

UNITED STATES COAST GUARD ACADEMY
NEW LONDON, CT

CATALOG OF COURSES 2005 – 2006

Reservation of Rights

This Catalog primarily reflects information regarding the Cadet Undergraduate Program for the Class of 2009.

The statements set forth in this catalog are for informational purposes only and may not be construed as the basis of a contract between a cadet and the U.S. Coast Guard Academy. Any conflict between this catalog and the applicable statutes or regulations shall be resolved by reference to language of the statute or regulation only.

The Academy reserves the right to change programs of study, academic requirements, course offerings, regulations, the teaching staff, the Critical Dates Calendar, and other matters described in the catalog without prior notice, in accordance with established procedures. The U.S. Coast Guard Academy endeavors to maintain the accuracy of all information provided in this catalog. However, it is the responsibility of the cadets to be aware of the current regulations, curriculum, and graduation requirements for their class and chosen major.

Human Relations Statement

The United States Coast Guard Academy is an equal opportunity employer guided by applicable Federal laws and regulations. The Academy is committed to the principles of fair treatment and equal opportunity. We recruit, educate, train and employ personnel based on merit so that each individual can excel and reach his/her maximum potential without regard to gender, race, color, religion, national origin, reprisal, sexual orientation and/or where applicable, age (over 40) and/or physical or mental disability. The Academy is also committed to achieving and maintaining a multicultural environment that values the richness brought by diversity and encourages the full participation of all its members. To this end, we promote diversity and strategies to overcome under-representation, discrimination, and acts of intolerance, thereby creating a more positive and productive place in which to learn, work, and live. Furthermore, the Academy proactively pursues a leadership climate that fully embraces the Coast Guard's core values of Honor, Respect, and Devotion to Duty. You, as a cadet and Coast Guard member, are strongly urged to dedicate yourself to these principles of fairness, valuing diversity, and respect to ensure they are fully embraced and carried out in your day-to-day actions.

Information about the Academy's Human Relations Program can be obtained from the Civil Rights Officer (scr), U.S. Coast Guard Academy, 15 Mohegan Avenue, New London, CT 06320-4195.

SUPERINTENDENT'S MESSAGE

Greetings from all of us at the United States Coast Guard Academy. When you make the choice to serve in the Coast Guard, you make the choice to lead.

The Coast Guard Academy is all about learning, teamwork, and leadership. The Academy is a learning community strongly committed to your success, as a learner and a leader, now and in your future career in service to your country and humanity. Our abiding focus is on opportunities for you to maximize your development academically, professionally, militarily, physically, and spiritually. It is this focus on the whole person that will make your experience here as rewarding as it is challenging, and your personal embrace of that challenge will insure you obtain full value from your time at the Academy. Above all, the faculty and staff take pride in seeing you develop into a valued team member and leader of character prepared to serve.

The Coast Guard engages in noble work, and its people are committed to service. To carry out its multiple maritime and military missions to maintain national security, our Service needs educated officers who can think on their feet and lead professional dedicated people. By offering you an exemplary education, the Academy experience sets you up to be a lifelong learner. By giving you a profession, the Academy experience empowers you to fulfill your potential to make a difference, as a leader for tomorrow, in the nation's oldest continuous seagoing service—the United States Coast Guard.

Best wishes and Semper Paratus!

James C. Van Sice

Rear Admiral, U.S. Coast Guard

DEAN'S MESSAGE

The faculty and staff of the United States Coast Guard Academy encourage you to study the information contained in this Catalog of Courses so you may better understand and take ownership of your undergraduate experience. A challenging undergraduate educational program should be a transformative experience, setting you on a path of lifelong learning, deepening your intellectual skills, broadening your horizons, and empowering you to contribute to the creation of our shared future. Challenge yourself intellectually and take full advantage of the support and guidance of our committed faculty and staff, and you will gain the full benefit of this opportunity.

The challenges our nation faces are real. You are accepting the long-term duty to help protect America; your short-term duty here at the Academy is to sharpen your mind and learn how to think. You must have the ability today, four years from today, and four decades from today to recognize, analyze and solve complex problems. Our faculty and staff are continuously innovating to provide a dynamic curriculum that fosters your growth within the educational foundation of our Shared Learning Outcomes. This catalog describes this solid educational foundation, achieved through the core curriculum and an in-depth study in your major field. Your intellectual development will significantly contribute to your growth as team members and leaders.

In addition to your intellectual development, we are committed to your professional, physical, and character development. You came here with outstanding qualifications and leadership potential. The Academy, aligned with Coast Guard core values of honor, respect, and devotion to duty, is a powerful opportunity for you to further develop that potential.

CAPTAIN Robert J. Fuller, Ph.D.

Dean of Academics

United States Coast Guard Academy

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PART I — INTRODUCTION

The United States Coast Guard Academy at New London, Connecticut, is one of the four Service Academies of the Armed Forces of the United States. It is supported by the Federal Government and operated within the authority of the Department of Homeland Security. It is a highly respected institution offering a quality undergraduate education. It is the principal source of engineering graduates for the United States Coast Guard officer corps.

MISSIONS

The United States Coast Guard Academy is committed to strengthening the nation's future by educating, training and developing leaders of character who are ethically, intellectually, professionally and physically prepared to serve their country and humanity, and who are strong in their resolve to build on the long military and maritime heritage and proud accomplishments of the United States Coast Guard.

SERVICE ACADEMY

To graduate young men and women with sound bodies, stout hearts, and alert minds with a liking for the sea and its lore, and with that high sense of honor, loyalty and obedience which goes with trained initiative and leadership; well-grounded in seamanship, the sciences and the amenities, and strong in the resolve to be worthy of the traditions of commissioned officers in the United States Coast Guard in the service of their country and humanity.

LEADERSHIP DEVELOPMENT CENTER

The Leadership Development Center improves mission performance and enhances the Coast Guard's investment in its people by preparing them to demonstrate leadership and live the Core Values, by supporting Coast Guard units through service-wide leadership and quality development, and by identifying future organizational needs and requirements through research and assessment.

VISION

The Academy is the wellspring of leadership and character for the United States Coast Guard. In serving the American public, the Academy is recognized as an exemplary institution and valued as a national asset. To earn that recognition and inspire lifelong learners, we excel in education, professional and military training, and leadership development.

Our graduates, officer and enlisted, military and civilian, of this nation and others are our contributions to strengthening our service and our society and to sharing our strength with the global community.

GUIDING PRINCIPLES

- We, as members of a diverse and dynamic Academy community, are dedicated to serve each other, the Coast Guard, and our Nation.
- We actively challenge and inspire our learners to become leaders of character who epitomize Coast Guard Core Values of Honor, Respect, and Devotion to Duty.
- We, as students, teachers, staff, trustees, and graduates, are fully engaged in providing challenging learning experiences for each other's growth and development.
- We are dedicated to enlightening and constantly enriching the Academy's environment by applying evolving knowledge and emerging technologies, innovation and best practices.
- We actively practice individual responsibility and accountability, teamwork and continuous improvement in support of the Academy's shared learning outcomes. Our graduates shall lead effectively; have high professional qualities; acquire, integrate and expand knowledge; communicate effectively; and be critical thinkers.

ACADEMY MILESTONES

- 1790 Alexander Hamilton developed fiscal plans and economic policies for the United States. On August 4, 1790, Congress passed the Tariff Act, creating a United States Revenue Cutter Service.
- 1876 Legislation was passed granting permission to establish a cadet-training program within the U.S. Revenue Cutter Service.
- 1876 The first home for the “Academy” was established on the Revenue Cutter DOBBIN. Nine cadets were selected by competitive examination.
- 1902 “Scientiae Cedit Mare” was adopted as the Academy motto.
- 1915 The Life Saving Service joined the Revenue Cutter Service to form the “U.S. Coast Guard”.
- 1932 The Academy moved from Fort Trumbull to its present location.
- 1939 The Academy was accredited by the Engineers’ Council for Professional Development (ECPD) under “General Engineering”.
- 1940 The Academy was accredited by the Association of American Universities.
- 1940 The Academy was given authority to grant Bachelor of Science degrees.
- 1946 The Barque EAGLE, a prize of war, was commissioned into the U.S. Coast Guard.
- 1952 The Academy was accredited by the New England Association of American Schools and Colleges (NEASC).
- 1973 Electrical, Marine, and Ocean Engineering programs were accredited by ECPD.
- 1976 Women cadets were first admitted to the Academy.
- 1978 The Civil Engineering major was accredited by ECPD.
- 1980 Engineers’ Council for Professional Development (ECPD) renamed the Accreditation Board for Engineering and Technology (ABET).
- 1996 The Mechanical Engineering major was accredited by ABET.
- 1998 The Leadership Development Center opened.
- 2005 The Management major was accredited by the Association to Advance Collegiate Schools of Business (AACSB)

INSTITUTIONAL ACCREDITATION

The U.S. Coast Guard Academy is accredited by the New England Association of Schools and Colleges, a non-governmental, nationally recognized organization whose affiliated institutions include elementary schools through collegiate institutions offering postgraduate instruction.

Accreditation of an institution by the New England Association of Schools and Colleges indicates that it meets or exceeds criteria for the assessment of institutional quality periodically applied through a peer group review process. An accredited school or college is one that has available the necessary resources to achieve its stated purposes through appropriate educational programs, is substantially doing so, and gives reasonable evidence that it will continue to do so in the foreseeable future. Institutional integrity is also addressed through accreditation.

Accreditation by the New England Association applies to the institution as a whole. As such, it is not a guarantee of the quality of every course or program offered, or of the competence of individual graduates. Rather, it provides reasonable assurance about the quality of opportunities available to students who attend the institution.

The Academy concluded a comprehensive review conducted by NEASC in the fall of 2000 and received the following comments at the conclusion of that review: “Continuation of the United States Coast Guard Academy’s accreditation is based upon the Commission’s finding that the institution’s fulfillment of the Standards for Accreditation is commendable in virtually every respect. It is readily apparent that the Academy’s admirable mission and purposes are fully supported by its institutional resources and that it provides an education of the first order.”

Inquiries regarding the status of the U.S. Coast Guard Academy's accreditation by the New England Association of Schools and Colleges should be directed to Academy administrative staff. Individuals may also contact the Association: New England Association of Schools and Colleges, 209 Burlington Road, Bedford, MA 01730-1433.

PROFESSIONAL ACCREDITATION

The Naval Architecture and Marine Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering majors are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

The Management major has been accepted into candidacy status by the American Association of Colleges and Schools of Business (AACSB).

DISCLOSURE OF INFORMATION

The Privacy Act of 1974 provides to individuals certain safeguards against an invasion of personal privacy. Specific items of information requested by a person about another person are prohibited from disclosure. Cadets and other government employees shall not disclose the home address, home telephone number, number of dependents, withholdings, allotments, and social security number of cadets or Coast Guard employees. However, the name, rank or rate, date of rank, salary, duty status, past, present and future duty station, duty station address, office telephone, source of commission, military and civilian education level and promotion sequence number may be revealed to anyone who submits a Freedom of Information Request.

CRITICAL DATES CALENDAR

<u>Event</u>	<u>2005-2006</u>	<u>2006-2007</u>	<u>2007-2008</u>	<u>2008-2009</u>
4th Class Reporting Day	27 Jun	3 Jul	2 Jul	29 Jun
Summer Program End	14 Aug	13 Aug	12 Aug	17 Aug
Acad. Admin Processing	15-17 Aug	21-23 Aug	20-22 Aug	18-20 Aug
Convocation	17 Aug	23 Aug	22 Aug	20 Aug
Class Start (Fall)	18 Aug	24 Aug	23 Aug	21 Aug
Labor Day	5 Sept	4 Sept	3 Sept	1 Sep
Parents' Weekend	16-18 Sep	29 Sep-1 Oct	12-14 Oct	19-21 Sep
Homecoming	30 Sep-2 Oct	20-22 Oct	5-7 Oct	2-5 Oct
Columbus Day	10 Oct	9 Oct	8 Oct	13 Oct
Veterans' Day	11 Nov	10 Nov	12 Nov	11 Nov
Thanksgiving Leave	23-27 Nov	22-26 Nov	21-25 Nov	26-30 Nov
Last Class Day	7 Dec	13 Dec	12 Dec	10 Dec
Study & Conf. Day	8 Dec	14 Dec	13 Dec	11 Dec
Exam Period	9-15 Dec	15-21 Dec	14-20 Dec	12-18 Dec
Winter Leave	16 Dec-3 Jan	22 Dec-7 Jan	21 Dec-6 Jan	19 Dec-4 Jan
Mid-Year Admin Proccs.	4-7 Jan	8-10 Jan	7-9 Jan	5-7 Jan
Class Start (Spring)	9 Jan	11 Jan	10 Jan	8 Jan
Martin L. King, Jr. Day	16 Jan	15 Jan	21 Jan	19 Jan
Presidents' Day	20 Feb	19 Feb	18 Feb	16 Feb
Spring Leave	4-12 Mar	10-18 Mar	8-16 Mar	7-15 Mar
Last Class Day	27 Apr	3 May	1 May	30 Apr
Study & Conf. Day	28 Apr	4 May	2 May	1 May
Exam Period	29 Apr-5 May	5-11 May	3-9 May	2-8 May
Summer Training Begins	6 May	12 May	10 May	9 May
Summer Term	19 Jun-28 Jul	18 Jun-27 Jul	16 Jun-25 Jul	15 Jun-24 Jul
Graduation	17 May	23 May	21 May	20 May
Intersessional	12 Jun-11 Aug	11 Jun-10 Aug	9 Jul-8 Aug	8 Jun-7 Aug

PART II

ORGANIZATION AND RESOURCES

Picture of Hamilton Hall

Academy personnel and facilities are organized into the rigorous and supportive learning environment needed by Cadets for their educational, professional, military, physical, and spiritual development. The Academic Division, Cadet Division, and Athletics Division develop and provide the core programs that define those functions and activities needed to support the Service Academy legacy. Coast Guard Headquarters, the Board of Trustees, Superintendent's Office, and the Divisions of Admissions, Comptroller, Information Services, Facilities Engineering, and Health Services all collaborate to provide critical direction and support for cadet programs. These organizations and their resources form an Academy community that is dedicated to providing a rich and rewarding learning experience for future Coast Guard Officers.

CONGRESSIONAL BOARD OF VISITORS

The House of Representatives and Senate remain cognizant of Academy affairs via the Board. Through annual visits to the Academy the members of the Board acquaint themselves with the Academy in order to better advise the House and Senate on legislation pertaining to the Institution.

The Congressional Board of Visitors is constituted under the authority of 14 USC 194. Members of the Board are appointed by the Speaker of the House and the President of the Senate.

BOARD OF TRUSTEES

The Board of Trustees has cognizance of all programs at the Coast Guard Academy. The Board provides guidance and advice to the Superintendent, the Chief of Staff, and the Commandant in the following areas:

1. Reviewing the mission and purpose of the Academy
2. Supporting the Superintendent
3. Assessing Board performance
4. Keeping current the Academy strategic plan, including the facilities master plan
5. Reviewing programs that impact the total Academy experience including the academic, professional, and athletic programs
6. Ensuring adequate resources are provided to meet the Academy mission
7. Ensuring good management practices are followed at the Academy
8. Ensuring the accreditation of the various academic curricula

USCGA ADMISSIONS DIVISION

The mission of the Admissions Division is to recruit and enroll exceptional leaders who are motivated to serve as officers in the United States Coast Guard. The division is responsible for coordinating Academy communication, recruiting and orientation programs; and recommending candidates for appointment as a Cadet at the U. S. Coast Guard Academy.

Appointments/Competition

Appointments to the U. S. Coast Guard Academy are tendered on a competitive basis. There are no congressional nominations. The only special category is international cadets. By statutory limitations, the Academy may have a maximum of 36 international cadets enrolled at any one time, and candidates seeking admission as an International Cadet must apply through the Defense Attaché Office of their U. S. Embassy.

Application Process

The application to the Academy consists of three parts. Taken in whole, the completed application allows Admissions to select students who are best suited for appointment to the Coast Guard Academy.

Application Part One

Required?	Yes
Deadline?	1 March
Contents?	On line data collection

Application Part Two

Required?	Yes
Deadline?	1 March
Contents?	Essay, High School Transcript, Standardized Test Scores (SAT-1 or ACT), Letters of Recommendation, Physical Fitness Exam or Candidate Fitness Assessment, and Commanding Officer's recommendation for active duty and reserve personnel

These forms can be found on our website with Part One. It is best if the applicant downloads, completes and mails these forms to our office.

Application Part Three

Required?	Yes
Deadline?	By 1 June applicants must attain medical qualification
Contents?	Medical Exam

Information concerning scheduling the medical exam is mailed by the Department of Defense Medical Exam Review Board (DODMERB) to applicants after they submit Part One.

CONTACTING THE ADMISSIONS DIVISION

To contact the Admissions Division use the information below or refer to listings on the website.

U. S. mail: Director of Admissions
 U. S. Coast Guard Academy
 31 Mohegan Avenue
 New London, CT 06320-8103

Telephone: 1-800-883-USCG
 1-860-444-8500

Web: <http://www.uscga.edu>
 <http://www.admissions.uscga.edu/i2e/admissions>

ACADEMIC DIVISION

The Academic Division, headed by the Dean of Academics, consists of the Library, Registrar's Office, Academic Resources Program, and the following academic departments of instruction: Engineering, Humanities, Management, Mathematics, and Science. The Division offers eight academic majors – Civil Engineering, Electrical Engineering, Mechanical Engineering, Naval Architecture and Marine Engineering, Government, Management, Operations Research and Computer Analysis, and Marine and Environmental Sciences. Offices and academic departments are staffed through the competitive appointment of permanent civilian, permanent military, and rotating military faculty.

The Academic Division is responsible for providing a four-year academic program that leads to a Bachelor of Science degree and a commission as an Ensign in the United States Coast Guard. The curriculum is constantly reviewed to ensure that it meets the needs of the Service; therefore, the pattern and content of the courses described in this catalog may be revised at any time without prior notice.

The mission of the Academic Division is to develop the intellectual abilities and nurture the attitudes and aptitudes that will produce officers who are intellectually curious and have a life-long thirst for continuous self-improvement, with a commitment to service and ethical practice. The Division accomplishes this in several ways. It affords challenging classroom and laboratory experiences that promote intellectual growth. It offers a curriculum that fosters the achievement of Coast Guard Academy Shared Learning Outcomes by providing a strong background in science and technology, a sound foundation in the liberal arts, and an in-depth concentration in a major field of study having value to the Coast Guard. It presents a curriculum that positions our students for acceptance into graduate schools, and it provides intellectual resources through partnerships responsive to the Commandant's Directions.

— Faculty and Staff —

CAPT Robert J. Fuller, Ph.D., Professor, Dean of Academics; CAPT Jonathan C. Russell, Ph.D., Professor, Associate Dean (Collateral); LCDR Joseph Staier, Assistant Dean of Academics (Collateral); Gwendolyn R. Stevens, Ph.D., Professor, Director, Academic Resources; Sharon Zelmanowitz, Ph.D., Professor, P.E., Director, Academic Advising (Collateral), Rita Smith, Administrative Assistant to Dean of Academics

ENGINEERING DEPARTMENT

Picture of McAllister Hall

The Department of Engineering provides a nationally recognized high quality engineering education. While designated a department within the Academy organizational structure, its function is that of a school of engineering in the civilian education community.

Within the Department, there are four majors, all accredited by the Accreditation Board for Engineering and Technology (ABET). They are Civil Engineering, Electrical Engineering, Mechanical Engineering, and Naval Architecture and Marine Engineering. Each of these majors is administered by a section that functions as a department of engineering in a civilian institution.

Graduates of the engineering majors have an outstanding record of accomplishment in graduate school. Approximately half of the majors are selected for several graduate programs fully funded by the Coast Guard (CG). Successful candidates are assigned to various universities and their only duty is to attend school. Others take advantage of tuition assistance and attend graduate programs in off-duty hours while in a professional CG assignment. Still other graduates, who leave the active CG following completion of their five-year obligation, often go on to respected graduate programs nationwide. All told, over 80% of engineering graduates of the Academy go on to obtain graduate degrees.

The common mission of the four programs within the Department of Engineering is:

- to provide an excellent undergraduate engineering education, strong in fundamentals and supportive of the Service Academy Mission

- to graduate students competent in technical decision making, problem solving, and design who are capable of, and motivated towards, pursuing educational and professional growth beyond the Academy
- to maintain a quality curriculum closely reflecting current technologies, and an environment which fosters continuous development of students, faculty, and staff.

Objectives of all programs within the Department of Engineering include producing graduates who have:

1. an ability to apply knowledge of mathematics, science and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component or process to meet desired needs
4. an ability to function as a member of multidisciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use techniques, skills, and modern engineering tools necessary for engineering practice
12. the knowledge, skills, abilities and characteristics that will permit them to continue to develop as successful leaders in the Coast Guard

Once commissioned in the Service, Department of Engineering graduates go on to assignments in every area of the CG. Engineers are preferred for filling approximately one third of the jobs in the CG. There are many positions assigned exclusively to engineers. However, this does not mean that engineering graduates are limited to technical assignments. While engineering careers are the most often selected, many alumni pursue careers in other fields. Notable non-engineering assignments that have been held by Academy engineering graduates include Commandant of the Coast Guard, Superintendent of the CG Academy, Aide to the President of the US, Aide to the Secretary of Transportation, NASA Astronauts, and many others. In fact, engineering graduates are eligible for every assignment in the Service.

— **Faculty** —

Professors: CAPT Kurt J. Colella, Gregg W. Dixon, Howard C. Dunn, CAPT Richard J. Hartnett (Head), David F. Mazurek, Michael E. McKaughan, CAPT Jonathan C. Russell, William M. Simpson, CAPT Vincent Wilczynski, Sharon Zelmanowitz

Associate Professors: Carla J. Egelhoff, Andrew Foley, Keith Gross, Todd E. Taylor

Assistant Professors: LCDR David C. Clippinger, Kevin Collins, LCDR David Godfrey, Jacqueline James (Visiting), LCDR Gregory S. Matlin, LCDR Daniel Pickles, LCDR Joseph E. Staier, LCDR Steven Wittrock

Instructors: LT Joseph Benin, LT Mark Braxton, Peggy Caserto, LT Thomas W. DeNucci, Herbert H. Holland, Marcis Jansons, LT Corinna Kellicut, LT Todd Moyer, LT Michael J. Plumley, LT Kelly Seals, LT Michael Teixeira

HUMANITIES DEPARTMENT

Picture of Satterlee Hall

The Department of Humanities provides the essential liberal arts foundation of the academic curriculum at the Coast Guard Academy. The core courses offered in the Department enrich the writing, critical thinking, and public skills of all cadets while imbuing them with an appreciation of national and global challenges to governance and an understanding of their unique roles as citizen/officers. The Department sponsors a

number of learning opportunities for cadets outside the classroom, including the Washington Intern Program for first class cadets; the Model UN team, which competes internationally; and the Society for Policy and International Affairs, which annually travels to New York City and Washington D. C.

The Department offers a single major in Government. The Government Major provides cadets a broad understanding of governmental systems and their cultural, historical, theoretical, and jurisprudential underpinnings. The major offers two tracks for focused study in Public Policy or International Affairs. To supplement these tracks, cadets may also take courses in law, strategic intelligence, and Spanish. Additional study in history, philosophy, and literature provides cadets in the Government Major a broad educational experience. Advanced students may pursue tutorial and research opportunities in specialties represented by a faculty of over twenty. The Department is a member of the American Political Science Association and sponsors cadet membership in Pi Sigma Alpha, the National Political Science Honor Society.

The Government Major prepares graduates to serve in almost any career path in the Coast Guard. Government majors are to be found commanding cutters or shore stations, heading policy offices, negotiating treaties on behalf of the U. S. government, leading regulatory projects, and flying aircraft, reflecting the maxim that a liberal undergraduate education recognizes no limits. Many Government majors go on to pursue graduate education through the Coast Guard after their first tours.

— **Faculty** —

Professors: CAPT Robert C. Ayer, CAPT L. Anne Flammang (Head), Jose Gonzalez, Faye J. Ringel, Gwendolyn R. Stevens, Nils H. Wessell, Judith A. Youngman

Associate Professors: CDR James D. Carlson; CDR Andrew Norris; CDR Glenn Sulmasy; CDR Joseph E. Vorbach, III; Erik Wingrove-Haugland; Karen Wink; Richard Zuczek

Assistant Professors: LCDR Dale Bateman, LCDR John C. Dettleff, Kathleen Jernquist, LCDR Mark G. Moland, LCDR Brigid M. Pavilonis, Alexander Waid

Instructors: LT Michael E. Bennett, LT Scott Borgerson, LT Thomas D'Arcy, Gary Donato, Wendy Goldberg, Gary W. Palmer, Ivelisse Rodriguez

MATHEMATICS DEPARTMENT

The Department of Mathematics is staffed by civilian and military faculty. The focus is on support of the Academy's Shared Learning Outcomes, the Operations Research and Computer Analysis major, and the broad technical core curriculum.

The Operations Research and Computer Analysis major gives graduates a background in mathematics, statistics, and computers. The primary focus is to enable cadets to conceptualize and describe reality using the tools of mathematics and statistics, analyze possible models and solutions using appropriate computer technology, apply them to specific Coast Guard problems, and to effectively communicate solutions. The study of Operations Research and Computer Analysis highlights for cadets the means by which mathematics and computers can be used to analyze complex problems and improve decision-making. Department of Mathematics core courses include Introduction to Calculus, Calculus I, Calculus II, and Probability and Statistics. Major courses, many of which are used by other majors, include Multivariable Calculus, Differential Equations, Probability Theory, Mathematical Statistics, Linear Regression, Visual Basic, Discrete Mathematics, Linear Algebra, and operations research specific courses (Decision Models, Linear Optimization, Network and Nonlinear Optimization, Probability Models, and Simulation with Risk Analysis). A Directed Studies course is also available to allow first class cadets to "put it all together" by completing projects solicited from the Coast Guard at large.

The Department of Mathematics uses both mathematics and current technology to educate students of the highest caliber. The dedication and diverse mix of experiences of the faculty add a unique depth and flavor to a cadet's academic and military experiences at the Coast Guard Academy.

— **Faculty** —

Professors: CAPT Mark B. Case (Head), Ernest J. Manfred, Janet A. McLeavey

Associate Professor: Katherine B. Krystinik, CDR Melinda D. McGurer, CDR Kurt A. Sebastian

Assistant Professors: LCDR Lara A. Anderson, Ian D. Frommer, Eric C. Johnson, Russell A. Rushmeier, LCDR Michael B. Zamperini

Instructors: LT Scott D. Ostrowski, LT Roger G. Robitaille, LT John M. Stone

SCIENCE DEPARTMENT

Picture of Smith Hall

The Science Department consists of three sections: Chemistry, Marine Science, and Physics. It is responsible for the chemistry, physics and oceanography core courses as well as a large array of upper level courses. Faculty and cadets are involved in a wide range of projects that deal with interesting and important environmental issues. These include studies of water masses in the North Atlantic, coastal food chains using isotope measurements, issues related to fisheries management, estuarine dynamics, and the toxicity of pepper sprays. Other projects involve the detection and identification of petroleum compounds in sea water samples, materials from suspected arson sites, and geochemical samples.

The Science Department offers a major in Marine and Environmental Sciences. This major provides a multi-disciplinary and technical education in the marine and environmental sciences and is closely aligned with Coast Guard missions, including fisheries law enforcement and management, marine environmental protection, oil and hazardous material spill cleanup, search and rescue, ice operations, and aviation. The curriculum stresses understanding of the complex interactions between humans and their environment, especially the oceans, and the interplay between the scientific, regulatory and social aspects of marine resource management. Students may concentrate their course work in the biological, chemical, or physical aspects of the marine environment.

Resources used by students in the Marine and Environmental Sciences program include a 30-foot research vessel, chemistry and biology labs equipped with state-of-the-art analytical instrumentation, and a computer laboratory. In addition to coursework, there are opportunities for independent research and summer internships, which allow students to be involved directly with Coast Guard operations or make extended visits to research labs where work related to the major is carried out. In addition, selected students are afforded the opportunity to spend Christmas Leave on a USCG Polar-Class Icebreaker as it transits to McMurdo Antarctica, and interact with scientists at the National Science Foundation's Antarctic Research Center. Extensive use is made of the nearby Thames River estuary for field studies and experiments. The illustration shows Marine and Environmental Sciences majors collecting data on the department research vessel.

Construction of an astronomical observatory in nearby Stonington has been completed. Although it is not a required part of the major, many students in this and other majors take the astronomy course as an elective.

— Faculty —

Professors: CAPT Michael A. Alfultis (Head), CAPT Richard B. Gaines, Linda M. Huzzey, Richard N. Paolino

Associate Professors: Glenn S. Frysinger, Christopher F. Keating, Karina L. Mrakovcich, CDR Paul J. Reid, CDR Richard W. Sanders, Sam C. Wainright

Assistant Professors: Lorraine A. Allen, Lisa A. Drake, Jeffrey W. Hollister, LCDR William E. Richardson, Brooke S. Stutzman

Instructors: LT Kenneth J. Boda, LT Anthony P. Davis, Jodi B. Gromek, LCDR Gregory J. Hall, LCDR Evan Hudspeth, LT Royce W. James, LT Bryan A. Meier, LCDR Eric J. Miller, LT Scott W. Peabody, David H. Plantz, LT Amy E. Wirts

MANAGEMENT DEPARTMENT

The Department of Management provides basic instruction in leadership, behavioral sciences, and economics to all cadets in the curriculum of the core courses taught by the department. The department also provides advanced instruction in a variety of offerings related to the management of fiscal, human, and information resources to cadets pursuing a degree in Management. The Management major program at the

Coast Guard Academy is built primarily on the intellectual foundations of the behavioral sciences, economics, mathematics, information technology and accounting/finance. Students are educated in the broad array of functional skills and analytical processes required of contemporary leaders and managers. The major prepares its graduates to be management professionals, specifically, adept stewards and managers of the US Coast Guard's human, financial, and information resources. The structure and content of the program ensure that our graduates possess the appropriate analytical foundation for graduate studies in management. The department uses input from its Board of Advisors (e.g. Coast Guard Chiefs of Finance, Information, and Personnel) to develop and maintain a curriculum and program of study that is reflective of the changing needs of the Coast Guard and keeping pace with the current state of practice in business and management.

— **Faculty**—

Professors: C. J. McNair, David W. Weber, Alina M. Zapalaka

Associate Professors: Laurel Goulet, CDR Paul S. Szwed (Head)

Assistant Professors: LCDR Sean M. Carroll, LCDR Edwin T. Diaz-Rosario, LCDR Benjamin A. Cooper, Matthew Eriksen (Visiting), LCDR Jadon E. Klopson, LCDR Kevin J. Lopes, LCDR Darell D. Singleterry

GOVERNANCE

Academic Council

The Academic Council serves as the faculty's formal agent for academic program evaluation, review, development and assessment; faculty recruitment and professional development; graduation standards; and the standards and policies for the core, admission into the major, grading, academic honors, probation and suspension. The council may address extraordinary academic problems and circumstances of individual students.

Credentials Committee

The role of the Credentials Committee is a source of peer review and evaluation of academic faculty qualifications and scholarly accomplishments. The purpose of the Committee is to ensure that equitable standards are applied to all faculty members and that proper recognition is accorded to faculty scholarship. As a group of the most senior faculty they also serve as advisors to the Dean of Academics.

Curriculum Committee

The Curriculum Committee's primary responsibility is to provide guidance on curricular issues to the Dean of Academics and the Academic Council. The Committee reviews and comments on any proposed changes to the courses and also discusses and promotes the curricular philosophy and structure of the Coast Guard Academy.

Dean's Cabinet

The Dean's Cabinet, consisting of academic department heads, contributes an ongoing dialog and shapes the Academic Division's strategic thinking and academic planning, especially in curricular areas.

Faculty Senate

The Faculty Senate represents the Coast Guard Academy military and civilian faculty and aspires to inform the Superintendent of faculty opinion on matters of mutual concern. The Faculty Senate addresses matters relating to the common curriculum, academic standards, faculty professional development, criteria and methodologies for evaluating teaching effectiveness, grading policies, academic advising, program evaluation, instructional technology, innovative teaching methods, and other issues for which the Faculty are a primary source of professional expertise. The administration attempts to keep the Faculty Senate informed of pending academic issues so that the Faculty Senate may serve as a conduit for this information between and among the Faculty and the Academy administration.

CADET DIVISION

Picture of Chase Hall

The Cadet Division is responsible for directing, supporting, and managing the military and professional programs for the Corps of Cadets. The Cadet Division develops ethical leaders and lifelong learners while producing professional career military officers for the U.S Coast Guard. Fundamental to their development, and ingrained in all Cadet Division activities, are the Coast Guard Core Values of Honor, Respect, and Devotion to Duty.

The Cadet Division is organized into four branches. The Commandant of Cadets is an active duty Coast Guard Captain (O-6) who fulfills the duties of the Cadet Division Chief, somewhat equivalent to a “Dean of Students.” He directly oversees a full-time staff of 100 people with an overall budget of \$2.3M. The Commandant of Cadets is located in Chase Hall: the four annex, 450-room building that serves as the home for the 950 member Corps of Cadets.

The Cadet Branch, also located in Chase Hall, is responsible for the day to day administration of the corps including discipline and the general health and well being of the Corps of Cadets. Administered within the Cadet Branch are the Cadet Regiment, Cadet Company Officers, Cadet Musical and Vocal Activities, and the Cadet Social Development Program.

—Faculty and Staff —

CAPT Douglas Wisniewski, Commandant of Cadets; CDR Raymond Pulver, Assistant Commandant of Cadets; Company Officers: LT Nell Ero, LT Michelle Hoerster, LT James Gatz, LT Richard Hartley, LT Joseph Meuse, LT Pride Sanders, LT Tiffany St. George, LT Michael Thomas; Professor Robert G. Newton, Director, Cadet Vocal Activities; CWO3 Kirk Edwards, Director, Cadet Bands; Margaret J. Bowen, Director, Cadet Social Activities

The Support Branch serves as the common liaison for the other Cadet Division Branches and the Corps of Cadets for fiscal, logistics, administrative, management, and planning matters. Administered within this branch are Cadet Administration, Cadet Logistics, and the Cadet Activity Fund. It also serves as liaison to Coast Guard Cutter EAGLE, the Academy’s sail training vessel.

— Staff —

LCDR Jonathan D. Heller, Chief, Support Branch; CWO4 Dale R. Cotch, Chief, Cadet Administration; Steven M. Loyd, Cadet Logistics; Carey McNeil, Cadet Activity Fund

The Waterfront, Seamanship and Sailing Branch is located at the Academy waterfront on the Thames River. It is comprised of the Sail Training Section and the Waterfront Section and is responsible for the basic sail and seamanship training of the Corps of Cadets, and the coaching/management of the intercollegiate competitive sailing program. The branch maintains over 130 boats of eight different classes that are used in the various programs, sports, and courses. It also identifies and prioritizes work projects that affect the piers and buildings along the waterfront.

—Branch Chief—

Allen L. Kruger, Chief, Sailing and Seamanship

The Professional Development Branch is located in Yeaton Hall. It is responsible for the development, delivery and evaluation of professional military subject matter education and training. A four-year Nautical Science curriculum is delivered by the Branch. In addition to teaching these lab intensive four credit courses, this Branch also manages cadet assimilation into the officer corps through occupational training programs, and the cadet summer training programs. It also serves as the home to the Ship Control and Navigation Training System (SCANTS), which includes several state-of-the-art shipboard simulators.

— Faculty —

Associate Professors: CDR Craig Gilbert, Branch Chief; CDR Andrea M. Marcille, Training and Assessment Section Chief

Assistant Professor: LCDR Jeff Haukom, Nautical Science Section Chief

Instructors: LT Christopher Billiau, LT John Christensen, LT Patrick Dougan, LT Riley Gatewood, LT Richard Gunagan, LT Denise Judge (USN), LT Colin MacInnes, LT Chester Passic, LT Thomas Riley, LT Jessica Worst, LT(jg) Amanda Caprari, LT(jg) Meghan Steinhaus

Lecturer: BMC Todd Weismorts

ATHLETICS DIVISION

Picture of Visitor's Center (L), Roland Field House (C), Billard Gym (R)

Many factors contribute to development of leaders of character. Not only does the Coast Guard Academy maintain responsibility for the intellectual and professional development of cadets, but it is also devoted to each cadet's physical development and wellness. This is accomplished through physical education classes, the sports period, and an institutional commitment to physical fitness. The physical education program emphasizes professional competencies and lifetime fitness and wellness. The intercollegiate sports program is one of the broadest in NCAA Division III Athletics with eleven men's, nine women's and three coeducational varsity sports. The intercompany and club sports program is very active and cadet driven. All cadets are required to participate in these activities, which provide multiple opportunities for personal and professional development. The Athletics Division is overseen by the Director of Athletics.

Health and Physical Education Department

Professional Faculty: Peter K. Barry, Mary Boiczuk, Lynn E. Couturier (Head), Carla DeSantis, Stephen Eldridge, Dana R. Fleischmann, Bill George, Ulysses C. Grant, Donna Koczajowski, Raymond LaForte, Chris Parsons, Daniel Rose, John P. Westkott

Instructors: Barry H. Hurst

Picture of Athletic Field and Waterfront

CADET SUPPORT SERVICES

Coast Guard Memorial Chapel (L) and Officers Row (R)

To foster the welfare and success of Cadets, numerous services are provided by way of academic assistance, personal and professional counseling, religious activities, and administrative support.

Academic Resources

An essential goal of life in an academic community is the promotion of lifelong habits of learning. The Academic Resources Program contributes to the development of an environment that encourages risk taking, intellectual exploration, skill development, and innovative and critical thinking.

The following programs are provided under the Academic Resources umbrella:

The Honors Program augments the regular curriculum and provides special opportunities for cadets who wish to broaden and enrich their academic experiences. Included in the program are various honors classes offered in specific academic disciplines, the Honors Colloquium, and Alpha Lambda Delta, a national honor society for first year college students. Coordinator: Faye J. Ringel

The Peer Tutor Program is comprised of cadet volunteers who have performed well in particular academic subjects. This program not only facilitates the academic success of students in need but also helps the tutor-cadets improve their teaching and leadership skills. There are Peer Tutors for most core-courses including Chemistry, Calculus, Nautical Science I, Physics, Statistics, English, and Morals and Ethics. Coordinator: Kathleen Jernquist

The Instructional Support Program provides a variety of services to help cadets use computers more productively. Services include training and the availability of a multimedia center allowing cadets the capability to create quality programs and presentations. Coordinator: Karen A. Smith

The Cadet Academic Assistance Program (CAAP) provides discipline-specific evening workshops. The Faculty, both civilian and military, support the Fourth Class Academic Orientation Program, as a resource for information and the improvement of study skills. Coordinator: LCDR Greg Hall

The Fourth Class Academic Orientation Program (FCAOP) is designed to aid Fourth Class cadets in the transition from high school to college. In addition to helping develop useful study skills, the Orientation Program is the place where the conversation about learning begins.

The Early Warning System is a system that periodically, throughout the academic year, provides timely information to faculty and academic advisors concerning the academic performance of Fourth Class cadets. Coordinator: Mary J. Crevier

The Cadet Academic Advisory Board (CAAB) is comprised of cadets from each class who are interested in creating a positive environment for academics at the Coast Guard Academy. The CAAB serves as a liaison between the cadets and the administration concerning academic issues. For example, the members discuss academic issues with the Dean of Academics, the Library Coordinator, and the Academic Resources Coordinator. Also, cadets can receive academic help or information about majors from the Board. Coordinator: Dr. Brooke Stutzman. Assisting Dr. Stutzman, the Regimental Academics Officer serves as the Chair of the CAAB. This first class cadet organizes the Board and ensures that cadets are informed and can provide useful feedback to the Dean and Commandant of Cadets; the Chair also sits on the Academic Council. Another important component of the CAAB is the Company Academics Division Officer who manages issues of the daily academic routine, such as registration for classes.

The Academic Advising Program is a developmental system designed to prepare cadets to make sound decisions and to set their own priorities. For the 4/c, the program is more proactive. 4/c cadets must meet with their advisor every two weeks. As cadets progress through their four years at CGA, they take increasing responsibility for their own academic success. Advisors provide assistance to all cadets and help them develop study skills, set priorities, and obtain information on career opportunities. As a minimum, the academic advisors approve course registration, class schedule changes, and course adds and drops. It should be emphasized that, even though an individual faculty member may have been

assigned as an advisor, and, therefore, is responsible for approving registration forms and other official paperwork, cadets are free to ask for a consultation with any faculty member. The faculty and staff are deeply concerned for the welfare and success of each cadet, and they will generously give their time to any cadet who has a sincere desire to improve and succeed. Coordinator: Sharon Zelmanowitz

The Academic Center for Excellence (ACE). Located on the second deck of Waesche Hall, the CGA Library building, the Academic Center for Excellence houses both the Writing Center and the Reading Center. CGA's Writing Center provides assistance to cadets who desire to improve their writing abilities. Specific assistance includes instruction in selecting and narrowing topics, composing purposeful thesis statements, choosing supportive evidence, connecting and organizing ideas, developing coherent paragraphs, and explaining grammatical principles. The Writing Center staff helps cadets improve their proficiency in communication; they are not proofreaders. The Reading Center offers a full array of reading support programs including speed-reading, vocabulary building, and help for international cadets. Located on the second deck of the Library, the Writing Center is open Sunday through Thursday evenings; hours are posted each semester. Cadets can receive help on a walk-in basis or make an appointment in advance. Currently, the staff is composed of three types of tutors: a civilian writing instructor, members of the Coast Guard Academy faculty, and tutors from Connecticut College Writing Center staff. Established in 1987, both the Reading Center and the Writing Center operate, in part, from funds provided by the John and Erna Hewitt Endowment. Director: Kathleen Jernquist

International Cadets' Program (ICP). Through counseling, identifying host families, assessing language skills, developing individualized academic programs, and being on hand for emergencies, the coordinator of the ICP facilitates the assimilation of the international cadet into the corps of cadets. Coordinator: Dr. Karina Mrakovcich

Center for Counseling and Development

Counselors at the center are professionally trained and are readily available to meet with any student at the Academy experiencing personal, educational, vocational, military or leadership issues. Personal counseling sessions may cover academic difficulty, test anxiety, study skills, time management, stress management, interpersonal relationships, family concerns, loneliness, self-esteem, roommate conflict, and career choices. Structured group workshops are held as needed on such topics as relaxation, stress management, healthy eating, date-rape prevention, test anxiety, and study skills.

Psychological surveys are available including the Strong Campbell Interest Inventory and the Myers-Briggs Type Indicator to help students with career choices by examining the individual's strengths, and by providing a better understanding of what motivates life decisions.

Counseling services are strictly confidential.

Faculty and Staff: Professor Robert Murray, Director of Counseling; Pamela A. Moulton, Counseling Psychologist

The Command Religious Program

In the military environment in which Cadets live, the Commanding Officer is responsible for the total well-being of all the members. This includes their moral, spiritual, and religious welfare. The Commanding Officer exercises this responsibility through the Command Religious Program. This program provides for the free exercise of all religious faiths, represented in the Command. Chaplains provide a wide range of religious services on traditional worship days during the weekends, on Wednesday evenings during SWAB summer and during the Academic Year, as well as at traditional festive seasons when the Corps of Cadets is aboard. If the Chaplains assigned to the Coast Guard Academy are not able to provide for a particular Faith Group represented in the Command, they seek the assistance of Navy Chaplains located at Submarine Base New London, or of the local clergy. The "Volunteer Religious Network," a group of lay-led local and national religious organizations also work with the Chaplains to provide further support.

— **Staff** —

CAPT Stephen B. Rock, Command (Catholic Chaplain), CDR Mark A. Jumper (Staff Chaplain), LT Jennifer Bowden (Staff Chaplain)

LIBRARY

Picture of Waesche Hall

The Academy library, located in Waesche Hall at the northwest end of campus, is the primary facility for research and study. A library tour conducted during swab summer is the newly arrived cadets' introduction to the library's traditional and electronic information services. This first exposure is followed by course-related bibliographic instruction conducted by the library's professional staff. Working with faculty, librarians teach research methodology and reinforce critical thinking skills. Librarians also provide on-the-spot instruction as part of the reference interview when appropriate.

The collections are housed on three floors. Approximately 150,000 books support the various disciplines of the curriculum. A broad selection of newspapers and periodicals is available for browsing. Material of, by, and about the Academy, shelved in a locked area, is accessible by appointment. The library provides interlibrary loan/document delivery service to cadets, faculty, and staff. ILL/DD expands the research capability of our users who request material held by outside sources. Videocassettes and microforms, with viewing equipment, are on-board and (with minimal help) user friendly. Faculty reserves are discussed on a case-by-case basis. Electronic reserves are managed through the online catalog.

The library's online catalog, by the Sirsi Corporation, features integrated modules for circulation, cataloging, and serials control. Cadets, faculty, and staff search the collection faster and more thoroughly, compared with card files, from any workstation on the campus network. Public workstations accommodate in-house users. Other library catalogs, over 50 databases, and over 7500 full-text journals, magazines, and newspapers can be accessed electronically. The library's home page is continually evaluated and updated with new links added and outdated material removed. Included among the links are tutorials that guide users on the use and scope of the internet. Guides to research by broad topic, several prepared locally to reflect local holdings, have been recently added with potential for more as worthwhile topics come to light. Complete with links to full-text when possible, these digitized pathfinders add another element of convenience to doing research not "in" the library, but "with" the library.

Faculty and Staff: Patricia A. Daragan, Director; Mary Anne Golda, Head, Library Automation/Technical Services; Richard Everett, Head, Reference/Instruction; Lisa Hudgins, Evening and Weekend Reference Librarian; Betty Davis, Jean L. Hayek, Pauline Lamarre, Cynthia Juskiewicz Janet Whitty — Library Technicians.

REGISTRAR

The Registrar is responsible for the development of the master schedule of courses for each semester, the enrollment of cadets in classes and the generation of all academic reports which relate to cadet academic records. The Registrar is also responsible for the compilation, evaluation, safe retention, and appropriate use of cadet academic records, the preparation and issuance of transcripts, and certification of selected data from the records.

Additional responsibilities of the Registrar are to publish a Catalog of Courses and to maintain an electronic version that is accessible via the Internet. The Catalog lists the courses of study offered for that academic year and each course's description, credit value, format and projected offering. The Catalog also includes the appropriate policies, procedures and other information deemed appropriate by the Dean and the Registrar.

Faculty and Staff: Donald E. Dykes, Registrar; Mary J. Crevier, Associate Registrar; Sarah Briggs, Administrative Assistant

PART III — EDUCATION PROGRAMS

Academic programs leading to a Bachelor of Science Degree are designed to provide Cadets with opportunities to major in one of eight disciplines that combine rigorous academic work and teamwork and leadership experiences that are relevant to a Coast Guard career and possible postgraduate work. The majors supplement a solid core academic program in engineering, science, mathematics, management, and the humanities, combined with unique curricula requirements in health and physical education and nautical science.

ACADEMICS

Cadet academic work is guided by an historically proven philosophy, carefully selected objectives, endorsed Shared Learning Outcomes, and multifaceted academic, training and leadership experiences, leading to an opportunity for a successful career in the Coast Guard.

PHILOSOPHY OF EDUCATION

With a foundation in both technology and the liberal arts, the Coast Guard Academy provides a challenging outcomes-oriented curriculum focused on active student learning. Our goal is to produce successful Coast Guard Officers and to engender an appreciation and habit for life-long learning. A focus on teamwork, leadership, commitment to service, and ethical practice informs the development of the Academy's curriculum.

The Coast Guard Academy is committed to the idea of a core curriculum, a common academic experience that provides a broad intellectual perspective. The breadth of a core curriculum encourages awareness of discipline interdependence and the limits of individual specialties. The Coast Guard Academy also believes that majoring in a specific discipline, one that has relevance to current and future Coast Guard missions, is a critical component of the academic program. Specialization encourages intellectual rigor and sophistication.

The framework and heritage for the educational program is a military tradition of leadership and excellence and a commitment to continuous quality improvement. No single teaching method or forum is given precedence. The educational experience at the Coast Guard Academy focuses on critical inquiry. Academic work is collaborative, a joint effort of faculty and students, experiential, interactive, and exciting.

Although we cannot know the future, we prepare students with a curriculum steeped in global history, as well as the history and tradition of service. Our challenge is to prepare cadets to take their place in a complex, changing, and shrinking global community in a creative manner that enhances the ability of the Coast Guard to fulfill its obligation to the nation.

PROGRAM OBJECTIVES

The Coast Guard Academy is dedicated to producing Coast Guard officers who meet the program, diversity, and quality objectives of the Coast Guard. Within this broad perspective lie four primary objectives: (1) to provide by precept and example an environment that embraces the Coast Guard values of honor, respect, and devotion to duty; (2) to provide a sound undergraduate education in a field of interest to the Coast Guard, (3) to provide leadership education, and (4) to provide training which enables graduates to assume their immediate duties as junior officers afloat.

To ensure that we produce quality officers who demonstrate the behaviors and leadership competencies we hope to develop, the faculty of the Coast Guard Academy has endorsed the following set of **Shared Learning Outcomes**:

Leadership Abilities

Graduates shall be military and civilian leaders of character who understand and apply sound leadership principles and competencies. This includes the ability to direct, develop, and evaluate diverse groups; to function effectively and ethically as a leader, follower, facilitator or member of a team; and to conduct constructive assessment of self and others;

Personal and Professional Qualities

Graduates shall maintain a professional lifestyle that embraces the Coast Guard Core Values of Honor, Respect and Devotion to duty, including physical fitness and wellness, and demonstrating the customs, courtesies and social skills befitting members of a maritime military service.

Graduates shall also have a sense of Coast Guard maritime heritage and an understanding of the roles that the Coast Guard and the nation play in the global environment;

Ability to Acquire, Integrate and Expand Knowledge

Graduates shall have developed the motivations and skills for “lifelong learning”. Graduates shall be able to create a working conceptual framework that lends itself to continued expansion. To accomplish this, graduates shall be able to efficiently access a broad range of information sources, locate and interpret desired data reliably, employ appropriate technology, and integrate the specific in-depth knowledge required of both an academic major and an entry-level professional assignment;

Communication Effectiveness

Graduates shall be able to write clearly, concisely, persuasively, and grammatically; prepare and deliver well-organized and polished oral presentations; read and understand a variety of written materials; listen thoughtfully to oral arguments; respect diverse opinions; and formulate reasoned alternatives and responses;

Critical Thinking Ability

Graduates shall be able to accomplish complex tasks in a broad range of contexts by applying the basic skills of critical analysis, systems thinking, quantitative reasoning, risk management, creative problem solving, and value-based decision-making.

These outcomes were developed by analyzing the intellectual and physical job demands of Coast Guard officers and by comparing those to the developmental experiences for which the Coast Guard Academy is responsible. Graduates of the Academy earn commissions as Ensigns in the U.S. Coast Guard, thus beginning their service to the nation and humanity in the nation’s oldest seagoing service. The four years that cadets spend at the Coast Guard Academy are the beginning of their professional development as leaders and career Coast Guard Officers.

To understand the degree to which we are successful in achieving these outcomes, cadets, graduates, and program customers will periodically participate in outcome assessment activities, such as tests, surveys, interviews, and portfolio development. Outcome assessment cuts across specific disciplines, majors, or divisions and is part of our commitment to continually improve all of our programs.

To accomplish our institutional mission to develop “leaders of character,” the Academic, Athletics, and Cadet Divisions work closely together: leadership education takes place in the classroom, in the barracks, on the athletic fields. The faculty and staff across the institution contribute to the development of the total person. Leadership across the curriculum mandates that leadership education is not merely relegated to the core leadership courses but that all faculty and staff address leadership issues whenever possible.

HONOR CONCEPT

Cadets are expected to conduct themselves in accordance with an Honor Concept, which requires that “Cadets neither lie, cheat, steal, nor attempt to deceive.” Each individual must integrate this concept into his or her way of life so that it becomes the foundation on which to base interactions with all persons, both in the Coast Guard and in society in general.

The Honor Concept establishes an atmosphere of mutual trust and integrity within both the Corps of Cadets and the Coast Guard Officer Corps. It is essential that proper relationships among Coast Guard personnel are established at the earliest point in time, and for this reason the Corps of Cadets must be guided by the Concept:

“CADETS REVERE HONOR”

The Honor Concept is so fundamental to the qualifications of an individual aspiring to be an officer in the Coast Guard that a failure to adhere to its tenets is considered to be a major deficiency in a person’s suitability for commissioning. For this reason, breaches of the Honor Concept are considered to be serious offenses that normally result in disenrollment from the Academy.

POLICIES AND PROCEDURES

Smooth operation of academic activities is facilitated by the establishment of critical policies, procedures and standards that provide for a smooth and coherent administration of the cadet academic environment.

ACCEPTANCE INTO A MAJOR

Selecting a major is critical for academic success at the Academy.

Fourth Class Cadets are assigned a Fourth Class academic advisor whose role is to assist them in becoming successful academic learners. Departmental presentations regarding the pedagogical content of each major and resulting career opportunities are made to cadets in the spring semester of their 4/c year. Cadets then select a major and work with an academic advisor to help them prepare a plan of study and to register for 3/c courses.

Third Class Cadets must apply for and be formally accepted into a major before the start of their 2/c academic year. The common criterion for acceptance into any of the majors is the attainment of a 2.00 average in the set of courses identified as prerequisites for each major. In addition, some majors may demand minimum acceptable grades in certain courses or satisfactory completion of qualifying projects or examinations. Cadets who fail to gain departmental acceptance into their chosen academic major may be granted provisional acceptance by the Dean in consultation with Department Heads, with a specific plan for meeting the academic requirements of the major. A cadet who ultimately fails to gain acceptance to any academic major will be disenrolled.

COURSE SUBSTITUTIONS

Department Heads, in consultation with their faculty, may accept substitutes for required courses for acceptance into their major, if, in their judgment, the alternatives provide evidence of ability to succeed in the major. When a cadet is accepted into a major without having satisfied the prerequisites or their authorized substitutes, the Department Head shall notify the Dean and Registrar in writing of the conditions waived and the rationale for the acceptance.

Course substitutions for major-specific course requirements may be made only when authorized for a specific major or when specifically approved by the major coordinator and Department Head. One course may not be used to satisfy two separate course requirements.

ACADEMIC STANDING

Cadets are expected to make normal progress toward meeting the requirements for graduation in four years. The performance guidelines described below are designed to identify cadets who are not making the minimal progress required and to help them in obtaining the prompt assistance of their academic advisors and other members of the faculty and staff.

ACADEMIC PERFORMANCE REVIEW

As part of the normal advising process, each cadet's academic record is reviewed by the academic advisor at the end of each semester to assess the level of performance and to identify any potential problems. The Dean of Academics reviews the academic record of all cadets who fail to obtain a 2.00 Term or Cumulative Grade Point Average or who fail required courses. The Dean also reviews those cadets on extended opportunity and any cadet in danger of not meeting graduation requirements. Possible actions resulting from this review include placing the cadet on academic probation, scheduling an interview with the Dean, recommending a change of major, or referring the cadet to the Academic Review Board. If the Dean believes that a cadet is in a position from which recovery is not possible, he or she will be referred to the Superintendent with a recommendation for disenrollment or extended opportunity.

PERFORMANCE GUIDELINES

1. Any cadet who receives two Fs in one semester or accumulates a total of three Fs is automatically placed on academic probation.
2. Any 4/c cadet who receives three Fs in the Fall semester or four Fs for the year will be referred to the Superintendent with a recommendation for disenrollment.
3. Any cadet (other than 4/c) who accumulates a total of four or more Fs will be referred to the Superintendent with a recommendation for disenrollment.

Good Standing: A cadet whose academic performance indicates that he or she will fulfill all of the graduation requirements on schedule is said to be in Good Standing.

Academic Probation: A cadet who is placed on Academic Probation is subject to restrictions imposed by the Dean of Academics and the Commandant of Cadets. These will include, but are not necessarily

limited to, a schedule of mandatory consultations with the academic advisor. Each individual case will be reviewed to determine if restrictions should be placed on participation in sports or extracurricular activities. Academic Probationary status normally continues until graduation. However, a cadet on Academic Probation who earns a term average of 2.50 or greater for one semester or a 2.00 or greater for two successive semesters may petition the Dean of Academics to be removed from academic probationary status provided that their cumulative GPA is 2.00 or greater. Additional details on procedures for petitioning for removal from Academic Probation are found in the Regulations of the Corps of Cadets.

Extended Opportunity: When exceptional circumstances exist, the Superintendent may elect to offer a cadet an opportunity to extend beyond the customary four-year course of study in lieu of disenrollment. Such cadets are normally registered for reduced course loads as directed by the Dean of Academics. Under no circumstances, however, may a cadet carry less than 12 credits without the express permission of the Dean of Academics. Cadets on extended opportunity are automatically placed on Academic Probation and they will be reviewed each semester they remain at the Academy.

Disenrollment: A cadet who is disenrolled from the Academy is separated permanently, unless he or she subsequently applies and is accepted for readmission. In the case of readmission with or without advanced standing, all courses taken previously are included in computations of the cumulative grade point average. For the purpose of determining eligibility for Academic Probation or disenrollment, however, any Fs received prior to the readmission are excluded. A cadet who wishes to appeal the Superintendent's disenrollment decision must prepare a formal request in accordance with the Regulations for the Corps of Cadets and must forward it via the Chain of Command.

REGISTRATION FOR COURSES

During the spring semester cadets register for the courses they wish to complete during the next academic year. Course offerings and specific instructions are distributed in advance by the Registrar's Office. The Registrar will administer registration of 4/c cadets for Fall and Spring semester courses. Individual course assignments will consider major preferences, Advanced Placement Test results, mathematics and English placement testing completed during the summer, and departmental evaluation of academic work previously completed at other colleges and universities.

Honors Courses: Cadets desiring to take an honors level course should contact the department head for further information. Honors courses may be substituted for the core course requirements.

Directed Studies Courses: Cadets desiring to pursue study of an area beyond available courses may select a departmental Directed Studies course. These may be substituted for any major requirement with the approval of the major coordinator. The Registrar must be informed in writing of all authorized substitutions.

Academy Scholars Program: The Academy Scholars Program offers a special intellectual challenge to cadets who have demonstrated outstanding scholastic abilities in the first class year. Those selected are given special recognition and academic privileges that enable them to pursue individually selected projects and special research under faculty guidance.

Connecticut College Exchange Program: Full-time students at Connecticut College and the U.S. Coast Guard Academy may enroll in and receive credit for courses completed at the other institution. To qualify for this program, cadets must have: (1) valid academic reason for taking a course that is not available at the Academy and (2) approval of their academic advisor and the Dean of Academics. Enrollment in this program is normally limited to 1/c cadets who have demonstrated strong academic achievement.

Academic Overloads: A 3/c, 2/c, or 1/c cadet in good academic standing may petition their Department Head to overload to carry more than five academic courses of 3 or more credits. To petition, the cadet must submit a memo to the Department Head via their Academic Advisor. If approved, a copy of the memo is sent to the Registrar. Cadets on Academic Probation or Extended Opportunity wishing to overload or cadets requiring an overload to meet graduation requirements must obtain approval by the Dean. These cadets must route a memo requesting the overload to the Dean via the Academic Advisor and Department Head. If the Dean approves the overload, action copies are sent to the Registrar and the Director of Academic Advising. All overload memos must be submitted prior to the beginning of the semester for which the overload will take place.

CLASSES AND GRADING

Course Completion: Cadets who withdraw from an overload course or resign prior to 1600 hours on Study and Conference Day will be assigned a “W” for the dropped course or for all courses in the event of a resignation prior to the beginning of final exams. Cadets must complete the published course requirements, including scheduled final exams, for all remaining courses.

Class Attendance: Section lists containing the names of cadets officially assigned to the courses and sections are distributed to the faculty at the beginning of each semester via the Registrar’s web site. Cadets are required to attend the specific lectures, laboratories, tests and review sessions to which they have been assigned. Cadets must inform instructors in advance of any authorized absences.

Grading System: The unit of credit is the semester hour. One semester hour equals 50 minutes of lecture or 150 minutes of laboratory per week. The faculty member assigned to each course/section is responsible for evaluation of student course work and ultimately for accurate grade assignment and timely submission.

The following grades may be assigned as appropriate:

<u>Grade</u>	<u>Quality Points</u>	<u>Description</u>
H	4.00	Honors Quality
A	4.00	Excellent Quality
A-	3.70	Extremely Good Quality
B+	3.30	Very Good Quality
B	3.00	Good Quality
B-	2.70	Highly Satisfactory Quality
C+	2.30	Very Satisfactory Quality
C	2.00	Satisfactory Quality
C-	1.70	Barely Satisfactory Quality
D	1.00	Barely Passing
F	0.00	Failure of Course
I	0.00	Incomplete
W	0.00	Withdrawal from Course
Z	0.00	Audit of Course
V	0.00	Validation Credit
S	0.00	Satisfactory
U	0.00	Unsatisfactory

Academic Averages: All courses taken at the Coast Guard Academy at any time for academic credit are counted toward the term (TGPA) and cumulative grade point averages (CGPA). Each average is determined by dividing the term or cumulative quality point total by the number of term or cumulative semester hours. Quality point totals are derived by multiplying the credit hours assigned to each course by the number of quality points associated with the grade assigned by the instructor. Courses validated, or transferred from another institution, are listed on the transcript, but they are not included in computations of grade point averages.

ACADEMIC AND MILITARY RECOGNITION

Several honors have been established to recognize academic and military excellence within the Corps.

The *Board of Trustees List* recognizes cadets with superior performance in all three areas of the Academy; military, physical, and academic excellence. Cadets making this list are recognized through a luncheon with the honorable Board of Trustees members.

The *Superintendent’s List* recognizes cadets named to both the Dean’s List and the Commandant of Cadets’ List.

The *Dean’s List* identifies cadets who achieve at least a 3.15 TGPA while taking at least a normal course load of five academic courses and have no course grade less than a C in any course weighted more than one credit.

Cadets who finish in the top 33% of their class on the Military Precedence List (MPL) may qualify for the *Commandant of Cadets’ List*. Final listings will be based on Company Officer recommendations, and no more than 25% of each class will be named to this list. Cadets are not eligible if they are found in violation of a Class I offense of Cadet Regulations adjudicated during the term, fail to achieve a

satisfactory score on the semiannual physical fitness examination (PFE), or fail to attain a minimum term grade point average of 2.00.

The MPL is based on the high-to-low order of Military Precedence Average (MPA) which is calculated using the cadet's Cumulative Grade Point Average (CGPA), Cumulative Military Precedence List (CMPL), and Physical Development Competencies (PDC) as follows: $MPA = .70(CGPA) + .25(CMPL) + .05(PDC)$.

The *Athletic Director's List* recognizes those Cadets who earn honors on the semester physical fitness examination (PFE).

The *Regimental Commander's List* recognizes cadets who have increased their TGPA by at least 0.50 over the previous semester's TGPA and have not failed any course. Their TGPA must be at least 2.00 but less than 3.15 (which would qualify them for the Dean's List).

Honors at Graduation: In recognition of high scholastic achievement, the Academy, upon recommendation of the faculty, awards the Bachelor of Science Degree with the following distinctions: High Honors for those who have earned a CGPA of 3.50 or higher; Honors for those earning a CGPA between 3.15 and 3.49. The Distinguished Graduate designation recognizes the cadet who graduates with the highest Cumulative Grade Point Average. The Honors Graduate designation recognizes the cadet who graduates with the highest Military Precedence List Average.

BACHELOR OF SCIENCE DEGREE

Each Major has specific academic requirements for acceptance to the major, standards for validating courses taken externally, in addition to the specific course requirements of the major. In addition, there are Distribution requirements that apply to all Majors, and overall requirements for graduating with a Bachelor of Science Degree.

Degree and Graduation Requirements

Degree and graduation requirements are officially published in the Regulations of the Corps of Cadets. These requirements for the degree of Bachelor of Science and a Commission as an Ensign in the United States Coast Guard are as follows:

- a. Pass or validate every course in the core curriculum.
- b. Pass at least 37 courses of 3.00 credits or greater.
- c. Complete the academic requirements for one of the majors as specified in the official Catalog of Courses.
- d. Attain an average of at least a 2.00 in all required upper division courses in the major, as specified in the official Catalog of Courses. Under normal circumstances, these courses consist of those taken to fulfill major requirements after formal admission to the major.
- e. Attain a Cumulative Grade Point Average of at least a 2.00.
- f. Be in residence at the Academy for at least four academic years.
- g. Complete successfully all required portions of the physical education program including meeting minimum swimming and physical fitness standards.
- h. Meet all military performance standards, demonstrating all aspects of personal and professional development necessary to serve as Ensigns in the United States Coast Guard, unless a commission will not be offered due to a medical disqualification.
- i. International cadets must meet the same standards of personal and professional development as all other graduates, notwithstanding that they are not entitled to appointment in the U.S. Coast Guard.

The Superintendent confers the degree of Bachelor of Science on those cadets in good standing who have met these requirements or revisions published since matriculation.

VALIDATIONS

The validation procedure is a mechanism whereby cadets may request a course exemption, based on personal competency or academic work completed elsewhere. This procedure affords cadets the opportunity to enroll in additional courses that will further enrich their undergraduate education. Validated courses are not awarded credit hours or quality points, nor may they be used to satisfy the minimum semester course load requirement. Courses accepted for validation credit may not be taken at a subsequent time for academic credit.

Validation Requirements

The requirements to validate a course are exclusively governed by the Academic Department responsible for offering that course.

Some accomplishments that may lead to granting of validation credit provided they are acceptable to the Department are:

- a. Score of 4 or better on the CEEB Advanced Placement examinations; or
- b. Grade of C or better in an equivalent college course at an accredited college or university as evidenced by a college transcript; or
- c. Grade of B or better in an Advanced Placement or college level course that has been certified by an accredited college or university as noted on the high school transcript.

In addition to the general guidelines, Department Heads may apply specific requirements unique to the department's academic courses that supersede requirement (a), (b), or (c). The following unique requirements have been established:

Engineering Department (de) Validation

Cadets may validate courses offered by the Engineering Department if they have accomplished requirements (b) or (c) above and gained the written approval of the Engineering Department Head. Cadets may be required to take an oral or written exam to demonstrate adequate proficiency of the course material.

Humanities Department (dh) Validation

Cadets may validate courses offered by the Humanities Department only if they have taken an accredited college course with a transcript grade of B or above and pass the course coordinator's oral examination. English composition may NOT be validated.

Health and Physical Education Department (ap) Validation

The purpose of course validation in the Health and Physical Education (HPE) Curriculum is to permit any cadet the opportunity to validate selected HPE courses based upon work completed elsewhere or his / her capacity to meet the skill and the academic criteria of a specific course. Validation examinations must be completed during the first week of the semester. All validations are to be conducted by the course instructors under the direction of the Department Head, and any changes shall be processed through the Registrar's Office in accordance with course Add/Drop procedures.

DISTRIBUTION REQUIREMENTS

Courses from the following programs, which satisfy broad academic and professional purposes, are integrated in each of the Majors (with substitutions to satisfy any unique program needs):

- Core curriculum
- Professional studies program
- Special programs
- Health and physical education program

MAJORS REQUIREMENTS

To earn the degree of Bachelor of Science, cadets must successfully complete the academic requirements for one of the following majors:

- Civil Engineering
- Electrical Engineering
- Mechanical Engineering
- Naval Architecture and Marine Engineering
- Marine and Environmental Sciences
- Operations Research and Computer Analysis
- Management
- Government

Each major has specific course requirements, including the distribution courses, mandatory courses, area or related elective courses, designated course substitutions, and optionally, free elective courses.

APPLICABILITY

The Academic Standards and Requirements defined in this Catalog apply in full to the Class of 2009, effective Fall 2005.

Any cadet who is either reverted or readmitted to the Academy is subject to the academic regulations that apply to the new class to which he or she is assigned. The Catalog also includes the appropriate policies, procedures and other information deemed appropriate by the Dean and the Registrar.

PART IV - PROGRAMS OF STUDY

Core Curriculum - 23 Courses (Dean of Academics)

Core Curriculum Requirements

1116	Statics and Engineering Design
1320	Introduction to Electrical and Computer Engineering
or 1218	Electrical Engineering I
or 1321	Electric Circuits and Machines
2111	English Composition and Speech
or 2121	The Art of Effective Writing
2123	Introduction to Literature
or 2125	Introduction to Literature (Honors)
2141	History of the United States
2263	American Government
or 2259	Principles of American Government
2391	Criminal Justice
2393	Morals and Ethics
2493	Maritime Law Enforcement
3111	Calculus I
3117	Calculus II
3213	Probability and Statistics
5102	Chemistry I
or 5104	Chemistry I (Honors)
5106	Chemistry II
or 5108	Chemistry II (Honors)
5262	Physics I
5266	Physics II
5442	Oceanography
8115	Macroeconomic Principles
8211	Leadership and Organizational Behavior

Professional Studies Program (Dean and Commandant of Cadets)

Professional Studies Program - Core Requirements

6112	Nautical Science I - Theory of Navigation
6214	Nautical Science II – Voyage Planning
6316	Nautical Science III – Theory and Science of Shipbuilding
6418	Nautical Science IV- The Coast Guard Division Officer

HEALTH AND PHYSICAL EDUCATION PROGRAM (DIRECTOR OF ATHLETICS)

The Service Academy Mission states: “To graduate young men and women with sound bodies, stout hearts, and alert minds.” The Academy’s health and physical education program is designed to ensure that cadets meet this “sound body and stout heart” criterion. To this end, the Athletics Division not only supports shared learning outcomes but also has developed its own set of specific outcomes. At the end of the four-year athletics program, graduates are expected to demonstrate their ability to:

- Maintain a personal fitness program that allows them to meet the physical demands required of Coast Guard officers; be capable of counseling others in the methods, concepts, and materials used in developing and maintaining a healthy lifestyle:

- Function successfully in an aquatics environment; defend themselves and others; and provide emergency aid to those in need;
- Set individual and team level goals for short and long term planning, and assess and analyze results;
- Perform as a group member in achieving a common goal, and persist in an ethical and disciplined manner when faced with adverse conditions in striving to achieve the goal.

Cadets are required to complete health or physical education courses each year as part of the total curriculum, and to maintain a high degree of general physical fitness. During their years at the Academy, cadets are provided with the program and facilities that will assist them in the development of their physical potential. In order to assess their physical development competencies, cadets must successfully complete all Physical Fitness Examination requirements each semester while at the Academy. Cadets are required to be active in co-curricular physical activities such as intercollegiate athletics or intramural or club sports each semester, where they develop psychosocial and sport skills through their participation.

The Health and Physical Education (HPE) curriculum includes six semesters of required courses. For the first three years, the curriculum is focused on the development of professional competencies and fitness/wellness knowledge and skills. In the first class year, cadets choose from a variety of lifetime physical activities

Cadets must satisfactorily complete all core HPE courses before taking any elective physical education courses. As a graduation requirement, each cadet must earn a minimum of six (6) academic credits in core HPE courses.

Course Requirements

HPE Mandatory Core Courses		Credits
4102	Physiology of Fitness I	1.00
4103	Personal Defense I	0.25
4111	Swimming I	0.25
4112	Physiology of Fitness II	1.00
4204	Lifetime Sports I: Racquetball	0.25
4214	Lifetime Sports II: Golf	0.25
4222	Professional Rescuer	2.00
4303	Personal Defense II: Maritime Law Enforcement Techniques	0.25
4304	Lifetime Sports III: Tennis	0.25

First Class cadets select one (or more) of the following:

4401	Water Safety Instructor	1.00
4403	Martial Arts	0.50
4404	Badminton	0.25
4405	Adventure Sports I: Rock Climbing	0.50
4407	Dance	0.50
4409	Horseback Riding	0.50
4411	Scuba Diving	1.00
4414	Advanced Golf	0.25
4415	Adventure Sports II	0.50
4421	Advanced Scuba Diving	0.50
4425	Ropes Challenge	0.50
4434	Skiing/Snowboarding	0.25
4439	Theory of Coaching	1.00
4444	Indoor Recreational Sports	0.50
4459	Sport/Wellness Leader	0.50
4464	Strength and Conditioning	0.50
4499	Directed Studies in Health and Physical Education	0.50

DEPARTMENTAL PROGRAMS

The following sections for each major include a statement about the major, and criteria for acceptance into the major, along with Course Requirements, and a sample eight-semester Plan of Study.

CIVIL ENGINEERING

Civil Engineering (CE) provides a solid background in mathematics and basic sciences applied toward the study and design of engineered systems. As a broad field encompassing many disciplines, Civil Engineering offers a challenging and fulfilling career to individuals with a wide variety of interests. Upper level courses in the major include study in structural analysis, geotechnical engineering, construction, water resources, and environmental engineering. The program emphasizes development of open-ended problem solving, team building skills, creativity, and communication ability. In the senior level capstone design course, students integrate what they have learned in the design of a complete Civil Engineering system. Graduates of the major are well prepared to pursue a variety of career opportunities and graduate programs in and out of the Coast Guard. The program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). In addition to the common departmental program mission and objectives, objectives of the Civil Engineering Major include producing graduates who have:

- proficiency in mathematics through differential equations, probability and statistics, calculus-based physics and general chemistry, proficiency in a minimum of four (4) recognized civil engineering areas,
- the ability to conduct laboratory experiments and to critically analyze and interpret data in more than one of the recognized major civil engineering areas,
- the ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum, and
- an understanding of professional practice issues such as: procurement of work; bidding versus quality-based selection processes; how the design professionals and construction professions interact to construct a project; the importance of professional licensure and continuing education; and/or other professional practice issues.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in all Mathematics, Science, and Engineering courses taken prior to the beginning of the 2/c year.

In addition, a grade of C or above in the following courses:

- 1116 Statics and Engineering Design
- 1206 Strength of Materials

I. Core Requirements:

Substitute Electric Circuits and Machines (1321) for Introduction to Electrical and Computer Engineering (1320). Probability Theory (3341) or Advanced Engineering Mathematics (3301) may be substituted for Probability and Statistics (3213).

II. Major Requirements:

- | | |
|-----------------------------|-------------------------------|
| 1206 Strngth of Materials | 1340 Fluid Mechanics |
| 1211 Dynamics | 1351 Thermodynamics |
| 1302 Civil Engr Materials | 1401 Const Proj Mgmt |
| 1304 Soil Mech & Fndtn Desn | 1402 Civil Engineering Design |
| 1309 Environmental Engr I | 1411 Reinf Concrete Design |
| 1313 Steel Design | 3211 Multivariable Calc |
| 1317 Struct Analysis I | 3215 Differential Eqtns |

III. Major Area Electives:

Select two engineering courses, 300 level or higher and of at least 3.0 credit hours each, other than Introduction to Electrical and Computer Engineering (1320). At least one of these courses must be selected from the list below:

1407 Environmental Engr II
1417 Structural Analysis II

1414 Struct Dsgn Extreme Events

IV. Upper Division Courses:

1302 Civil Engr Materials
1309 Environmental Engr I
1317 Struct Analysis I
1340 Fluid Mechanics
1402 Civil Engineering Design
—— Major Area Elective

1304 Soil Mech & Fndtn Desn
1313 Steel Design
1321 Elec Cir & Machines
1351 Thermodynamics
1411 Reinf Concrete Design
—— Major Area Elective

CIVIL ENGINEERING—GENERAL

Fall Semester

Fourth Class Year

0901 FCAOP
1116 Statics & Engr Dsgn
2111 Eng Comp & Speech
2141 History of the US
3111 Calculus I
4102 Physiology of Fitness I
4111 Swimming I
5102 Chemistry I

Third Class Year

1206 Strngth of Materials
2263 American Government
3211 Multivariable Calc
4222 Professional Rescuer
5262 Physics I
8211 Ldrshp & Org Behavior

Second Class Year

1302 Civil Engr Materials
1309 Environmental Engr I
1317 Struct Analysis I
1340 Fluid Mechanics
2393 Morals and Ethics
4303 Personal Defense II

First Class Year

1321 Elec Cir & Machines
1351 Thermodynamics
1401 Const Proj Mgmt
1411 Reinf Concrete Dsgn
—— Major Area Elective
—— Physical Education

Spring Semester

2123 Intro to Literature
3117 Calculus II
4103 Personal Defense I
4112 Physiology of Fitness II
5106 Chemistry II
6112 Nautical Science I
8115 Macroeconomic Prin

1211 Dynamics
3213 Probability & Stat
3215 Differential Eqtns
4204 Lifetime Sports I/RQB
4214 Lifetime Sports II/Golf
5266 Physics II
6214 Nautical Science II

1304 Soil Mech & Fndtn Desn
1313 Steel Design
2391 Criminal Justice
4304 Lifetime Sports III/Tennis
6316 Nautical Science III
—— Major Area Elective

1402 Civil Eng Design
2493 Maritime Law Enfcmnt
5442 Oceanography
6418 Nautical Science IV
—— Free Elective
—— Physical Education

ELECTRICAL ENGINEERING

The Electrical Engineering (EE) major is a sound undergraduate educational program that prepares future officers to be the leaders in developing and implementing new technologies in the Coast Guard. The student who completes this program will be thoroughly ready for professional practice and ready for a wide spectrum of postgraduate studies. Particular emphasis is placed on the analysis, design and applications of linear and digital systems. Major prescribed courses provide an integrated understanding of the core disciplines of electrical engineering. These include digital communications and signal processing, control systems, antennas, electrical machines, circuit design, and computer systems. Computers are used throughout the curriculum. In the capstone senior design course students creatively apply knowledge to solve challenging real-world problems, often working side by side with Coast Guard engineers on actual projects in the field. The program consists of a comprehensive foundation plus a student-selected emphasis in either Systems or Computers. The degree granted from either emphasis is the Bachelor of Science in Electrical Engineering. This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). In addition to the common departmental program mission and objectives, objectives of the Electrical Engineering Major include producing graduates who have:

- knowledge of probability and statistics, including applications appropriate to the major,
- knowledge of mathematics through differential and integral calculus, basic sciences, and engineering sciences necessary to analyze and design complex electrical and electronic devices, software, and systems containing hardware and software components, as appropriate to program objectives, and
- knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in all Mathematics, Science, and Engineering courses taken prior to the beginning of the 2/c year.

Grade of C or above in the following courses:

- 1218 Electrical Engineering I
- 1222 Signals, Systems, and Transforms
- 1224 Introduction to Computer Programming
- 1324 Digital Circuits and Computer Systems

In addition a passing grade in the following courses:

- 3211 Multivariable Calculus
- 3215 Differential Equations

I. Core Requirements:

Substitute Electrical Engineering I (1218) for Introduction to Electrical and Computer Engineering (1320). Substitute Probability Theory (3341) for Probability and Statistics (3213).

II. Major Requirements:

Computer Emphasis

- 1222 Sgnls/Sys & Trnsfrms
- 1224 Intro to Comp Prog
- 1322 Linear Circuits
- 1324 Digital Circ/Cmp Sys
- 1362 Software Design I
- 1424 Computer Cntrl Sys
- 1426 Prjcts El/Cmp Engr I
- 1429 Digital Signal Press
- 1432 Computer Comms & Ntwks
- 1436 Prjcts El/Cmp Engr II
- 1458 Software Design II
- 3211 Multivariable Calc

Systems Emphasis

- 1222 Sgnls/Sys & Trnsfrms
- 1224 Intro to Comp Prog
- 1322 Linear Circuits
- 1324 Digital Circ/Cmp Sys
- 1326 Electromech Sys
- 1420 Antennas & Propagatn
- 1422 Communication Syst
- 1424 Computer Cntrl Sys
- 1426 Prjcts El/Cmp Engr I
- 1429 Digital Signal Press
- 1436 Prjcts El/Cmp Engr II
- 3211 Multivariable Calc

3215 Differential Eqtns	3215 Differential Eqtns
3237 Discrete Mathematics	5364 Semiconductor Phys
—— Major Area Elective	—— Major Area Elective
—— Major Area Elective	—— Major Area Elective

III. Major Area Electives:

Major area Elective courses for the EE major are defined as Engineering courses, 200 level or higher, other than Introduction to Electrical and Computer Engineering (1320), Electric Circuits and Machines (1321), and Mechanical Control of Dynamic Systems (1460). In special cases (and with prior approval), Directed Studies in Electrical Engineering (1439) may be considered a major area elective.

Computer Emphasis

1206 Strngth of Materials
 1211 Dynamics
 1326 Electromech Sys
 1327 Acoustics and Music
 1340 Fluid Mechanics
 1351 Thermodynamics
 1420 Antennas and Propagation
 1422 Communication Syst
 1431 Electronic Nav Syst
 1439 Dir Studies/EE

Systems Emphasis

1206 Strngth of Materials
 1211 Dynamics
 1327 Acoustics and Music
 1340 Fluid Mechanics
 1351 Thermodynamics
 1362 Software Design I
 1431 Electronic Nav Syst
 1432 Cmputr Comms & Ntwks
 1439 Dir Studies/EE
 1458 Software Design II

Note: Discrete Mathematics (3237) cannot count as a major area elective for someone in the Systems Track, and Semiconductor Physics (5364) cannot count as a major area elective for someone in the Computer Track

Upper Division Courses for Electrical Engineering Majors

For the purposes of USCGA graduation requirements, upper-division courses in the Electrical Engineering major are defined as those courses specified for the major that a cadet, following the published nominal plan of study, would take during his/her 1/c and 2/c years. Each cadet must satisfy the graduation requirements with a set of courses that includes those courses required of all EE majors plus the courses required for one of the established areas of emphasis (tracks).

For all Electrical Engineering Majors:

- 1322 Linear Circuits
- 1424 Computer Control Systems
- 1426 Projects in Electrical and Computer Engineering I
- 1429 Digital Signal Processing
- 1436 Projects in Electrical and Computer Engineering II
- 3341 Probability Theory
- —— Major Area Electives (2)

Additionally for the Computer Emphasis:

- 1362 Software Design I
- 1432 Computer Communications and Networking
- 1458 Software Design II
- 3237 Discrete Mathematics

Additionally for the Systems Emphasis:

- 1326 Electromechanical Systems
- 1420 Antennas and Propagation
- 1422 Communication Systems
- 5364 Semiconductor Physics

ELECTRICAL ENGINEERING – COMPUTER EMPHASIS

Fall Semester

Spring Semester

Fourth Class Year

0901 FCAOP	2123 Intro to Literature
1116 Statics & Engr Dsgn	3117 Calculus II
2111 Eng Comp & Speech	4103 Personal Defense I
2141 History of the US	4112 Physiology of Fitness II
3111 Calculus I	5106 Chemistry II
4102 Physiology of Fitness I	6112 Nautical Science I
4111 Swimming I	8115 Macroeconomic Prin
5102 Chemistry I	

Third Class Year

1218 Elec Engineering I	1222 Sgnls/Sys & Trnsfrms
1224 Intro to Comp Prog	1324 Digital Circ/Cmp Sys
3215 Differential Eqtns	3211 Multivariable Calc
4222 Professional Rescuer	4204 Lifetime Sports I/RQB
5262 Physics I	4214 Lifetime Sports II/Golf
6214 Nautical Science II	5266 Physics II
	8211 Ldrshp & Org Behavior

Second Class Year

1322 Linear Circuits	1424 Computer Cntrl Sys
1362 Software Design I	1429 Digital Signal Press
2391 Criminal Justice	1458 Software Design II
3341 Probability Theory	2263 American Government
4303 Personal Defense II	3237 Discrete Mathematics
6316 Nautical Science III	4304 Lifetime Sports III/Tennis

First Class Year

1426 Prjcts El/Cmp Engr I	1432 Computer Comms & Ntwks
2493 Maritime Law Enfcmnt	1436 Prjcts El/Cmp Engr II
5442 Oceanography	2393 Morals and Ethics
—— Major Area Elective	6418 Nautical Science IV
—— Major Area Elective	—— Free Elective
—— Physical Education	—— Physical Education

ELECTRICAL ENGINEERING – SYSTEMS EMPHASIS

Fall Semester

Spring Semester

Fourth Class Year

0901 FCAOP	2123 Intro to Literature
1116 Statics & Engr Dsgn	3117 Calculus II
2111 Eng Comp & Speech	4103 Personal Defense I
2141 History of the US	4112 Physiology of Fitness II
3111 Calculus I	5106 Chemistry II
4102 Physiology of Fitness I	6112 Nautical Science I
4111 Swimming I	8115 Macroeconomic Prin
5102 Chemistry I	

Third Class Year

1218 Elec Engineering I	1222 Sgnls/Sys & Trnsfrms
1224 Intro to Comp Prog	1324 Digital Circ/Cmp Sys
3215 Differential Eqtns	3211 Multivariable Calc
4222 Professional Rescuer	4204 Lifetime Sports I/RQB
5262 Physics I	4214 Lifetime Sports II/Golf

6214 Nautical Science II

5266 Physics II

8211 Ldrshp & Org Behavior

Second Class Year

1322 Linear Circuits

1424 Computer Cntrl Sys

1420 Antennas & Propagatn

1429 Digital Signal Prcss

2391 Criminal Justice

4304 Lifetime Sports III/Tennis

3341 Probability Theory

5364 Semiconductor Phys

4303 Personal Defense II

6316 Nautical Science III

—— Major Area Elective

2263 American Government

First Class Year

1422 Communication Syst

1326 Electromech Sys

1426 Prjcts El/Cmp Engr I

1436 Prjcts El/Cmp Engr II

2493 Maritime Law Enfcmnt

2393 Morals and Ethics

5442 Oceanography

6418 Nautical Science IV

—— Major Area Elective

—— Free Elective

—— Physical Education

—— Physical Education

MECHANICAL ENGINEERING

The Mechanical Engineering (ME) major provides a solid foundation for service as a Coast Guard Officer, professional engineering practice, and further study in Mechanical Engineering or many other related fields. The major requirements develop the students' ability to apply scientific principles in the design and analysis of mechanical and energy conversion systems. Students are challenged with design problems in most of the major courses that provide opportunities for developing creativity solving real-world problems. The program culminates with a hands-on capstone design project where teams of students use their acquired knowledge to design, build, and test a practical device. This program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). In addition to the common departmental program mission and objectives, objectives of the Mechanical Engineering Major include producing graduates who have : knowledge of chemistry calculus-based physics with depth in at least one, the ability to apply advanced mathematics through multivariate calculus and differential equations, familiarity statistics linear algebra, and the ability to work professionally in both thermal mechanical systems areas including the design realization of such systems.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in all Mathematics, Science, and Engineering courses taken prior to the beginning of the 2/c year.

In addition, a grade of C or above in the following courses:

- 1116 Statics and Engineering Design
- 1206 Strength of Materials
- 1208 Introduction to Mechanical Engineering Design
- 1211 Dynamics

I. Core Requirements

Substitute Electric Circuits and Machines (1321) for Introduction to Electrical and Computer Engineering (1320). Substitute Advanced Engineering Mathematics (3301) for Probability and Statistics (3213).

II. Major Requirements:

- | | |
|-----------------------------------|---------------------------|
| 1204 Eng Material Science | 1370 Mechanisms |
| 1206 Strength of Materials | 1440 Machine Design |
| 1208 Intro. to Mech. Eng. Design | 1446 Mechanical Engr Dsgn |
| 1211 Dynamics | 1459 Heat Transfer |
| 1321 Elect. Circuits and Machines | 1460 Mech Ctrl of Dyn Sys |
| 1340 Fluid Mechanics | 3211 Multivariable Calc |
| 1346 Experimental Methods | 3215 Differential Eqtns |
| 1351 Thermodynamics | 3301 Adv Engineering Math |
| 1353 Thermal Systems Design | |

III. Upper Division Courses:

All 13XX and 14XX level courses in the Major are considered as Upper Division Courses

MECHANICAL ENGINEERING - GENERAL

Fall Semester

Spring Semester

Fourth Class Year

- | | |
|------------------------------|-------------------------------|
| 0901 FCAOP | 2123 Intro to Literature |
| 1116 Statics & Engr Dsgn | 3117 Calculus II |
| 2111 Eng Comp & Speech | 4103 Personal Defense I |
| 2141 History of the US | 4112 Physiology of Fitness II |
| 3111 Calculus I | 5106 Chemistry II |
| 4102 Physiology of Fitness I | 6112 Nautical Science I |
| 4111 Swimming I | 8115 Macroeconomic Prin |

5102 Chemistry I

Third Class Year

1206	Strength of Materials	1204	Eng Material Science
1208	Intro Mech. Engr. Design	1211	Dynamics
3211	Multivariable Calc	3215	Differential Eqtns
4222	Professional Rescuer	4204	Lifetime Sports I/RQB
5262	Physics I	4214	Lifetime Sports II/Golf
8211	Ldrshp & Org Behavior	5266	Physics II
		6214	Nautical Science II

Second Class Year

1321	Elec Cir & Machines	1353	Thermal Systems Dsgn
1340	Fluid Mechanics	1370	Mechanisms
1351	Thermodynamics	1459	Heat Transfer
2393	Morals and Ethics	2263	American Government
4303	Personal Defense II	3301	Adv Engineering Math
6316	Nautical Science III	4304	Lifetime Sports III/Tennis

First Class Year

1346	Experimental Methods	1446	Mechanical Engr Design
1440	Machine Design	2493	Maritime Law Enfcmnt
1460	Mech Ctrl of Dyn Sys	5442	Oceanography
2391	Criminal Justice	6418	Nautical Science IV
—	Free Elective	—	Free Elective
—	Physical Education	—	Physical Education

NAVAL ARCHITECTURE AND MARINE ENGINEERING

The Naval Architecture and Marine Engineering (NAME) major provides a strong undergraduate educational program in engineering, mathematics and the sciences. Graduates from this program are well prepared for service as Coast Guard Officers in a wide spectrum of Coast Guard missions. This program provides a solid educational basis for professional engineering practice both in and outside of the Coast Guard, and affords the graduate considerable latitude for postgraduate study in Naval Architecture, Marine Engineering, Mechanical Engineering and other related fields. This program emphasizes the development of the student's ability to understand and apply engineering principles to the design and analysis of surface ships. Practical hands-on engineering applications blended with computer-aided design and analysis methods provide students with a coordinated mix of theoretical and practical engineering education.

Open-ended design projects are presented in most major courses to challenge students to creatively apply their understanding to the solution of real-world engineering problems. The senior capstone courses present the ultimate design challenge where teams of students develop and integrate a conceptual ship design. This effort involves the design and analysis of the ship's hull (form and structure), propulsion and auxiliary systems, general arrangements, crewing, cost studies, etc. This year-long senior project is focused on meeting the specific needs of the Coast Guard and/or maritime industry. The major is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

In addition to the Engineering Department mission and objectives, program objectives of the Naval Architecture and Marine Engineering Major include producing graduates who have:

- the ability to apply probability and statistical methods to naval architecture and marine engineering problems,
- basic knowledge of fluid mechanics, dynamics, structural mechanics, materials properties, hydrostatics, and energy-propulsion systems in the context of marine vehicles, and
- familiarity with instrumentation appropriate to naval architecture and-or marine engineering.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in all Mathematics, Science, and Engineering courses taken prior to the beginning of the 2/c year.

In addition, a grade of C or above in the following courses:

- 1116 Statics and Engineering Design
- 1206 Strength of Materials

I. Core Requirements:

Substitute Electric Circuits and Machines (1321) for Introduction to Electrical and Computer Engineering (1320). Substitute Advanced Engineering Math (3301) for Probability and Statistics (3213).

II. Major Requirements:

- | | |
|-----------------------------|---------------------------|
| 1204 Eng Material Science | 1442 Prin of Ship Design |
| 1206 Strngth of Materials | 1444 Ship Dsgn/Syst Intgr |
| 1211 Dynamics | 1453 Ship Propulsion Dsgn |
| 1321 Elec Cir & Machines | 1455 Ship Structures |
| 1340 Fluid Mechanics | 1459 Heat Transfer |
| 1342 Prin of Naval Arch | 3211 Multivariable Calc |
| 1346 Experimental Methods | 3215 Differential Eqtns |
| 1351 Thermodynamics | 3301 Adv Engineering Math |
| 1353 Thermal Systems Design | |

III. Major Area Elective:

The purpose of this elective is to offer students the opportunity to explore a wider variety of technical topics. Any Engineering, Math, or Science course (12XX, 32XX, 52XX or above) qualifies as a major area elective. A Directed Study in NAME (1469) is also a viable alternative with instructor permission.

IV. Upper Division Courses:

All 13XX and 14XX level courses in the Major are considered as Upper Division Courses.

NAVAL ARCHITECTURE AND MARINE ENGINEERING - GENERAL

Fall Semester

Spring Semester

Fourth Class Year

0901 FCAOP	2123 Intro to Literature
1116 Statics & Engr Dsgn	3117 Calculus II
2111 Eng Comp & Speech	4103 Personal Defense I
2141 History of the US	4112 Physiology of Fitness II
3111 Calculus I	5106 Chemistry II
4102 Physiology of Fitness I	6112 Nautical Science I
4111 Swimming I	8115 Macroeconomic Prin
5102 Chemistry I	or 2393 Morals and Ethics

Third Class Year

1206 Strngth of Materials	1204 Eng Material Science
3211 Multivariable Calc	1211 Dynamics
4222 Professional Rescuer	2263 American Government
5262 Physics I	3215 Differential Eqtns
6214 Nautical Science II	4204 Lifetime Sports I/RQB
8211 Ldrshp & Org Behavior	4214 Lifetime Sports II/Golf
	5266 Physics II

Second Class Year

1321 Elec Cir & Machines	1342 Prin of Naval Arch
1340 Fluid Mechanics	1353 Thermal Systems Dsgn
1351 Thermodynamics	1459 Heat Transfer
2391 Criminal Justice	2393 Morals and Ethics
4303 Personal Defense II	or 8115 Macroeconomic Prin
6316 Nautical Science III	3301 Adv Engineering Math
	4304 Lifetime Sports III/Tennis

First Class Year

1346 Experimental Methods	1444 Ship Dsgn/Syst Intgr
1442 Prin of Ship Design	2493 Maritime Law Enfcmnt
1453 Ship Propulsion Dsgn	5442 Oceanography
1455 Ship Structures	6418 Nautical Science IV
—— Major Area Elective	—— Free Elective
—— Physical Education	—— Physical Education

GOVERNMENT

The Government (GOVT) major develops leaders who think critically about political systems and understand their cultural, historical, theoretical, and jurisprudential underpinnings. The major offers two tracks for focused study in Public Policy and Law or International Affairs, which acquaint students with how cultures, institutions, and political processes shape the domestic and international context in which individuals and states interact. To supplement these tracks, cadets may also take courses in strategic intelligence and Spanish. Additional study in history, philosophy, and literature provides cadets in the Government Major a broad educational experience. Advanced students may pursue tutorial and research opportunities in specialties represented by a faculty of over twenty. The Department is a member of the American Political Science Association and sponsors cadet membership in Pi Sigma Alpha, the National Political Science Honor Society.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in the following courses:

- 2111 English Composition and Speech
or 2121 The Art of Effective Writing
- 2123 Introduction to Literature
or 2125 Introduction to Literature (Honors)
- 2141 History of the United States
- 2263 American Government
or 2259 Principles of American Government
- 2261 American Foreign Policy
- 2365 Comparative Politics

I. Core Requirements:

Government majors should take Principles of American Government (2259) instead of American Government (2263).

II. Major Requirements:

- | | |
|------------------------------|------------------------------|
| 2261 Amer Foreign Policy | 2365 Comparative Politics |
| 2323 Hum/World Lit: Arts | 2367 International Relations |
| 2324 Hum/World Lit: Lat Am | 2457 Public Policymaking |
| 2325 Hum/World Lit: Pol/Hist | 2463 US Maritime Hist/Pol |
| 2361 Western Pol Theory | 2476 Democracy in America |

Note: There are three Humanities in World Literature courses: Humanities in World Literature, Literature and the Other Arts (2323); Humanities in World Literature, Latin American Literature (2324); and Humanities in World Literature, Politics and History (2325). Cadets should note when each course is offered so as to take the one desired, although they may take two if schedules permit.

III. Track Electives:

Select either the **International Affairs** track or the **Public Policy and Law** track. Choose four electives from those listed under the track selected. Cadets in the **International** Track must take 2 semesters of Spanish, the first counts as a track elective and the second as an other elective, any additional count as free electives. Cadets in the **Public Policy** Track may take Spanish. The first course counts as an other elective and any additional courses taken count as free electives.

INTERNATIONAL AFFAIRS

- | | |
|-----------------------|-----------------------------|
| 2235 Spanish I | 2370 Contemp. U.S. For. Pol |
| 2237 Spanish II | 2454 Amer in Nuclear Age |
| 2335 Spanish III | 2467 Global Plcy Studies |
| 2337 Spanish IV | 2469 Natl Security Policy |
| 2349 Advanced Spanish | 2471 Area Studies |

2338 Latin American Hist	2472 Drugs Policy
2341 Europe Since 1648	2474 Politics of Int Econ
2345 World War II	2496 International Law
2351 Great European Ldrs	8323 International Economics
2357 Russia	

PUBLIC POLICY AND LAW

2372 Political Partcptn	2469 Natl Security Policy
2389 Law and the Courts	2470 Exec. Politics/Plcymkng
2441 The Civil War	2472 Drugs Policy
2454 Amer in Nuclear Age	2475 Media & Am Politics
2461 Congress & Prsdncy	2497 Constitutional Law
2462 Select Topics in Pub Policy	8323 International Economics
2465 U. S. Military Policy	8361 Transportation. Economics
2467 Global Plcy Studies	

IV. Other Electives:

Select any two electives from the other track list and/or the following list of joint electives: 2323/24/25 can be taken as an other elective by a cadet who has already passed Humanities in World Literature as a Major Requirement

1309 Environmental Engr I	2429 Creative Writing
2323 Hum/World Lit: Arts	3211 Multivariable Calc
2324 Hum/World Lit: Lat Am	3237 Discrete Mathematics
2325 Hum/World Lit: Pol/Hist	3453 Decision Models
2333 Slctd Topics in Lit	5334 Fisheries Biology
2360 Sel Topics in Phlsphy	5438 Marine Pollution
2381 Social Psychology	5445 Fisheries Management

V. Free Electives (FE):

Select any 3-credit or higher course of interest.

VI. Senior Thesis and Directed Studies:

First Class cadets who are capable of independent research are encouraged to consider the following options:

- Senior Thesis in Area of Concentration (Open to Qualifying First Class Cadets) – Permission to write a thesis requires the written approval of the cadet’s advisor, the faculty member who will direct the thesis, and the department head. Cadets in this course must produce a written thesis and make an oral presentation in a meeting open to the Academy community. Only qualifying cadets will be admitted to this course.
- Directed Study in Government, Humanities, or Law: Written permission to undertake a directed study for course credit must be received from the cadet’s academic advisor, and the faculty member who will direct the study.

VII. Upper Division Courses:

All non-core 23XX and 24XX level courses of 3 credits-or-greater; Track or Other Electives; courses taken at Connecticut College and approved as Track or Other Electives; pre-approved courses taken at DoD service academies as substitutions for Major Requirements. Courses counted as Free Electives cannot be included in the calculation. Spanish III and IV will not be included in this calculation.

VIII. Validation Policy:

Cadets may validate courses offered by the Humanities Department only if they have taken an accredited college course with a college transcript grade of B or above and pass the C.G.A. course coordinators oral examination. English composition may NOT be validated.

GOVERNMENT - GENERAL

Fall Semester

Fourth Class Year

0901 FCAOP
1116 Statics & Engr Dsgn
2111 Eng Comp & Speech
2141 History of the US
3111 Calculus I
4102 Physiology of Fitness I
4111 Swimming I
5102 Chemistry I

Third Class Year

2259 Prin of Amer Govt
2393 Morals and Ethics
or 8115 Macroeconomic Prin
3213 Probability & Stat
4222 Professional Rescuer
5262 Physics I
6214 Nautical Science II

Second Class Year

1320 Intro to Elec & Comp Engr
2367 Interntl Relations
2391 Criminal Justice
2457 Public Policymaking
4303 Personal Defense II
—— Track Elective

First Class Year

2463 US Maritime Hist/Pol
5442 Oceanography
6418 Nautical Science IV
—— Free Elective
—— Physical Education
—— Track Elective

Spring Semester

2123 Intro to Literature
3117 Calculus II
4103 Personal Defense I
4112 Physiology of Fitness II
5106 Chemistry II
6112 Nautical Science I
8115 Macroeconomic Prin
or 2393 Morals and Ethics

2261 Amer Foreign Policy
2365 Comparative Politics
4204 Lifetime Sports I/RQB
4214 Lifetime Sports II/Golf
5266 Physics II
8211 Ldrshp & Org Behavior
—— Other Elective

23XX Hum/World Lit: (2323/24/25)
2361 Western Pol Theory
4304 Lifetime Sports III/Tennis
6316 Nautical Science III
8366 Leadership & Org Dev
—— Track Elective

2476 Democracy in America
2493 Maritime Law Enfcmnt
—— Track Elective
—— Free Elective
—— Other Elective
—— Physical Education

OPERATIONS RESEARCH AND COMPUTER ANALYSIS

The Operations Research and Computer Analysis (ORCA) major provides graduates with a background in mathematics, statistics, and computers. The primary focus is to enable our cadets to conceptualize and describe reality using the tools of mathematics and statistics, analyze possible models and solutions using appropriate computer technology, apply them to specific Coast Guard problems, and to effectively communicate solutions. The study of Operations Research and Computer Analysis highlights for cadets the means by which mathematics and computers can be used to analyze complex problems and improve decision-making.

While the Department of Mathematics emphasizes the practical application of mathematics, statistics, and computer techniques to “real world” problems, the central thrust of the program continues to be the understanding and applications of mathematical concepts. In addition to the courses concentrating on the tools of operations research, the Department of Mathematics offers numerous other courses covering the fundamentals of mathematical reasoning and analysis. Use of the computer as a tool in the analysis of data is essential to the major. Our graduates have a strong background in basic computer programming as well as experience utilizing a number of software packages including Microsoft Access, Microsoft Excel, Minitab, and Mathematica, along with other statistics, forecasting, optimization, and simulation packages.

One of the highlights of the Operations Research and Computer Analysis major is the capstone course, Operations Analysis (3471). Here, all of the first class cadets put into practice what they have learned in the classroom throughout their 4-year careers in Operations Research. The cadets work as consulting teams and are assigned to projects submitted by various Coast Guard units. The teams are required to work with project sponsors to define the problem to be investigated and to use the appropriate statistical, operations research and computer techniques to solve the problem. These projects continue to benefit the Coast Guard at large by attacking problems encountered across the fleet and by strengthening the connectivity between the Academy and the service. Recent cadet projects as part of this capstone experience include:

- Optimization of External Bulk Item Heavy Weather Storage Plans at the Aircraft Repair and Supply Center
- Forecasting Ideal Year Groups
- Recruit Training Center Scheduling Tool
- Predicting Cuban Migration Based on Environmental Factors: An Approach Using Empirical Distributions
- General Detail: An Analysis of the Enlisted Support Allowance
- Aviation Repair and Supply Center, Shop 242: A Resource Allocation Study
- Analysis of the Selective Reenlistment Bonus
- U.S. Coast Guard Drug Interdiction Model

Furthermore, the Department of Mathematics sponsors a Senior Summer Internship Program. This program is designed as an opportunity for professional growth for senior cadets who have displayed exceptional abilities both academically and militarily. Summer Internship Programs are of a nature that expands the cadets’ knowledge of the Operations Research and Computer Analysis major and their understanding of the role of the Coast Guard. Internships have been offered at the Coast Guard’s Aircraft Repair and Supply Center in Elizabeth City, NC, the Office of Workforce Planning at Coast Guard Headquarters in Washington, DC, the Coast Guard Training Center at Petaluma, CA, and the Engineering and Logistics Command in Baltimore, MD.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in all courses taken in the Department of Mathematics prior to the 2/c year.

I. Core Requirements:

Substitute Probability Theory (3341) and Mathematical Statistics (3343) for Probability and Statistics (3213).

II. Major Requirements:

3211 Multivariable Calc

3343 Mathematical Stats

3215 Differential Eqtns	3351 Probability Models
3221 Linear Algebra	3447 Linear Regression
3231 Linear Optimization	3453 Decision Models
3237 Discrete Mathematics	3463 Simulation w/Risk Analysis
3333 Network and Nonlin Optim	3471 Operations Analysis
3335 Visual Basic	8337 Database Systems
3341 Probability Theory	—— Major Area Elective (1)

*In special cases, with the approval of the Head, Department of Mathematics, Operations Research (8363) may be substituted for Linear Optimization (3231).

III. Major Area Electives:

Courses which emphasize the application of mathematics. Such courses must be documented and approved by the Head, Department of Mathematics.

IV. Upper Division Courses:

3221 Linear Algebra	3351 Probability Models
3231 Linear Optimization	3447 Linear Regression
3237 Discrete Mathematics	3453 Decision Models
3333 Network and Nonlin Optim	3463 Simulation w/Risk Analysis
3335 Visual Basic	3471 Operations Analysis
3341 Probability Theory	8337 Database Systems
3343 Mathematical Statistics	—— Major Area Elective (1)

OPERATIONS RESEARCH AND COMPUTER ANALYSIS — GENERAL

Fall Semester

Spring Semester

Fourth Class Year

0901 FCAOP	2123 Intro to Literature
1116 Statics & Engr Dsgn	3117 Calculus II
2111 Eng Comp & Speech	4103 Personal Defense I
2141 History of the US	4112 Physiology of Fitness II
3111 Calculus I	5106 Chemistry II
4102 Physiology of Fitness I	6112 Nautical Science I
4111 Swimming I	8115 Macroeconomic Prin
5102 Chemistry I	

Third Class Year

2263 American Government	3215 Differential Eqtns
3211 Multivariable Calc	3231 Linear Optimization
3221 Linear Algebra	3237 Discrete Mathematics
4222 Professional Rescuer	4204 Lifetime Sports I/RQB
5262 Physics I	4214 Lifetime Sports II/Golf
8211 Ldrshp & Org Behavior	5266 Physics II
	6214 Nautical Science II

Second Class Year

2393 Morals and Ethics	1320 Intro to Elec & Comp Engr
3333 Network and Nonlin Optim	2391 Criminal Justice
3341 Probability Theory	3335 Visual Basic
4303 Personal Defense II	3343 Mathematical Stats
6316 Nautical Science III	3351 Probability Models
8337 Database Systems	4304 Lifetime Sports III/Tennis

First Class Year

2493 Maritime Law Enfcmnt	3471 Operations Analysis
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3447	Linear Regression	5442	Oceanography
3453	Decision Models	6418	Nautical Science IV
3463	Simulation w/ Risk Analys	——	Free Elective
——	Free Elective	——	Major Area Elective
——	Physical Education	——	Physical Education

MARINE AND ENVIRONMENTAL SCIENCES

The Marine and Environmental Sciences (MES) major focuses on physical, chemical, and biological aspects of the marine environment. Specific topics include meteorology; wind-driven and deep ocean circulation; estuarine processes; marine geology; chemistry of oil; the safe transport and storage of hazardous materials; biological productivity; fisheries management; and human influence on the marine environment. Laboratories, which include field studies on the Thames River in the Marine Science boat, allow students to gain hands-on experience in weather forecasting, computer modeling of the wind-driven ocean circulation, collecting and analyzing oceanographic data, chemical identification of unknown compounds, physiology of marine organisms, analysis of commercial fishing techniques and use of geospatial technologies to study the marine environment. Applications of theory to solving Coast Guard problems are emphasized throughout the curriculum. Courses are primarily quantitative in nature and require a good understanding of physics, chemistry, and calculus.

Acceptance into the Major

Acceptance requires attainment of a 2.00 average in the following courses:

- 3111 Calculus I
- 3117 Calculus II
- 3211 Multivariable Calculus
- 3215 Differential Equations
- 5102 Chemistry I
- 5106 Chemistry II
- 5232 Marine Biology
- 5234 Marine Geology
- 5238 Physical Oceanography
- 5240 Meteorology
- 5262 Physics I
- 5266 Physics II

I. Core Requirements:

Substitute Physical Oceanography (5238) for Oceanography (5442).

II. Major Requirements:

- | | |
|-------------------------|---------------------------------|
| 3211 Multivariable Calc | 5415 Hazardous Materials |
| 3215 Differential Eqtns | 5430 Remote Sensing |
| 5232 Marine Biology | or 5475 Intro to Geospatial Sci |
| 5234 Marine Geology | 5445 Fisheries Management |
| 5240 Meteorology | |

Must complete either Remote Sensing (5430) or Introduction to Geospatial Sciences (5475).

III. Major Area Electives:

Complete courses for two of the following three groups:

Physical

- 5350 Ocean Dynamics
- 5352 Ocean Circulation
- 5436 Coastal Oceanography

Chem-Environmental

- 5306 Physical Chemistry
- 5312 Analytical Methods
- 5402 Organic Chemistry

Bio-Environmental

- 5334 Fisheries Biology
- 5342 Biol & Chem Oceanography

5441 Marine Pollution

IV. Upper Division Courses:

5247	Projects in Marine Science	5415	Hazardous Materials
5306	Physical Chemistry	5417	Toxicology
5312	Analytical Methods	5421	Projects in Chemistry
5334	Fisheries Biology	5429	Research in Chemistry
5338	Marine Forecasting	5430	Remote Sensing
5342	Biol & Chem Oceanography	5436	Coastal Oceanography
5350	Ocean Dynamics	5441	Marine Pollution
5352	Ocean Circulation	5442	Oceanography
5364	Semiconductor Physics	5445	Fisheries Management
5366	Astronomy	5459	Resrch in Marine Science
5389	Dir Studies in Physics	5475	Intro to Geospatial Sci
5402	Organic Chemistry	5477	Optics

MARINE AND ENVIRONMENTAL SCIENCES - GENERAL

Fall Semester

Spring Semester

Fourth Class Year

0901	FCAOP	2123	Intro to Literature
1116	Statics & Engr Dsgn	8115	Macroeconomic Prin
2111	Eng Comp & Speech	3117	Calculus II
2141	History of the US	4103	Personal Defense I
3111	Calculus I	4112	Physiology of Fitness II
4102	Physiology of Fitness I	5106	Chemistry II
4111	Swimming I	6112	Nautical Science I
5102	Chemistry I		

Third Class Year

3211	Multivariable Calc	3215	Differential Eqtns
4222	Professional Rescuer	4204	Lifetime Sports I/RQB
5232	Marine Biology	4214	Lifetime Sports II/Golf
5240	Meteorology	5234	Marine Geology
5262	Physics I	5238	Physical Oceanography
6214	Nautical Science II	5266	Physics II
		8211	Ldrshp & Org Behavior

Second Class Year

1320	Intro to Elec & Comp Engr	2263	American Government
3213	Probability & Stat	4304	Lifetime Sports III/Tennis
4303	Personal Defense II	6316	Nautical Science III
5475	Intro to Geospatial Sci	—	Free Elective
—	Major Area Elective	—	Major Area Elective
—	Major Area Elective	—	Major Area Elective

First Class Year

2391	Criminal Justice	2193	Morals & Ethics
6418	Nautical Science IV	2493	Maritime Law Enfcmnt
—	Free Elective	5415	Hazardous Materials
—	Major Area Elective	5445	Fisheries Management
—	Major Area Elective	—	Free Elective
—	Physical Education	—	Physical Education

MANAGEMENT

The Management (MGT) degree program provides a solid foundation for service as Coast Guard officers by preparing students to become effective managers and adept stewards of Coast Guard fiscal, human, and information resources. Students receive a broad undergraduate education in all major business disciplines: accounting, behavioral/organizational science, finance, human resource management, economics, management, marketing, operations management, management of information systems, quantitative methods, and strategic management. Additionally, students in the Management degree program will undertake a series of academic leadership courses. The degree program culminates with an engaging capstone experience where teams of students are paired with non-profit and public-sector clients to perform management consulting projects that draw upon their collected knowledge in the major business disciplines.

In addition to demonstrated competence in the business disciplines, Management majors are expected to establish proficiency in leadership and teamwork, written and oral communications, and the integration of these into an effective problem-solving framework. This degree program is accredited by AACSB International – the Association for the Advancement of Colleges and Schools of Business.

Acceptance into the Major

Acceptance requires attainment of a grade of C or above in the following courses:

- 2111 English Composition and Speech
or Equivalent
- 3213 Probability and Statistics
- 8211 Leadership and Organizational Behavior
- 8246 Financial Accounting

I. Core Requirements:

Probability Theory (3341) may be substituted for Probability and Statistics (3213).

II. Major Requirements:

- | | |
|----------------------------|---------------------------|
| 8217 Microeconomic Prin | 8351 Quantitative Methods |
| 8413 Managerial Economics | 8357 Human Resource Mgt |
| 8231 Management Info Sys | 8363 Operations Research |
| 8246 Financial Accounting | 8443 Marketing |
| 8348 Managerial Accounting | 8445 Public Mgmt Consult |
| 8349 Financial Management | 8447 Strategic Management |

Major Area Requirements are in addition to the Management-related courses required as part of the core curriculum.

III. Major Area Electives:

Select two of the following courses as Major Area Electives. Note: Other courses may be accepted as Major Area Electives if explicitly approved in writing by the Department Head.

- | | |
|-------------------------------|-----------------------------|
| 2283 Evaluation & Cnslng | 8421 Int Finance Mgmt |
| 2381 Social Psychology | 8423 Management Control |
| 8323 International Economics | 8429 Managerial Psychology |
| 8329 Global Economic Issues | 8439 Dir Studies in Econ |
| 8337 Database Systems | 8455 Info Tchnlgy in Org |
| 8343 Public Sector Economics | 8459 Sel Topics in Ldrshp |
| 8353 Info Sys For Mgrs | 8468 Dir Studies in Finance |
| 8358 Negt & Conflict in Teams | 8469 Dir Studies in Mgmt |
| 8361 Transportation Economics | 8479 Dir Studies in IS/DS |
| 8417 Investment Theory | |

IV. Upper Division Courses:

Those 8XXX numbered courses normally taken in the 2/c and 1/c year as per the Management major plan of study

MANAGEMENT - GENERAL

Fall Semester

Spring Semester

Fourth Class Year

0901 FCAOP	2123 Intro to Literature
1116 Statics & Engr Dsgn	3117 Calculus II
2111 Eng Comp & Speech	4103 Personal Defense I
2141 History of the US	4112 Physiology of Fitness II
3111 Calculus I	5106 Chemistry II
4102 Physiology of Fitness I	6112 Nautical Science I
4111 Swimming I	8115 Macroeconomic Prin
5102 Chemistry I	

Third Class Year

2263 American Government	3213 Probability & Stat
2391 Criminal Justice	4204 Lifetime Sports I/RQB
4222 Professional Rescuer	4214 Lifetime Sports II/Golf
5262 Physics I	5266 Physics II
8211 Ldrshp & Org Behavior	6214 Nautical Science II
8217 Microeconomic Prin	8231 Management Info Sys
	8246 Financial Accounting

Second Class Year

1320 Intro to Elec & Comp Engr	2193 Morals & Ethics
4303 Personal Defense II	6316 Nautical Science III
8349 Financial Management	4304 Lifetime Sports III/Tennis
8351 Quantitative Methods	8348 Managerial Accounting
8366 Leadership & Org Dev	8363 Operations Research
—— Major Area Elective	8443 Marketing

First Class Year

2493 Maritime Law Enfcmnt	6418 Nautical Science IV
5442 Oceanography	8413 Managerial Economics
8357 Human Resource Mgt	8445 Public Mgmt Consult
8447 Strategic Management	—— Major Area Elective
—— Free Elective	—— Free Elective
—— Physical Education	—— Physical Education

PART V — COURSES

0901 FCAOP

The Fourth Class Academic Orientation Program (FCAOP) facilitates cadet transition from high school to college with a focus on self-assessment as a first step in academic success. Topics for discussion include study skills, anti-plagiarism, academic outcomes, and goal setting.

Credit Hours: 1.00

Format: Discussion

Prerequisites:

Projected Offering: Fall

0924 CONNECTICUT COLLEGE

Single-course exchange program with Connecticut College. Offers cadets an opportunity to enhance their background by enrolling in a free elective. Enrollment is normally limited to one semester and to a course not available at CGA.

Credit Hours:

Format:

Prerequisites:

Projected Offering: Fall and Spring

0925 SCHOLAR'S PROJECT

Independent study and research in an area of interest to the highly qualified cadet. It requires a major academic commitment of the cadet to problem definition, analysis, and evaluation. An oral presentation and written reports are required.

Credit Hours:

Format:

Prerequisites:

Projected Offering: Fall and Spring

0940 PEER TUTORING

A tutorial program which matches pre-selected cadet volunteers who have performed well in particular academic subjects with other cadets who need help. This program not only facilitates the academic success of students in need but also helps the tutor cadets develop good teaching skills. (Grading is Satisfactory/Unsatisfactory.)

Credit Hours:

Format: Tutorial

Prerequisites:

Projected Offering: Fall and Spring

0941 PEER TUTORING

A tutorial program which matches pre-selected cadet volunteers who have performed well in particular academic subjects with other cadets who need help. This program not only facilitates the academic success of students in need but also helps the tutor cadets develop good teaching skills.

Credit Hours:

Format: Tutorial

Prerequisites:

Projected Offering: Fall and Spring

1116 STATICS AND ENGINEERING DESIGN

An introduction to the techniques of engineering problem solving and design. The course includes individual and group design projects with written reports. An introduction to vectors, composition of forces and the drawing and use of free body diagrams. Applications of collinear, concurrent and non-concurrent two and three-dimensional equilibrium force systems, as applied to particles and rigid bodies. The study of equilibrium as it also applies to frames and machines, trusses and beams. The study of distributed force systems, concentrated forces and Coulomb friction as applied to structures.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

1204 ENGINEERING MATERIAL SCIENCE

Introduction to metallurgy for engineers with an emphasis in crystal structure and defects, dislocation theory, diffusion, mechanical properties, fracture, strengthening mechanisms, phase transformations, fatigue, creep, corrosion, welding, and various metal alloys. Lab experiments and demonstrations include: cold rolling and annealing, Charpy impact testing, Jominy end-quench, casting, forging, independent study, and field trips to local industry to relate theory to engineering applications.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1116 and 5106

Projected Offering: Spring

1206 STRENGTH OF MATERIALS

An introduction to methods of analyzing and designing various machines and load-bearing structures through means of understanding axial, torsional, bending, and combined stresses and strains as applied to deformable bodies. The plotting of shear, moment, and deflection diagrams with calculus applications and interpretations are utilized. Supporting topics in elastic behavior, ductile and brittle fractures are also included. Laboratory exercises: tensile testing, beam stress, beam deflection, and column buckling.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 3117 and 1116

Projected Offering: Fall

1208 INTRODUCTION TO MECHANICAL ENGINEERING DESIGN

Techniques of engineering design and problem solving. Introduction to computer use in the design process including analytical tools and computer-aided design. Engineering drawing, sketching and visualization. Familiarization with manufacturing techniques. Study and practice of the design process through individual and group projects. Fundamental physical and mathematical concepts used in the design process, as well as the ethical and sociological considerations of technology. Design assignments address idea generation, modeling, and project management techniques including scheduling and economic analysis. Projects apply all of the aspects of problem solving, design, and reporting results.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Fall

1211 DYNAMICS

Kinematics and kinetics of particles and rigid bodies in two dimensions under the effects of unbalanced force systems. Principles of force and acceleration; work and energy; impulse and momentum; damped and undamped single degree of freedom vibration. Engineering applications.

Credit Hours: 3.00

Format: Class

Prerequisites: 1116

Projected Offering: Spring

1218 ELECTRICAL ENGINEERING I

An introductory course in linear circuit analysis that develops the fundamental tools necessary for further success in the EE field. Students are introduced to the following topics: models of circuit elements; circuit analysis using Ohm's and Kirchoff's laws; nodal and mesh analysis; basic ideal operational amplifier circuits; Thevenin and Norton equivalent circuits, solution of first and second order circuits; phasor-based solutions to AC circuits; elementary frequency response. MATLAB is introduced and used throughout the course. An emphasis is placed on the formulation and solution of linear systems of equations, including a system of differential equations, through traditional and computer aided methods. This course builds upon the background gained in physics and calculus courses and prepares students for taking Signals, Systems

and Transforms (1222), Digital Circuits and Computer Systems (1324), Antennas and Propagation (1420) and Linear Circuits (1322).

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 3117

Corequisite: 3215

Projected Offering: Fall

1222 SIGNALS, SYSTEMS AND TRANSFORMS

The study of continuous and discrete linear systems through signal analysis, singularity functions, convolution, Fourier transforms, Laplace transforms and Z-transforms. The formulation and solution of differential (and difference) equations by using transform techniques. The time and frequency domain analysis of linear systems via calculations, theoretical computer simulations using MATLAB software, and physical laboratory systems is examined.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1218 (or 1321) and 3215

Projected Offering: Spring

1224 INTRODUCTION TO COMPUTER PROGRAMMING

This course will introduce students to programming on two levels – the abstract and the concrete. At the abstract level we will discuss the programming principles of algorithm and flow of control, including sequential execution, selection, iteration, and subroutine. At the concrete level students will put principles into practice by writing programs in two modern programming languages: MATLAB® and C++. Laboratory work and programming projects will give students experience in both languages.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Fall

1301 CIVIL ENGINEERING MATERIALS (T)

Special course in Material Science - concrete and asphalt - to accommodate transfers into the Civil Engineering Major for students who have completed 1204.

Credit Hours: 2.00

Format: Class/Laboratory

Prerequisites: 1204

Projected Offering: Fall

1302 CIVIL ENGINEERING MATERIALS

A study of the material and engineering properties (including manufacture, strength and mechanical characteristics) of concrete, asphalt, metals, and wood. Design of Portland cement concrete and asphalt mixes. The effects of fabrication, welding, heat treatment and corrosion on metals. Weekly laboratories include characterization of aggregates, mix design, casting and testing of concrete cylinders, Marshall stability tests of asphalt, metals testing, and two field trips.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1116 and 5106

Projected Offering: Fall

1304 SOIL MECHANICS AND FOUNDATION DESIGN

Study of the origin and characteristics of soil and rocks including the fundamentals of soil behavior, and its use as a construction material. The effective stress principle, one-dimensional settlement analysis, shear strength, and bearing capacity of soils. The stability of slopes and the design of retaining walls. Laboratory tests include Specific Gravity, Mechanical Analysis, Compaction, Field Density, Consolidation, Direct Shear, and Triaxial Shear.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1116

Projected Offering: Spring

1309 ENVIRONMENTAL ENGINEERING I

Introduction to the field of environmental engineering. Fundamental principles from chemistry, microbiology, hydraulics, and hydrology are applied to study the occurrence and fate of pollutants in the environment and design and analysis of engineered systems for the prevention and clean-up of pollution. Legal, political, and ethical aspects of environmental engineering are explored. The laboratory segment includes experimental design, performance of basic laboratory experiments, and field trips to water and wastewater treatment facilities.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5106

Projected Offering: Fall

1313 STEEL DESIGN

Determination of building loads including dead, live, snow, and wind in accordance with ASCE Standard 7. Structural behavior and design of steel members including beams, columns, beam-columns, and tension members. Design of bolted and welded connections. All design is based on the provisions of the AISC Specification for Structural Steel Buildings.

Credit Hours: 3.00

Format: Class

Prerequisites: 1317

Projected Offering: Spring

1317 STRUCTURAL ANALYSIS I

Analysis of statically determinate plane structures including internal forces and moments of members. Deflection analysis using the conjugate beam and virtual work methods. Analysis of moving loads using influence lines. Statically indeterminate structural analysis using consistent deformations and slope deflection. Computer applications included.

Credit Hours: 3.00

Format: Class

Prerequisites: 1206

Projected Offering: Fall

1320 INTRODUCTION TO ELECTRICAL AND COMPUTER ENGINEERING

Prepares non-engineers to function in a technological environment. Topics include basic electrical engineering and information technology: digital information, audio and image reproduction, communication systems, electronic navigation, computer systems and the Internet. The class will also discuss the role of technology in today's society, with an emphasis on the use by the Coast Guard and Homeland Security and the ethical issues raised by the misuse of technology. Laboratory work will focus on applications of the topics discussed in class. A group research project on current technology topics is required.

Credit Hours: 3.30

Format: Class/Laboratory

Prerequisites: 5266

Projected Offering: Fall and Spring

1321 ELECTRIC CIRCUITS AND MACHINES

An introduction to electric circuit analysis using Ohm's and Kirchoff's laws, Thevenin and Norton equivalents, nodal analysis of DC and AC circuits, solution of first order circuits, and the use of phasors in the solution of AC and three phase circuits. The principles and applications of electromechanical energy conversion and power systems, including transformers, DC and AC machines, induction motors, and synchronous generators.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 3117

Projected Offering: Fall

1322 LINEAR CIRCUITS

The design of filters in both continuous and discrete time is examined. Particular emphasis is placed on the relationship between the poles and zeros of transfer functions and the resulting frequency responses of networks. Extensive computer use for the design and analysis of filters. State of the art laboratory instruments are used to measure the frequency responses of the filters designed and constructed. Final project emphasizes the design and use of digital filters.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1222

Projected Offering: Fall

1324 DIGITAL CIRCUITS AND COMPUTER SYSTEMS

Principles of digital systems design. Topics include number systems, Boolean algebra, Karnaugh maps, decoders, multiplexers, flip-flops, registers, counters, programmable logic devices, analysis and design of combinational and sequential circuits. Computers are used extensively in lab to control and monitor digital circuits designed and constructed by students. Labs focus on computer I/O, MultiSIM modeling, MATLAB programming, and graphical user interfaces. Top-down design is introduced, culminating in an intensive design project including a computer interface

Credit Hours: 4.00

Format: Class/Laboratory/Project

Prerequisites: 1218 or 1321 or (1320 and Major Coordinator's permission)

Projected Offering: Spring

1326 ELECTROMECHANICAL SYSTEMS

Principles and applications of electromechanical energy systems. Topics include 3-phase power, induction motors, synchronous machines, DC machines, electrical power distribution, and transformers. Laboratory experiments include transformers, building AC motors and testing rotating machinery.

Credit Hours: 3.30

Format: Class/Laboratory

Prerequisites: 1218

Projected Offering: Spring

1327 ACOUSTICS AND MUSIC

Examines the physics and engineering aspects of music reproduction from electric signals to acoustic waves. Requires at least one research paper with presentation to the class, and a semester project, the construction (from scratch) and testing of a set of audio speakers. Topics to be discussed include electromagnetic and electromechanical characteristics of speaker drivers; design parameters of various types of speaker enclosures; physics of hearing and sound; electronic filters and cross-over networks; instrumentation and measurements of acoustics and sound; standards and definitions; and mechanical engineering aspects of sound reproduction.

Credit Hours: 3.00

Format: Class/Project/Seminar

Prerequisites: 1321 or 1218

Projected Offering: Spring

1340 FLUID MECHANICS

The study of forces produced by fluids and their effects on bodies. Fundamental fluid mechanics principles: fluid properties, fluid statics stability of floating and submerged bodies, fluid flow equations relating to the conservation of mass, momentum and energy, dimensional analysis, viscous effects related to pipe and open channel flow, lift, drag, resistance, and fluid power applications. The exploration of design for fluids systems.

Credit Hours: 3.00

Format: Class

Prerequisites: 1116 and 3211

Projected Offering: Fall

1342 PRINCIPLES OF NAVAL ARCHITECTURE

The first course in a three (3) semester design sequence in the Naval Architecture and Marine Engineering Major. The course covers the fundamental principles of Naval Architecture including ship nomenclature, geometry, hydrostatics, stability, subdivision, hydrodynamics, ship structures, resistance, propulsion, and ship motions. Introduction to, and use of, computational methods will follow computation by traditional numerical techniques. In the laboratory portion of the course, the student will develop the skills required for the preliminary design of a vessel. In addition, this course has been selected as that course for which the Second Class NAME students will participate in the Hewitt Writing Contest.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1340

Projected Offering: Spring

1346 EXPERIMENTAL METHODS IN FLUIDS AND THERMAL SCIENCES

Experimental data analysis using uncertainty theory, curve-fitting, and statistical criteria. Basics of computerized data acquisition, analog to digital conversion, operation amplifiers, and signal conditioning. Instrumentation for flow, temperature, pressure, force, torque, strain and vibration is presented. Test planning, data point spacing, and professional society standard test procedures. The role of computer data acquisition systems to collect, analyze and display data is stressed, and computer techniques are used where possible. Weekly labs are designed to exercise the concepts of experimental design learned in class, as well as analyze various mechanical, fluid and thermal systems. The course includes an experimental design project.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites: 1211, 1321, 1340, and 1351

Projected Offering: Fall

1351 THERMODYNAMICS

Fundamental principles of classical equilibrium thermodynamics . Modeling of gas and fluid properties. Thermodynamic processes. Development and application of the first and second laws of thermodynamics to steady flow and non-flow processes. Applications of thermodynamics to power and refrigeration cycles and to the design of thermal processes.

Credit Hours: 3.00

Format: Class

Prerequisites: 3211, 5106, and 5262

Projected Offering: Fall

1353 THERMAL SYSTEMS DESIGN

Principles of thermodynamic power cycles, including variations from the simple cycles. Combustion fundamentals. Principles of steam turbine, gas turbine, and diesel engine prime movers and their operating characteristics. System modeling and optimization, air pollution emissions and control, and psychrometrics. Design project based on course fundamentals, completed as a Heat Transfer – Thermal Systems Design course activity.

Credit Hours: 3.00

Format: Class

Prerequisites: 1351

Projected Offering: Spring

1358 INTRODUCTION TO C++ PROGRAMMING

This course is an introduction to basic C++ syntax, built-in data types, and fundamental program control structures, including selection (if/then/else), iteration (for, while), and programmer-defined functions. The roles of algorithms and debugging in programming are emphasized. Consideration of both console and text file input/output emphasizes appropriate formatting of output and user-friendly input with error checking and recovery. Programming assignments emphasize careful implementation of relatively simple algorithms.

Credit Hours: 1.50

Format: Class/Laboratory

Prerequisites:

Restrictions: 3/c standing
Projected Offering: Fall

1362 SOFTWARE DESIGN I

This course reinforces procedural programming skills and introduces object-oriented programming. It emphasizes procedural and object-oriented software design. Other topics include data structures, abstract data types, software test design, and object principles of composition, interaction, inheritance, and polymorphism. Lab work emphasizes a planned approach to software testing and debugging. Students design and implement a number of practical programs, culminating in a major software design project that is performed in groups.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 1224 or 1358 or Permission of Instructor

Projected Offering: Spring

1366 INTRODUCTION TO GUI PROGRAMMING

This course is an introduction to graphic user interface (GUI) implementation using the object-oriented programming (OOP) facilities provided by Borland C++ Builder. Cadets will learn to place standard GUI controls, such as command buttons, check boxes, text edit boxes, and the like, on program forms, and to write code that manages the operation of these controls, retrieves user input data from them, and displays program results. Assignments will be practical GUI programming projects.

Credit Hours: 1.00

Format: Class

Prerequisites: 1362

Projected Offering: Fall

1370 MECHANISMS

Fundamentals of mechanisms and machinery design through introduction of the synthesis and analysis of mechanisms and machines. Rigid-body kinematics, kinetics, and dynamics as applied to linkage analysis and design. Position, velocity, acceleration, and force analyses. Weekly labs are devoted to hands-on designs, use of synthesis/analysis software, and design-build-test workshops.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1211

Projected Offering: Spring

1395 PROJECTS IN ENGINEERING

Projects in Engineering under the direct supervision of a faculty member. The projects can be direct participation in laboratory projects, research, or individual projects requiring periodic instructor review. Specific projects can involve construction of hardware, computer software, experimental work, or a paper study. Final written report required. May be taken only as an overload.

Credit Hours: 1.00

Format: Project

Prerequisites: Approval of Advisor and Major Coordinator

Projected Offering: Fall and Spring

1401 CONSTRUCTION PROJECT MANAGEMENT

This course provides an introduction to the management practices of the construction industry, specifically focusing on how projects are planned and executed. Topics include facility planning, design and contracting methods, construction drawings, specifications, and scheduling, life-cycle cost estimating, facility risk analysis, engineering ethics. Contemporary issues of the industry will also be analyzed, including sustainable design.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: Senior Status

Projected Offering: Fall

1402 CIVIL ENGINEERING DESIGN

Civil Engineering Capstone Design Course requiring students to plan, design, and manage a complex open-ended civil engineering project. In accomplishing this goal, students produce engineering design documents, construction drawings, cost estimates, construction schedules, and any other necessary project specific documents. In addition, students communicate the results of their project via a formal presentation to their client.

Credit Hours: 4.00

Format: Project

Prerequisites: 1401 or Approval of Major Advisor

Projected Offering: Spring

1407 ENVIRONMENTAL ENGINEERING II

A follow-on to Environmental Engineering I. Design and analysis of water distribution systems, sewer systems, and physical, chemical, and biological treatment processes for water and wastewater treatment.

Credit Hours: 3.00

Format: Class

Prerequisites: 1309

Projected Offering: Spring

1408 SURVEYING

A study of surveying techniques as applied to property and construction surveys. Differential leveling, traverses, and topographic mapping are studied. Methods for calculating areas and volumes are covered. Proper use of standard surveying equipment such as levels, theodolites, tapes, and total stations are examined. Laboratory project: conducting a topographic survey and preparing a map of an assigned traverse.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites: 3/c Standing

Projected Offering: Fall

1411 REINFORCED CONCRETE DESIGN

Fundamentals of reinforced concrete behavior and design. Detailed coverage of behavior and design of singly and doubly reinforced beams, T-beams, slabs, beam columns and spread footings. Additional topics: reinforcement placing, bar cutoffs, and bonds. Design and detailing based on current ACI code. Course includes extensive Excel programming and the design, construction and testing of a full-scale reinforced concrete beam.

Credit Hours: 3.00

Format: Class

Prerequisites: 1317 or 1206 and permission of Instructor

Projected Offering: Fall

1414 STRUCTURAL DESIGN FOR EXTREME EVENTS

Consistent with homeland security concerns, course examines the analysis and design of structures for extreme events, including blast and earthquake loads. Background in fundamental concepts of structural dynamics theory necessary to predict structural response and performance under extreme events, including: dynamics of single and multiple degree-of-freedom systems for various load functions; approximation methods for dynamic analysis; dynamic material behavior; elasto-plastic structural response. Study of blast and earthquake load characteristics. Design philosophies for building security and strategies to enhance earthquake and blast-resistant performance. As a side topic, control of building floor vibrations under conventional loads is also addressed.

Credit Hours: 3.00

Format: Class

Prerequisites: 1313, 1411, and 3215, or permission of Instructor

Projected Offering: Spring

1417 STRUCTURAL ANALYSIS II

Analysis of statically indeterminate structures by the moment distribution method. Matrix methods for the analysis of plane trusses and frames, including element formulations, transformation matrices, assemblage of structural stiffness matrices, load and displacement vectors, and post-processing. Additional structural analysis/design topics based on instructor's expertise and interests.

Credit Hours: 3.00

Format: Class

Prerequisites: 1317

Projected Offering: Spring

1419 DIRECTED STUDIES IN CE

Individual projects in Civil Engineering involving reading, design, analysis, or applications.

Credit Hours:

Format: Directed Studies

Prerequisites:

Projected Offering: Fall and Spring

1420 ANTENNAS AND PROPAGATION

Fundamentals of electromagnetic theory are presented. Maxwell's equations are developed from physical phenomenon. Plane electromagnetic wave propagation in various media. Propagation of waves on transmission lines, including computer simulations on ideal and practical lines. Antenna fundamentals are described. Performance of simple antennas and arrays. Design of simple antenna arrays and broad band antennas is presented. Computer aided design of antenna arrays, structures, and shipboard antennas is presented. A final design project gives each student the opportunity to design, construct, and test a multi-element array.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1218, 3211, and 5622

Projected Offering: Fall

1422 COMMUNICATION SYSTEMS

An analysis and design of communication systems with an emphasis on digital systems. Baseband and passband transmission systems are investigated. Coherent and noncoherent modulation/demodulation schemes are presented. Error correction coding, line codes, correlation, and intersymbol interference are also reviewed. Modulation techniques include analog AM and FM as well as digital BPSK, FSK and MSK. Related laboratory exercises make extensive use of Digital Signal Analyzers, Digital Storage Oscilloscopes and computers to study properties of communication signals and system.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1222, 1322 and 3341

Projected Offering: Fall

1424 COMPUTER CONTROL SYSTEMS

Modern methods of automatic control theory and design with an emphasis on digital control systems are presented. Time response of linear systems, error analysis, and compensation methods are presented and analyzed. Stability by Jury, Root Locus and Bode are covered. The State Variable method is introduced. Computer simulations in MATLAB; and Simulink; are introduced and developed. Methods of system identification are presented and analyzed. A related laboratory uses spectrum analyzers, computers, and computer-based systems, to develop, implement, and test a Proportional-Integral-Derivative (PID) controller.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 1222 and 1322

Projected Offering: Spring

1426 PROJECTS IN ELECTRICAL AND COMPUTER ENGINEERING I

This is the first of two capstone courses in Electrical and Computer Engineering offered during the senior year. The focus of this course will be filling a "toolbox" of skills and concepts for succeeding as a Coast

Guard project engineer. Classroom discussions will cover the engineering design process including needs identification, system requirements, system design process and engineering ethics. Additional lectures will center on contemporary electrical and computer engineering topics. In the lab, cadets begin a two-semester major engineering design project. Working as an apprentice engineer alongside faculty members and contractors as part of a small Coast Guard project team, students are presented with real-world engineering problems that require formal resolution with no predetermined outcome. A typical project includes requirements definition, computer programming, computer algorithm design and system implementation, data gathering and analysis, and presentation of results in a paper and oral presentation. Field trips to Coast Guard labs and project related trips to various locations are included.

Credit Hours: 4.00

Format: Class/Laboratory/Project

Prerequisites: 1/c EE major or ECE Section Chief approval

Projected Offering: Fall

1429 DIGITAL SIGNAL PROCESSING

The development of basic DSP concepts to support an exposure to DSP applications is examined. Sampling theory, quantization, digital filters, Z-domain analysis, and Discrete Fourier Transforms serve as a basis for applications such as: speech compression, recognition, modeling and synthesis; digital audio processing; and, digital image processing. An integrated approach of theory and hands-on learning is used. The labs consist of computer programming and simulation along with implementing DSP systems using DSP hardware. Analysis of results is aided by the use of laboratory test equipment and computer software.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites: 1222 and 1322

Projected Offering: Spring

1431 ELECTRONIC NAVIGATION SYSTEMS

An engineering study of electronic navigation systems used throughout the Coast Guard. Navigation tools such as Loran-C, Radar, Sonar, radio beacons, Global Positioning Systems (GPS), Differential GPS (DGPS), Wide Area Augmentation (WAAS) corrected GPS, and aircraft navigation systems (ILS, VOR and DME) are studied. Comparative analysis of the systems in both the time and frequency domains is studied. Other possible topics: propagation predictions, skywave effects, coverage diagrams, and weather effects.

Credit Hours: 3.00

Format: Class

Prerequisites: 1218 or 1321 or permission of the Instructor

Projected Offering: Spring

1432 COMPUTER COMMUNICATIONS AND NETWORKING

This course is an introduction to computer communications and networks. The course starts with approaches to networks designs and key factors in network evolution. The OSI reference model is used as a basis for studying TCP/IP. Peer-to-peer, Local Area Network, and Medium Access Control protocols are all discussed. The course concludes with a study of security protocols. Laboratory work includes analysis of network communications at the hardware and logical levels. Interwoven throughout the course is preparation for, and participation in, the joint-services Cyber Defense Exercise (CDX).

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 3213 or 3341

Projected Offering: Spring

1435 INTRODUCTION TO AERODYNAMICS

This course provides the necessary tools to understand the dynamics of flow fields and their impact on solid (aerodynamic) bodies. The course uses the fundamental laws of conservation (mass, momentum and energy) to develop the necessary equations of motion for inviscid, incompressible flows. Lifting theory for flow over 2-D airfoils (symmetric and cambered) and finite wings is presented. References and comparisons are made to surface ship hydrodynamics. Software tools are introduced and implemented in solving more complex problems. Preliminary aspects of compressible flow are introduced.

Credit Hours: 3.00
Format: Class
Prerequisites: 1340 and 1351
Projected Offering: Spring

1436 PROJECTS ELECTRICAL AND COMPUTER ENGINEERING II

This is the second senior-year capstone course in Electrical and Computer Engineering and completes the cadet's electrical and computer engineering program of instruction. In this course the cadets will be introduced to the skills and concepts for succeeding as a Coast Guard project manager. Classroom discussions will cover system testing, system reliability, team management, budgeting and scheduling. Additional lectures will cover engineering ethics, engineering economics and contemporary electrical and computer engineering topics. During the Laboratory periods, cadets bring their two-semester major engineering project to a close, and present the results to Academy faculty and to professionals from Coast Guard Headquarters and various Coast Guard engineering commands. Field trips to Coast Guard labs and project-related trips to various locations are included.

Credit Hours: 4.00
Format: Class/Laboratory/Project
Prerequisites: 1426
Projected Offering: Spring

1439 DIRECTED STUDIES IN ELECTRICAL ENGINEERING

Individual or group study of topics involving design, analysis, or applications of electric and electronics devices, systems, or principles.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: 1218 and 1222 and ECE Section Chief approval
Projected Offering: Fall and Spring

1440 MACHINE DESIGN

Design of machine elements, including considerations such as material strength, manufacturing processes, safety, reliability, stress concentration, fatigue, corrosion, and tribology. Mechanical power transmission devices, including shafts, gears, belts, springs, fasteners, bearings and couplings. Introduction to mechanical component integration and design-build-test projects.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 1206, 1370
Projected Offering: Fall

1442 PRINCIPLES OF SHIP DESIGN

This course involves extensive use of the design process; application of estimation and iteration procedures with emphasis on preliminary hull dimensions and weight estimates; preliminary subdivision and development of general arrangements; intact stability analysis; and a longitudinal strength analysis. A seakeeping analysis based on the ship's operating requirements is conducted to determine the Operability Indices for mission-related operations in various sea states. Computer Aided Design software is used to develop hull geometry and interior arrangements. State of the art analysis tools are implemented to analyze hydrostatic characteristics and make an intact stability assessment in various loading conditions. This course is the initial segment of the capstone design project with emphasis on preliminary hull geometry, and both interior and exterior arrangements. The project is completed in the Ship Design/System Integration course (1444).

Credit Hours: 4.00
Format: Class/Project
Prerequisites: 1342
Projected Offering: Fall

1444 SHIP DESIGN/SYSTEM INTEGRATION

The Capstone design course for the Naval Architecture and Marine Engineering Major includes: Geometrically scaled model hull construction and resistance testing; electrical plant and selected auxiliary

system design and analysis; project planning; marine propulsion plant selection and integration; heating, ventilation and air conditioning system design and analysis; engineering economics; trade-off studies in design, construction and life cycle costing applied to preliminary ship design developed in Principles of Ship Design (1442). The emphasis is on integration of hull and machinery systems into complete vessel package.

Credit Hours: 4.00

Format: Class/Project

Prerequisites: 1442, 1455 and 1453

Projected Offering: Spring

1446 MECHANICAL ENGINEERING DESIGN

Integrated design of mechanical systems including consideration of system performance, safety, reliability, cost, project management, and socio-ecological impacts. Engineering economy in design. Engineering ethics case studies and engineering standards. Advanced topics in modeling and testing of system components, numerical simulation of system characteristics, and system design optimization. The utilization of CAD design system. Capstone design projects require the application of the design process, including idea generation, concept design, prototype design and detailed design.

Credit Hours: 4.00

Format: Class/Project

Prerequisites: 1440

Projected Offering: Spring

1453 SHIP PROPULSION DESIGN

An advanced marine engineering design course requiring the application of sound judgment and analysis to engineering decisions. Students complete an individual preliminary design of an optimum propulsion system that meets specific operating specifications. Significant emphasis is placed on technical/scientific/professional writing through 7-8 design reports. Topics covered include hull resistance, hull vibration, fixed and controllable-pitch propeller performance, waterjet performance, propeller/waterjet selection, engine selection, engine and propulsor matching, electric drive and integrated power systems, reduction gear selection and design, engine room layout, propeller shafting design and propeller shaft vibration.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 1351 and 1353

Projected Offering: Fall

1455 SHIP STRUCTURES

This course runs concurrently with the Principles of Ship Design course and the Ship Propulsion Design course and addresses the structural design of the senior project. The course includes still water and wave induced vessel loading. The analysis of primary, secondary and tertiary hull stresses and the applications of American Bureau of Shipping Rules to ship structural design are addressed. Longitudinal bending and shear are discussed as well as elastic plate bending and buckling. Fatigue is also introduced, as well as hull materials and basic construction methods. The course includes homework and project work that culminates in the design of a vessel midship section and structural weight estimate.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 1204 and 1206

Projected Offering: Fall

1458 SOFTWARE DESIGN II

This course continues the study of software design. Major topics include data structures (lists, stacks, queues, hash tables, trees, and graphs) and accompanying algorithms, and common methods for algorithm design (greedy, backtracking, and divide-and conquer). Focus is on using standard data structures and algorithms in the design of software to solve specific problems. Lab work emphasizes a planned approach to software design, testing and debugging. Students design and implement a number of practical programs, culminating in a major software design project that is performed in groups.

Credit Hours: 3.50

Format: Class/Laboratory
Prerequisites: 1362
Projected Offering: Fall

1459 HEAT TRANSFER

Application of Fourier's law of conduction to one and two dimensional steady and non-steady state heat flow problems. Radiation heat transfer with black and gray surfaces. Newton's Law of Cooling applied to problems of forced convection. Analysis of heat transfer systems and engineering design using mass and energy continuity concepts. Design applications. Design project based on course fundamentals, completed as a Heat Transfer – Thermal Systems Design course activity.

Credit Hours: 3.00

Format: Class

Prerequisites: 1351

Projected Offering: Spring

1460 MECHANICAL CONTROL OF DYNAMIC SYSTEMS

The introduction to modeling mechanical systems and obtaining time-domain and Laplace-transform solutions. An emphasis is placed on understanding the fundamentals of simple, damped, and forced oscillations, transient response, and mechanical resonance. The commonality of modeling and analysis techniques is stressed, as well as the use of input-output differential equations. Fundamentals of automatic control systems, including block diagram, root locus, Bode diagrams, as well as proportional, proportional and derivative, and proportional-integral-derivative feedback control systems. Incorporation of computer solutions to analyze and control linear dynamic systems.

Credit Hours: 3.00

Format: Class

Prerequisites: 1211, 1321, and 3215

Projected Offering: Fall

1462 FINITE ELEMENT ANALYSIS

Introduction to the theory and application of linear Finite Element analysis for the solution of real-world engineering problems. Review of Linear Algebra concentrating on vector and matrices manipulation. Review of Mechanics of Materials covering stress, strain, constitutive relations, and failure criteria. Modeling of physical systems; establishment of stiffness matrices; possible solution techniques using principle of virtual work and weighted residuals; application of external and internal loads and boundary conditions; practical evaluation of results including error analysis and measures of accuracy.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 1204, 1211, and 3301

Projected Offering: Spring

1465 DETECTION OF RADIOACTIVE MATERIALS

The purpose of this course is to provide students with an understanding of radioactive decay processes, the interactions of radiation with matter, radiation detection methods, and common radioactive materials, particularly those of concern for homeland security.

Credit Hours: 3.00

Format: Lecture and Laboratory, Class/Project

Prerequisites: 5266 and 3213 or 3301

Projected Offering: Spring

1469 DIRECTED STUDIES IN NAVAL ARCHITECTURE AND/OR MARINE ENGINEERING

Individual Projects in Naval Architecture and/or Marine Engineering involving reading, design, analysis, or applications. End of project deliverable which is generally a publishable paper, or a presentation is required.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Approval of Advisor and Major Coordinator

Projected Offering: Fall and Spring

1479 DIRECTED STUDIES/MECHANICAL ENGINEERING

Individual or group projects in Mechanical Engineering involving design analysis, or applications. Preparation of a project report or presentation is required.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Approval of Advisor and Major Coordinator

Projected Offering: Fall and Spring

1480 DESIGN PROJECT MANAGEMENT

Principles and techniques for creative idea generation and problem solving. Design processes applicable to engineering projects. Techniques for project scheduling and management. Technical communication skills for oral presentations, proposals, written reports and video production. CAD applications. Preliminary planning for capstone projects.

Credit Hours: 3.00

Format: Class

Prerequisites: 1/c Engineering Majors with Instructor's Permission

Projected Offering: Fall

1489 SELECTED TOPICS IN ELECTRICAL AND COMPUTER ENGINEERING

This course will explore topics in electrical engineering and computing that expand upon the basic curriculum at the Academy. Instructors will select topics from subjects such as developing software for distributed computing on a network, processor architecture and assembly language programming, operating systems, or numerical methods in computation. Course material will include instruction and practical projects related to the selected topic. Cadets may repeat this course for credit with a different topic.

Credit Hours: 1.00

Format: Class/Laboratory

Prerequisites: Varies according to the specific topic

Projected Offering: Fall and Spring

2101 INTRODUCTION TO COLLEGE COMMUNICATIONS

Introduction to persuasive and informative writing to selected audiences for given purposes. Shorter and longer essays develop students' ability to write thesis statements, select evidence, and document sources within a process that supports revision. Writing practice and analysis of readings develop skills to improve coherence, diction, syntax, and conventions (grammar, punctuation, and spelling). Course also emphasizes public speaking and requires formal and informal speeches. Cadets who achieve a satisfactory level of performance in coursework and assessments, as evaluated by English faculty, will take 2123, Introduction to Literature in the spring; all others will be required to take 2111, English Composition and Speech in the spring and 2123 as upperclass.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall

2111 ENGLISH COMPOSITION AND SPEECH

Instruction in the principles of oral and written communication with emphasis on logical thinking, coherence, and clarity. Practice in writing expository and persuasive essays and research papers based on the gathering and use of evidence and proper documentation.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

2121 THE ART OF EFFECTIVE WRITING

Academic writing, focusing on argumentation and persuasion. Practice in oral presentation. Reading and discussion of arguments.

Credit Hours: 3.00

Format: Class

Prerequisites: Placement by English faculty
Projected Offering: Fall

2123 INTRODUCTION TO LITERATURE

A thematically-organized course for entering cadets, enabling them to develop principles and strategies of leadership through examination of great works of fiction, poetry, and drama.

Credit Hours: 3.00

Format: Class

Prerequisites: 2101 or 2111 or 2121

Projected Offering: Fall and Spring

2125 INTRODUCTION TO LITERATURE (HONORS)

Intensive study of major works of poetry, fiction, and drama.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring

2141 HISTORY OF THE UNITED STATES

A survey of the major social, economic, political, and diplomatic developments of the United States from the colonial period to the present. Utilization of primary and secondary documents, substantial reading and writing, and discussion.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

2235 SPANISH I

Introduction to the basics of the Spanish language. Requires composition and oral classroom drill sessions. Includes introduction to Spanish and Hispanic cultures and civilizations. Only students with no previous Spanish should register for this course.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall

2236 SPANISH I/II

A one semester review of Elementary Spanish. All major topics covered in Spanish I and Spanish II will be reviewed. The course is aimed at students with any of the following backgrounds: 1. 2+ years of high school Spanish; 2. Lived in/near latino community where Spanish language was often spoken; 3. Native/near-native speakers of another Romance Language (French, Italian, Portuguese, Catalán...). Students must take online placement test: <http://webcape.byuhtrsc.org/?acct=uscga>. Password is "bears1".

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites:

Projected Offering: Spring

2237 SPANISH II

A continuation of Spanish I. Requires compositions and oral classroom drill sessions. Includes introduction to Spanish and Hispanic cultures and civilizations.

Credit Hours: 3.00

Format: Class

Prerequisites: 2235

Projected Offering: Spring

2259 PRINCIPLES OF AMERICAN GOVERNMENT

Foundations, organization, and processes of American democracy and national government. Analyses of the Constitution, Congress, Presidency, judiciary, administrative agencies, political organization and behavior and their roles in the policy-making process.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Fall

2261 AMERICAN FOREIGN POLICY

A study of the diplomatic history and foreign policy of the United States from the American Revolution to the present. The themes include continuity and change, domestic context, the policy-making process, and major events and players. Substantial reading and research assignments.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Spring

2263 AMERICAN GOVERNMENT

Through open discussion of political issues and controversies, this course examines the framework of our democracy. We will explore the history, founding, development and structure of our system of government, and come to understand why we continue to “approach democracy.” In doing so, students will be given the opportunity to examine the strengths and weaknesses of American national government. We will also explore such topics as political parties, voting, elections, interest groups, the media, civil liberties, civil rights, domestic policy and foreign policy. The course is divided into five parts. Part I presents the foundations of American government. Part II explores the institutions of American democracy. Part III focuses on the processes of American Government and democracy. Part IV provides a detailed analysis of various issues of civil rights and liberties. Finally, Part V addresses the policy-making processes and its consequences.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

2283 EVALUATION AND COUNSELING

This is an introduction to the techniques, theory, and problems in the area of performance appraisal and counseling specific to military officers. Discussion issues will include decision making, multiculturalism, the influence of attitudes and values on judgment, and task analysis.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring

2315 DRAWING I

This studio art course teaches students how to represent accurately and efficiently three-dimensional forms in space on a two-dimensional surface. The class requires the student to distinguish between what the eye truly sees and what the mind thinks it sees. Students are taught to visualize form as shape, to observe relative scale and relationships, and to confirm these observations with measurements. Students will work with simple forms in the beginning of the semester, using only line, and will progress to basic principles of one- and two-point perspective and more complex uses of line. The course is offered at the Lyme Academy College of Fine Arts in Old Lyme, CT and taught by Lyme Academy faculty. Prior studio art experience is not necessary.

Credit Hours: 3.00

Format: Studio/Three-hour course meets once a week

Prerequisites:

Projected Offering: Spring

2323 HUMANITIES IN WORLD LITERATURE: LITERATURE AND THE OTHER ARTS

Like 2324 and 2325, this course's curriculum may vary from year to year. Relationships among works of literature and the other arts, including painting, sculpture, music, dance and film. Emphasis will be on the development of Modernism in twentieth century architecture, visual art, film and literature. Government majors who have taken 2324 or 2325 may take this course as an other elective.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring

2324 HUMANITIES IN WORLD LITERATURE: LATIN AMERICA

Like the other HWL courses, 2323 and 2325, this course's curriculum may vary from year to year, though its primary emphasis is on literature from outside the traditional Western canon. This course will focus on Latin American, Caribbean, and Latino literature, especially works written by Cuban Americans, Mexican Americans, and Puerto Ricans. Government majors who have taken 2323 or 2325 may take this course as an other elective.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring - Odd

2325 HUMANITIES IN WORLD LITERATURE: POLITICS AND HISTORY

Reading of literature linked to important themes of the Government major, especially to the material covered in Western Political Theory, Comparative Politics, and the capstone course in the major. Like the other HWL courses, 2323 and 2325, this course's curriculum may vary from year to year. The course's focus in 2002 was Utopias and Dystopias in literature and political theory; in 2004, Medieval Europe: Crusades and Chivalry. Government majors who have taken 2323 or 2324 may take this course as an other elective.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring - Even

2331 COAST GUARD SPANISH

Introduction to Coast Guard, military, nautical and other pertinent vocabulary in Spanish. Includes a review of basic Spanish.

Credit Hours: 1.00

Format:

Prerequisites: 2236, 2237 or equivalent

Projected Offering: Spring

2333 SELECTED TOPICS IN LITERATURE

Seminars are presented on themes and topics drawn from the world's literature. Subject matter, which varies with the instructor, will be announced each semester that the course is offered.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2101, 2111 or 2121; and 2123 or 2125

Projected Offering: Spring

2335 SPANISH III

Includes grammar review; speaking and writing; selections from Spanish literature. Students not coming into this course from Spanish II or Spanish I/II at the Coast Guard Academy must take placement test at: <http://webcape.byuhtrsc.org/?acct=uscga> — Password is "bears1"

Credit Hours: 3.00

Format: Class

Prerequisites: 2237

Projected Offering: Fall

2337 SPANISH IV

Continuation of Spanish III.

Credit Hours: 3.00

Format: Class

Prerequisites: 2335

Projected Offering: Spring

2338 LATIN AMERICAN HISTORY

A survey of factors affecting Latin American history and political systems. Includes pre-Colombian, colonial, independence and modern influences. Similarities and contrasts within the region are examined. Course leads to understanding of both intra- and extra-regional patterns and relationships, including with the United States, Europe, international communism, and the third world.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Fall - Even

2341 EUROPE SINCE 1648

A study of the major political, social, economic, intellectual and international developments in Europe from the Early Modern Period through the end of World War II. Course requirements include papers, presentations, and substantial reading of primary sources.

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2141

Projected Offering: Spring - Odd

2345 WORLD WAR II

Evaluation of the causes, course and consequences of World War II. Topics include the interrelationship of social, economic, political and military factors in causing, waging, and ending war. Focus is at the strategic and operational levels, with special attention given to leaders, decision-making, and historical controversies.

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2141

Projected Offering: Fall - Odd

2349 ADVANCED SPANISH: INTERNATIONAL RELATIONS

This course focuses on Political Science and International Relations. The course is not intended to be an in-depth dealing with these major areas of investigation, but rather as an overview of them and their subject matter with the explicit intent of familiarizing students with the lexicon and formal writing structures of these disciplines in Spanish. The primary course texts will be Woodford and Schmitt's *Ciencia Politica y Relaciones Internacionales*, Dozier's *Manual de Gramatica* and various online newspapers.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Fall 2006, 2009

2351 GREAT EUROPEAN LEADERS

Examination of the lives of the greatest European leaders of the 20th century. Their leadership style, personality, ideology, ascent to power and historical impact will be examined through biographical and autobiographical studies, primary source documents and memoirs. The course will also analyze and compare characteristics and leadership styles and assesses the significance of their achievements and failures.

Credit Hours: 3.00

Format: Class/Project/Seminar

Prerequisites: 2341 or Instructor approval

Projected Offering: Fall

2357 RUSSIA

Analyzes the dynamics of post-Communist Russian politics against the historical backdrop of Communism and Tsarism. Cadets will also assess the impact of U.S. policies. Issues addressed will include nationalism, economic reform, and control of nuclear weapons.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring

2360 SELECTED TOPICS IN PHILOSOPHY

Seminar on topics drawn from historical and contemporary philosophical thought. Topics will vary each semester, and will be determined by a survey of student interests. Topics may include Eastern philosophy, American philosophy, 20th century philosophy, existentialism, philosophy of religion, philosophy in literature and drama, theory of knowledge, metaphysics, or any philosophical field other than ethics and political philosophy.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring

2361 WESTERN POLITICAL THEORY

Historical development of political theory in the West. Analysis of origins of classical political theory (Plato, Aristotle, Augustine, Aquinas, Luther, Calvin) leading to the study of post-medieval and modern writers (Machiavelli, Hobbes, Locke, Rousseau, Mill, Marx, and selected 20th century thinkers) and schools of thought.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263

Projected Offering: Spring

2365 COMPARATIVE POLITICS

Compares foreign political systems, ideologies and movements. Worldwide trends are explored and selected country studies undertaken.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263

Projected Offering: Spring

2367 INTERNATIONAL RELATIONS

A critical examination of the classical and contemporary international relations theories. The conditions that enhance or diminish security in the international system are explored and the influence of individuals, states, and non-governmental, regional, and international organizations on each other and the overall global community are compared and discussed.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2365

Projected Offering: Fall

2370 CONTEMPORARY UNITED STATES FOREIGN POLICY

Explores U.S. foreign policy from the late Cold War period to the present. Using historical events as our guide, we examine the foreign policy decision-making process and its major actors, including the President, Congress, bureaucracy and the news media. The course's main objective is for students to understand the complex nature of contemporary foreign policy, the special challenges confronted by the president in the post-Cold War world, and the future direction of U.S. foreign policy making. The course will begin by exploring the making of foreign policy and the special interpersonal relationships that influence the decision making process. We will closely scrutinize foreign policy during the Reagan administration, development during the Bush period and similarities and contrasts during the eight-year Clinton term. We

will conclude the course by taking a regionally organized look at foreign policy challenges confronted by the current administration. Readings for the course will include both text chapters and journal articles.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Spring - Odd

2372 POLITICAL PARTICIPATION

Survey of the dominant modes of citizen participation in the American democratic system, including political parties, elections, interest groups, the media, social movements, and civil disobedience. Case studies include the media and the military; federal campaigns and elections; and violence in the American political tradition.

Credit Hours: 3.00

Format: Seminar/Project

Prerequisites: 2259 or 2263

Projected Offering: Fall - Even

2381 SOCIAL PSYCHOLOGY

Introduction to behaviors of the individual in society with a particular focus upon the enduring principles of human interactions. The concepts affiliation, attribution, values, authority, sexism, ethnicity, violence, and aggression will be explored. The individual as a member of an organization will also be discussed.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Fall

2389 LAW AND THE COURTS

Seminar examining the roles of law and the courts in the United States. The structure of the judiciary, judicial processes and reasoning, as well as the nature and role of law in civil society are explored to provide a foundation for critically assessing judicial policymaking and its impact.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263, 2391 and 2457 or Instructor approval

Projected Offering: Spring - Odd

2391 CRIMINAL JUSTICE

An introductory course in criminal procedure and substantive criminal law concepts that impact military leaders and federal law enforcement officers. It includes a discussion of (1) fundamental concepts and issues relating to crime and punishment in modern society, (2) Constitutional concepts that influence criminal justice processes, (3) critical procedural differences between the civilian and military criminal justice systems, and (4) substantive military crimes and defenses under the Uniform Code of Military Justice, and the disciplinary tools available to military commanders.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

2393 MORALS AND ETHICS

Examination of a range of philosophical views on what makes our actions right or wrong and our characters good or bad. Students are encouraged to develop their own moral voice, decision-making abilities, and a respect for the place of reasoned argument in the treatment of ethical problems.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

2395 RHETORIC AND COURTROOM ADVOCACY

A year-long (Fall and Spring Semester) course to promote your public speaking and advocacy skills, which will be honed while preparing for and representing one party in mock trials. At the conclusion of this course, the student will: (1) be a more refined speaker; (2) be skilled at persuasively advocating a particular viewpoint before a decision-maker; (3) be familiar with the fundamentals of litigation in a courtroom setting; and (4) be more comfortable speaking in front of a group of people. Extensive out of class preparation is required, as is mandatory attendance at the off-site mock-trial competitions (usually two/semester).

Credit Hours: 1.00 per semester

Format: Seminar

Prerequisites:

Projected Offering: Academic Year

2421 DIRECTED STUDIES IN HUMANITIES

Advanced tutorial concentrating on a specific topic in literature, philosophy, the arts or foreign languages. Intensive reading and consultation with a faculty member culminating in a major research paper. Limited to advanced students with previous significant course work in the humanities.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Instructor and Department Head approval

Projected Offering: Fall and Spring

2425 SENIOR HONORS SEMINAR

Offered as an opportunity for 1/c cadets to engage in interdisciplinary discussions. The purpose is to assess the meaning and values of Academy education by practice in critical thinking and writing.

Credit Hours: 3.00

Format:

Prerequisites: Instructor approval

Projected Offering: Fall and Spring

2429 THE CRAFT OF CREATIVE WRITING

This course provides students with the opportunity to learn the craft of writing creative works, and provides them with an understanding of critical elements necessary for the creation of effective short stories, poems, and short plays. Students will share their writing in a group setting in order to improve skills through constructive criticism and supportive comment. Grading criteria will mostly be based on students' ability to use literary tools (e.g., metaphor, setting, irony . . .) in their own creative works.

Credit Hours: 3.00

Format: Class/Group Work/Project

Prerequisites: Instructor approval

Projected Offering: Spring - Even

2439 ADVANCED SPANISH

Rotating topics. This is an advanced conversation course. Students will be responsible for in-depth reading and analyses of literary, cultural, artistic or cinematic works. Grading based on in-class participation, papers and tests.

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 2337 or equivalent

Projected Offering: Fall

2441 THE CIVIL WAR

Evaluation of the causes, course and consequences of the American Civil War. Themes include the development of America in the 19th century, the impact of slavery, expansion, and social change, and interrelationship of social, economic, political, military, and diplomatic factors in the war.

Credit Hours: 3.00

Format: Class/Project/Seminar

Prerequisites: 2141

Projected Offering: Fall - Even

2449 DIRECTED STUDIES IN PHILOSOPHY

Advanced tutorial concentrating on a specific research topic in philosophy. This is a program of intensive reading and consultation with a faculty member culminating in a major research paper. Limited to advanced students who have completed course work and shown significant interest in Philosophy.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Instructor approval and Department Head approval

Projected Offering: Fall and Spring

2454 AMERICA IN THE NUCLEAR AGE

A study of the U.S. society and politics in the nuclear age, including scientific, cultural, strategic and political issues. Attempts at disarmament, literature focusing on nuclear weapons and nuclear holocausts, and key crises, such as the Cuban Missile Crisis, will be the focus of discussion periods during the semester. In addition to several scholarly works on the bomb and nuclear strategy and at least one novel, students will view several films that explore the consequences of nuclear weapons and nuclear war.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Spring - Even

2457 PUBLIC POLICYMAKING

A seminar evaluating the American policymaking process. Focusing on the interrelationship between policymaking institutions (the Presidency, Congress, courts, bureaucracy, and regulatory agencies) and individual and organizational participants (interest groups, political parties, stakeholders, media, and citizens), it identifies and evaluates the policy processes and politics that characterize American national government. Case studies focus on environmental, regulatory, immigration and economic policy areas.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263

Projected Offering: Fall

2459 DIRECTED STUDIES IN HISTORY

Advanced tutorial concentrating on a specific research topic in history. This is a program of intensive reading and consultation with a faculty member culminating in a major research paper. Limited to advanced students who have completed significant course work in History.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Instructor approval and Department Head approval

Projected Offering: Fall and Spring

2461 CONGRESS AND THE PRESIDENCY

Examination of Congress and the Presidency as political and policy-making institutions. Focus upon the foundations, processes and politics of each institution and their interrelation in the making of public policy.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263

Projected Offering: Fall - Odd

2462 SELECT TOPICS IN PUBLIC POLICY

An in-depth look at a particular issue or field within public policy. Subject varies by instructor.

Credit Hours: 3.00

Format: Seminar

Prerequisites:

Projected Offering: Spring - Even

2463 UNITED STATES MARITIME HISTORY AND POLITICS

Analysis of U.S. Maritime, Naval, and Coast Guard history, and their interrelationship. The change in maritime transport throughout American history, the defense of national interests at sea, and the evolution of the Coast Guard and its roles and missions.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Fall

2465 UNITED STATES MILITARY POLICY

Analyzes the history of American military affairs from the colonial period to the present. Themes include the relationship between American culture and war-making, the growth of the U.S. Military as an institution and a profession, the links between national policy, foreign policy, military policy, and military strategy, and the civil-military relationship in America.

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2141 and 2259 (or 2263)

Projected Offering: Spring - Even

2467 GLOBAL POLICY STUDIES

Subject matter varies with the instructor. Course on Terrorism is offered under this course number.

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2141

Projected Offering: Fall

2469 NATIONAL SECURITY POLICY

Addresses the topic of U.S. national security policy from a historical, as well as contemporary perspective. The course starts with a historical treatment of the topic, beginning with the legislative birth of the National Security Council (NSC) in 1947, and then tracing its subsequent evolution over the past 58+ years. This part of the course examines the constitutional, political, and bureaucratic setting that shapes the formation of U.S. national security policy. Upon completing the historical examination of the evolution of the national security structure/organization/policy, the major focus of the remainder of the course is an examination of present-day threats/realities shaping U.S. national security policy. Class time and assignments during this section of the course involve surveying the current international environment, cataloging threats, analyzing current U.S. national security policy in place to address these threats, and then making recommendations to refine policy, or perhaps change course altogether.

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2141, 2259 or 2263, 2261, or Instructor approval

Projected Offering: Fall

2470 EXECUTIVE POLITICS AND POLICY [TYLER CHAIR SEMINAR]

More than a class on Presidential leadership, this course examines the roles of the President, the Cabinet departments, White House staff and Executive Office agencies in making foreign and domestic policy. Further, it examines the organization and management of the executive branch's policymaking processes as well as executive-congressional relations, and their dynamic impact on the policy-making process. The course will utilize the case-study method, examining numerous specific cases of executive branch policy-making, the politics of executive decision-making, and interagency processes. The continuing evolution of the Department of Homeland Security will serve as a "living laboratory," rich with timely/relevant examples that we will scrutinize throughout the course. As such, students will be expected to keep current with events/circumstances relating to the "new" cabinet department. During the Spring 2006 semester, this course will be co-taught by Adm. James M. Loy, USCG (Ret.), CGA's Distinguished Tyler Chair in Leadership. The seminar will be offered on Thursdays (3rd and 4th period), with a working lunch between these two periods. The seminar will frequently host guest speakers that will address the course during the working academic lunch.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259 or 2263
Projected Offering: Spring

2471 AREA STUDIES

The role of historic, social, economic, and cultural forces in framing the political system of a nation or a geographic area is examined. The area studied is based upon teaching resources in the department.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141

Projected Offering: Spring

2472 DRUGS POLICY

A multidisciplinary survey of the historical, economic, cultural, political and organizational forces that have determined the character of the contemporary domestic and global challenge of illicit drugs and the U.S. policy response. Case studies will be used to examine why the worldwide production, trafficking, and consumption of drugs is flourishing despite a nearly century-old national and international prohibitory regime designed to eliminate these activities. Students will be asked to assess the implications of what they learn for the future of the Coast Guard's drug enforcement mission.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2141, 2259 or 2263

Projected Offering: Spring - Odd

2474 POLITICS OF THE INTERNATIONAL ECONOMY

This course seeks to make sense of the revolutionary forces underway in the world economy and to explore what these changes mean for the future of international politics. By examining such issues as national attempts to control transnational corporations, organized crime migrants, child labor, telecommunications, the Internet, and mass media, students will be challenged to critically explore the relationship between forces at work in the global marketplace and the changing role of sovereign states, sub-state groups and individuals within the international system.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 8215

Projected Offering: Spring - Even

2475 MEDIA AND AMERICAN POLITICS

Media and Politics examines the dynamic and complex relationship between the news media, government (i.e. institutions, elected leaders, agencies, etc.) and the U.S. political system (i.e. parties, interest groups, the electoral system etc.) "The fourth branch of government, "a political institution," "an integral part of the American political system," a "tool for governing." Each of these terms has been used to describe the power of the U.S. news media, and yet the subject receives only cursory attention in many government classes and texts. This course will give you the opportunity to delve deeper in examining the relationship between the media and politics, fostering a greater appreciation of the media's role and influence in our political system.

Credit Hours: 3.00

Format:

Prerequisites: 2457

Projected Offering: Spring

2476 DEMOCRACY IN AMERICA

Government Major Capstone. Interdisciplinary seminar examining the evolution of American political culture and the relationship between citizenship and civil society. Especially explored are the evolution of American identity, citizenship rights, privileges and obligations; and the relationships between nation-building, citizenship and political culture in modern democracies. Major case study explores the obligation to defend the nation, the evolution of the professional military, and the special obligations within civil society that the professional military officer bears.

Credit Hours: 3.00

Format: Seminar
Prerequisites: 2141, 2259 or 2263, 2361 or Instructor approval
Projected Offering: Spring

2479 DIRECTED STUDIES IN GOVERNMENT

Advanced tutorial concentrating on a specific research topic in government. A program of intensive reading and consultation with a faculty member culminating in a major research Paper. Limited to advanced students who have completed significant course work in Government.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Instructor approval and Department Head approval

Projected Offering: Fall and Spring

2481 INTELLIGENCE AND NATIONAL SECURITY POLICY

An interdisciplinary survey and assessment of the role of the Intelligence Community (IC) in the process of developing and executing U.S. national and homeland security policies. Covered are the nature of intelligence and intelligence processes; the evolution, organization, and responsibilities of the Intelligence Community; relationships between intelligence agencies and key national and homeland security policy makers and overseers, such as the President, the National Security Council, Cabinet secretaries, and the Congress. Recent case studies illustrate the key processes, concepts, and debates regarding intelligence and its role in protecting American security. A special focus of the course is on Coast Guard Intelligence missions, organization, and functions in the post 9/11 security environment. This course is not open to students who have taken Intelligence and Democracy (2483).

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2259 or 2263

Projected Offering: Fall

2483 INTELLIGENCE AND DEMOCRACY

Exploration of the missions, organization, and processes of the U.S. Intelligence Community; the major debates about the roles, practices and problems of national intelligence; and the Coast Guard's multi-mission intelligence roles. The course includes an examination of the various functions of intelligence including collection systems (both human and technical), critical analysis, intelligence writing, espionage and counterintelligence, covert action, and the role of intelligence in counterterrorism, trans-national and asymmetric threat. Open to Government majors in the Public Policy track and Government majors in the International Affairs track who have taken 2469 as a free elective. This course is not open to students who have taken Intelligence and National Security Policy (2481).

Credit Hours: 3.00

Format: Seminar/Class

Prerequisites: 2259 or 2263, 2367, 2457, and 2469

Projected Offering: Spring

2489 DIRECTED STUDIES IN PSYCHOLOGY

Advanced tutorial concentrating on a specific topic in psychology. A program of intensive reading and consultation with sponsoring faculty member with program culminating in a major research paper.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Instructor approval and Department Head approval

Projected Offering: Fall and Spring

2493 MARITIME LAW ENFORCEMENT

This course focuses on legal issues associated with the Coast Guard's law enforcement mission. Topics include jurisdiction under international and domestic law, national and agency policy, self-incrimination, search and seizure, arrest, detention, use of force and self-defense, and agency and individual liability. In the process students will study maritime-related laws concerning illegal drugs, fisheries, immigration, and pollution.

Credit Hours: 3.00

Format: Class
Prerequisites: 2391
Projected Offering: Fall and Spring

2496 INTERNATIONAL LAW

The study of the principles of international law and the role(s) of international organizations. The emphasis will be on the function of international law in international relations, and the effectiveness of international law in regulating nation-state behavior, as well as its impact on military operations. The course will also take an in-depth look at sovereignty and the law of armed conflict.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2259, 2261, 2391

Projected Offering: Fall

2497 CONSTITUTIONAL LAW AND HOMELAND SECURITY

A study of the principal methods by which American government officials, including judges, legislators, and Presidents, give meaning to provisions of the U.S. Constitution. The primary focus is on homeland security and its impacts on civil liberties.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2361, 2391

Projected Offering: Spring

2498 SENIOR THESIS

Independent research project, under faculty supervision, resulting in written report and oral presentation.

Credit Hours: 3.00

Format: Directed Studies/Tutorial/Independent Research

Prerequisites: Approval of academic advisor, thesis advisor, and Department Head

Projected Offering: Fall and Spring

2499 DIRECTED STUDIES IN LAW

Advanced independent study concentrating on a specific legal topic. Requires extensive research, intensive reading and consultation with a faculty member. Culminates in a major paper comparable to a student-authored law review article. Limited to advanced students who have completed significant course work in law and government courses.

Credit Hours: 3.00

Format: Directed Studies/Project

Prerequisites: 2391, 2259, and one additional law course; Law Section and Department Head approval

Projected Offering: Fall and Spring

3107 INTRODUCTION TO CALCULUS

Begins a three-course sequence covering the material of the two-course sequence Calculus I (3111) and Calculus II (3117). Slower pace allows for more repetition of challenging concepts. The fundamental concepts of functions, limits, and differential calculus are presented. Techniques and applications of differentiation also are studied. Computer projects involving Mathematica, a computer algebra system for technical computation, are utilized.

Credit Hours: 4.00

Format: Class/Project

Prerequisites:

Projected Offering: Fall

3111 CALCULUS I

Presentation of the fundamental concepts of functions, limits, and differential calculus with an introduction to integral calculus. Techniques and applications of differentiation and calculating areas as limits are explored. Computer projects involving Mathematica, a computer algebra system for technical computation, are utilized.

Credit Hours: 4.00

Format: Class/Project
Prerequisites:
Projected Offering: Fall and Spring

3115 CALCULUS II (V)

Same topics as Calculus II (3117) treated in depth and at a pace consistent with the ability of the class. Computer projects involving Mathematica, a computer algebra system for technical computation, are utilized.

Credit Hours: 4.00
Format: Class/Project
Prerequisites: Department Head approval
Projected Offering: Fall

3117 CALCULUS II

Further extensive study of the fundamental concepts of differential and integral calculus. Topics include logarithmic, exponential, inverse trigonometric, and hyperbolic functions, integration techniques, applications of the definite integral, improper integrals, and infinite series. Computer projects involving Mathematica, a computer algebra system for technical computation, are utilized.

Credit Hours: 4.00
Format: Class/Project
Prerequisites: 3111
Projected Offering: Fall and Spring

3211 MULTIVARIABLE CALCULUS

The introduction to differential and integral calculus for functions of several variables. Topics include vectors, vector functions, surfaces in three-dimensional space, partial differentiation, multiple integration, and vector calculus.

Credit Hours: 3.00
Format: Class
Prerequisites: 3115 or 3117
Projected Offering: Fall and Spring

3213 PROBABILITY AND STATISTICS

An introductory course designed to explore the basic concepts and rules of probability, as well as the fundamentals of statistics. Computer methods are introduced to illustrate key concepts in probability. Utilizing a data analysis computer program, students learn to explore, describe and summarize real life data. Statistical methods are presented and applied to contexts including opinion polls, financial management and engineering applications. Emphasis is placed on the development of proper statistical reasoning and how it applies to the analysis of data, with particular attention paid to the validity of necessary assumptions. Projects requiring students to analyze actual data sets are an integral part of the course.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3115 or 3117
Projected Offering: Fall and Spring

3215 DIFFERENTIAL EQUATIONS

Intermediate course in the methods of solving ordinary differential equations. Topics include first order equations, higher order linear equations with constant coefficients, Laplace transforms, systems of equations, power series solutions, numerical methods and applications.

Credit Hours: 3.00
Format: Class
Prerequisites: 3115 or 3117
Projected Offering: Fall and Spring

3221 LINEAR ALGEBRA

Study of mathematical systems with emphasis on vector spaces, linear transformations and matrices. Topics include systems of linear equations, vector spaces, linear mappings, determinants and eigenvalue problems. Computer methods are utilized.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3115 or 3117

Projected Offering: Fall

3231 LINEAR OPTIMIZATION

Theory and application of deterministic models of operations research used in the optimization of linear functions of several variables subject to constraints. Topics include linear programming, simplex-based methods, sensitivity analysis, and integer programming. Computer projects are utilized.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3115 or 3117

Projected Offering: Spring

3237 DISCRETE MATHEMATICS

Introduction to discrete methods and selected applications. Topics include fundamentals of logic, methods of proof, elementary number theory, set theory, mathematical induction, counting techniques, recursion, and O-notation.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3115 or 3117

Projected Offering: Spring

3301 ADVANCED ENGINEERING MATHEMATICS

Special course offered for engineering majors and team taught with the Department of Engineering. Topics of interest are chosen from probability and statistics, linear algebra, numerical analysis, complex analysis and Fourier Series. Computer methods are utilized.

Credit Hours: 4.00

Format: Class

Prerequisites: 3215

Projected Offering: Spring

3311 ADVANCED CALCULUS

A rigorous approach to the topics of limits, continuity, differentiation, integration, optimization, and infinite series of a single variable.

Credit Hours: 3.00

Format: Class

Prerequisites: 3211 and permission of Instructor

Projected Offering: Spring

3333 NETWORK AND NONLINEAR OPTIMIZATION

An introduction to non-linear programming, dynamic programming, and network theory including CPM and PERT. Computer projects required.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3211, 3231

Projected Offering: Fall

3335 VISUAL BASIC

Introduction to programming using Visual Basic. Topics include programming fundamentals, decision structures, loops, arrays, sorting and searching, graphics, and testing and debugging. Exercises with an emphasis on Coast Guard applications enable cadets to write programs that are robust, well structured, and exploit the capabilities of Visual Basic.

Credit Hours: 3.00

Format: Class/Project
Prerequisites: 3211
Projected Offering: Spring

3341 PROBABILITY THEORY

A rigorous development of probability theory necessary for advanced work in mathematics, statistics, operations research, and engineering. Topics covered include combinatorial methods, probability rules, discrete and continuous random variables, multi-dimensional distributions, moments and moment generating functions, special distributions, functions of random variables, and the central limit theorem. Computer projects are utilized.

Credit Hours: 3.00
Format: Class
Prerequisites: 3211
Projected Offering: Fall

3343 MATHEMATICAL STATISTICS

A mathematical development of statistical procedures such as point estimation methods and theory, confidence intervals, hypothesis test design, including the Neyman-Pearson Lemma and generalized likelihood ratio testing. Also covered are sampling distributions, contingency tables, and goodness of fit. Computer projects are utilized.

Credit Hours: 3.00
Format: Class
Prerequisites: 3341
Projected Offering: Spring

3351 PROBABILITY MODELS

An introduction to stochastic models used to describe dynamic systems. Topics covered include Markov Chains, Poisson Processes, birth and death equations, queuing systems, and forecasting. Applications are examined from many areas with an emphasis placed on Coast Guard related systems. Computer projects are utilized.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3215, 3221, and 3341
Projected Offering: Spring

3417 NUMERICAL ANALYSIS

A mathematical development of modern numerical approximation techniques. Topics include solutions of non-linear equations, solutions of simultaneous equations, interpolation, differentiation and integration. Practical applications are emphasized. The advantages, disadvantages and limitations of techniques are investigated, paying particular attention to convergence and associated error. Projects require students to select and implement numerical techniques using available computer software.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3215 and 3221
Projected Offering: Spring

3441 EXPLORATORY DATA ANALYSIS

This course provides an introduction to the process of data analysis including data preparation, statistical estimation and presentation of results. Methodology is illustrated with real data using appropriate software. Course content builds on the techniques discussed in Mathematical Statistics and introduces selected methodologies from the areas of non-parametric statistics, exploratory data analysis, robust statistics, and categorical data analysis.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3343
Projected Offering: Fall

3447 LINEAR REGRESSION

The fundamental development of simple and multiple linear regression models is discussed with emphasis on estimation and inference techniques. Computer projects are utilized.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3221, 3343 or 3213

Projected Offering: Fall

3453 DECISION MODELS

Using many of the fundamentals introduced in probability, applications in the areas of decision analysis, risk analysis, and other topics are investigated. Computer projects are utilized.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3221, 3341

Projected Offering: Fall

3463 SIMULATION WITH RISK ANALYSIS

Introduction to computer simulation and modeling of real-world systems. Design, implementation, and validation of computer models of discrete and continuous systems are considered. Topics include principles of computer simulation methodologies, data collection and analysis, selecting distributions, and analysis of results. Individual and group projects are an integral part of this course.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3343

Projected Offering: Spring

3471 OPERATIONS ANALYSIS

A capstone project oriented course applying mathematical, statistical, and operations research techniques to problems related to Coast Guard missions and other areas of interest. Required for all Operations Research majors during the Spring semester of first class year.

Credit Hours: 3.00

Format: Class/Project

Prerequisites: 3447

Projected Offering: Spring

3479 DIRECTED STUDIES IN OPERATIONS RESEARCH

A semester or more of individual work on a project approved by the Head, Department of Mathematics.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites:

Projected Offering: Fall and Spring

4101 DEVELOPMENTAL SWIMMING

Developmental Swimming is designed to provide cadets who have been identified as weak swimmers with supplemental instruction in swimming.

Credit hours: 0.00

Format: Laboratory

Prerequisites:

Projected Offering: Fall

4102 PHYSIOLOGY OF FITNESS I

This course introduces cadets to the basic concepts and principles of lifelong fitness and wellness. Special attention will be given to the areas of cardio-respiratory fitness, muscular strength and endurance, and flexibility. Cadets will be expected to apply basic exercise physiology principles in the development and maintenance of personal fitness programs.

Credit Hours: 1.00

Format: Class/Laboratory/8-Week

Prerequisites:
Projected Offering: Fall

4103 PERSONAL DEFENSE I

Personal Defense I is an introductory level course designed to foster the development of personal defense skills. Upon completion of the course, cadets will be able to anticipate potentially unsafe situations and be able to better protect themselves. This course serves as the foundation for maritime law enforcement skills (Personal Defense II).

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites:

Projected Offering: Spring

4111 SWIMMING I

Swimming I is an introductory level course designed to develop fundamental skills in both survival and competitive strokes. By the end of the course, cadets should be competent swimmers and comfortable in the water.

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites:

Projected Offering: Fall

4112 PHYSIOLOGY OF FITNESS II

This course introduces cadets to the basic concepts and principles of lifelong fitness and wellness. Special attention will be given to the areas of nutrition, stress management, and the adoption of healthy lifestyle behaviors.

Credit Hours: 1.00

Format: Class/Laboratory/8-Week

Prerequisites: 4102

Projected Offering: Spring

4204 LIFETIME SPORTS I: RACQUETBALL

Racquetball is an introductory level course designed to foster the development of fundamental skills in racquetball and to support cadet commitment to lifelong participation in physical activity.

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites:

Projected Offering: Fall and Spring

4214 LIFETIME SPORTS II: GOLF

Golf is an introductory level course designed to foster the development of fundamental skills in golf and to support cadet commitment to lifelong participation in physical activity.

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites:

Projected Offering: Fall and Spring

4222 PROFESSIONAL RESCUER

The Professional Rescuer course is designed to provide each cadet with the knowledge and skills to effectively respond to emergency situations in both aquatic and land-based settings. Practical scenarios will be utilized to elicit problem solving and application of rescue principles. Successful completion of this course will lead to American Red Cross certifications in Lifeguarding, First Aid, CPR, Preventing Disease Transmission, AED, and Waterfront Lifeguarding.

Credit Hours: 2.00

Format: Class/Laboratory/16 weeks

Prerequisites: 4111

Projected Offering: Fall and Spring

4303 PERSONAL DEFENSE II: MARITIME LAW ENFORCEMENT TECHNIQUES

Personal Defense II exposes cadets to maritime law enforcement techniques. Upon completion of the course, cadets will be able to execute fundamental defensive techniques and prisoner control methods used by the U.S. Coast Guard .

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites: 4103

Projected Offering: Fall and Spring

4304 LIFETIME SPORTS III: TENNIS

Tennis is an introductory level course designed to foster the development of fundamental tennis skills and to support cadet commitment to lifelong participation in physical activity.

Credit Hours: 0.25

Format: Laboratory/8-Week

Prerequisites:

Projected Offering: Fall and Spring

4400 REMEDIAL PHYSICAL TRAINING

Remedial Physical Training is designed to provide cadets who score below their class standard on the PFE with supplemental information and training in physical fitness.

Credit Hours: 0.00

Format: Laboratory

Prerequisites:

Projected Offering: Fall and Spring

4401 WATER SAFETY INSTRUCTOR

The Water Safety Instructor course is designed to provide instructor candidates with the skills and knowledge needed to teach in the American Red Cross Swimming and Water Safety Program. Instructor candidates will learn how to use American Red Cross materials, how to conduct training sessions, and how to evaluate participant progress. Successful completion of all aspects of the course will lead to American Red Cross certification.

Credit Hours: 1.00

Format: Class/Laboratory/16 weeks

Prerequisites: 4111 and 4222

Projected Offering: Fall

4403 MARTIAL ARTS

This course provides instruction in strikes, punches and blocks common to martial arts styles. Sparring opportunities are provided in the second half of the course. Fee may be required.

Credit Hours: 0.50

Format: Laboratory/16 weeks

Prerequisites: 4103 and 4303

Projected Offering: Fall and Spring

4404 BADMINTON

This course provides instruction in the fundamentals of badminton. Cadets will receive instruction in technique, rules and tactical play for both singles and doubles

Credit hours: 0.25

Format: Laboratory/8 weeks

Prerequisites:

Projected offering: Fall and Spring

4405 ADVENTURE SPORTS I: ROCK CLIMBING

This course provides instruction in basic belaying, rappelling and climbing techniques. Climbing safety is a major focus. The course is conducted off campus. Fee required.

Credit Hours: 0.50

Format: Laboratory

Prerequisites:

Projected Offering: Fall and Spring

4407 DANCE

This course provides instruction in different forms of dance. Offerings include ballet, jazz, modern, tap and hip hop. This course is conducted off campus. Fee required.

Credit Hours: 0.50

Format: Laboratory

Prerequisites:

Projected Offering: Fall and Spring

4409 HORSEBACK RIDING

This course is designed to provide instruction in the fundamentals of horsemanship, including corral and trail riding, using western style saddles. Instruction geared to individual level of proficiency. Fee required. Classes are held at an off campus site.

Credit Hours: 0.50

Format: Laboratory/16 weeks

Prerequisites:

Projected Offering: Fall and Spring

4411 SCUBA DIVING

This course provides instruction in basic scuba diving safety and techniques and includes open water dive experience. N.A.U.I. certification is possible with successful completion of the course.

Credit Hours: 1.00

Format: Laboratory/16 weeks

Prerequisites: 4111 and 4222

Projected Offering: Fall and Spring

4414 ADVANCED GOLF

This course provides advanced instruction in golf and offers cadets the opportunity to play on local courses. This course is conducted at local golf courses. Fee required for golf course play.

Credit Hours: 0.25

Format: Laboratory/8 weeks

Prerequisites: 4214

Projected Offering: Fall and Spring

4415 ADVENTURE SPORTS II

This course provides instruction in outdoor recreational sports such as orienteering, mountain biking, hiking and boating (canoe/kayak). Some elements of this course are conducted off campus. Fees may be required.

Credit Hours: 0.50

Format: Laboratory/16 weeks

Prerequisites:

Projected Offering: Spring

4421 ADVANCED SCUBA DIVING

This course provides advanced instruction in scuba diving safety and techniques for those cadets who already possess a scuba certification. This course is conducted off campus. Fee required.

Credit hours: 0.50

Format: Laboratory/16 weeks

Prerequisites: Scuba certification

Projected Offering: Spring

4425 ROPES CHALLENGE

This course utilizes the Project Adventure Curriculum. Instruction will progress from initiatives, games, and problem solving to low and high elements.

Credit Hours: 0.50

Format: Laboratory/16 weeks

Prerequisites:
Projected Offering: Fall

4434 SKIING/SNOWBOARDING

This course provides instruction in alpine skiing or snowboarding. No experience is necessary. This class is held at local ski areas. Helmets required. Fee required for lift tickets and rentals.

Credit Hours: 0.25
Format: Laboratory/8 weeks
Prerequisites:
Projected Offering: Spring

4439 THEORY OF COACHING

This course provides instruction in the theory and techniques of coaching as well as opportunities for discussion on issues in contemporary athletics.

Credit Hours: 1.00
Format: Class/Laboratory/16 weeks
Prerequisites:
Projected Offering: Fall and Spring

4444 INDOOR RECREATIONAL SPORTS

This course will provide instruction in popular recreational activities such as badminton, pickle ball and bowling.

Credit Hours: 0.50
Format: Laboratory/16 weeks
Prerequisites:
Projected Offering: Fall and Spring

4459 SPORT/WELLNESS LEADER

This course provides an opportunity for cadets to acquire and utilize teaching and leadership skills in a physical activity setting. Cadets may choose to assist with instruction in a physical education class or provide guidance to cadets in the Remedial Physical Training program.

Credit Hours: 0.50
Format: Class/Laboratory/16 weeks
Prerequisites:
Projected Offering: Fall and Spring

4464 STRENGTH AND CONDITIONING

This course provides instruction in the various theories and principles of strength and conditioning and follows the guidelines of the National Strength and Conditioning Association.

Credit Hours: 0.50
Format: Class/Laboratory/16 weeks
Prerequisites: 4102 and 4112
Projected Offering: Spring

4499 DIRECTED STUDIES IN HEALTH AND PHYSICAL EDUCATION

This course provides an opportunity for cadets to study specific topics in the area of health and physical activity. Cadets will develop a proposal for a research paper or project, which must be completed by the end of the semester under the guidance of an HPE faculty member.

Credit Hours: 0.50
Format: Directed Studies
Prerequisites:
Projected Offering: Fall and Spring

5102 CHEMISTRY I

Chemistry I is the first half of a one-year curriculum in general chemistry. The course presents an introduction to elementary concepts of chemistry, covering topics of matter and measurement, atomic theory and inorganic nomenclature, mass relationships, reactions in aqueous solution, gas laws and

reactions, enthalpy, quantum theory, periodic trends in the elements, chemical bonding, and intermolecular forces. Comprehensive laboratory program.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Fall and Spring

5104 CHEMISTRY I (HONORS)

Scope essentially the same as 5102 with pace and depth varied to meet the capabilities and interests of students. Typically a single class section. There is a great deal of student/instructor interaction with strong emphasis on development of critical thinking skills. This is a course for those students with a strong background as well as an interest in science or engineering, and is ideal for Marine and Environmental Sciences and other technical majors.

Credit Hours: 4.00

Format: Class/Laboratory/Project

Prerequisites: Department Head approval

Projected Offering: Fall

5106 CHEMISTRY II

Chemistry II is the second half of a one-year curriculum in general chemistry. The course presents an introduction to elementary concepts of chemistry, covering the following topics: physical properties of solutions, chemical kinetics, chemical equilibrium, acid/base chemistry, acid/base equilibria, solubility equilibria, entropy/free energy/spontaneity, electrochemistry, nuclear chemistry, organic chemistry, and polymer chemistry. Comprehensive laboratory program.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5102 or 5104

Projected Offering: Spring

5108 CHEMISTRY II (HONORS)

The follow on course to Honors Chemistry I with similar themes and pace of instruction. Coverage of required General Chemistry topics usually concludes around Spring Break so that the remainder of the semester can be dedicated to special topics chosen by the instructor. Taught as a single class and lab section with a great deal of student/instructor interaction and a continued emphasis on critical thinking skills. Intended for students with a strong chemistry background, an interest in science or engineering, and particularly ideal for Marine and Environmental Sciences and other technical majors.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5102 or 5104 and Department Head approval

Projected Offering: Spring

5232 MARINE BIOLOGY

Consideration of the marine biosphere and its environmental subdivisions with emphasis on interaction in food chains and basic productivity. Review of plant and animal kingdoms in terms of the adaptations and ecological adjustments for marine habitats with detailed laboratory examination of specific forms.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: Instructor's approval for non-majors

Projected Offering: Fall

5234 MARINE GEOLOGY

Introduction to the concepts of physical geology with emphasis on the marine realm. Topics include minerals/rocks, plate tectonics, glaciers, polar regions, marine sediments, morphology/evolution of the coastal regions and ocean basins, hydrothermal vents and coral reefs. Labs/field trips focus on mineral/rock identification, map interpretation, and sediment sampling/analysis.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites:

Projected Offering: Spring

5238 PHYSICAL OCEANOGRAPHY

Introduction to descriptive and dynamical physical oceanography. The distribution and variability of seawater properties. Characteristics of the world's major ocean currents and the forces affecting them. Underwater acoustics, waves, tides, and Coast Guard oceanography. Labs emphasize collection and analysis of oceanographic data.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 5240

Projected Offering: Spring

5240 METEOROLOGY

Study of synoptic meteorology and climatology, with an introduction to atmospheric fluid dynamics. Atmospheric structure and radiative balances form the basis for understanding precipitation processes and stability. The effects of pressure and the earth's rotation on winds at local, synoptic, and planetary scales are considered, along with severe weather phenomena, local, and regional climatology. Mid-latitude storm development is emphasized, including upper-air influences and vorticity. Laboratory work emphasizes weather data collection, regional forecasting using local observations and National Weather Service products, and Coast Guard applications at sea.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Fall

5247 PROJECTS IN MARINE SCIENCE

Involvement in ongoing research projects as an assistant in data collection, reduction, or analysis.

Credit Hours: 1.00

Format: Directed Studies

Prerequisites: Approval of Project Advisor and Marine Science Section Chief

Projected Offering: Fall and Spring

5262 PHYSICS I

Basic concepts of Newtonian mechanics, vector algebra, particle kinematics and dynamics, rotational kinematics and dynamics, conservation laws, oscillations, fluids, and wave motion.

Credit Hours: 4.00

Format: Combined Class and Laboratory

Prerequisites:

Corequisite: 3111

Projected Offering: Fall

5266 PHYSICS II

A study of basic concepts of electromagnetism is presented. Additionally, the study of electrostatics, magnetostatics, circuit theory, motions of particles in fields, electromagnetic waves, Faraday's law, Ampere's law is undertaken.

Credit Hours: 4.00

Format: Combined Class and Laboratory

Prerequisites: 3111 and 5262

Projected Offering: Spring

5306 PHYSICAL CHEMISTRY

Study of the states of matter and their properties, including ideal and real gases, kinetic theory, laws of thermodynamics, phase equilibria, chemical equilibrium, electrochemistry, chemical kinetics, atomic structure, the chemical bond, cohesion and structure, and molecular spectroscopy.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites: 5106 or 5108 and 3211

Projected Offering: Fall

5312 ANALYTICAL METHODS

Theory and application of various techniques for the analysis of composition, structure, and properties of pure compounds and of mixtures. Emphasis on Coast Guard applications: gas and liquid chromatography, atomic absorption, ultraviolet, infrared, and nuclear magnetic resonance spectroscopy and mass spectrometry.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5106 or 5108

Projected Offering: Spring

5334 FISHERIES BIOLOGY

This course addresses Ichthyology and some aspects of Fisheries Techniques. Emphasis is placed on fish classification, fish internal and external anatomy, morphology, adaptive characteristics of fishes to their habitats, and human causes of aquatic biodiversity decline. Identification of important commercial and recreational species will be learned throughout the course and with the use of keys. Indoor, outdoor labs and a field trip are designed to provide hands-on familiarity with fishes and fisheries techniques. This course requires writing of a scientific paper based on the collection and analysis of students' data and a Hewitt paper and oral presentation.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5232 or Instructor's approval

Projected Offering: Fall

5338 MARINE FORECASTING

An advanced meteorology course with an emphasis on forecasting, especially at sea. After reviewing concepts from 5240 or 5442, students will learn advanced concepts, skills, and techniques in marine forecasting; and master them during weekly weather briefs. Regional studies will include the Gulf of Alaska; West, East, and Gulf Coasts of the Continental U.S.; and the Caribbean Sea. Advanced concepts will include wave development, hurricanes, nor'easters, and use of National Weather Service facsimile charts at sea.

Credit Hours: 3.00

Format: Class

Prerequisites: 5240, or 5442 and Instructor's approval

Projected Offering: As Required

5342 BIOLOGICAL AND CHEMICAL OCEANOGRAPHY

An ecological approach to life in the seas, with particular emphasis on energy flow through the food chain as shown by evaluations of the productivity of both producers and consumers. Discussion of the effects of natural vs. human-induced changes in marine ecosystems. Discussion of the data needed for mathematical modeling of specific ecosystems. Labs focus on up-to-date techniques for measuring seawater constituents relevant to the course; the last month of lab is devoted to a project/experiment designed and carried out by the student using techniques learned earlier in the semester.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5232 or Instructor's approval

Projected Offering: Spring

5350 OCEAN DYNAMICS

Course seeks to develop the students' understanding of how the ocean responds to the various forces which affect its motion. The basic concepts of fluid dynamics are first presented, with an emphasis on total acceleration and continuity of volume. The equation of motion for fluids on a rotating earth is derived and effects of turbulent motion are introduced. Both the steady-state and time-dependent solutions to the equation of motion are examined, including Ekman dynamics and inertial oscillations. The geostrophic approximation and its consequences/ applications are discussed in detail. Theory is related to the real world

through discussion of oceanic observations documented in the literature. Labs provide students the opportunity to learn the basics of statistical data analysis techniques and computer modeling. Data analysis skills are then applied to hydrographic data acquired via the internet, and results and conclusions are presented via a scientific poster.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 3211 and 5238

Projected Offering: Fall

5352 OCEAN CIRCULATION

Builds on the concepts of 5350, first deriving and then using the vorticity equation to examine the ocean. Time-dependent motion (i.e., waves) are examined, neglecting rotation for small-scale (surface gravity) waves and later adding it for larger scale wave phenomena including Kelvin, Poincare, and Rossby waves. Vorticity dynamics of the ocean are considered, focusing on wind-driven circulation theories, including the study of Sverdrup, Stommel, and Munk models. Theory is reinforced by the study of oceanic observations documented in the literature and in the lab program. Labs include the collection and analysis of oceanographic data and computer modeling, with field trips to the University of Rhode Island and the International Ice Patrol.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 3215, 5240, and 5350

Projected Offering: Spring

5364 SEMICONDUCTOR PHYSICS

Study of properties of semiconductors. Crystalline structure, electron energy levels, impurity levels, electrical conduction, electron diffusion. Application to p-n junctions and semiconductor devices is presented.

Credit Hours: 3.50

Format: Class/Laboratory

Prerequisites: 3117 and 5266

Projected Offering: Spring

5366 ASTRONOMY

Historical and modern topics in astronomy are presented including the Solar System, stellar structure and evolution, galaxies, and cosmology. Includes night observations at the astronomical observatory and physical astronomical measurements.

Credit Hours: 3.00

Format: Class

Prerequisites: 5266, 5106

Projected Offering: Fall, Odd years

5389 DIRECTED STUDIES IN PHYSICS

Individual program of advanced readings or laboratory projects in physics.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: 5266 and Instructor's approval

Projected Offering: Fall and Spring

5402 ORGANIC CHEMISTRY

Chemical reactivity of organic compounds from a functional group perspective. Hydrocarbons, alkyl halides, aromatics, alcohols, ethers, carbonyl compounds, and amines. Laboratory introduction to important techniques of organic chemistry; the preparation of simple compounds; and analysis using mass spectrometry, nuclear magnetic resonance, infrared spectroscopy, and computer modeling.

Credit Hours: 4.00

Format: Class/Laboratory/Project

Prerequisites: 5106 or 5108

Projected Offering: Fall

5415 HAZARDOUS MATERIALS

A Marine and Environmental Sciences major capstone course that investigates the behavior of organic chemicals when they are released to the multimedia environment of air, water, soil, dissolved organic matter and biota. Quantitative multimedia distribution models based on fundamental chemical and physical properties are developed. Estimates of environmental effects are determined from the distribution models. A comprehensive final project requires that students behave as professional military scientists to solve a risk assessment problem.

Credit Hours: 3.00

Format: Class

Prerequisites: MES major or with consent of Instructor

Projected Offering: Spring

5417 TOXICOLOGY

Survey of the most important concepts in Toxicology. Effects of xenobiotic substances on the most important physiological systems will be covered with examples relevant to Homeland Security such as chemical warfare agents and industrial products. Exposure assessment, aerosol bio-dynamics, and dose response concepts will also be covered. Subject matter will include review of physiology as it pertains to effects of xenobiotics on the body.

Credit Hours: 3.00

Format: Lecture

Prerequisites: 5104 or 5108 or equivalent

Projected Offering: Spring

5421 PROJECTS IN CHEMISTRY

Involvement in ongoing research projects as an assistant in data collection, reduction, or analysis. Final project.

Credit Hours: 1.00

Format: Directed Studies

Prerequisites: Approval of Project Advisor and Chemistry Section Chief

Projected Offering: Fall and Spring

5429 RESEARCH IN CHEMISTRY

Individual or team reading and laboratory projects in chemistry.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Approval of Research Advisor and Chemistry Section Chief

Projected Offering: Fall and Spring

5430 REMOTE SENSING

Initial consideration of the physics and technology of remote sensing theory. The principles of physical radiation, which form the foundation for remotely measuring surface processes, are first discussed in detail. Methods for measuring geophysical, biological, and chemical processes are then discussed in various degrees of detail. Lab exercises provide students with hands-on opportunities to display and analyze several global and decadal satellite datasets, and present their results and conclusions via a series of technical papers.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 5238, and 5240

Projected Offering: As Required

5436 COASTAL OCEANOGRAPHY

The physical oceanography of the coastal zone is studied, as well as the dynamics of tidal flows in estuaries. Estuarine circulation and mixing at tidal and non-tidal time scales. The advection/diffusion relationships, and their application to the dispersal and monitoring of pollutants. Beach processes and interactions between estuaries and the coastal ocean. Labs emphasize student proposed and conducted research in the Thames River estuary. The results are presented at a symposium at the close of the semester.

Credit Hours: 4.00

Format: Class/Laboratory
Prerequisites: 3211 and 5238
Projected Offering: Fall

5441 MARINE POLLUTION

Examination of the sources, control, disposal, and impact of pollutants affecting the marine realm, such as sewage, industrial effluents, agricultural and urban runoff, oil, solid wastes, dredge materials, and acid rain. Issues presented via a mix of scientific, political and economic perspectives. Past, current, and proposed approaches to marine pollution problems are considered.

Credit Hours: 3.00

Format: Class

Prerequisites: 5232 or Instructor's approval

Projected Offering: Fall

5442 OCEANOGRAPHY

A survey of the physical, chemical, and biological aspects of the marine environment including meteorology, ocean circulation (currents, waves, and tides), coastal processes, marine ecosystems dynamics, fisheries technology and management, and marine pollution. Students strengthen their understanding of these topics through hands-on inquiry-based activities.

Credit Hours: 3.00

Format: Class

Prerequisites: 5102 and 5262

Projected Offering: Fall and Spring

5445 FISHERIES MANAGEMENT

This is a capstone course, which examines issues associated with the management and conservation of fisheries. The interaction between social, biological, economic, and political aspects of fisheries management is the focus of this course. The course is a combination of lectures, discussion, student presentations, and guest speakers. Guest speakers are invited from a variety of backgrounds including Coast Guard officers, National Marine Fisheries Service scientists, fisheries scientists, fisheries managers, and commercial fishermen, to expose students to various perspectives on fishing issues.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Spring

5459 RESEARCH IN MARINE SCIENCE

Individual or team programs involving advanced reading in marine science research.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Faculty Research Advisor and Marine Science Section Chief approval

Projected Offering: Fall and Spring

5475 INTRODUCTION TO GEOSPATIAL SCIENCES

This course introduces students to the fundamental concepts of geospatial sciences, including modeling the real world within a Geographic Information Systems (GIS), coordinate systems (including datum and projections), sources of spatial data, entering and editing the data within a GIS, GIS spatial data analysis techniques, and cartography. Relevancy of geospatial technologies to the Coast Guard will be demonstrated throughout the course through the use of several Case Studies. The lab portion of the course will emphasize hands-on applications of principles discussed in lecture. Students will be expected to apply GIS principles learned in lecture and lab portions of course in order to complete an end-of-semester GIS project.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Spring

5477 OPTICS

An introductory course in optics designed to provide a working knowledge of electromagnetic theory. The fundamental principles of geometrical (e.g., reflection, refraction) and physical optics (interference, polarization, diffraction) are introduced. The emphasis of the course is on understanding the basic physical principles underlying practical photonic devices through the use of hands-on, in-class activities.

Credit Hours: 3.00

Format: Class

Prerequisites: 5266

Projected Offering: Fall – Even years

6112 NAUTICAL SCIENCE I – THEORY OF NAVIGATION

An introduction to navigation through an understanding of piloting and relative motion theory. In the piloting module, the emphasis is on chart interpretation, compass usage, computation of gyro error, and various coastal piloting techniques used to fix a ship's position such as dead reckoning, running fixes, and determination of set and drift. The relative motion module focuses on the radar system and its fundamentals, leading into basic relative motion problems involving a single contact. These relative motion problems are then taken a step further through computation of intercept and avoidance solutions. A research project covering selected navigational topics integrates course material and primary source research that the students then present to their classmates.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites:

Projected Offering: Fall and Spring

6214 NAUTICAL SCIENCE II – VOYAGE PLANNING

This course builds upon and expands the basic navigation skills acquired in Nautical Science I to a point where the student is able to plan for both a coastal and transoceanic voyage. The course is divided into four modules and culminates in a group project. The first module develops the principal skills junior officers require to navigationally prepare a cutter for a deployment. This voyage planning process includes route selection, making use of various navigation publications, chart preparations, calculation of tides and currents, and anchorage selection. The second module involves celestial phenomena to determine such vital information as gyro error by azimuth and amplitude. During the third module, various navigation methods and systems are explored, such as differential GPS, hyperbolic navigation, and integrated electronic charting methods. It is during this module that the cadet is first formally exposed to the state-of-the-art visual ship simulator in which they will train for many hours in Nautical Science III and IV. The fourth module includes a review of basic relative motion fundamentals and expands into intermediate and advanced practices incorporating the first 19 Navigation Rules for collision avoidance. The group project involves a group of four to five students building and presenting a detailed navigation port brief to a commissioned officer selected from the faculty.

Credit Hours: 3.00

Format: Class/Laboratory

Prerequisites: 6112

Projected Offering: Fall and Spring

6316 NAUTICAL SCIENCE III – THEORY AND SCIENCE OF SHIPBUILDING

This course explores issues and techniques vital to successful performance as a Deck Watch Officer (DWO) or Engineer Officer in Training (EOIT) aboard a Coast Guard Cutter. In addition to reviewing basic navigation skills taught in Nautical Science I and II, students develop new skills such as basic shiphandling, rapid radar plotting (RRP), application of the Navigation Rules, and Team Coordination Training (TCT) techniques. Staff from the Engineering Department introduce concepts of basic naval architecture, including buoyancy, stability, weight additions and shifts, and free surface effects. Classroom shiphandling theory is reinforced aboard T-boats, while RRP, Navigation Rules applications, and TCT concepts are practiced in radar and visual simulators. TCT concepts are further analyzed in group projects wherein cadets present the causal factors and potential corrective actions surrounding selected Coast Guard Cutter mishaps. Nautical Science III also introduces cadets to effective communication through various forms of official Coast Guard correspondence.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 6112 and 6214
Projected Offering: Fall and Spring

6418 NAUTICAL SCIENCE IV – THE COAST GUARD DIVISION OFFICER

This capstone course integrates prior nautical science topics with selected Coast Guard organizational and leadership issues. As Division Officers, new Ensigns are expected to accomplish the unit's mission while remaining responsive to their subordinates' needs and managing their own career. Cadets prepare for these responsibilities in Nautical Science IV by discussing Coast Guard personnel management issues in depth, and by developing administrative skills they will be expected to possess upon graduation. Lab assignments in the visual and radar simulators, and aboard 65 foot training vessels develop critical thinking and decision-making skills in navigation and shiphandling, and reinforce Team Coordination Training concepts through effective leadership and communication. The shipboard engineering module of the course reviews basic naval architecture concepts, environmental issues, and the Engineer Officer in Training (EOIT) program. The newly added Search and Rescue (SAR) module examines Coast Guard policy, planning and procedures within this critical mission area. A major oral and written assignment requires research into current Coast Guard policies and issues, and comprises the majority of work for the 1/C Cadet Hewitt Writing and Speaking Contest requirement.

Credit Hours: 4.00

Format: Class/Laboratory/Project

Prerequisites: 6112, 6214, and 6316

Projected Offering: Fall and Spring

8115 MACROECONOMIC PRINCIPLES

Examination of basic concepts, methodology and problems of macroeconomic measurement and aggregate economic activity. money, banking, international trade and finance. Macroeconomic policy for economic stability and growth.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

8211 LEADERSHIP AND ORGANIZATIONAL BEHAVIOR

Using leadership as its focus, this course examines the relationship of individual and group behavior in organizations to organizational effectiveness. Uses case studies, classroom exercises, lecture, and discussion to develop an understanding of motivation, group/team effectiveness, communications, and performance management with particular attention to the practical leadership implications of current theory.

Credit Hours: 3.00

Format: Class/Group Work/Project

Prerequisites:

Projected Offering: Fall and Spring

8215 MACROECONOMIC PRINCIPLES

Examination of basic concepts, methodology and problems of macroeconomic measurement and aggregate economic activity. money, banking, international trade and finance. Macroeconomic policy for economic stability and growth.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall and Spring

8217 MICROECONOMIC PRINCIPLES

Basic analysis of individual economic decision making in a market economy. Consumer behavior and theory of demand; production cost, theory of supply and firm behavior in different market structures. Public policy to improve market performance. Resource markets.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Fall

8231 MANAGEMENT INFORMATION SYSTEMS

Prepares managers to function in a technological environment. The roles of information processing in managerial decision making. The structure of information systems; development; management computing technology, data processing, and information assurance. Applications within major functional subsystems of management. The class will also discuss the role of technology in today's society, with an emphasis on the use by the Coast Guard and Homeland Security and the ethical issues raised by the misuse of technology. Laboratory work will focus on applications of the topics discussed in class. A group research project on current technology topics is required.

Credit Hours: 3.00

Format: Class/Project/Laboratory

Prerequisites:

Projected Offering: Spring

8246 FINANCIAL ACCOUNTING

Accounting process as a system for communicating financial information to internal and external users in both profit-based and non-profit setting. Fundamental financial accounting concepts related to the balance sheet, income statement, and statement of cash flows. Introduction to government and not-for-profit accounting and application of basic cost accounting concepts Focus on the decision-usefulness of accounting information from the perspective of the user. Extensive analytical problem-solving, both structured and unstructured.

Credit Hours: 3.00

Format: Class

Prerequisites:

Projected Offering: Spring

8323 INTERNATIONAL ECONOMICS

Analysis of the basic theories and policy issues in international economic relations. Theories of trade; economic growth and trade; tariffs, quotas, and other barriers of trade; custom unions and common markets. Currency systems, exchange rate adjustments, balance of payments, balance of payments adjustments, and U.S. commercial policy. Major paper required.

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 8115 or 8215

Projected Offering: Spring - Odd

8329 GLOBAL ECONOMIC ISSUES

Seminar course offers in-depth study on current issues of interest in international economics.

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 8115 or 8215

Projected Offering: Spring - Even

8337 DATABASE SYSTEMS

Examination of the fundamental concepts of database management. Database design, database languages and database-system implementation. Analysis of the role of databases in the decision making process and their use in strategic planning. A project to develop a database management system is required.

Credit Hours: 3.00

Format: Class/Project/Laboratory

Prerequisites: 8331

Projected Offering: Fall

8343 PUBLIC SECTOR ECONOMICS

Application of Economic logic to public sector issues; market failure and the economic rationale for government intervention; public choice and public goods; analysis of taxation and government expenditure policy; examination of selected taxes and expenditure classifications.

Credit Hours: 3.00

Format: Class

Prerequisites: 8115 or 8215, 8217

Projected Offering: Spring - Even

8348 MANAGERIAL ACCOUNTING

The examination of cost information in decision making for both the short and long terms. Topics include the different costing systems, cost behavior and estimation, standard costing and variance analysis, along with flexible budgets and control of overhead costs. Extensive analytical problem solving, including the use of cases.

Credit Hours: 3.00

Format: Class

Prerequisites: 8346

Projected Offering: Spring

8349 FINANCIAL MANAGEMENT

Application of financial theory, tools and methods to managerial decision-making with a goal of value maximization through effective cash flow management. Focus is on the investment decision (asset risk, time-value of money, cost of capital, discounted cash flow analysis) and the financing decision (financial risk, use of leverage, capital structure). Some coverage of financial markets. Extensive analytical problem solving, including the use of cases.

Credit Hours: 3.00

Format:

Prerequisites: 3213, 8246

Projected Offering: Fall

8351 QUANTITATIVE METHODS

Introduction to techniques of quantitative analysis. Applications of probability and statistical analysis. Applied decision theory, break-even analysis, marginal analysis and investment decision. Use of econometric methods, simple and multiple linear regression models, curve fitting, and time series analysis. Coverage of some classical optimization techniques and inventory management. Problem solving, computer applications, and case studies.

Credit Hours: 3.00

Format: Class

Prerequisites: 3213

Projected Offering: Fall

8353 INFORMATION SYSTEMS FOR MANAGERS

Further development of the principles of MIS introduced in 8231, especially as they relate to U.S. Coast Guard applications. Topics analyzed include Information Systems (IS) management in a historical perspective, IS at the management and functional levels, IS and the end user, the future of IS, and a review of IS applications in the U.S. Coast Guard. Extensive use of cases.

Credit Hours: 3.00

Format: Class/Project/Cases

Prerequisites: 8331

Projected Offering: Spring

8357 HUMAN RESOURCES MANAGEMENT

Personnel/Human Resources Management concepts. An in-depth analysis of the Human Resource functional areas including recruitment, selection, performance evaluation, promotion, retention, EEO guidelines, and Federal regulations. Term paper.

Credit Hours: 3.00

Format: Seminar/Cases/Project

Prerequisites: 8211

Projected Offering: Fall

8358 NEGOTIATIONS AND CONFLICT IN TEAMS

An in-depth analysis of concepts relating to conflict, negotiation, influence, and power, as applied to decision making in a team environment. Topics analyzed include integrated and distributed bargaining, bases of power, influence tactics and strategies, decision making, and threats to team effectiveness. Extensive use of exercises, cases, and student presentations.

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 8211

Projected Offering: Fall - Even

8361 TRANSPORTATION ECONOMICS

Examination of analytical frameworks and policy issues in transportation economics. Topics analyzed include demand for transportation service, cost and pricing, economic efficiency, and mode-specific analytical and political issues including government regulation and deregulation. Case Studies.

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 8115 or 8215, 8217

Corequisites: 8313

Projected Offering: Spring - Odd

8363 OPERATIONS RESEARCH

The study of applications of operations research techniques to managerial decision-making such as linear programming, transportation and assignment algorithms, network analysis, dynamic programming, and game theory. Exposure to industrial applications: maintenance and production scheduling, project planning and management. Emphasis on problem solving, computer applications and case studies.

Credit Hours: 3.00

Format: Class/Cases

Prerequisites: 3213, 8351

Projected Offering: Spring

8366 LEADERSHIP AND ORGANIZATIONAL DEVELOPMENT

Examination of leadership issues in an organizational framework. Topics include a historical review of organizational management thought; leadership theories with organizational applications; organizational diagnosis and analysis; organizational culture, change, and improvement; and concepts that relate to leading public organizations (such as organizational vision, parallel systems, and quality concepts).

Credit Hours: 3.00

Format: Class/Seminar

Prerequisites: 8211

Projected Offering: Fall and Spring

8367 ADVANCED LEADERSHIP

Examination of leadership issues in an organizational framework. Topics include a historical review of organizational management thought; leadership theories with organizational applications; organizational diagnosis and analysis; organizational culture, change, and improvement; and concepts that relate to leading public organizations (such as organizational vision, parallel systems, and quality concepts).

Credit Hours: 3.00

Format: Class

Prerequisites: 8211

Projected Offering: Fall

8413 MANAGERIAL ECONOMICS

Analysis of microeconomic forces in managerial decision making. Topics include: consumer demand and indifference curves; production functions and cost theories; producer behavior in different market structures; pricing theories: multiproduct pricing, pricing to deter entry; and transfer pricing; vertical integration. Evaluation of alternative firm objectives, and the non-traditional firm. Cost-benefit analysis.

Credit Hours: 3.00
Format: Class
Prerequisites: 8217
Projected Offering: Spring

8417 INVESTMENT THEORY

This course is an introduction to the modern investment theory. Major topics include utility theory, mean-variance portfolio construction, the Capital Asset Pricing model (CAPM), Arbitrage Pricing Theory (APT), efficient market hypotheses, interest rate theories, valuation of financial assets and their derivatives, as well as investment analysis and asset allocation to meet investment objectives.

Credit Hours: 3.00
Format: Class
Prerequisites: 3213, 8217, 8349 or equivalent courses
Projected Offering: Fall - Odd

8421 INTERNATIONAL FINANCIAL MANAGEMENT

This course addresses financial decision-making and operations in an international context. Principal topics are: international monetary system; forward/spot market relationships; international interest parity relationships, interest rate and currency derivatives; exchange rate risk management; international financial institutions; international equity markets and portfolio management; and capital budgeting and valuation in the environment of a multinational concern.

Credit Hours: 3.00
Format: Class
Prerequisites: 8349
Projected Offering: Fall - Even

8423 MANAGEMENT CONTROL

Study of the management control function in public, private, and governmental organizations: planning, programming, budgeting, operating and measurement, reporting and evaluation. Managerial accounting issues related to cost analysis and its role in decision-making and control.

Credit Hours: 3.00
Format: Seminar/Class
Prerequisites: 8115 or 8215, 8217
Corequisites: 8346
Projected Offering: Fall - Odd

8429 MANAGERIAL PSYCHOLOGY

The course is taught as a graduate style seminar where students will have responsibility to lead class discussions. It is a rigorous reading intensive study of advanced behavioral science topics such as MBTI, Transactional Analysis, Motivation, Commitment, Emotional Intelligence. A significant reading assignment and an entrance exam are required prior to the first day of class.

Credit Hours: 3.00
Format: Class/Seminar
Prerequisites: 8211
Corequisites: 8366
Projected Offering: Spring - Even

8439 DIRECTED STUDIES IN ECONOMICS

An in-depth, major research effort in an area of mutual interest to cadet and faculty member directing study. Directed Studies proposal must be submitted in writing and approved by the Department Head, applicable Section Head, and sponsoring faculty member.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: 8115 or 8215, 8217, 8313
Restrictions: 1/c Management majors and approval of Department Head
Projected Offering: Spring

8443 MARKETING

Marketing concepts and their relationship to strategic management of private, public, and not-for-profit organizations. Marketing mix, market segmentation, product differentiation, demographics, and advertising, promotion, distribution. Marketing of services and marketing's role in governmental organizations.

Credit Hours: 3.00

Format: Class/Cases

Prerequisites: 8217

Corequisites: 8217

Projected Offering: Fall

8445 PUBLIC MANAGEMENT CONSULTING

Management consulting project with Coast Guard units and/or governmental and not-for-profit organizations. Topics of emphasis vary with projects. Detailed project report and client presentation required.

Credit Hours: 3.00

Format: Project/Seminar

Prerequisites: 8357 and 8447

Restrictions: 1/c Management majors

Projected Offering: Spring

8447 STRATEGIC MANAGEMENT

Strategy and policy development in the private and public sectors. Emphasis on environmental analysis, strategic advantage profile, social responsibility, and ethics. The relationships of finance, personnel, marketing, and structure to policy decisions. Case studies/simulation.

Credit Hours: 3.00

Format: Class/Cases/Project

Prerequisites: 8115 or 8215, 8217, 8346, 8349, and 8366

Restrictions: 1/c Management majors only

Projected Offering: Fall

8455 INFORMATION TECHNOLOGY IN ORGANIZATIONS

In-depth examination of fundamental technological and managerial issues relevant to information technology management in the U.S. Coast Guard. Topics of emphasis include: computer architecture, network theory, and system administration, analytical processes in determining an organization's information technology needs, and the Coast Guard's IT plan. Structured to address state of the market and research developments in IT. A project with emphasis on real-world applicability is required.

Credit Hours: 3.00

Format: Class/Project/Laboratory

Prerequisites: 8331 or permission of the Instructor

Projected Offering: Fall

8459 SELECTED TOPICS IN LEADERSHIP

In depth examination of advanced leadership topics. Specific course content will vary based on emerging leadership theory, institutional and organizational needs, and student desires. Potential topic areas include intrinsic vs. extrinsic motivation, commitment vs. compliance, transformational leadership, visionary leadership, responsibility and accountability, strategic leadership, establishing and communicating a vision, communication and decision-making. Includes extensive reading, research, case writing, and a comprehensive writing assignment.

Credit Hours: 3.00

Format: Class

Prerequisites: 8366

Restrictions: 1/c cadets

Projected Offering: Fall and Spring

8468 DIRECTED STUDIES IN FINANCE

Provides the student an opportunity to work closely with a faculty member in an area of mutual interest. Potential topics include, but are not limited to, investment theory, risk management, option pricing, and advanced topics in corporate finance. Directed Studies proposal must be submitted in writing and approved by the Department Head, applicable Section Head, and sponsoring faculty member prior to the beginning of the semester.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites:

Restrictions: 1/c Management majors and approval of Department Head

Projected Offering: Spring

8469 DIRECTED STUDIES IN MANAGEMENT

An in-depth, major research effort in an area of mutual interest to cadet and faculty member directing study. Directed Studies proposal must be submitted in writing and approved by the Department Head, applicable Section Head, and sponsoring faculty member prior to the beginning of the semester.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: 8349

Restrictions: 1/c Management majors and approval of Department Head

Projected Offering: Fall and Spring

8479 DIRECTED STUDIES IN INFORMATION SYSTEMS AND DECISION SCIENCES

Provides the student with an opportunity to work closely with a faculty member in an area of mutual interest. Potential topics include, but are not limited to, development of database applications, web applications, understanding and application of new technologies, and advanced topics in information systems and decision sciences. Project proposals must be approved prior to the beginning of the semester.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: 8331, 8351, 8363 or equivalent courses

Projected Offering: Spring

PROJECTED OFFERINGS

Course	Course Title	Offered	'05-'06	'06-'07	'07-'08	'08-'09
0901	FCAOP	F	F	F	F	F
0924	Connecticut College	F & S	F S	F S	F S	F S
0925	Scholar's Project	F & S	F S	F S	F S	F S
0940	Peer Tutoring	F & S	F S	F S	F S	F S
1116	Statics & Engr Dsgn	F & S	F S	F S	F S	F S
1204	Eng Material Science	S	S	S	S	S
1206	Strngth of Materials	F	F	F	F	F
1208	Into Mech Engr Dsgn	F	F	F	F	F
1211	Dynamics	S	S	S	S	S
1218	Elec Engineering I	F	F	F	F	F
1222	Sgnls/Sys & Trnsfrms	S	S	S	S	S
1224	Intro Comp Prog	F	F	F	F	F
1301	Civil Engr Mtrls (T)	F	F	F	F	F
1302	Civil Engr Materials	F	F	F	F	F
1304	Soil Mechanics/Found	S	S	S	S	S
1309	Environmental Engr I	F	F	F	F	F
1313	Steel Design	S	S	S	S	S
1317	Struct Analysis I	F	F	F	F	F
1320	Intro to Elec/Comp Engr	F & S	F S	F S	F S	F S
1321	Elec Cir & Machines	F	F	F	F	F
1322	Linear Circuits	F	F	F	F	F
1324	Digital Circ/Cmp Sys	S	S	S	S	S
1326	Electromech Sys	S	S	S	S	S
1327	Acoustics and Music	S	S	S	S	S
1340	Fluid Mechanics	F	F	F	F	F
1342	Prin of Naval Arch	S	S	S	S	S
1346	Experimental Methods	F	F	F	F	F
1351	Thermodynamics	F	F	F	F	F
1353	Thermal Systems Dsgn	S	S	S	S	S
1358	Intro to C++ Prog	F	F	F	F	F
1362	Software Design I	S	S	S	S	S
1366	Intro to GUI Prog	F	F	F	F	F
1370	Mechanisms	S	S	S	S	S
1395	Projects in Engr	F & S	F S	F S	F S	F S
1401	Const Proj Mgmt	F	F	F	F	F
1402	Civil Eng Design	S	S	S	S	S
1407	Enviromntl Engr II	S	S	S	S	S
1408	Surveying	F	F	F	F	F
1411	Reinf Concrete Dsgn	F	F	F	F	F
1414	Struct Dsgn Extreme Events	S	S	S	S	S
1417	Structural Analysis II	S	S	S	S	S
1419	Dir Studies in C E	F & S	F S	F S	F S	F S
1420	Antennas & Propagatn	F	F	F	F	F
1422	Communication Syst	F	F	F	F	F
1424	Computer Cntrl Sys	S	S	S	S	S
1426	Prjcts El/Cmp Engr I	F	F	F	F	F
1429	Digital Signal Press	S	S	S	S	S
1431	Electronic Nav Syst	S	S	S	S	S
1432	Computer Comms & Ntwks	S	S	S	S	S
1435	Intro Aerodynamics	S	S	S	S	S
1436	Prjcts El/Cmp Engr II	S	S	S	S	S
1439	Dir Studies/EE	F & S	F S	F S	F S	F S
1440	Machine Design	F	F	F	F	F
1442	Prin of Ship Design	F	F	F	F	F
1444	Ship Dsgn/Syst Intgr	S	S	S	S	S
1446	Mechanical Engr Dsgn	S	S	S	S	S
1453	Ship Propulsion Dsgn	F	F	F	F	F
1455	Ship Structures	F	F	F	F	F
1458	Software Design II	F	F	F	F	F
1459	Heat Transfer	S	S	S	S	S
1460	Mch Ctrl of Dyn Sys	F	F	F	F	F
1462	Finite Element Anlys	S	S	S	S	S
1465	Radiation Detection	S	S	S	S	S
1469	Dir Studies/NAME	F & S	F S	F S	F S	F S

1479	Dir Studies/ME	F & S	F	S	F	S	F	S	F	S
1480	Design Project Mgt	F	F		F		F		F	
1489	Sel.Topics in EI/Cmp Engr	F & S	F	S	F	S	F	S	F	S
2101	Intro College Comm	F	F		F		F		F	
2111	Eng Comp & Speech	F & S	F	S	F	S	F	S	F	S
2121	Art of Effctv Wrting	F	F		F		F		F	
2123	Intro to Literature	F & S		S	F	S	F	S	F	S
2125	Intro to Lit (H)	S		S		S		S		S
2141	History of the US	F & S	F	S	F	S	F	S	F	S
2235	Spanish I	F	F		F		F		F	
2236	Spanish I/II	S		S		S		S		S
2237	Spanish II	S		S		S		S		S
2259	Prin of Amer Govt	F	F		F		F		F	
2261	Amer Foreign Policy	S		S	F	S		S		S
2263	American Government	F & S	F	S	F	S	F	S	F	S
2283	Evaluation & Cnslng	S		S	F	S		S		S
2315	Drawing I	S		S		S		S		S
2323	Hum/World Lit: Arts	S		S		S		S		S
2324	Hum/World Lit: Lat Am	S - Odd				S				S
2325	Hum/World Lit: Pol/Hist	S - Even				S				S
2331	CG Spanish	S		S				S		S
2333	Selctd Topics in Lit	S		S		S		S		S
2335	Spanish III	F	F		F		F		F	
2337	Spanish IV	S		S		S		S		S
2338	Latin American Hist	F - Even			F				F	
2341	Europe Since 1648	S - Odd				S				S
2345	World War II	F - Odd	F				F			
2349	Adv. Spanish: Intl Rltns	F	F							
2351	Great European Ldrs	F	F		F		F		F	
2357	Russia	S		S		S		S		S
2360	Sel Topics in Phlsphy	S		S				S		S
2361	Western Pol Theory	S		S		S		S		S
2365	Comparative Politics	S		S		S		S		S
2367	Internatl Relations	F	F		F		F		F	
2370	Contem. U.S. For. Policy	S - Odd								S
2372	Political Partcptn	F - Even			F				F	
2381	Social Psychology	F	F				F		F	
2389	Law and the Courts	S - Odd								S
2391	Criminal Justice	F & S	F	S	F	S	F	S	F	S
2393	Morals and Ethics	F & S	F	S	F		F	S	F	S
2395	Rhtic & CrtRm Advocacy	Full Year	F	S	F	S	F	S	F	S
2421	Dir Stds/Humanities	F & S	F	S	F	S	F	S	F	S
2425	Senior Honors Smnr	F & S	F	S			F	S	F	S
2429	Creative Writing	S - Even		S				S		
2439	Advanced Spanish	F			F		F		F	
2441	The Civil War	F - Even			F				F	
2449	Dir Studies/Philos	F & S	F	S	F	S	F	S	F	S
2454	Amer in Nuclear Age	S - Even		S				S		
2457	Public Policymaking	F	F		F		F		F	
2459	Dir Studies/History	F & S	F	S	F	S	F	S	F	S
2461	Congress & Prsdncy	F - Odd	F				F			
2462	Selct Tpcs in Public Policy	S		S	F	S		S		
2463	US Maritime Hist/Pol	F	F		F		F		F	
2465	Military Policy	S - Even		S				S		
2467	Global Plcy Studies	F	F			S	F		F	
2469	Natl Security Policy	F	F		F		F		F	
2470	Exec. Politics/Policymkng	S		S				S		S
2471	Area Studies	S		S		S		S		S
2472	Drugs Policy	S - Odd				S				S
2474	Politics of Int Econ	S - Even		S		S		S		
2475	Mass Media &Am. Politics	S				S		S		S
2476	Democracy in America	S		S		S		S		S
2479	Dir Studies/Govt	F & S	F	S	F	S	F	S	F	S
2489	Dir Studies/Psy	F & S	F	S	F	S	F	S	F	S
2493	Maritime Law Encfcmnt	F & S	F	S	F	S	F	S	F	S
2496	International Law	F	F		F		F		F	
2497	Constitutional Law	S		S		S		S		S
2498	Senior Thesis	F & S	F	S	F	S	F	S	F	S
2499	Dir Studies/Law	F & S		S	F	S	F	S	F	S
3107	Intro to Calculus	F	F		F		F		F	

3111	Calculus I	F & S	F	S	F	S	F	S	F	S
3115	Calculus II (V)	F	F		F		F		F	
3117	Calculus II	F & S	F	S	F	S	F	S	F	S
3211	Multivariable Calc	F & S	F	S	F	S	F	S	F	S
3213	Probability & Stat	F & S	F	S	F	S	F	S	F	S
3215	Differential Eqtns	F & S	F	S	F	S	F	S	F	S
3221	Linear Algebra	F	F		F		F		F	
3231	Linear Optimization	S		S		S		S		S
3237	Discrete Mathematics	S		S		S		S		S
3301	Adv Engineering Math	S		S		S		S		S
3311	Advanced Calculus	S		S		S		S		S
3333	Network & Nonlin Optim	F	F		F		F		F	
3335	Visual Basic	S		S		S		S		S
3341	Probability Theory	F	F		F		F		F	
3343	Mathematical Stats	S		S		S		S		S
3351	Probability Models	S		S		S		S		S
3417	Numerical Analysis	S		S		S		S		S
3441	Expl Data Analysis	F	F		F		F		F	
3447	Linear Regression	F	F		F		F		F	
3453	Decision Models	F	F		F		F		F	
3463	Simulation w/Risk Anlys	F			F		F		F	
3471	Operations Analysis	S		S		S		S		S
3479	Dir Studies/OR	F & S	F	S	F	S	F	S	F	S
4102	Physiology of Fitness I	F	F		F		F		F	
4103	Personal Defense I	S		S		S		S		S
4111	Swimming I	F	F		F		F		F	
4112	Physiology of Fitness I	S		S		S		S		S
4204	Lifetime Sports I/RQB	F & S	F	S	F	S	F	S	F	S
4211	Swimming II	F & S	F	S						
4214	Lifetime Sports II: Golf	F & S			F	S	F	S	F	S
4222	Prof Rescuer	F & S			F	S	F	S	F	S
4303	Personal Defense II	F & S	F	S	F	S	F	S	F	S
4304	Lifetime Sports III: TS	F & S	F	S	F	S	F	S	F	S
4311	Swimming III	F & S	F	S						
4314	Lifetime SportsIII/Golf	F & S	F	S						
4401	Water Safety Inst	F	F		F		F		F	
4403	Martial Arts	F & S		S		S	F	S	F	S
4404	Badminton	F & S			F	S	F	S	F	S
4405	Adventure Sports I:RC	F & S	F		F	S	F	S	F	S
4407	Dance	F & S	F	S	F	S	F	S	F	S
4409	Horseback Riding	F & S	F	S	F	S	F	S	F	S
4411	Scuba Diving	F & S	F	S	F	S	F	S	F	S
4414	Advanced Golf	F & S	F	S	F	S	F	S	F	S
4415	Adventure Sports II	S		S		S		S		S
4421	Advanced Scuba Diving	S			S		S		S	
4425	Ropes Challenge	F	F		F		F		F	
4434	Skiing/Snowboarding	S		S		S		S		S
4439	Theory of Coaching	F & S	F	S	F	S	F	S	F	S
4444	Indoor Recrtrl Sports	F & S	F	S	F	S	F	S	F	S
4454	Lifetime Team Sports	F & S	F	S						
4459	Sport/Wellness Leader	F & S	F	S	F	S	F	S	F	S
4464	Strength & Conditioning	S		S		S		S		S
4499	Dir Studies/HPE	F & S	F	S	F	S	F	S	F	S
5102	Chemistry I	F & S	F	S	F	S	F	S	F	S
5104	Chemistry I Honors	F	F				F		F	
5106	Chemistry II	S		S		S		S		S
5108	Chemistry II Honors	S		S		S		S		S
5232	Marine Biology	F	F		F		F		F	
5234	Marine Geology	S		S		S		S		S
5238	Physical Oceanogrphy	S		S		S		S		S
5240	Meteorology	F	F		F		F		F	
5247	Projects in Mar Sci	F & S	F	S	F	S	F	S	F	S
5262	Physics I	F	F		F		F		F	
5266	Physics II	S		S		S		S		S
5306	Physical Chemistry	F	F		F		F		F	
5312	Analytical Methods	S		S		S		S		S
5334	Fisheries Biology	F			F		F		F	
5338	Marine Forecasting	As R'qrd			S					
5342	Bio/Chem Oceans	S		S		S		S		S
5350	Ocean Dynamics	F	F		F		F		F	

5352	Ocean Circulation	S		S		S		S		S
5364	Semi-conductor Phys	S		S		S		S		S
5366	Astronomy	F - Odd	F			F				
5389	Dir Studies/Physics	F & S	F	S	F	S	F	S	F	S
5402	Organic Chemistry	F	F		F		F		F	
5415	Hazardous Materials	S		S		S		S		S
5417	Toxicology	S		S		S		S		S
5421	Projects in Chem	F & S	F	S	F	S	F	S	F	S
5429	Research in Chem	F & S	F	S	F	S	F	S	F	S
5430	Remote Sensing	As R'qrd				S				
5434	Fisheries Biology	F	F							
5436	Coastal Oceanography	F	F		F		F		F	
5441	Marine Pollution	F			F		F		F	
5442	Oceanography	F & S	F	S	F	S	F	S	F	S
5445	Fisheries Management	S		S		S		S		S
5459	Research in Mar Sci	F & S	F	S	F	S	F	S	F	S
5475	Introduction to GIS	S - Even		S						
5475	Intro Geospatial Sci	S			F	S		S		S
5477	Optics	F - Even			F				F	
6112	Nautical Science I	F & S	F	S	F	S	F	S	F	S
6214	Nautical Science II	F & S	F	S	F	S	F	S	F	S
6316	Nautical Science III	F & S	F	S	F	S	F	S	F	S
6418	Nautical Science IV	F & S	F	S	F	S	F	S	F	S
8115	Macroeconomic Prin	F & S	F	S	F	S	F	S	F	S
8211	Ldrshp/Org Behavior	F & S	F	S	F	S	F	S	F	S
8215	Macroeconomic Prin	F & S	F	S	F	S	F	S		
8217	Microeconomic Prin	F		S	F		F		F	
8231	Management Info Sys	S				S		S		S
8246	Financial Accounting	S				S		S		S
8313	Managerial Economics	F	F							
8323	International Economics	S - Odd				S				S
8329	Global Economic Issues	S - Even		S				S		
8331	Management Info Sys	S		S						
8337	Database Systems	F	F		F		F		F	
8343	Public Sector Economics	S - Even		S				S		
8346	Financial Accounting	F	F		F					
8348	Managerial Accounting	S		S		S		S		S
8349	Financial Management	F		S	F		F		F	
8351	Quantitative Methods	F	F		F		F		F	
8353	Info Sys For Mgrs	S		S		S		S		S
8357	Human Resource Mgt	F	F		F		F		F	
8358	Negt & Conflict in Teams	F - Even			F				F	
8361	Transportation Economics	S - Odd				S				S
8363	Operations Research	S		S		S		S		S
8366	Ldrshp & Orgn Dvlmnt	F & S	F	S	F	S	F	S	F	S
8367	Advanced Leadership	F			F		F		F	
8413	Managerial Economics	S			F	S		S		S
8417	Investment Theory	F - Odd	F				F			
8421	Int Finance Mgmt	F - Even			F				F	
8423	Management Control	F - Odd	F				F			
8429	Managerial Psychology	S - Even		S				S		
8439	Dir Studies/Econ	S		S		S		S		S
8443	Marketing	F	F			S		S		S
8445	Public Mgmt Consult	S		S		S		S		S
8447	Strategic Management	F	F		F		F		F	
8455	Info Tchnlgy in Org	F	F		F		F		F	
8459	Sel Topics in Ldrshp	F & S	F	S	F	S	F	S	F	S
8468	Dir Studies in Finance	S		S		S		S		S
8469	Dir Studies/Mgmt	F & S	F	S	F	S	F	S	F	S
8479	Dir Studies in IS/DS	S		S		S		S		S

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Carla DeSantis, M.S., Professional Faculty, Head Soccer Coach (Women)
Stephen Eldridge, M.S., Associate Professor, Head Wrestling and Head Cross Country Coach (Men)
Dana R. Fleischmann, M.S., Professional Faculty, Assistant Football Coach and Director of Intramurals
Bill George, M.S., Professional Faculty, Head Football Coach

Ulysses C. Grant, M.S., Professional Faculty, Assistant Football Coach
Barry H. Hurst, B.S., USN Ret., Aquatics Instructor (OCS, LDC)
Donna Koczajowski, M.S., Professional Faculty, Head Softball Coach
Raymond LaForte, M.S., Professional Faculty, Assistant Football
Chris Parsons, M.S., Professional Faculty, Head Soccer Coach (Men)
Daniel Rose, M.S., Professional Faculty, Track (Indoor/Outdoor) (Men/Women)
John P. Westkott, M.S., Professional Faculty, Head Swimming Coach (Men/Women)

ADMISSIONS DIVISION

Susan D. Bibeau, Captain, USCG, M.S., Director of Admissions

Recruiting

Amy Miller, LTJG, USCG, B.S., Admissions Officer
John Northrop, LTJG, USCG, B.S., Outreach Coordinator, CGRIT Coordinator
Octavia D. Poole, Lieutenant Commander, USCG, Director of Recruiting
Chris A. McMunn, Lieutenant, USCG, M.S., Admissions Officer
Eric S. Runyon, Ensign, USCG, B.A., Admissions Officer
Samuel Cheung, LTJG, USCG, B.S., Admissions Officer
Ian Bartonicek, LTJG, USCG, B.S., Admissions Officer
Jeffrey Platt, LT, USCG, B.S., Admissions Officer

Marketing

Chris Haley, Lieutenant, USCG, B.S., Director of Marketing

Support

Kenneth Cutler, Lieutenant, USCG, B.S., Director of Support

ATHLETICS DIVISION

Raymond Cieplik, Ph.D., Professor, Director of Athletics
Peter K. Barry, M.A., Professional Faculty, Head Baseball Coach and Head Basketball Coach (Men)
Mary Boiczuk, M.S., Professional Faculty, Assistant Swimming Coach (Men's and Women's)
Robert Bono, Basketball Coach (Associate)
Bruce Cobb, Athletic Equipment Room Manager
Carla DeSantis, M.S., Professional Faculty, Head Soccer Coach (Women)
Steve Eldridge, M.S., Associate Professor, Head Wrestling and Head Cross Country Coach (Men)
Leroy E. Falconi, Head Cross Country Coach (Women)
Jack Flaherty, Equipment Room Staff
Dana R. Fleischmann, M.S., Professional Faculty, Assistant Football Coach and Director of Intramurals
Bill George, M.S., Professional Faculty, Head Football Coach
Patty D. Giannattasio, Head Volleyball Coach
Ulysses C. Grant, M.S., Professional Faculty, Assistant Football Coach
Marc Grindstaff, Equipment Room Staff
Steve Hargis, B.S., Head Crew/Rowing Coach
Donna Koczajowski, M.S., Professional Faculty, Head Softball Coach
Raymond LaForte, M.S., Professional Faculty, Assistant Football
Art Lamoureux, B.S., Athletic Operations Director
Greg Matlin, Lieutenant Commander, USCG, M.S., Head Tennis Coach
Michael E. McKaughan, Ph.D., Professional Faculty, Head Rifle Coach
Ken Niedzwiecki, A.T.C., Head Athletic Trainer
Viola Oliver, Secretary Billard Hall
Tami Osterhout, M.S., A.T.C., Athletic Trainer
Chris Parsons, M.S., Professional Faculty, Head Soccer Coach (Men)
Eric I. Reisinger, A.T.C., Assistant Athletic Trainers
Daniel Rose, M.S., Professional Faculty, Track (Indoor/Outdoor) (Men/Women)
Becky Rumovicz, M.S., A.T.C., Athletic Trainer
Alexander O. Simonka, USCG Ret., B.S., Head Basketball Coach (Women)
Jason S. Southard, B.S., Sports Information Director

Andrea Stewart, Office Manager
John P. Westkott, M.S., Professional Faculty, Head Swimming Coach (Men/Women)
Brad Yeargin, M.S., A.T.C, Athletic Trainer

CADET DIVISION

Douglas Wisniewski, Captain, USCG, M.S., Commandant of Cadets
Raymond Pulver, Commander, USCG, M.S., Assistant Commandant of Cadets
Nell Ero, Lieutenant, USCG, M.S., FOXTROT Company Officer
Michelle Hoerster, Lieutenant, USCG, DELTA Company Officer
James Gatz, Lieutenant, USCG, B.S., ECHO Company Officer
Richard Hartley, Lieutenant, USCG, B.S., CHARLIE Company Officer
Joseph Meuse, Lieutenant, USCG, B.S., HOTEL Company Officer
Pride Sanders, Lieutenant, USCG, B.S., ALFA Company Officer
Tiffany St. George, Lieutenant, USCG, B.S., GOLF Company Officer
Michael Thomas, Lieutenant, USCG, B.S., BRAVO Company Officer
Edward Lewis, Senior Chief Petty Officer, USCG, Alfa Company Chief
Gregory McCarthy, Senior Chief Petty Officer, USCG, Bravo Company Chief
Henry Connors, Chief Petty Officer, USCG, Charlie Company Chief
Karl Dillmann, Chief Petty Officer, USCG, Delta Company Chief
Curt Dubert, Chief Petty Officer, USCG, Echo Company Chief
William Anderson, Chief Petty Officer, USCG, Foxtrot Company Chief
Vikki Cates, Senior Chief Petty Officer, USCG, Golf Company Chief
William Geary, Chief Petty Officer, USCG, Hotel Company Chief

USCGC Eagle

Eric J. Shaw, Captain, USCG, Ph.D., Commanding Officer
Andrea M. Marcille, M.S., Lieutenant Commander, USCG, Executive Officer

Cadet Activities

Margaret J. Bowen, Cadet Social Activities
Robert G. Newton, Ph.D., Assistant Professor, Cadet Vocal Activities

Cadet Professional Development

Craig Gilbert, Commander, USCG, B.S., Chief, Professional Development Branch

Andrea M. Marcille, Commander, USCG, M.S., Chief, Training and Assessment Section
Jeff Haukom, Lieutenant Commander, USCG, B.A., Chief, Nautical Science Section
Christopher Billiau, Lieutenant, USCG, B.S., Training Officer
Richard Gunagan, Lieutenant, USCG, B.S., SCANTS Supervisor
John Christensen, Lieutenant, USCG, B.S., Nautical Science I Course Coordinator
Jessica Worst, Lieutenant, USCG, B.S., Nautical Science II Course Coordinator
Patrick Dougan, Lieutenant, USCG, B.S., Nautical Science III Course Coordinator
Riley Gatewood, Lieutenant, USCG, B.S., Nautical Science IV Course Coordinator
Denise Judge, Lieutenant, USN, B.A., Nautical Science Instructor
Colin MacInnes, Lieutenant, USCG, B.S., Nautical Science Instructor
Chester Passic, Lieutenant, USCG, B.S., Nautical Science Instructor
Thomas Riley, Lieutenant, USCG, B.S., Nautical Science Instructor
Amanda Caprari, Lieutenant (jg), USCG, B.S., Nautical Science Instructor
Meghan Steinhaus, Lieutenant (jg), USCG, B.S., Assistant Training Officer
Todd Weimorts, Chief Boatswains Mate, USCG, Nautical Science Instructor

Cadet Support

Jonathan D. Heller, Commander, USCG, M.B.A., Chief, Support Branch

Waterfront

Allen L. Kruger, Chief, Sailing and Seamanship

COMPTROLLER DIVISION

Michael Lopez, Commander, USCG, M.B.A., Comptroller

Financial Management Branch

Fred W. Hoyle, Branch Chief

Supply Branch

Rodney Medders, CWO2, USCG, Branch Chief

Logistics Branch

Cindy Gustin, CWO2, USCG, Branch Chief

INFORMATION SERVICES DIVISION

Richard F. Roncone, Commander, USCG, M.S., M.B.A., Chief Information Officer

Support Branch

Karen A. Smith, B.S., Deputy, Branch Chief

Administrative Systems Branch

Jadon Klopson, Lieutenant Commander, USCG, M.S., Branch Chief

Communications Branch

Steven A. Ripkey, Information Systems Technician Senior Chief, USCG, Branch Chief

FACILITIES ENGINEERING DIVISION

Jay Phillips, Commander, USCG, M. S., Division Chief

Construction and Engineering Branch

Gregory J. Carabine, M.S., Chief, Construction and Engineering

Public Works Branch

David Palazzetti, Commander, USCG, M.S., Public Works Officer

HEALTH SERVICES DIVISION

Marc A. Getka, Captain, USPHS, Chief, Outpatient Division

Randolf Coffey, Captain, USPHS, Deputy Chief, Dental Division

Bryan Oditt, Lieutenant (jg), Physician Assistant

Joseph Perez, Lieutenant Commander, USPHS, Family Practice

Jason Ramsdell, Lieutenant, Physician Assistant

Diana Rodriguez, Commander, USPHS, Family Practice

Richard Shumway, Commander, USPHS, Physical Therapist

Deborah Thompson, Commander, USPHS, Pharmacy Officer

Carl J. Tjerandsen, Captain, USPHS, Psychiatrist

Charles Truncala, Lieutenant Commander, Dental Staff

LEADERSHIP DEVELOPMENT CENTER

David Brimblecom, Captain, USCG, Director, Leadership Development Center

Jonathan H. Nickerson, Captain, USCG, M.S., Deputy Director, Leadership Development Center

Teresa M. LaSota, USCG, Administrative Assistant

Tynan K. Moore, Petty Officer, First Class, USCG, Office Supervisor

Andres Borroni, Petty Officer, Second Class, USCG, Storekeeper

James Hockler, Petty Officer, Second Class, USCG

Command and Operations School

Jeffrey Lee, Captain, USCG, M.P.A., School Chief

Tim Williamson, Lieutenant, USCG, Asst. School Chief

Mark W. Romesburg, Master Chief, USCG, Instructor

John A. Hayes, USCG, Training Specialist

Robert Craighead, Master Chief, USCG, OIC/XPO School Chief

Bill Nunes, Lieutenant, USCG, Lead Instructor

Brian Wrench, USCG, Petty Officer, Second Class, Administrative

Officer Accession and Transition

William Kelly, Commander, USCG, M.S., School Chief
 Patti Seeman, Lieutenant Commander, USCG, M.B.A., Assistant School Chief
 KC Moran, USCG, Administrative Assistant
 Mark Patrick, PhD, USCG, Professor
 Patrick Peschka, Lieutenant, USCG, B.S., Operations Instructor*
 Amy Florentino, Lieutenant, USCG, B.S., Operations Section Chief*
 Jill Teixeira, Lieutenant, USCG, B.S., Academics Section Chief*
 Rob McCaskey, Lieutenant, USCG, LAM Section Chief*
 Tammy Michelli, Lieutenant, USCG, B.S., Operations Instructor/ROCI School Chief*
 Rachel Lewis, Lieutenant, USCG, B.S., LAM Instructor/CSPI School Chief*
 Eric Casper, Lieutenant, USCG, B.S., Operations Instructor/Asst DCO School Chief*
 Jon Berkshire, Lieutenant, USCG, B.S., LAM Instructor/HPR Coordinator*
 Steve Kee, Lieutenant, USCG, Academics Instructor/DCO School Chief*
 Paul Sanger, Lieutenant Junior Grade, USCG, LAM Instructor/Asst ROCI School Chief*
 Erin Christensen, Lieutenant Junior Grade, USCG, B.S., Academics Instructor/COP School Chief*
 Matthew Weber, Lieutenant Junior Grade, USCG, B.S., Academics Instructor*
 Mike Friend, Lieutenant Junior Grade, USCG, B.S., Master Scheduler*
 John O'Hara, Chief Warrant Officer (W-2), USCG, Operations Instructor/Asst CSPI School Chief*
 Nicholas Mynuk, Chief Petty Officer, USCG, Barracks Chief/Asst COP School Chief

* May also fulfill the role of Platoon Officer

Chief Warrant Officer Professional Development School

Anthony (Brian) Caudle, Lieutenant, USCG, Chief
 Guy Cashman, Chief Warrant Officer (W-3), USCG, Assistant Chief
 Kathleen Parker, Chief Warrant Office (W-2), USCG, Instructor

Leadership Program Development and Academic Affairs Branch

Karen Kimmel, Ph.D., USCG, Chief
 Sarah Johnson, USCG, M.S.A., Program Manager, Graphics, E-Learning and Web Design
 Anne Niccoli, USCG, M.A., Program Manager, Curriculum Development
 Cedric Tate, USCG, B.S., Program Manager, Special Projects
 *Currently recruiting, Program Manager, Academic Affairs
 *Currently recruiting, Program Manager, Testing and Evaluation

Leadership and Quality Institute

Paul R. Bissailon, Lieutenant Commander, USCG, Chief
 Robert R. Buxman, Senior Chief, USCG, M.S., Instructor
 Charles D. Coiro, USCG, M.S, Chief, Performance Excellence
 Tami Floodine, Lieutenant, USCG, B.S., Chief, Leadership
 Mike Conroy, Chief Warrant Officer (W-2), USCG, Chief, LAMS Programs/Aux Liaison
 Kenneth King, Chief Warrant Office (W-2), USCG, Ldrship, Mentoring and Professional Development
 Mark Wiggins, Chief Petty Officer, USCG, LAMS Instructor
 Eric Johnson, Senior Chief Petty Officer, USCG, Mentoring and Prof. Development/LAMS Instructor
 Mark Jadofsky, Petty Officer, First Class, USCG, LAMS Instructor
 Anthony Garcia, Petty Officer, First Class, USCG, LAMS Instructor
 Bill Martin, Chief Petty Officer, USCG, LAMS Instructor and OIC/XPO School Support
 Michael Brzezicki, Chief Warrant Officer (W-3), USCG, B.S., Asst Section Chief, Performance Excellence

Leadership and Professional Development

David P. Crowley, Commander, USCG, M.S Ed., M.P.A., Training Officer
 Robert Brayman, Master Chief Petty Officer, USCG, M.S Ed., School Chief, Senior Enlisted and Command Master Chief Course
 Thomas Stokes, Lieutenant, USCG, ULDP Officer

PERSONNEL AND ADMINISTRATIVE DIVISION

Leigh A. Archbold, Commander, USCG, M.S., Division Chief

Military Personnel Branch

Andrew S. McGurer, Lieutenant Commander, USCG, Chief, Military Personnel Branch

Kenneth W. Megan, Jr., Lieutenant, USCG, Director, CG Band

Morale Welfare and Recreation Branch

Paula S. Springer, Chief, MWR Branch

Child Development Center

Patricia McIlveen, Director, Child Development Center

CG Personnel Command, New London Detachment

TBD, Civilian Personnel

ALUMNI ASSOCIATION

James A. Sylvester, Commander, USCG (Ret.), M.B.A., President

John Maxham, Captain, USCG (Ret.), Nav.E, M.S.M.E., Vice President for Development

A C A D E M I C S T A T I S T I C S

CLASS OF 2005 STATISTICS

Sworn In	284
Graduated	206
Women Graduated	64
International Cadets	4
Graduated with High Honors	31
Graduated with Honors	40
Majors (8)	
Civil Engineering	30
Electrical Engineering	15
Mechanical Engineering	17
Naval Architecture and Marine Engineering	9
Government	35
Operations Research & Computer Analysis	26
Marine and Environmental Sciences	39
Management	34
Electrical Engineering/Operations Research	1

Graduation Speaker:

Secretary of the Department of Homeland Security, Michael Chertoff