Out-of-Stem History Electives	Choose 2 of 31
For cadets who will graduate w/ Honors one of these courses must be from the HI400 series unless a HI400 series course has been selected elsewhere. Cadets who will graduate w/ Thesis may substitute any elective from the USMA curriculum at large for one of these courses. Cadets not selecting Honors or Thesis may substitute any history elective, stem immaterial, for one of these courses.	
HI337	CHINA-C. KINGDOM TO COMM RULE
HI338	WARFARE IN AGE OF REVOLUTIONS
HI339	THE MODERN MIDDLE EAST
HI341	THE AGE OF EXPLORATION

HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI355	WARFARE-AGE OF INDUSTRIALIZTN
HI356	WAR AT SEA AND IN THE AIR
HI357	WARFARE SINCE 1945
HI358	STRATEGY, POLICY & GENERALSHIP
HI359	ERA OF THE SECOND WORLD WAR
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI365	THE ANCIENT WORLD
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
HI370	ANCIENT & MEDIEVAL WARFARE
HI376	EARLY MODERN WARFARE
HI381	HISTORY OF IRREGULAR WARFARE
HI385	WAR & ITS THEORISTS
HI391	WORLD RELIGIONS
HI460	SENIOR FACULTY COURSE
HI461	TOPICS IN GENDER HISTORY
HI462	THE HISTORY OF INNOVATION
HI463	RACE, ETHNICITY, NATION
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

2017 History Major: United States w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS1H	History: United States w/ Thesis (Honors)	History Major: United States w/ Thesis (Honors)	History: United States w/ Thesis (Honors)	1	1

2017 History Major: United States w/ Thesis (Honors) Tracks

Subject Area	Description
Elective	
Take one elective chosen at large from the USMA curriculum.	
AND	
Required Course	Choose 1 of 1
HI499	SENIOR THESIS
AND	
Grade Requirements	

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculm and an APSC of at least 3.5 in the major. Earn an A- in HI499.

2017 History: United States w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
HUS1T	History: United States w/ Thesis	History: United States w/ Thesis	History: United States w/ Thesis	1	0

2017 History: United States w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
HI499	SENIOR THESIS

Department of Law

2017 Law and Legal Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LLS1	Law and Legal Studies	Law and Legal Studies Major	Law and Legal Studies	9	2

2017 Law and Legal Studies Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
Cadets in the major will take LW403, Constitutional and Military Law, in the Fall Term of their Second Class year.	
LW310	INTRO TO LEGAL METHOD
LW474	LAW OF WAR
LW495	JURISPRUDENCE AND LEGAL THEORY
LX300	3RD SEMESTER FOREIGN LANG
AND	
Elective	Choose 4 of 8
LW410	COMPARATIVE LEGAL SYSTEMS
LW472	CRIMINAL LAW
LW473	ENVIRONMENTAL LAW
LW475	ADV CONSTITUTIONAL LAW SEM
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
LW488	BUSINESS LAW
LW490	SPECIAL TOPICS IN THE LAW
AND	
Specialty Law Track	
You must select one of the following two specialty law tracks.	
International Law and Legal Systems	Choose 2 of 22
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV386	GEOGRAPHY OF EUROPE
HI344	MODERN DIPLOMACY
HI372	US FGN RELATIONS SINCE 1898
HI391	WORLD RELIGIONS
LX400	4TH SEMESTER FOREIGN LANG
MG390	NEGOTIATION FOR LEADERS
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS385	COMPARATIVE ECONOMIC SYSTEMS

SS386	POLITICAL THOUGHT AND IDEAS
SS465	TERRORISM: NEW CHALLENGES
SS466	ADVANCED TERRORISM STUDIES
SS473	AMERICAN FOREIGN POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
XH467	WINNING THE PEACE
OR	
Constitutionalism and Society	Choose 2 of 17
EP359	LOGICAL REASONING
EP363	POLITICAL PHILOSOPHY
HI390	EARLY NATIONAL AMERICA
HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
PL372	SOCIOLOGY OF THE FAMILY
PL377	SOCIAL INEQUALITY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
SS373	THE AMERICAN PRESIDENCY
SS379	LEGISLATIVE POLITICS
SS386	POLITICAL THOUGHT AND IDEAS
SS464	HOMELAND SECURITY
SS472	THE AM STATE & THE SOLDIER
SS480	ADV AM POLITICS, POLICY, STRAT
SS483	NATIONAL SECURITY SEMINAR

2017 Law and Legal Studies Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
LLS1H	Law And Legal Studies w/ Honors	Law and Legal Studies Major w/ Honors	Law and Legal Studies w/ Honors	2	0

2017 Law and Legal Studies Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
LW498	THESIS I: PROPOSAL & RESEARCH
LW499	THESIS II: PAPER & DEFENSE
AND	

Grade Requirements

Complete the requirements of the major as shown above, attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major, and an average of at least 3.33 in LW498 and LW499.

Department of Mathematical Sciences

2017 Applied Statistics Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
AST0N	Applied Statistics Minor	Applied Statistics Minor	Applied Statistics Minor	2	3

2017 Applied Statistics Minor Tracks

Subject Area	Description
Required Course	Choose 1 of 1
MA476	MATHEMATICAL STATISTICS
AND	
Required Course	Choose 1 of 2
MA376	APPLIED STATISTICS
SE375	STATISTICS FOR ENGINEERS
AND	
Electives	Choose 3 of 14
Cadets may also choose from a variety of seminars, colloquia, summer AIADs for credit, and independent studies in any department, when topics are offered that are relevant to the Applied Statistics Minor. Approval authority for inclusion of these courses is the Applied Statistics DAC in the Department of Mathematical Sciences, who will coordinate with the offering department.	
EM481	SYSTEMS SIMULATION
KN494	RESEARCH METHODS/DATA ANALYSIS
MA371	LINEAR ALGEBRA
MA388	SABERMETRICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
PH361	EXPERIMENTAL PHYSICS
PH481	STATISTICAL PHYSICS
PL386	EXPERIMENTAL PSYCHOLOGY
PL497	SEMINAR IN BEHAVIORAL SCI
SE388	STOCHASTIC MODELS
SS368	ECONOMETRICS I
SS469	ECONOMETRICS II

2017 Mathematical Sciences Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MSC0	Mathematical Sciences	Mathematical Sciences Major	Mathematical Sciences	13	0

2017 Mathematical Sciences Major Tracks

Subject Area	Description
Required Courses	Choose 7 of 7
MA363	VECTOR CALCULUS AND ODE
MA371	LINEAR ALGEBRA
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA391	MATHEMATICAL MODELING
MA491	RESEARCH SEMNR-APPLD MATH
AND	
Statistics Elective	Choose 1 of 2
MA376	APPLIED STATISTICS
MA476	MATHEMATICAL STATISTICS
AND	
Math Electives	Choose 3 of 30
Only one of the non-Math Department Electives may be selected.	
DS455	COMPARATIVE MILITARY SYSTEMS
EP333	CULTURAL STUDIES
EV365	GEOGRAPHY OF GLOBAL CULTURES
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
MA372	INTRODUCTION TO DISCRETE MATH
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA385	CHAOS AND FRACTALS
MA388	SABERMETRICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA396	NUM METH SOLUTIONS DIFF EQNS
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
MA487	MATHEMATICAL ANALYSIS II
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA493A	OPNL CALC AND TRANSFORMS
MA493B	REAL VARIABLE THEORY
MA493C	TOPICS IN NUMERICAL ANLYSIS
MA493D	INTRODUCTION TO TOPOLOGY
MA493E	TOPICS IN ANALYSIS
PL371	INTRODUCTORY SOCIOLOGY
SS381	CULTURAL/POLIT ANTHROPOLOGY
AND	
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	

Integrative Experience	Choose 1 of 1
Cadets may take MA490 or any other department's integrative experience.	
MA490	APP PROB FROM MATH, SCI & ENGR

2017 Mathematical Sciences Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MSC0H	Mathematical Sciences w/ Honors	Mathematical Sciences Major w/ Honors	Mathematical Sciences w/ Honors	2	0

2017 Mathematical Sciences Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
The senior research seminar (MA491) is replaced with a two-course thesis option consisting of the following two courses.	
MA498	SR THESIS I: RSCRCH & PROPOSAL
MA499	SR THESIS II: PAPER & DEFENSE
AND	
Grade Requirements	
Complete the requirements of the major (excepting MA491) as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

2017 Mathematical Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
MST0	Mathematical Studies	Mathematical Studies Major	Mathematical Studies	11	0

2017 Mathematical Studies Major Tracks

Subject Area	Description
Required Courses	Choose 6 of 6
MA363	VECTOR CALCULUS AND ODE
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA391	MATHEMATICAL MODELING
AND	
Math Electives	Choose 3 of 31
Only one non-Math Department Elective may be selected.	
DS455	COMPARATIVE MILITARY SYSTEMS

EP333	CULTURAL STUDIES
EV365	GEOGRAPHY OF GLOBAL CULTURES
LW481	INTERNATIONAL LAW
LX300	3RD SEMESTER FOREIGN LANG
MA372	INTRODUCTION TO DISCRETE MATH
MA381	NONLINEAR OPTIMIZATION
MA385	CHAOS AND FRACTALS
MA387	MATHEMATICAL ANALYSIS I
MA388	SABERMETRICS
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA396	NUM METH SOLUTIONS DIFF EQNS
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA464	APPLIED ALGEBRA W/ CRYPTOLOGY
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
MA487	MATHEMATICAL ANALYSIS II
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA491	RESEARCH SEMNR-APPLD MATH
MA493A	OPNL CALC AND TRANSFORMS
MA493B	REAL VARIABLE THEORY
MA493C	TOPICS IN NUMERICAL ANLYSIS
MA493D	INTRODUCTION TO TOPOLOGY
MA493E	TOPICS IN ANALYSIS
PL371	INTRODUCTORY SOCIOLOGY
SS381	CULTURAL/POLIT ANTHROPOLOGY
AND	
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Integrative Experience	Choose 1 of 1

Cadets take MA490 or any other department's integrative experience.

MA490	APP PROB FROM MATH, SCI & ENGR

2017 Operations Research Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ORE0	Operations Research	Operations Research Major	Operations Research	16	0

2017 Operations Research Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS

IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 11 of 11
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
AND	
Simulation Elective	Choose 1 of 2
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
AND	
Discipline Electives	Choose 2 of 21
EM381	ENGINEERING ECONOMY
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA372	INTRODUCTION TO DISCRETE MATH
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA388	SABERMETRICS
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA491	RESEARCH SEMNR-APPLD MATH
SE370	COMPUTER AIDED SYSTEMS ENG
SE485	COMBAT MODELING
SM440	COMPLEX SYSTEMS ARCHITECTURE
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Elective	Choose 1 of 17
CS384	DATA STRUCTURES
CS486	ARTIFICIAL INTELLIGENCE
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
MA386	INTRO TO NUMERICAL ANALYSIS
MA391	MATHEMATICAL MODELING
MA461	GRAPH THEORY AND NETWORKS
MA488	VISITING PROFESSOR'S COURSE
MA489	ADV INDIV STUDY IN MATH
SE485	COMBAT MODELING
SE489	AD IND STY-SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT

SE491	RESEARCH PROJECT IN SYS ENG
SM484	SYSTEM DYNAMICS SIMULATION
SS382	MICROECONOMICS
SS388	MACROECONOMICS
SS469	ECONOMETRICS II

2017 Operations Research Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ORE0H	Operations Research w/ Honors	Operations Research Major w/ Honors	Operations Research w/ Honors	2	0

2017 Operations Research Major w/ Honors Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
One of the two Discipline Electives is replaced with the two-course thesis option consisting of the following courses.	
MA498	SR THESIS I: RSCRCH & PROPOSAL
MA499	SR THESIS II: PAPER & DEFENSE
AND	
Grade Requirements	
Complete the requirements of the major (excepting MA491) as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

2017 Operations Research Studies Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ORS0	Operations Research Studies	Operations Research Studies Major	Operations Research Studies	14	0

2017 Operations Research Studies Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 10 of 10
EM381	ENGINEERING ECONOMY
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS

MA381	NONLINEAR OPTIMIZATION
MA481	LINEAR OPTIMIZATION
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS
SE388	STOCHASTIC MODELS
SM401	SYSTEMS MANAGEMENT CAPSTONE
AND	
Simulation Elective	Choose 1 of 2
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
AND	
Discipline Elective	Choose 1 of 21
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA372	INTRODUCTION TO DISCRETE MATH
MA383	FOUNDATIONS OF MATH
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA388	SABERMETRICS
MA391	MATHEMATICAL MODELING
MA394	FUNDAMENTALS/NETWORK SCIENCE
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA476	MATHEMATICAL STATISTICS
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
MA491	RESEARCH SEMNR-APPLD MATH
SE370	COMPUTER AIDED SYSTEMS ENG
SE485	COMBAT MODELING
SM440	COMPLEX SYSTEMS ARCHITECTURE
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Elective	Choose 1 of 19
CS384	DATA STRUCTURES
CS486	ARTIFICIAL INTELLIGENCE
EM420	PRODUCTION OPERATIONS MGMT
EM481	SYSTEMS SIMULATION
MA386	INTRO TO NUMERICAL ANALYSIS
MA391	MATHEMATICAL MODELING
MA461	GRAPH THEORY AND NETWORKS
MA476	MATHEMATICAL STATISTICS
MA488	SPECIAL TOPICS IN MATHEMATICS
MA489	ADV INDIV STUDY IN MATH
SE370	COMPUTER AIDED SYSTEMS ENG
SE485	COMBAT MODELING
SE489	AD IND STY-SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RESEARCH PROJECT IN SYS ENG
SM484	SYSTEM DYNAMICS SIMULATION
SS382	MICROECONOMICS
SS388	MACROECONOMICS
SS469	ECONOMETRICS II

Department of Physics and Nuclear Engineering

2017 Interdisciplinary Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ISC0	Interdisciplinary Science	Interdisciplinary Science Major	Interdisciplinary Science	4	7

2017 Interdisciplinary Science Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
CH371	INTRO TO ANALYTICAL CHEM
CH375	INTRODUCTION TO BIOLOGY
PH365	MODERN PHYSICS
AND	
Science Sequence	
You must complete one of the following three-course sequences.	
Physics Sequence	Choose 3 of 3
PH363	MATHEMATICAL PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTERMEDIATE ELECTRODYNAMICS
OR	
Chemistry Sequence	Choose 3 of 3
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH481	PHYSICAL CHEMISTRY I
OR	
Life Science Sequence	Choose 3 of 3
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CH457	MICROBIOLOGY
AND	
Electives	Choose 3 of 62
Courses taken as part of your Science Sequence cannot be used to meet this requirement.	
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CH399	TOPICS IN CHEM/LS/CHMENG
CH457	MICROBIOLOGY
CH460	HUMAN ANATOMY
CH471	APPLICATIONS OF POLYMER CHEM
CH472	INORGANIC CHEMISTRY

CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH479	METHODS & APPS OF BIOTECH
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
CH487	ADVANCED CHEMISTRY LABORATORY
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
CH491	ADVANCED INDIVIDUAL STUDY I
CH492	ADVANCED INDIVIDUAL STUDY II
CH499	TOPICS IN CHEM/LS/CHMENG W/LAB
MA363	VECTOR CALCULUS AND ODE
MA366	APPLIED ENGINEERING MATH
MA371	LINEAR ALGEBRA
MA372	INTRODUCTION TO DISCRETE MATH
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA383	FOUNDATIONS OF MATH
MA385	CHAOS AND FRACTALS
MA386	INTRO TO NUMERICAL ANALYSIS
MA387	MATHEMATICAL ANALYSIS I
MA391	MATHEMATICAL MODELING
MA396	NUM METH SOLUTIONS DIFF EQNS
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
MA487	MATHEMATICAL ANALYSIS II
MA488	SPECIAL TOPICS IN MATHEMATICS
MA488A	SPECIAL TOPICS IN MATHEMATICS
MA493A	OPNL CALC AND TRANSFORMS
MA493B	REAL VARIABLE THEORY
MA493C	TOPICS IN NUMERICAL ANLYSIS
MA493D	INTRODUCTION TO TOPOLOGY
MA493E	TOPICS IN ANALYSIS
NE474	RADIOLOGICAL SAFETY
PH361	EXPERIMENTAL PHYSICS
PH363	MATHEMATICAL PHYSICS
PH366	APPLIED QUANTUM PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTERMEDIATE ELECTRODYNAMICS
PH472	SPACE AND ASTROPHYSICS
PH477	LASERS AND OPTICS
PH481	STATISTICAL PHYSICS
PH482	ADVANCED CLASSICAL MECHAN
PH484	QUANTUM MECHANICS
PH489	ADV INDIV STUDY IN PHYSICS
PH489A	ADV INDIV STUDY IN PHYSICS
PH495	SPECIAL TOPICS IN PHYSICS
AND	
Integrative Experience	Choose 1 of 3
CH471	APPLICATIONS OF POLYMER CHEM
CH479	METHODS & APPS OF BIOTECH

PH456	SCIENCE AND POLICY

2017 Interdisciplinary Science Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ISC0H	Interdisciplinary Science w/ Honors	Interdisciplinary Science Major w/ Honors	Interdisciplinary Science w/ Honors	0	2

2017 Interdisciplinary Science Major w/ Honors Tracks

Subject Area	Description
Honors Program	
The honors program in interdisciplinary science entails the completion of two courses beyond the 10-course major. An essential component of this program is cadet participation in scientific research. To ensure that the depth of study implied by a major with honors is achieved in the context of this interdisciplinary curriculum, each cadet, with the assistance of a department academic counselor, is required to prepare a memorandum describing the rationale behind the cadet's choice of courses and detailing the interdisciplinary nature of the selected independent study project. This memorandum must be approved by the head of the department in which the independent study is completed. The registrar will place a copy of the approved memorandum in the cadet's file as a record of the completion of this requirement.	
Research Requirement	Choose 1 of 2
CH491	ADVANCED INDIVIDUAL STUDY I
PH489	ADV INDIV STUDY IN PHYSICS
AND	
Honors Elective	Choose 1 of 61
Courses taken as part of your Science Sequence, Integrative Experience, Electives or Independent Study requirements cannot be used to meet this requirement.	
CH383	ORGANIC CHEMISTRY I
CH384	ORGANIC CHEMISTRY II
CH385	INTRODUCTION TO CELL BIOLOGY
CH387	HUMAN PHYSIOLOGY
CH388	GENETICS
CH399	TOPICS IN CHEM/LS/CHMENG
CH457	MICROBIOLOGY
CH460	HUMAN ANATOMY
CH471	APPLICATIONS OF POLYMER CHEM
CH472	INORGANIC CHEMISTRY
CH473	BIOCHEMISTRY
CH474	INSTRU METHODS OF ANALYSIS
CH479	METHODS & APPS OF BIOTECH
CH481	PHYSICAL CHEMISTRY I
CH482	PHYSICAL CHEMISTRY II
CH487	ADVANCED CHEMISTRY LABORATORY
CH489	INDIVIDUAL RESEARCH I
CH490	INDIVIDUAL RESEARCH II
CH491	ADVANCED INDIVIDUAL STUDY I
CH492	ADVANCED INDIVIDUAL STUDY II
CH499	TOPICS IN CHEM/LS/CHMENG W/LAB
MA363	VECTOR CALCULUS AND ODE
MA366	APPLIED ENGINEERING MATH

MA371	LINEAR ALGEBRA
MA372	INTRODUCTION TO DISCRETE MATH
MA376	APPLIED STATISTICS
MA381	NONLINEAR OPTIMIZATION
MA383	FOUNDATIONS OF MATH
MA385	CHAOS AND FRACTALS
MA387	MATHEMATICAL ANALYSIS I
MA391	MATHEMATICAL MODELING
MA396	NUM METH SOLUTIONS DIFF EQNS
MA461	GRAPH THEORY AND NETWORKS
MA462	COMBINATORICS
MA466	ABSTRACT ALGEBRA
MA476	MATHEMATICAL STATISTICS
MA481	LINEAR OPTIMIZATION
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
MA487	MATHEMATICAL ANALYSIS II
MA488	SPECIAL TOPICS IN MATHEMATICS
MA488A	SPECIAL TOPICS IN MATHEMATICS
MA493A	OPNL CALC AND TRANSFORMS
MA493B	REAL VARIABLE THEORY
MA493C	TOPICS IN NUMERICAL ANLYSIS
MA493D	INTRODUCTION TO TOPOLOGY
MA493E	TOPICS IN ANALYSIS
NE474	RADIOLOGICAL SAFETY
PH361	EXPERIMENTAL PHYSICS
PH363	MATHEMATICAL PHYSICS
PH366	APPLIED QUANTUM PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTERMEDIATE ELECTRODYNAMICS
PH472	SPACE AND ASTROPHYSICS
PH477	LASERS AND OPTICS
PH481	STATISTICAL PHYSICS
PH482	ADVANCED CLASSICAL MECHAN
PH484	QUANTUM MECHANICS
PH489	ADV INDIV STUDY IN PHYSICS
PH489A	ADV INDIV STUDY IN PHYSICS
PH495	SPECIAL TOPICS IN PHYSICS

AND

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Nuclear Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NEN0	Nuclear Engineering	Nuclear Engineering Major	Nuclear Engineering	18	0

2017 Nuclear Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 18 of 18
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC312	THERMAL-FLUID SYSTEMS II
MC364	MECHANICS OF MATERIALS
ME370	COMPUTER AIDED DESIGN
ME480	HEAT TRANSFER
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE355	NUCLEAR REACTOR ENGINEERING
NE400	NUCLEAR ENGINEERING SEMINAR
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
NE474	RADIOLOGICAL SAFETY
NE495	ADV NUC SYSTEM DESIGN PROJ I
NE496	ADV NUC SYSTEM DESIGN PROJ II
PH365	MODERN PHYSICS

2017 Nuclear Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NEN0H	Nuclear Engineering w/ Honors	Nuclear Engineering Major w/ Honors	Nuclear Engineering w/ Honors	0	0

2017 Nuclear Engineering Major w/ Honors Tracks

Subject Area	Description

Grade Requirements

Complete the requirements for the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Research/Writing Requirement

Cadets must demonstrate excellence in an academic endeavor that extends beyond the baseline requirements for the major by satisfactorily completing one of the following two options.

Option A:

Write a paper based upon the results of the Advanced Nuclear Systems Design Project (NE496) that is suitable for submission to an undergraduate-level journal.

Present this paper at, for example, USMA Projects Day, a Department of Physics and Nuclear Engineering colloquium, or a conference of the American Nuclear Society.

Option B:

Participate in a nuclear engineering related Academic Individual Advanced Development (AIAD) program or an Advanced Individual Study in Nuclear Engineering or Physics (NE489/PH489) approved by the Head of the Department of Physics and Nuclear Engineering.

Write a paper based upon this AIAD or Advanced Individual Study that is suitable for submission to an undergraduate-level journal.

Present this paper at, for example, USMA Projects Day, a Department of Physics and Nuclear Engineering colloquium, or a conference of the American Nuclear Society.

Successful Completion

The Head of the Department of Physics and Nuclear Engineering will determine whether the quality of the work completed for either Option A or Option B is of sufficient quality to merit successful completion of the program.

2017 Nuclear Engineering Science Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NES0	Nuclear Engineering Science	Nuclear Engineering Science Major	Nuclear Engineering Science	14	0

2017 Nuclear Engineering Science Major Tracks

Subject Area	Description
Required Courses	Choose 14 of 14
EE301	FUNDAMENTALS OF ELEC ENGIN
MA364	ENGINEERING MATHEMATICS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
ME370	COMPUTER AIDED DESIGN
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE350	RADIOLOGICAL ENGR DESIGN
NE355	NUCLEAR REACTOR ENGINEERING
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
NE474	RADIOLOGICAL SAFETY
NE495	ADV NUC SYSTEM DESIGN PROJ I
NE496	ADV NUC SYSTEM DESIGN PROJ II
PH365	MODERN PHYSICS

2017 Nuclear Technology and Policy Studies Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
NTP0N	Nuclear Technology and Policy Studies Minor	Nuclear Technology and Policy Studies Minor	Nuclear Technology and Policy Studies Minor	5	0

2017 Nuclear Technology and Policy Studies Minor Tracks

Subject Area	Description
Nuclear Engineering Course Track	

You must select one of the following two NE Course tracks. Cadets who are not taking the nuclear engineering three-course engineering sequence (3CES) must select the non-sequencer track. Cadets who are taking the nuclear engineering (3CES) must select the sequencer track.

NE Course	Choose 3 of 3
For cadets who are not taking the nuclear engineering 3CES.	
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE450	NUCLEAR WEAPONS EFFECTS
NE474	RADIOLOGICAL SAFETY
OR	
NE Course	Choose 2 of 2
For cadets who are taking the nuclear engineering 3CES.	
NE452	INSTRUMENTATION AND SHIELDING
NE474	RADIOLOGICAL SAFETY
AND	
SS Course	Choose 1 of 1
SS465	TERRORISM: NEW CHALLENGES
AND	
Elective	Choose 1 of 4
Cadets who are taking the NE 3CES must select two courses from this track.	
LW482	NATIONAL SECURITY LAW
SS464	HOMELAND SECURITY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR

2017 Physics Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PHY0	Physics	Physics Major	Physics	12	0

2017 Physics Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 11 of 11
PH361	EXPERIMENTAL PHYSICS
PH363	MATHEMATICAL PHYSICS
PH365	MODERN PHYSICS
PH366	APPLIED QUANTUM PHYSICS
PH381	INTRMED CLASSICAL MECHANICS
PH382	INTRMED ELECTRODYNAMICS
PH456	SCIENCE AND POLICY
PH477	LASERS AND OPTICS
PH481	STATISTICAL PHYSICS
PH482	ADVANCED CLASSICAL MECHAN

PH484	QUANTUM MECHANICS

2017 Physics Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PHY0H	Physics w/ Honors	Physics Major w/ Honors	Physics w/ Honors	1	1

2017 Physics Major w/ Honors Tracks

Subject Area	Description
Honors Program	
The honors program in physics entails the completion of two courses beyond the 11-course major. An essential component of this program is cadet participation in physics research.	
Research Requirement	Choose 1 of 1
PH489	ADV INDIV STUDY IN PHYSICS
AND	
Courses	Choose 1 of 12
Complete one course from the following list.	
MA371	LINEAR ALGEBRA
MA376	APPLIED STATISTICS
MA385	CHAOS AND FRACTALS
MA386	INTRO TO NUMERICAL ANALYSIS
MA396	NUM METH SOLUTIONS DIFF EQNS
MA476	MATHEMATICAL STATISTICS
MA484	PARTIAL DIFF EQUATIONS
MA485	APPLIED COMPLEX VARIABLES
NE474	RADIOLOGICAL SAFETY
PH472	SPACE AND ASTROPHYSICS
PH489A	ADV INDIV STUDY IN PHYSICS
PH495	SPECIAL TOPICS IN PHYSICS
AND	
Grade Requirements	
Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.	

Department of Social Sciences

2017 Economics Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN1	Economics	Economics Major	Economics	11	0

2017 Economics Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 3 of 3
SS368	ECONOMETRICS I
SS382	MICROECONOMICS
SS388	MACROECONOMICS
AND	
Integrative Experience	Choose 1 of 2
SS477	ECON OF NATIONAL SECURITY
SS492	DIST PROF DEF ECON SEMINAR
AND	
Economics Electives	Choose 5 of 23
HI498	COLLOQUIUM IN HISTORY
LX400	4TH SEMESTER FOREIGN LANG
MA371	LINEAR ALGEBRA
MA381	NONLINEAR OPTIMIZATION
MA476	MATHEMATICAL STATISTICS
SS364	GAME THEORY
SS380	MANPOWER-LABOR ECONOMICS
SS385	COMPARATIVE ECONOMIC SYSTMS
SS387	ECONOMICS OF PUBLIC POLICY
SS391	FINANCE FOR ARMY LEADERS
SS394	FINANCIAL STATEMENT ANALYSIS
SS460	SEMINAR IN REGIONAL ECONOMICS
SS462	POST-CONFLICT ECON DEVELOPMENT
SS469	ECONOMETRICS II
SS470	MONEY & BANKING
SS477	ECON OF NATIONAL SECURITY
SS482	APPLIED MICROECONOMIC THEORY
SS484	INTERNATIONAL ECONOMICS
SS487	INT'L POLITICAL ECONOMY
SS490D	COLLOQUIUM (ECONOMICS)
SS492	DIST PROF DEF ECON SEMINAR
SS494	PRINCIPLES OF FINANCE
SS497	ISSUES IN MICROECONOMIC THEORY
AND	
Foreign Language	Choose 1 of 1

LX300	3RD SEMESTER FOREIGN LANG

2017 Economics Major w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN1H	Economics w/ Thesis (Honors)	Economics Major w/ Thesis (Honors)	Economics w/ Thesis (Honors)	1	1

2017 Economics Major w/ Thesis (Honors) Tracks

Subject Area	Description
The Economics Honors Program includes three options from which cadets may choose. To enrich the cadets' experience, cadets aspiring to graduate with Honors will be encouraged to participate in an economics Advanced Individual Academic Development (AIAD) opportunity.	
SS498	SENIOR THESIS: SOCIAL SCIENCES

Option 1 - Thesis Track

Option 1 for the Economics Honors Program will consist of a two-course sequence culminating in the cadet writing a thesis and defending it in front of a thesis committee. The first course will be an additional 300- or 400-level economics elective relevant to the cadet's desired thesis topic. The second course will be an existing three-credit course, SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when the honors cadets will finish writing and defend their theses.

Option 2 - Policy Track

Option 2 for the Economics Honors Program will also consist of a two-course sequence culminating in the cadet writing a thesis and defending it in front of a thesis committee. The first course will be one of the five Social Sciences capstone courses; SS477 Economics of National Security or SS492 Defense Economics, whichever is not already being taken as the integrative experience; SS480 from American Politics, SS486 from Comparative Politics, and SS483 from International Relations. The second course will be an existing three-credit course, SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when the honors cadets will finish writing and defend their theses.

Option 3 - Theory/Statistics Track

Option 3 for the Economics Honors Program will also consist of a two-course sequence culminating in the cadet writing a thesis and defending it in front of a thesis committee. The first course will be one of the two advanced economics statistics courses, SS469 Econometrics II or SS490D Economics Colloquium in the Social Sciences; or one of three upper-level mathematical analysis courses, MA376 Applied Statistics, MA391 Mathematical Modeling or MA476 Mathematical Statistics. The second course will be an existing three-credit course, SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when the honors cadets will finish writing and defend their theses.

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Economics Major w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECN1T	Economics w/ Thesis	Economics Major w/ Thesis	Economics w/ Thesis	1	0

2017 Economics Major w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

2017 Grand Strategy Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
GST0N	Grand Strategy Minor	Grand Strategy Minor	Grand Strategy Minor	1	4

2017 Grand Strategy Minor Tracks

Subject Area	Description
Required Courses	Choose 1 of 2
Credit may be given for SS399 or SS489 instead of XH397 at the discretion of the program director.	
SS489	ADV INDIV STUDY IN SOC SCI
XH397	GRAND STRATEGY FIELD STUDY
AND	
Required Course	Choose 1 of 1
SS457	ADV STUDIES IN GRAND STRATEGY
AND	
Grand Strategy Core Capstone Courses	Choose 1 of 7
DS498	COLLOQUIUM IN MILITARY AFFAIRS
HI498	COLLOQUIUM IN HISTORY
SS477	ECONOMICS OF NATIONAL SECURITY
SS481	AM GRAND STRAT/DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
SS490A	COLLOQUIUM (AMER POLITICS)
AND	
Grand Strategy Related Capstone Courses	Choose 1 of 17
CE492	DESIGN OF CE SYSTEMS
CH402	CHEM ENG PROCESS DESIGN
CS400	COMPUTER SCIENCE SEMINAR
EE401	ELECTRONIC SYSTEM DESIGN I
EM402	ENGINEERING MANAGEMENT DSN I
EP433	SENIOR SEMINAR
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV482	MILITARY GEOGRAPHY
EV490	ADV ENVIRON ENG DESIGN

HI385	WAR & ITS THEORISTS
IT401	IT SYSTEM DESIGN
LN490	LANGUAGE & CULTURE CAP SEM
ME496	MECHANICAL SYSTEM DESIGN
MG421	STRATEGIC MANAGEMENT
NE495	ADV NUC SYSTEM DESIGN PROJ I
SE402	SYSTEMS DESIGN & MANAGEMENT I
SS466	ADVANCED TERRORISM STUDIES

AND

Grand Strategy Related Electives Choose 1 of 65

Credit may be given for other grand strategy related electives at the discretion of the program director. For example LN440X Language in Cultural Context or LX476 Military Spkg/Rdg Foreign Lang may be taken.

CS482	CYBER SECURITY ENGINEERING
DS455	COMPARATIVE MILITARY SYSTEMS
DS470	MILITARY STRATEGY
EE462	ELECTRONIC DESIGN
EM403	ENGINEERING MANAGEMENT DSN II
EP363	POLITICAL PHILOSOPHY
EP365	ETHICS-MILITARY PROFESSION
EP395	SPECIAL TOPICS IN PHILOSOPHY
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV450	ENV ENG FOR COMMUNITY DEVELOP
EV483	COLLOQUIUM IN GEOGRAPHY
EV487	ENVIRONMENTAL SECURITY
HI339	THE MODERN MIDDLE EAST
HI342	THE BRITISH ISLES SINCE 1688
HI343	MODERN GERMANY
HI344	MODERN DIPLOMACY
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI349	THE MIDDLE EAST TO 1798
HI358	STRATEGY, POLICY & GENERALSHIP
HI364	MODERN WESTERN EUROPE
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
IT402	IT SYSTEM DEVELOPMENT II
IT460	CYBER OPERATIONS
LW474	LAW OF ARMED CONFLICT
LW482	NATIONAL SECURITY LAW
MA490	APP PROB FROM MATH, SCI & ENGR
MA491	RESEARCH SEMNR-APPLD MATH
NE496	ADV NUC SYSTEM DESIGN PROJ II
PH456	SCIENCE AND POLICY
PL479	LEADING ORGNZS THRU CHANGE
PL482	ARMED FORCES AND SOCIETY
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE385	DECISION ANALYSIS
SE403	SYSTEMS DESIGN & MANAGEMENT II
SS372	POLITICS AND GOV OF CHINA

SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTEMS
SS386	POLITICAL THOUGHT AND IDEAS
SS462	ECON OF STABILIZATION & GROWTH
SS464	HOMELAND SECURITY
SS465	TERRORISM: NEW CHALLENGES
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS475	DEMOCRATIZATION
SS480	ADV AM POLITICS, POLICY, STRAT
SS487	INT'L POLITICAL ECONOMY
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XE402	INTEGRATIVE SYSTEM DESIGN
XE492	DISRUPTIVE INNOVATIONS
XH467	WINNING THE PEACE

2017 Political Science Major: American Politics Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP1	Political Science: American Politics	Political Science Major: American Politics	Political Science: American Politics	11	0

2017 Political Science Major: American Politics Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
SS360	POLITICAL ANALYSIS
SS366	COMPARATIVE POLITICS
SS376	AMERICAN POLITICAL DEVELOPMENT
SS386	POLITICAL PHILOSOPHY & POLICY
AND	
Capstone	Choose 1 of 1
SS480	ADV AM POLITICS, POLICY, STRAT
AND	
American Politics	Choose 3 of 25
EV384	GEOGRAPHY OF NORTH AMERICA
HI390	EARLY NATIONAL AMERICA
HI391	WORLD RELIGIONS

HI394	REVOLUTIONARY AMERICA
HI395	HIST OF CIVIL WAR AMERICA
HI396	MAKING OF MODERN AMERICA
HI397	COLD WAR AMERICA
HI398	SOCIETY & CULTURE IN AMER HIST
LW475	ADV CONSTITUTIONAL LAW SEM
PH456	SCIENCE AND POLICY
PL393	CRIMINOLOGY-CRIM JUST SYSTM
SS370	MASS MEDIA & AMER POLITICS
SS373	AMERICAN PRESIDENCY
SS379	LEGISLATIVE POLITICS
SS387	ECONOMICS OF PUBLIC POLICY
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS464	HOMELAND SECURITY
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS478	DIST PROF OF SECURITY STUD SEM
SS481	AM GRAND STRAT/DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS490A	COLLOQUIUM (AMER POLITICS)
SS493	SENIOR STUDIES IN AMER POL
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG
AND	
Comparative Politics	Choose 1 of 20
DS455	COMPARATIVE MILITARY SYSTEMS
LW410	COMPARATIVE LEGAL SYSTEMS
LX400	4TH SEMESTER FOREIGN LANG
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTMS
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS485	POLIT & DEV SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR
SS490B	COLLOQUIUM (COMP POLITICS)
SS495	SENIOR STUDIES IN COMP POL
OR	
International Relations	Choose 1 of 17
DS470	MILITARY STRATEGY
EV487	ENVIRONMENTAL SECURITY
HI372	US FGN RELATIONS SINCE 1898
HI385	WAR & ITS THEORISTS
IT460	CYBER OPERATIONS
LW474	LAW OF ARMED CONFLICT

LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
SS378	INTL RELATIONS THEORIES
SS465	TERRORISM: NEW CHALLENGES
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS483	NATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
SS490C	COLLOQUIUM (INTER POLITICS)
SS491	SENIOR STUDIES-INTNL RELATIONS

2017 Political Science Major: American Politics w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP1H	Pol Science: Amer Politics w/ Thesis (Honors)	Political Science Major: American Politics w/ Thesis (Honors)	Pol Science: Amer Politics w/ Thesis (Honors)	1	1

2017 Political Science Major: American Politics w/ Thesis (Honors) Tracks

Subject Area	Description

Program Requirements

The Political Science Honors Program, available to cadets concentrating in American Politics, Comparative Politics and International Relations, will consist of a two-course sequence, in addition to the requirements of the major, culminating in the cadet writing a thesis and defending it in front of a thesis committee.

Cadets aspiring to graduate with a Political Science major with Honors will take an additional elective course to increase the depth of study in their major. They will then take the integrative experience (SS480, SS483 or SS486) in the fall of their Firstie year as part of a two-course thesis sequence, rather than the spring semester when cadets enrolled in the regular political science majors will normally take it. Both semesters of the integrative experience will include the same in-depth study of topics relevant to each political science major; only the analytical requirements will differ between semesters. In the spring semester, political science students will write and present an in-depth research paper that brings together theoretical perspectives acquired during their earlier studies. In the fall semester, political science honors students will complete the literature review, a full sentence outline with annotated bibliography, and introductory chapter of their theses, present their preliminary findings to their class, and finalize the selection of a three-member thesis committee.

Choose 1 of 1

Honors students will continue work on their theses in SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when they will finish writing and defend their theses. SS498 Senior Thesis in the Social Sciences consists of independent study and weekly meetings between individual cadets and their thesis advisors. Cadets will be responsible for coordinating meetings with their advisor. Course requirements will include a 30-50 page thesis submitted NLT lesson 35, and a defense of the thesis before their entire committee during the final two weeks of classes. Upon completion of the thesis and defense, the thesis committee recommends a final grade to the thesis advisor.

SS498	SENIOR THESIS: SOCIAL SCIENCES

AND

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Political Science: American Politics w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PAP1T	Political Science: Amer Politics w/ Thesis	Political Science: American Politics w/ Thesis	Political Science: Amer Politics w/ Thesis	1	0

2017 Political Science: American Politics w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

2017 Political Science Major: Comparative Politics Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PCP1	Political Science: Comparative Politics	Political Science Major: Comparative Politics	Political Science: Comparative Politics	11	0

2017 Political Science Major: Comparative Politics Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
SS366	COMPARATIVE POLITICS
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS386	POLITICAL THOUGHT AND IDEAS
SS486	INTERNATIONAL SECURITY SEMINAR
AND	
CP Foundations	Choose 1 of 10
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS475	DEMOCRATIZATION
SS476	CONFLICT ANAL/RESOL/NEGOTIATN

SS485	POLIT & DEV SUB-SAHARAN AFR
XH467	WINNING THE PEACE
AND	

Comparative Politics	Choose 2 of 30

At least one must consist of a social science (SSxxx) course.

EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV386	GEOGRAPHY OF EUROPE
HI337	CHINA-C. KINGDOM TO COMM RULE
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI348	MODERN LATIN AMERICA
HI364	MODERN WESTERN EUROPE
HI391	WORLD RELIGIONS
HI463	RACE, ETHNICITY, NATION
LW410	COMPARATIVE LEGAL SYSTEMS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTMS
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS465	TERRORISM: NEW CHALLENGES
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
SS485	POLIT & DEV SUB-SAHARAN AFR
SS490B	COLLOQUIUM (COMP POLITICS)
SS495	SENIOR STUDIES IN COMP POL
XH467	WINNING THE PEACE
AND	
Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG
AND	
American Politics	Choose 1 of 16
LW475	ADV CONSTITUTIONAL LAW SEM
SS370	MASS MEDIA & AMER POLITICS
SS373	AMERICAN PRESIDENCY
SS376	AMERICAN POLITICAL DEVELOPMENT
SS379	LEGISLATIVE POLITICS
SS387	ECONOMICS OF PUBLIC POLICY
SS464	HOMELAND SECURITY
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS478	DIST PROF OF SECURITY STUD SEM
SS480	ADV AM POLITICS, POLICY, STRAT
SS481	AM GRAND STRAT/DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS490A	COLLOQUIUM (AMER POLITICS)

SS493	SENIOR STUDIES IN AMER POL
AND	
International Relations	Choose 1 of 17
DS455	COMPARATIVE MILITARY SYSTEMS
EV487	ENVIRONMENTAL SECURITY
HI372	US FGN RELATIONS SINCE 1898
HI385	WAR & ITS THEORISTS
IT460	CYBER OPERATIONS
LW481	INTERNATIONAL LAW
LW482	NATIONAL SECURITY LAW
SS378	INTL RELATIONS THEORIES
SS465	TERRORISM: NEW CHALLENGES
SS466	ADVANCED TERRORISM STUDIES
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS483	NATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
SS490C	COLLOQUIUM (INTER POLITICS)
SS491	SENIOR STUDIES-INTNL RELATIONS

2017 Political Science Major: Comparative Politics w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PCP1H	Pol Science: Comp Politics w/ Thesis (Honors)	Political Science Major: Comparative Politics w/ Thesis (Honors)	Pol Science: Comp Politics w/ Thesis (Honors)	1	1

2017 Political Science Major: Comparative Politics w/ Thesis (Honors) Tracks

Subject Area	Description
Program Requirements	
The Political Science Honors Program, available to cadets concentrating in American Politics, Comparative Politics and International Relations, will consist of a two-course sequence, in addition to the requirements of the major, culminating in the cadet writing a thesis and defending it in front of a thesis committee.	
Cadets aspiring to graduate with a Political Science major with Honors will take an additional elective course to increase the depth of study in their major. They will then take the integrative experience (SS480, SS483 or SS486) in the fall of their Firstie year as part of a two-course thesis sequence, rather than the spring semester when cadets enrolled in the regular political science majors will normally take it. Both semesters of the integrative experience will include the same in-depth study of topics relevant to each political science major; only the analytical requirements will differ between semesters. In the spring semester, political science students will write and present an in-depth research paper that brings together theoretical perspectives acquired during their earlier studies. In the fall semester, political science honors students will complete the literature review, a full sentence outline with annotated bibliography, and introductory chapter of their theses, present their preliminary findings to their class, and finalize the selection of a three-member thesis committee.	

Honors students will continue work on their theses in SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when they will finish writing and defend their theses. SS498 Senior Thesis in the Social Sciences consists of independent study and weekly meetings between individual cadets and their thesis advisors. Cadets will be responsible for coordinating meetings with their advisor. Course requirements will include a 30-50 page thesis submitted NLT lesson 35, and a defense of the thesis before their entire committee during the final two weeks of classes. Upon completion of the thesis and defense, the thesis committee recommends a final grade to the thesis advisor.

SS498 SENIOR THESIS: SOCIAL SCIENCES

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Political Science: Comparative Politics w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PCP1T	Political Science: Comp Politics w/ Thesis	Political Science: Comparative Politics w/ Thesis	Political Science: Comp Politics w/ Thesis	1	0

2017 Political Science: Comparative Politics w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

2017 Political Science Major: International Relations Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PIR1	Political Science: Int'l Relations	Political Science Major: International Relations	Political Science: Int'l Relations	11	0

2017 Political Science Major: International Relations Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 4 of 4
SS366	COMPARATIVE POLITICS
SS378	ADV INTL RELATIONS THEORY
SS386	POLITICAL THOUGHT AND IDEAS
SS483	NATIONAL SECURITY SEMINAR

AND

International Relations	Choose 2 of 15

You must choose at least one 400-level course. Only two electives total from the International Relations, Comparative Politics, and American Politics field tables may be taken outside the Social Sciences Department.

DS470	MILITARY STRATEGY
EV487	ENVIRONMENTAL SECURITY
HI372	HIST OF US FGN REL,20TH CEN
HI385	WAR & ITS THEORISTS
IT460	CYBER OPERATIONS
LW481	INTERNATIONAL LAW
SS465	TERRORISM: NEW CHALLENGES
SS466	ADVANCED TERRORISM STUDIES
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS487	INT'L POLITICAL ECONOMY
SS490C	COLLOQUIUM (INTER POLITICS)
SS491	SENIOR STUDIES-INTNL RELATIONS
XH467	WINNING THE PEACE

AND

Foreign Language	Choose 1 of 1
LX300	3RD SEMESTER FOREIGN LANG

AND

Comparative Politics	Choose 1 of 24

Only two electives total from the International Relations, Comparative Politics, and American Politics field tables may be taken outside the Social Sciences Department.

DS455	COMPARATIVE MILITARY SYSTEMS
DS460	COUNTERINSURGENCY OPERATIONS
HI391	WORLD RELIGIONS
HI463	RACE, ETHNICITY, NATION
LW410	COMPARATIVE LEGAL SYSTEMS
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS385	COMPARATIVE ECONOMIC SYSTMS
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS465	TERRORISM: NEW CHALLENGES
SS466	ADVANCED TERRORISM STUDIES
SS475	DEMOCRATIZATION
SS476	CONFLICT AND NEGOTIATION
SS478	DIST PROF OF SECURITY STUD SEM
SS485	POLIT & DEV SUB-SAHARAN AFR
SS486	INTERNATIONAL SECURITY SEMINAR
SS490B	COLLOQUIUM (COMP POLITICS)
SS495	SENIOR STUDIES IN COMP POL
XH467	WINNING THE PEACE

AND

American Politics	Choose 1 of 17

Only two electives total from the International Relations, Comparative Politics, and American Politics field tables may be taken outside the Social Sciences Department.

HI372	US FGN RELATIONS SINCE 1898
LW475	ADV CONSTITUTIONAL LAW SEM

LW482	NATIONAL SECURITY LAW
SS370	MASS MEDIA & AMER POLITICS
SS373	AMERICAN PRESIDENCY
SS376	AMERICAN POLITICAL DEVELOPMENT
SS379	LEGISLATIVE POLITICS
SS387	ECONOMICS OF PUBLIC POLICY
SS464	HOMELAND SECURITY
SS468	POLITICAL PARTICIPATION
SS472	THE AM STATE & THE SOLDIER
SS473	AMERICAN FOREIGN POLICY
SS478	DIST PROF OF SECURITY STUD SEM
SS480	ADV AM POLITICS, POLICY, STRAT
SS481	AM GRAND STRAT/DEFENSE POLICY
SS490A	COLLOQUIUM (AMER POLITICS)
SS493	SENIOR STUDIES IN AMER POL
AND	
Political Science	Choose 1 of 6
SS473	AMERICAN FOREIGN POLICY
SS478	DIST PROF OF SECURITY STUD SEM
SS486	INTERNATIONAL SECURITY SEMINAR
SS487	INT'L POLITICAL ECONOMY
SS490C	COLLOQUIUM (INTER RELATIONS)
SS491	SENIOR STUDIES-INTNL RELATIONS

2017 Political Science Major: International Relations w/ Thesis (Honors) Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PIR1H	Pol Science: Int'l Relations w/ Thesis (Honors)	Political Science Major: International Relations w/ Thesis (Honors)	Pol Science: Int'l Relations w/ Thesis (Honors)	1	1

2017 Political Science Major: International Relations w/ Thesis (Honors) Tracks

Subject Area	Description
Program Requirements	
The Political Science Honors Program, available to cadets concentrating in American Politics, Comparative Politics and International Relations, will consist of a two-course sequence, in addition to the requirements of the major, culminating in the cadet writing a thesis and defending it in front of a thesis committee. Cadets aspiring to graduate with a Political Science major with Honors will take an additional elective course to increase the depth of study in their major. They will then take the integrative experience (SS480, SS483 or SS486) in the fall of their Firstie year as part of a two-course thesis sequence, rather than the spring semester when cadets enrolled in the regular political science majors will normally take it. Both semesters of the integrative experience will include the same in-depth study of topics relevant to each political science major; only the analytical requirements will differ between semesters. In the spring semester, political science students will write and present an in-depth research paper that brings together theoretical perspectives acquired during their earlier studies. In the fall semester, political science honors students will complete the literature review, a full sentence outline with annotated bibliography, and introductory chapter of their theses, present their preliminary findings to their class, and finalize the selection of a three-member thesis committee.	

Honors students will continue work on their theses in SS498 Senior Thesis in the Social Sciences, taken in the spring of the first class year when they will finish writing and defend their theses. SS498 Senior Thesis in the Social Sciences consists of independent study and weekly meetings between individual cadets and their thesis advisors. Cadets will be responsible for coordinating meetings with their advisor. Course requirements will include a 30-50 page thesis submitted NLT lesson 35, and a defense of the thesis before their entire committee during the final two weeks of classes. Upon completion of the thesis and defense, the thesis committee recommends a final grade to the thesis advisor.

SS498 SENIOR THESIS: SOCIAL SCIENCES

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Political Science Major: International Relations w/ Thesis Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
PIR1T	Pol Science Major: Int'l Relations w/ Thesis	Political Science Major: International Relations w/ Thesis	Pol Science Major: Int'l Relations w/ Thesis	1	0

2017 Political Science Major: International Relations w/ Thesis Tracks

Subject Area	Description
Required Course	Choose 1 of 1
SS498	SENIOR THESIS: SOCIAL SCIENCES

2017 Terrorism Studies Minor Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
TST0N	Terrorism Studies Minor	Terrorism Studies Minor	Terrorism Studies Minor	2	3

2017 Terrorism Studies Minor Tracks

Subject Area	Description
Required Courses	Choose 2 of 2
SS465	TERRORISM: NEW CHALLENGES
SS466	ADVANCED TERRORISM STUDIES
AND	

Subdisciplines

Select one of the following five tracks. Cadets desiring to concentrate on counter terrorism studies should choose SS464 and 2 CT electives; those desiring to concentrate on terrorism in the Middle East/Africa should choose 1 mandatory course and 2 electives from the Middle East/Africa Track; those desiring to concentrate on terrrorism in Asia should choose 1 mandatory course and 2 electives from the Asia Track; those desiring to concentrate on terrorism in Latin Amercia should choose 1 mandatory course and 2 electives form the Latin America Track; and those desiring to concentrate on terrorism in Eurasia should choose 1 mandatory course and 2 electives from the Eurasia Track.

AND

CT Track	Choose 3 of 23
SS464 must be one of the 3 courses.	
CS482	CYBER SECURITY ENGINEERING
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS460	COUNTERINSURGENCY OPERATIONS
EV487	ENVIRONMENTAL SECURITY
HI381	HISTORY OF IRREGULAR WARFARE
IT460	CYBER OPERATIONS
LW474	LAW OF ARMED CONFLICT
LW482	NATIONAL SECURITY LAW
NE450	NUCLEAR WEAPONS EFFECTS
PL482	ARMED FORCES AND SOCIETY
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS464	HOMELAND SECURITY
SS473	AMERICAN FOREIGN POLICY
SS476	CONFLICT ANAL/RESOL/NEGOTIATN
SS477	ECONOMICS OF NATIONAL SECURITY
SS478	DIST PROF OF SECURITY STUD SEM
SS481	AM GRAND STRAT/DEFENSE POLICY
SS483	NATIONAL SECURITY SEMINAR
SS486	INTERNATIONAL SECURITY SEMINAR
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE

OR

Middle East/Africa Track	Choose 3 of 19
One of the three courses must be either HI339, HI345, or SS383.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI349	THE MIDDLE EAST TO 1798
LA483	ARAB CIVILIZATION I
LA484	ARAB CIVILIZATION II
LN440A	ARABIC IN CULTURAL CONTEXT
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
SS383	POLITICS & GOVT-MIDDLE EAST
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS475	DEMOCRATIZATION
SS485	POLIT & DEV SUB-SAHARAN AFR
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE

OR

Asia Track	Choose 3 of 15
HI346 must be one of the 3 courses.	
EP360	EASTERN ART
EP380	EASTERN THOUGHT
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV372	GEOGRAPHY OF ASIA
HI337	CHINA-C. KINGDOM TO COMM RULE
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
LC483	CHINESE CIVILIZATION I
LC484	CHINESE CIVILIZATION II
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE
OR	
Latin America Track	Choose 3 of 13
One of the 3 courses must be either HI348 or SS384.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV373	GEOGRAPHY OF LATIN AMERICA
HI348	MODERN LATIN AMERICA
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LS484	SPANISH AMERICAN CIV AND CULT
SS384	POLITICS & GOVT-LATIN AMER
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS475	DEMOCRATIZATION
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE
OR	
Eurasia Track	Choose 3 of 24
One of the 3 courses must be either HI364, HI368, or SS377.	
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV386	GEOGRAPHY OF EUROPE
HI343	MODERN GERMANY
HI361	MEDIEVAL EUROPE
HI364	MODERN WESTERN EUROPE
HI367	IMPERIAL AND SOVIET RUSSIA
HI368	MOD CENTRAL & E. EUR,1896-1989
LF483	FRENCH CIVILIZATION I
LF484	FRENCH CIVILIZATION II
LG483	GERMAN CIVILIZATION I
LG484	GERMAN CIVILIZATION II
LG492	20TH & 21ST CENTURY GERMANY
LN491	SEM ABROAD: ADV LANG & CULT I
LN492	SEM ABROAD: ADV LANG & CULT II
LR483	RUSSIAN CIV I
LR484	RUSSIAN CIV II
SS375	GOV & POL RUSSIA & NEIGHBORS

SS377	POLITICS & GOV OF EUROPE
SS399	SOCSCI INTERNSHIP/PRACTCAL EXP
SS490A	COLLOQUIUM (AMER POLITICS)
SS490B	COLLOQUIUM (COMP POLITICS)
SS490C	COLLOQUIUM (INTER RELATIONS)
XH467	WINNING THE PEACE

Department of Systems Engineering

2017 Engineering Management (CE) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECE0	Engineering Management (CE)	Engineering Management (CE) Major	Engineering Management	18	0

2017 Engineering Management (CE) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MC364	MECHANICS OF MATERIALS
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems Elective	Choose 1 of 3
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	

Breadth Elective	Choose 1 of 12
Choose one of the courses below not already taken.	
CE350	INFRASTRUCTURE ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (CE) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ECE0H	Engineering Management (CE) w/ Honors	Engineering Management (CE) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (CE) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Engineering Management (EE) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEE0	Engineering Management (EE)	Engineering Management (EE) Major	Engineering Management	18	0

2017 Engineering Management (EE) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EE302	INTRO ELECTRICAL ENGIN
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EE362	INTRODUCTION TO ELECTRONICS
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems Elective	Choose 1 of 3
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	

Breadth Elective	Choose 1 of 22
Choose one of the courses below not already taken.	
CE350	INFRASTRUCTURE ENGINEERING
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
LW488	BUSINESS LAW
MA364	ENGINEERING MATHEMATICS
MA371	LINEAR ALGEBRA
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MG379	LEADING TEAMS
MG380	MARKETING
MG381	INTRODUCTION TO MANAGEMENT
MG382	HUMAN RESOURCE MANAGEMENT
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (EE) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EEE0H	Engineering Management (EE) w/ Honors	Engineering Management (EE) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (EE) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Engineering Management (ME) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EME0	Engineering Management (ME)	Engineering Management (ME) Major	Engineering Management	18	0

2017 Engineering Management (ME) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC300	FUND OF ENGR MECH AND DESIGN
MC306	DYNAMICS
MC311	THERMAL-FLUID SYSTEMS I
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems	Choose 1 of 3
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING

SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	
Breadth Elective	Choose 1 of 12
Choose one of the courses below not already taken.	
CE350	INFRASTRUCTURE ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (ME) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
EME0H	Engineering Management (ME) w/ Honors	Engineering Management (ME) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (ME) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Engineering Management (NE) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENE0	Engineering Management (NE)	Engineering Management (NE) Major	Engineering Management	18	0

2017 Engineering Management (NE) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC311	THERMAL-FLUID SYSTEMS I
NE300	FUNDAMENTALS OF NUCLEAR ENGR
NE355	NUCLEAR REACTOR ENGINEERING
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems	Choose 1 of 3

EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	
Breadth Elective	Choose 1 of 15
Choose one of the courses below not already taken.	
CE350	INFRASTRUCTURE ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
MC300	FUND OF ENGR MECH AND DESIGN
MG382	HUMAN RESOURCE MANAGEMENT
NE450	NUCLEAR WEAPONS EFFECTS
NE452	INSTRUMENTATION AND SHIELDING
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (NE) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENE0H	Engineering Management (NE) w/ Honors	Engineering Management (NE) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (NE) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Engineering Management (GE) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENG0	Engineering Management (GE)	Engineering Management (GE) Major	Engineering Management	13	5

2017 Engineering Management (GE) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EE301	FUNDAMENTALS OF ELEC ENGIN
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I

SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems	Choose 1 of 3
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	
Breadth Elective	Choose 1 of 12
Choose one of the courses below not already taken.	
CE350	INFRASTRUCTURE ENGINEERING
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV391A	LAND USE PLAN & MGT
EV398	GEOG INFORMATION SYSTEMS
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (GE) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENG0H	Engineering Management (GE) w/ Honors	Engineering Management (GE) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (GE) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Engineering Management (ENV) Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENV0	Engineering Management (ENV)	Engineering Management (ENV) Major	Engineering Management	18	0

2017 Engineering Management (ENV) Major Tracks

Subject Area	Description
Required Courses	Choose 13 of 13
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
EV301	ENV SCIENCE FOR ENGR & SCIEN
EV385	INTRO TO ENVIRON ENGR
EV481	WATER RESOURCES PLAN & DESIGN
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE400	PROFESSIONAL ENGINEERING SEMIN

SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
SM440	COMPLEX SYSTEMS ARCHITECTURE
AND	
Information & Decision Systems	Choose 1 of 3
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	
Personnel & Organizational Management Elective	Choose 1 of 2
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
AND	
Finance Elective	Choose 1 of 2
SS394	FINANCIAL STATEMENT ANALYSIS
SS494	PRINCIPLES OF FINANCE
AND	
Breadth Elective	Choose 1 of 14
Choose one additional course from the courses above (not already taken) with the exception of SS394 or SS494, or select one of the courses below.	
CE350	INFRASTRUCTURE ENGINEERING
EE301	FUNDAMENTALS OF ELEC ENGIN
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
MG382	HUMAN RESOURCE MANAGEMENT
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
XE495	TOPICS: ADVANCED TECHNOLOGY

2017 Engineering Management (ENV) Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
ENV0H	Engineering Management (ENV) w/ Honors	Engineering Management (ENV) Major w/ Honors	Engineering Management w/ Honors	0	0

2017 Engineering Management (ENV) Major w/ Honors Tracks

Subject Area	Description

Any First Class Cadet majoring in Engineering Management (EM) may elect to pursue the honors designation for his/her degree upon graduation. The requirements to graduate with the honors designation on the transcript are as follows:

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

Completion of an Individual Research Requirement (IRR)

The individual research requirement consists of an abstract and a written document/paper, suitable for presentation or publication at an undergraduate conference. Cadets may select a project topic that is follow-on research from their summer AIAD experience, a topic of interest to them, or one that is compatible with on-going research within the Department of Systems Engineering and/or the Operations Research Center of Excellence. However, the research must be independent of the work being completed concurrently as part of the cadet's capstone research effort.

Research must reflect individual effort.

Cadets will coordinate with a faculty advisor in the Department of Systems Engineering who has an interest and background in the research area and who will assist in scoping the project. The faculty advisor will also provide supervision and mentorship throughout the research effort.

The final written document will be approved by both the faculty research advisor and the EM Program Director. The Department Honors Program Coordinator will convene a board of generally three senior faculty members to review the submission and make a recommendation to the EM Program Director who is the final approval authority for acceptance of the IRR portion to receive the honors designation.

2017 Systems Engineering Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SEN0	Systems Engineering	Systems Engineering Major	Systems Engineering	18	0

2017 Systems Engineering Major Tracks

Subject Area	Description
Required Courses	Choose 14 of 14
EE301	FUNDAMENTALS OF ELEC ENGIN
EM411	PROJECT MANAGEMENT
EM420	PRODUCTION OPERATIONS MGMT
MC300	FUND OF ENGR MECH AND DESIGN
MC311	THERMAL-FLUID SYSTEMS I
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE375	STATISTICS FOR ENGINEERS
SE385	DECISION ANALYSIS
SE387	DETERMINISTIC MODELS

SE388	STOCHASTIC MODELS
SE400	PROFESSIONAL ENGINEERING SEMIN
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
AND	
Simulation Elective	Choose 1 of 3
EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
AND	

Subdisciplines

Choose one of the following 5 subdisciplines: Human Factors, Information Systems, Mathematical Systems, Simulation Systems, or Student Designed. The Subdiscipline consistes of one elective course and two courses with engineering topics. Upon approval of the SE program Director SE490 Advanced Topics in Sys Eng/Eng Mgmt, or XE495 Topics: Advanced Technology may be taken in lieu of one of these courses.

Subdiscipline Electives Choose 1 of 11

Select 1 of the following elective courses that align with your subdiscipline or select an additional course from the subdiscipline listed below.

DS345	MILITARY INNOVATION
DS385	SUSTAINING THE FORCE
DS455	COMPARATIVE MILITARY SYSTEMS
DS460	COUNTERINSURGENCY OPERATIONS
IT394	DISTRIB APPLICATION DEVELOPMNT
MA371	LINEAR ALGEBRA
MA381	NONLINEAR OPTIMIZATION
MA386	INTRO TO NUMERICAL ANALYSIS
MA476	MATHEMATICAL STATISTICS
MA488	SPECIAL TOPICS IN MATHEMATICS
PL392	COGNITIVE PSYCHOLOGY
AND	

Subdiscipline:

Human Factors Systems Choose 2 of 2

Select the 2 courses below to meet the required 3.5 Engineering Topic Hours Required.

PL394	ANTHROPOMETRICS & BIOMECHANICS
PL475	HUMAN-COMPUTER INTERACTION
OR	
Information Systems	Choose 2 of 9

Select 2 of the following 9 courses to meet the required 3.5 Engineering Topic Hours Required.

CS301	FUND OF COMPUTER SCIENCE
CS393	DATABASE SYSTEMS
EE360	DIGITAL LOGIC W/ EMBEDDED SYS
EM482	SUPPLY CHAIN ENG & INFO MGMT
EV398	GEOG INFORMATION SYSTEMS
IT305	THEORY & PRAC OF MIL IT SYS
IT350	NETWORK ENGR & MGT
IT383	USER INTERFACE DEVELOPMENT
IT460	CYBER OPERATIONS
OR	
Mathematical Systems	Choose 2 of 5

Select 2 of the following 5 courses to meet the required 3.5 Engineering Topic Hours Required.

EM381	ENGINEERING ECONOMY
MA366	APPLIED ENGINEERING MATH
MA391	MATHEMATICAL MODELING
MA481	LINEAR OPTIMIZATION

MA490	APP PROB FROM MATH, SCI & ENGR
OR	
Simulation Systems	Choose 2 of 4

Select 2 of the following 4 courses to meet the required 3.5 Engineering Topics Hours Required.

EM481	SYSTEMS SIMULATION
EV398	GEOG INFORMATION SYSTEMS
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION
OR	
Student Designed	Choose 2 of 6

Choose a minimum of two courses that total 3.5 engineering credit hours (EM381, EM482, or SM440) or a course from another engineering department. Choose an additional two courses from across the academy that meet the intent of gaining depth in a sub-discipline as approved by the SE Program Director and substituted for SE489, SE490, or SE491.

EM381	ENGINEERING ECONOMY
EM482	SUPPLY CHAIN ENG & INFO MGMT
SE489	AD IND STY IN SYS ENG/ENG MGMT
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
SM440	COMPLEX SYSTEMS ARCHITECTURE

2017 Systems Engineering Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SEN0H	Systems Engineering w/ Honors	Systems Engineering Major w/ Honors	Systems Engineering w/ Honors	0	0

2017 Systems Engineering Major w/ Honors Tracks

Subject Area	Description

Individual Research Requirement

The individual research requirement consists of a written document, suitable for presentation or publication at an undergraduate conference.

The research will be affiliated with a 400 level course in the cadet's major. Cadets will choose a topic of interest stemming from their capstone project or from some other 400 level course in the major. Program directors will approve the research topics.

Research must reflect individual effort.

A faculty member will be assigned to provide supervision and mentorship throughout the research effort.

Cadets will complete an abstract and a paper suitable for presentation or publication at an undergraduate conference.

The final written document will be approved by both the faculty research mentor and the program director.

Grade Requirements

Complete the requirements of the major as shown above, and attain an APSC of at least 3.0 in the core curriculum and an APSC of at least 3.5 in the major.

2017 Systems Design and Management Major Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SMA1	Systems Design and Management	Systems Design and Management Major	Systems Design and Management	0	14

2017 Systems Design and Management Major Tracks

Subject Area	Description
IT Course	Choose 1 of 2
IT305	THEORY & PRAC OF MIL IT SYS
IT355	ADV THEORY OF MIL IT SYS
AND	
Required Courses	Choose 7 of 7
EM381	ENGINEERING ECONOMY
EM384	ANYL METH FOR ENGR MANAGEMENT
EM411	PROJECT MANAGEMENT
SE301	FNDTN ENGIN DSGN & SYS MGMT
SE375	STATISTICS FOR ENGINEERS
SE402	SYSTEMS DESIGN & MANAGEMENT I
SE403	SYSTEMS DESIGN & MANAGEMENT II
AND	
Management Elective	Choose 1 of 5
MG380	MARKETING
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
AND	
Approved Elective	Choose 1 of 19
Choose one of the courses below not already taken or required.	
EM481	SYSTEMS SIMULATION
EM482	SUPPLY CHAIN ENG & INFO MGMT
MA364	ENGINEERING MATHEMATICS
MA371	LINEAR ALGEBRA
MA381	NONLINEAR OPTIMIZATION
MA391	MATHEMATICAL MODELING
MG380	MARKETING
MG382	HUMAN RESOURCE MANAGEMENT
MG472	INTERNATIONAL MANAGEMENT
PL398	LEADERSHIP THEORY & DEVEL
PL479	LEADING ORGNZS THRU CHANGE
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
SE485	COMBAT MODELING
SE490	AD TOPICS IN SYS ENG/ENG MGMT
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
SM484	SYSTEM DYNAMICS SIMULATION

SS494	PRINCIPLES OF FINANCE
XE495	TOPICS: ADVANCED TECHNOLOGY
AND	

Areas of Concentration

Choose one of the following areas of concentration:

Project Management	Choose 2 of 2
EM420	PRODUCTION OPERATIONS MGMT
SM440	COMPLEX SYSTEMS ARCHITECTURE
OR	
Logistics Management	Choose 2 of 2
EM420	PRODUCTION OPERATIONS MGMT
EM482	SUPPLY CHAIN ENG & INFO MGMT
OR	
Soft Systems	Choose 2 of 37

One and only one course must be DSS.

DS345	MILITARY INNOVATION
DS360	SP OPNS/LOW-INTENSITY CONFLICT
DS385	SUSTAINING THE FORCE
DS455	COMPARATIVE MILITARY SYSTEMS
DS460	COUNTERINSURGENCY OPERATIONS
DS470	MILITARY STRATEGY
EV365	GEOGRAPHY OF GLOBAL CULTURES
EV371	GEOGRAPHY OF RUSSIA
EV372	GEOGRAPHY OF ASIA
EV373	GEOGRAPHY OF LATIN AMERICA
EV375	GEOGRAPHY OF AFRICA
EV376	GEOGRAPHY OF THE MIDDLE EAST
EV384	GEOGRAPHY OF NORTH AMERICA
EV386	GEOGRAPHY OF EUROPE
EV390B	URBAN GEOGRAPHY
EV398	GEOG INFORMATION SYSTEMS
HI339	THE MODERN MIDDLE EAST
HI345	MODERN AFRICA
HI346	MODERN SOUTH ASIA
HI347	ASIAN WARFARE AND POLITICS
HI348	MODERN LATIN AMERICA
HI358	STRATEGY, POLICY & GENERALSHIP
HI372	US FGN RELATIONS SINCE 1898
HI381	HISTORY OF IRREGULAR WARFARE
HI391	WORLD RELIGIONS
HI398	SOCIETY & CULTURE IN AMER HIST
HI463	RACE, ETHNICITY, NATION
LX300	3RD SEMESTER FOREIGN LANG
SS372	POLITICS AND GOV OF CHINA
SS374	POL & GOV OF KOREAS & JAPAN
SS375	GOV & POL RUSSIA & NEIGHBORS
SS377	POLITICS & GOV OF EUROPE
SS381	CULTURAL/POLIT ANTHROPOLOGY
SS383	POLITICS & GOVT-MIDDLE EAST
SS384	POLITICS & GOVT-LATIN AMER
SS485	POLIT & DEV SUB-SAHARAN AFR
XH415	GENOCIDE AND ETHNIC CLEANSING
AND	

Decision Systems Elective	Choose 1 of 3

Logistics Management area of concentration will take SE370, Soft Systems area of concentration will take SE385.

EM482	SUPPLY CHAIN ENG & INFO MGMT
SE370	COMPUTER AIDED SYSTEMS ENG
SE385	DECISION ANALYSIS
AND	
Simulation Elective	Choose 1 of 3

Logistics Management area of concentration will take EM481, Soft Systems area of concentration will take SM484.

EM481	SYSTEMS SIMULATION
SE485	COMBAT MODELING
SM484	SYSTEM DYNAMICS SIMULATION

2017 Systems Design and Management Major w/ Honors Curriculum

Code	Short Description	Description	Transcript Description	Req Crse Cnt	Opt Crse Cnt
SMA1H	Systems Design and Management w/ Honors	Systems Design and Management Major w/ Honors	Systems Design and Management w/ Honors	1	1

2017 Systems Design and Management Major w/ Honors Tracks

Subject Area	Description

In addition to courses required for completion of the SDM Major, choose SE491 and one or more of any courses not already taken.

Elective Course

Take one additional 300- or 400-level elective course.

Research Course	Choose 1 of 1
SE491	RSRCH PROJ IN SYS ENG/ENG MGMT
AND	

The individual research requirement consists of a written document, suitable for presentation or publication at an undergraduate conference.

The research will be affiliated with a 400 level course in the Cadet's major. Cadets will choose a topic of interest stemming from their capstone project or from some other 400 level course in the major. Program directors will approve the research topics.

Research must reflect individual effort.

A faculty member will be assigned to provide supervision and mentorship throughout the research effort.

Cadets will complete an abstract and a paper suitable for presentation at an undergraduate conference. The final document will be approved by both the faculty research mentor and the program director.

Grade Requirements

Complete the requirements of the major shown above, attain an APSC of at least 3.0 in the core curriculum, and at least a 3.5 in the major.