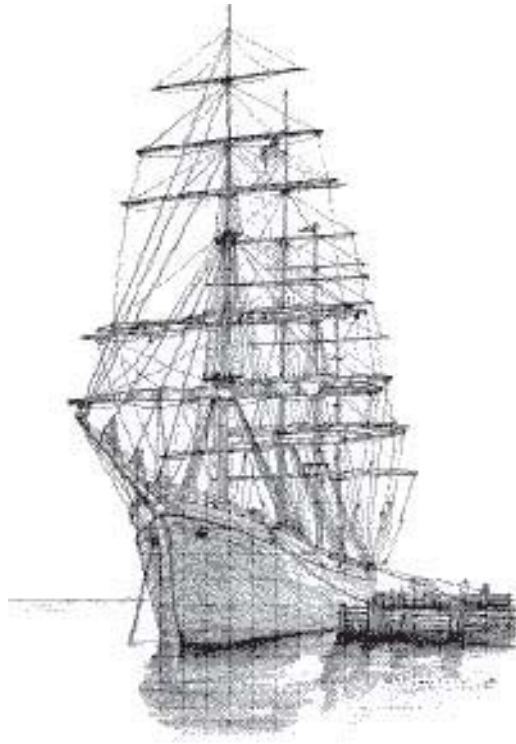


**UNITED STATES
COAST GUARD ACADEMY**

NEW LONDON, CT



CATALOG OF COURSES 2010-2011

Reservation of Rights

This Catalog primarily reflects information regarding the Cadet Undergraduate Program for the Class of 2014.

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. We are proud of our role in educating, developing, training, and inspiring leaders of character for the Coast Guard, which is a military, maritime, and multi-mission organization. We are the smallest of the five armed forces, and I believe that the more you learn about us the more you will be interested in becoming a part of our heritage.

As the smallest and perhaps most distinctive of the four armed service academies, our mission is to graduate leaders of character who will serve as commissioned officers in the Coast Guard. We have excelled at that mission for over 130 years. The talent of our officer corps is highly regarded by the citizens of this nation, and considered by many to be the best in government. Every day here is devoted to developing these future leaders.

Our academic program is among the nation's best as reflected in the national rankings and by our accreditation status. The classes here are small, our faculty is accessible, and they love their work. All members of our faculty have advising responsibilities. After demonstrating success in the Coast Guard, 80% of our graduates go on to attend the finest graduate schools in America, at our expense and at full salary.

My most important responsibility as Superintendent is the safety, security, and personal development of every cadet. You deserve the best, and so do the men and women of the Coast Guard our officers will lead after graduation. My promise is that I will do my very best to care for each cadet, while at the same time challenging them to maintain the highest personal standards of honor, respect, and devotion to duty.



Rear Admiral J. Scott Burhoe, USCG
Superintendent, U.S. Coast Guard Academy

DEAN'S MESSAGE

On behalf of the Academic division, welcome to the United States Coast Guard Academy.

The Academy experience is one that is filled with exciting challenges and is focused on the intellectual, physical and professional growth of our future Coast Guard leadership.



The present-day world is a dynamic environment that demands well-developed critical thinking skills, a strong ability to communicate, and a relentless desire to learn. Coast Guard officers possess sharp minds, demonstrate sound leadership competencies, and value the importance of teamwork while living and breathing the Coast Guard Core Values of Honor, Respect, and Devotion to Duty.

The Academy's core curriculum is firmly based in the arts and sciences with a breadth of technical and professional exposure that serves as the nucleus of each academic major. Rigorous in-depth study in a chosen area is a natural follow on that provides opportunity for collaborative projects and self-managed intellectual work, frequently directed at analyzing and solving real world problems. Each academic program is subjected to internal and external oversight that provides valuable feedback for continual improvement within our demanding higher education environment. Our taxpayers and our service deserve nothing less.

The Faculty at USCGA works very hard in making themselves available to you, the cadets, when you are in need of assistance of any kind. They work alongside other members of your individual development team in providing assistance above and beyond the classrooms and laboratories. In short, we are dedicated to fostering your success and allowing each of you to reach your full potential.

This book contains valuable information about academic programs, support services, graduation standards and interesting curricular and extracurricular opportunities. I hope that you will find it useful and will refer to it often.

Semper Paratus,

Kurt J. Colella, Ph.D., P. E.

Dean of Academics

Captain, USCG (retired)

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PART I — INTRODUCTION

The United States Coast Guard Academy at New London, Connecticut, is one of the five 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 superb undergraduate education. It is the principal source of technical degreed graduates for the United States Coast Guard officer corps.

ACADEMY MISSION STATEMENT

The United States Coast Guard Academy is committed to strengthening the nation's future by educating, training, developing, and inspiring 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.

CADET MISSION

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.

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.

To ensure that we produce quality officers who demonstrate the behaviors and leadership competencies that we hope to develop, the faculty and staff 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;

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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 motivation 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, physical, and professional 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

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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.

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).

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- 1966 First African-American Academy graduate.
- 1973 Electrical, Marine, and Ocean Engineering programs were accredited by ECPD.
- 1976 Women cadets were first admitted to the Academy.
- 1978 The Civil Engineering program was accredited by ECPD.
- 1980 Engineers' Council for Professional Development (ECPD) renamed the Accreditation Board for Engineering and Technology (ABET).
- 1996 The Mechanical Engineering program was accredited by ABET.
- 1998 The Leadership Development Center opened.
- 2005 The Academy and its Management degree program received initial accreditation by AACSB International - the Association to Advance Collegiate Schools of Business.

INSTITUTIONAL ACCREDITATION

The U.S. Coast Guard Academy is accredited by the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges.

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 ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD 21202-4012 – telephone: (410) 347-7700.

The Academy and its Management degree program are accredited by AACSB International - the Association to Advance Collegiate Schools of Business.

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,

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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.

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CRITICAL DATES CALENDAR

<i>Event</i>	<i>2010-2011</i>	<i>2011-2012</i>	<i>2012-2013</i>	<i>2013-2014</i>
4th Class Reporting Day	28 Jun	27 Jun	2 Jul	1 Jul
Summer Program End	15 Aug	13 Aug	18 Aug	17 Aug
Cadet Admin Processing	16-20 Aug	15-19 Aug	20-24 Aug	19-23 Aug
Convocation	19 Aug	18 Aug	23 Aug	22 Aug
Class Start-Fall Semester	23 Aug	22 Aug	27 Aug	26 Aug
Labor Day	6 Sep	5 Sep	3 Sep	2 Sep
Parents' Weekend	8-10 Oct	14-16 Oct	5-7 Oct	27-29 Sep
Homecoming	1-3 Oct	23-25 Sep	28-30 Sep	18-20 Oct
Columbus Day	11 Oct	10 Oct	8 Oct	14 Oct
Veterans' Day	11 Nov	11 Nov	12 Nov	11 Nov
Thanksgiving Leave	24-28 Nov	23-27 Nov	21-25 Nov	27 Nov-1 Dec
Last Class Day-Fall Sem	8 Dec	7 Dec	12 Dec	11 Dec
Study&Conf Day-Fall Sem	9 Dec	8 Dec	13 Dec	12 Dec
Exam Period-Fall Sem	10-16 Dec	09-15 Dec	14-20 Dec	13-19 Dec
Winter Leave	17 Dec-2 Jan	16 Dec-2 Jan	21 Dec-6 Jan	20 Dec – 5 Jan
Mid-Year Admin Processing	3-7 Jan	3-6 Jan	7-11 Jan	6 – 10 Jan
Class Start-Spring Sem	10 Jan	9 Jan	14 Jan	13 Jan
Martin L. King, Jr. Day	17 Jan	16 Jan	21 Jan	20 Jan
Presidents' Day	21 Feb	20 Feb	18 Feb	17 Feb
Spring Leave	5-13 Mar	3-11 Mar	9-17 Mar	8-16 Mar
Last Class Day-SprngSem	27 Apr	25 Apr	1 May	30 Apr
Undrgrd Resrch Symp Day	28 Apr	26 Apr	2 May	1 May
Study&Conf Day-SprngSem	29 Apr	27 Apr	3 May	2 May
Exam Period-Spring Sem	30 Apr-6 May	28 Apr-4 May	4-10 May	3-9 May
Summer Training Begins	7 May	5 May	11 May	10 May
Graduation	18 May	16 May	22 May	21 May
Summer Term	13 Jun-22 Jul	18 Jun-27 Jul	17 Jun-26 Jul	16 Jun-25 Jul

PART II

ORGANIZATION AND RESOURCES



Hamilton Hall

Academy personnel and facilities are organized into the rigorous and supportive learning environment needed by Cadets for their intellectual, 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.

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 the Academy strategic plan and the facilities master plan current.
5. Reviewing programs that impact the total Academy experience including the academic, professional/military, 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 various academic programs.

ADMISSIONS DIVISION

The mission of the Admissions Division is to attract prospective cadets who are suited to develop into future leaders and officers in the United States Coast Guard. The division is responsible for coordinating recruiting, outreach and orientation programs, and evaluating and selecting candidates for appointment to the U.S. Coast Guard Academy.

Requirements

The U.S. Coast Guard Academy offers appointments on the basis of a nationwide merit-based competition. Those who are accepted are distinguished by proven academic accomplishment, skills as an athlete, a record of community service or part-time employment, motivation to embrace leadership development, and an unwavering desire to serve their country and humanity. Applicants must be a U.S. citizen between the ages of 17 and 22 years old upon entering the Academy. They must be unmarried with no dependants or financial debt and possess a high school diploma or GED (or will prior to entry). Most successful candidates graduate in the top 15% of their high school class and demonstrate proficiency in both mathematical and applied science fields. Applicants must complete the SAT or ACT (with Writing Test) exam prior to or during January test administration of the year of entry.

Appointments to the U.S. Coast Guard Academy are tendered on a selective basis. Congressional nominations are not required. 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

Application to the Academy is free, online, and completely secure. Applicants can access the online application directly from the Academy's website, www.uscga.edu. Applicants must submit the online application and essays, official SAT or ACT (with Writing Test) exam scores, an official high school transcript, three instructor evaluations, and complete a physical fitness examination. Applicants must also complete a medical exam with the Department of Defense Medical Examination Review Board (DoDMERB). The application is available each year in late summer with specific deadlines published on the website.

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

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Application Part One

Required?	Yes
Deadline?	1 February (year of entry)
Contents?	Online Application

Application Part Two

Required?	Yes
Deadline?	1 February (year of entry)
Contents?	Online Essays, High School Transcript, Standardized Test Scores (SAT or ACT with Writing Test), Instructor Evaluations, Physical Fitness Examination 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. Applicants must download or print a supplemental forms package to be completed and returned to the Admissions Office.

Application Part Three

Required?	Yes
Deadline?	1 June (year of entry) - Applicants must be found medically qualified for admission
Contents?	Information on scheduling this medical exam is mailed to applicants by DoDMERB 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
1-860-444-8503
Web: <http://www.uscga.edu>
<http://admissions.uscga.edu>

ACADEMIC DIVISION

The Academic Division, headed by the Dean of Academics, consists of the Library, Registrar's Office, Academic Support Services, and the following academic departments of instruction: Engineering, Humanities, Management, Mathematics, and Science. The Division offers eight academic majors – Civil

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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 direction.

Engineering Department



McAllister Hall

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

Within the Department, there are four majors, all accredited by ABET, Inc. They are Civil Engineering, Electrical Engineering, Mechanical Engineering, and Naval Architecture and Marine Engineering. Each of these majors is administered by a section that would function as a department of engineering

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in a civilian institution.

Graduates of the engineering majors have an outstanding record of accomplishment in graduate school. Approximately half of the engineering graduates are selected for graduate programs fully funded by the Coast Guard. 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 Coast Guard assignment. Other graduates, who leave the active Coast Guard 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 mission of the Department of Engineering is:

1. To provide an excellent undergraduate engineering education, strong in fundamentals, supportive of the Mission of the U.S. Coast Guard Academy, and sufficient in number to adequately serve the needs of the Coast Guard.
2. To maintain a quality curriculum closely reflecting current technologies, and an environment which fosters continuous development of students, faculty, and staff.
3. To contribute as a unique intellectual resource to the Coast Guard and the Department of Homeland Security by involving cadets and faculty in real-time projects when able.
4. To satisfy the Program Educational Objectives for each respective program.

Engineering Program Educational Objectives:

U.S. Coast Guard Academy engineering programs produce graduates who:

1. Are prepared for professional practice in engineering positions as U.S. Coast Guard junior officers.
2. Are prepared for a variety of U.S. Coast Guard career paths, based on their abilities to apply fundamental engineering principles in a dynamic technological environment.
3. Have the ability and a desire to continue to grow intellectually and professionally. In addition, the Civil Engineering program produces graduates who are prepared to provide appropriate civil engineering expertise to the U.S. Coast Guard.

In addition, the Electrical Engineering program produces graduates who are prepared to provide appropriate electrical engineering expertise to the U.S. Coast Guard specifically including the areas of Command, Control, Communications, Computers, and Information Technology (C4IT).

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In addition, the Mechanical Engineering program produces graduates who are prepared to contribute to the safe design, construction, repair and operation of Coast Guard mechanical engineering systems.

In addition, the Naval Architecture and Marine Engineering program produces graduates who are prepared to assume responsibility for the safety, operation, maintenance, logistics, design, and repair of ships and boats.

Outcomes 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 within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
4. An ability to function on 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, economic, environmental, 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.

Once commissioned in the Service, Department of Engineering graduates go on to assignments in every area of the Coast Guard. Engineers are preferred for filling approximately one third of the jobs in the Coast Guard. 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 Coast Guard Academy, Aide to the President of the U.S., Aide to the Secretary of Transportation, NASA astronauts, and many others. In fact, engineering graduates are eligible for every assignment in the Service.

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Humanities Department



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 speaking skills of all cadets while imbuing them with an appreciation for 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; the International Law of Armed Conflict Competition in San Remo, Italy; *Id Est*, the cadet literary magazine; and the Society for Policy and International Affairs, which travels yearly 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 research opportunities in specialties represented by over twenty faculty. Select students in the major may also pursue advanced research projects in policy related to Coast Guard and Department of Homeland Security initiatives. 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. The Government Major provides graduates with an excellent background for post-graduate study in a variety of disciplines.

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 (ORCA) major, and the broad technical core curriculum.

The Operations Research and Computer Analysis major provides graduates a background in mathematics, statistics, and computer analysis. The primary focus is to enable cadets to conceptualize and describe reality using the tools of mathematics and statistics, analyze possible models and solutions, use appropriate computer technology, apply these skills to specific Coast Guard problems, and 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 also incorporated into the curriculum of other departments, include Multivariable Calculus, Differential Equations, Probability Theory, Mathematical Statistics, Linear Regression, Visual Basic, Information Systems, Discrete Mathematics, Linear Algebra, Decision Models, Linear Optimization, Network and Nonlinear Optimization, Probability Models, Simulation with Risk Analysis, and the cadet capstone course Operations Analysis.

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.

Science Department



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

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important environmental issues. These include coastal food chains using isotope measurements, issues related to fisheries management, estuarine dynamics, and application of geospatial technologies to increasing the Coast Guard's Maritime Domain Awareness. Other activities involve a host of projects relating to environmental forensics, including 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 which provides a multi-disciplinary and technical education in marine and environmental sciences and is closely aligned with Coast Guard missions, including Homeland Security, Prevention and Response (e.g., marine environmental protection, oil and hazardous materials spill cleanup), Port Security, Fisheries Law Enforcement and Management, 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. Extensive use is made of the nearby Thames River estuary for field studies and experiments.

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

Management Department

The Department of Management, which functions much like a typical business school at civilian institutions of higher education, is internationally recognized for providing a high-quality business education. It is the smallest program of its kind in the world accredited by AACSB International - the Association to Advance Collegiate Schools of Business, the premier accrediting body for collegiate schools of business and accounting.

The mission of the Management Department is to create management expertise by challenging its students to become effective leaders and competent managers through a broad undergraduate business program. The Management degree program is guided by the emerging needs of the Coast Guard through its Advisory Board which is comprised of the Chief Financial Officer, the Chief Information Officer, the Chief of Personnel, and other program managers at Headquarters. The Management Department also enables Coast Guard

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management effectiveness through faculty scholarship and consulting.

Students in the Management major study and get exposed to a wide range of business disciplines, including accounting, finance, economics, management, behavioral/organizational science, marketing, strategy, human resource management, leadership, management of information systems, quantitative methods, operations management, and decision sciences. Graduates must demonstrate proficiency in leadership, communication, business competencies, and integration/critical thinking. The Management major is one of the largest at the Academy and graduates of the program receive a B.S. degree in Management. Additionally, two of the core curriculum courses, Macroeconomic Principles and Leadership and Organizational Behavior, are offered through the Management Department.

After graduation, Management majors find themselves well-suited for almost any career path in the Coast Guard. Immediately, upon their first assignment, Management majors will use much of the knowledge learned through their course of study – as almost all junior officers are called upon to be stewards and managers of the U.S. Coast Guard’s human, financial, and information resources. Graduates of the Management major have an outstanding record of academic achievement at graduate school. Many are selected by the Coast Guard to attend graduate school full-time and fully funded. Graduates have attended some of the most prestigious MBA programs in the country.

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

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curricular issues to the Dean of Academics and the Academic Council. The Committee reviews and comments on any proposed changes to 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



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." The Commandant directly oversees a full-time staff of 100 people with an overall

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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 990 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 and Chiefs, Cadet Musical and Vocal Activities, and the Cadet Social Development Program.

The Cadet Training Branch is responsible for the entire spectrum of training delivered to the Corps of Cadets across the 200 week course of instruction. Administered within the Training Branch are: Cadet Training, Career Development, Cadet/OCS Administration, and Weapons Training. It also serves as liaison to the fleet and to Coast Guard Cutter EAGLE, the Academy's sail training vessel.

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, or the support of, all Academy conducted sail and seamanship training for the Corps of Cadets, and the coaching/management of the competitive inter-collegiate and offshore 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.

The Professional Maritime Studies Branch is located in Yeaton Hall. A four-year Navigation and Nautical Science curriculum is delivered by the Branch. In addition to providing theory and application in the classroom, the material for these three and four credit courses is reinforced with experiential learning in Yeaton Hall and at the waterfront. The Professional Maritime Studies Branch also serves as the facility manager for the Ship Control and Navigation Training System (SCANTS), which includes several advanced shipboard simulators.

ATHLETICS DIVISION



Visitor's Center, Roland Field House, Billard Gym

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Many factors contribute to the development of leaders of character. In addition to the Coast Guard Academy's emphasis on the intellectual and professional development of cadets, there is a high value placed upon each cadet's physical development and wellness. This is accomplished through classes in the Health and Physical Education Department, athletics competition during the daily 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 sports, nine women's sports, 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. Oversight for the Athletic Division is provided by the Director of Athletics.

CADET SUPPORT SERVICES



Coast Guard Memorial Chapel and Officers Row

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 Support Services

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

The following programs are provided under the Academic Support Services umbrella:

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Academic Advising Program is a developmental system designed to prepare cadets to make sound decisions and to set their own priorities. For the fourth class, the program is more intrusive than for other year groups. Fourth class cadets must meet with their academic advisors every two weeks. As cadets progress through their four years at the USCGA, 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. Additionally, academic advisors approve cadets' course registrations, class schedule changes, and course adds and drops. It should be emphasized that, even though an individual faculty member may be assigned to a cadet as an advisor, and therefore, is responsible for approving registration forms and other official paperwork, cadets are free to consult 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.

Academic Center for Excellence (ACE), located on the second deck of the library in Waesche Hall, houses the Hewitt Writing and Reading Center (HWRC). Professional tutors in the HWRC provide assistance to cadets who seek to improve their communication abilities. Specific assistance provided for writing includes selecting and narrowing topics, composing effective thesis statements, understanding audience and purpose, selecting evidence, organizing and connecting ideas, developing coherent paragraphs, and applying grammatical principles. Reading assistance which is provided includes developing strategies to conduct effective research, how to read effectively in each discipline, building an effective general or discipline-specific vocabulary, and addressing language issues for international cadets. HWRC tutors also help cadets with oral presentations. The HWRC is open Sunday through Thursday evenings and during most Academy business hours. Cadets can make an appointment in advance via TutorTrac or receive help on a walk-in basis. The staff is composed of members of the U.S. Coast Guard Academy faculty and civilians who are professional writers and educators. Established in 1987, the HWRC operates, in part, from funds provided by the John and Erna Hewitt Endowment.

Cadet Academic Advisory Board (CAAB) provides a direct channel of communication between the corps of cadets and the Dean of Academics. A standing council which is comprised of cadets from each class who have volunteered to serve on the board, due to their interest in creating a positive academic environment, CAAB members (during scheduled meetings) present to the Dean of Academics cadets' views on a wide range of topics related to the enhancement of their overall academic experience at the

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USCGA. The CAAB operates under the auspices of a faculty advisor who is assisted by the Charlie Company Academics Officer - the chair of the CAAB. Depending upon the circumstances, the chair of the CAAB may also be invited to participate in meetings held by the USCGA's Academic Council.

Cadet Academic Assistance Program (CAAP) provides discipline-specific evening workshops to help cadets with current classroom assignments and test preparation. The faculty, both civilian and military, support the Fourth Class Experience Course (known on campus as BEARS: Basic Essentials for Academic and Real-world Success) by serving as subject matter experts and resource persons for the improvement of cadets' study skills.

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 so that intervention strategies can be promptly implemented in an effort to help cadets succeed at the Academy.

Four-Five-Two (4-5-2) Program supports fourth class cadets whose SWAB Summer placement scores indicate they would benefit from assistance in the fundamentals of mathematics, English, and reading in order to succeed in CGA's demanding academic program. Support includes a one-course reduction in the fall semester, during which cadets have specific time designated to work with faculty and tutors. Cadets review course topics as a class; work individually and in small groups; and apply concepts, especially time management, self-assessment, and study skills, from the Fourth Class Experience Course, known on campus as BEARS: Basic Essentials for Academic and Real-world Success. Program participants then take five classes during the spring semester and two classes during the summer before their third class year.

Fourth Class (4/c) Course Coordinators' Committee includes coordinators for 4/c core courses across departments who meet monthly to discuss academic, military, and athletic concerns unique to 4/c. The committee also includes representatives from the cadet and athletic divisions as well as the registrar's office. An advisory body to the Dean of Academics, the committee's main purposes are to address concerns and issues related to the success of 4/c cadets at USCGA as well as to collaborate on the 4/c fall and spring exam schedules with a focus on cadets' success in the first-year. The chairperson acts as the liaison between the committee and the Dean of Academics to ensure lines of communication remain open to better serve 4/c in their adjustment year at the Academy.

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Fourth Class (4/c) Experience Course (BEARS: Basic Essentials for Academic and Real-world Success) is designed to aid fourth class cadets in making the transition from high school to college. In addition to helping develop useful study skills, the orientation course encourages cadets to “expand their personal horizons” through participation in self-selected activities and workshops and is the place where the conversation about lifelong learning begins.

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 several honors classes offered in specific academic disciplines; the Honors Colloquium, which prepares cadets to compete for such prestigious postgraduate fellowships and scholarships as the Rhodes, Fulbright, Truman, and Marshall; and Alpha Lambda Delta, the national honor society for first-year college students.

Instructional Support Program provides a variety of services to help cadets use computers more productively. Services include training and access to a multimedia center which affords cadets the capability to create high-quality programs and presentations.

International Cadet Council (ICC) engages in various activities and meetings in support of its cultural, social and educational mission. The most important activities include: an annual visit to the United Nations and/or Pentagon, the Royal Military College of Canada, U.S. Naval War College, and participation in the annual United States Naval Academy (USNA) International Ball. Through counseling, identification of host families, assessment of cadets’ language skills, development of individualized academic programs, and accessibility during cadet emergencies, the coordinator of the ICC facilitates the assimilation of international cadets into the corps of cadets and introduces them to many aspects related to day-to-day living in the U.S.

Learning and Study Strategies Inventory (LASSI). Following the administration of the LASSI, a 10-scale, 80-item assessment of students’ awareness about and use of learning and study strategies related to skill, personal will, and self-regulation components of strategic learning, the score results are subsequently used in the development of instruction for fourth class cadets and to identify cadets who might benefit from additional advisement or participation in special workshops and seminars that are designed to improve cadets’ personal skills that are needed for success at the academy. Cadets’ will be required to complete the modules for any LASSI area in which a percentile score of at least 75 is not attained.

Peer Tutor Program is comprised of cadet volunteers who have performed well in particular academic subjects. This program not only facilitates the

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academic success of students who request assistance but also helps the tutor-cadets improve their teaching and leadership skills. Peer tutors are available for most core-courses including but not limited to Chemistry I and II, Calculus I and II, Fundamentals of Navigation, Probability and Statistics, English Composition and Speech, Writing About Literature, Differential Equations, Statics and Engineering Design, Leaders in U.S. History, Physics I and II, Mechanics of Materials, Multivariable Calculus, Macroeconomic Principles, and Moral and Ethical Philosophy. A list of current peer tutors is posted each semester on the Corps of Cadets' Regimental Staff home page and on the peer tutor site located under Academic Resources in the Academic Division on the Academy's portal. Additionally, rooms in Chase Hall that are occupied by peer tutors can be identified by the fluorescent orange name plates that appear outside the tutors' rooms. For further information regarding the peer tutoring program, please contact the Associate Dean for Academic Support Services at (860) 444-8608 or visit Room 131 in Hamilton Hall.

SmarThinking, a web-based computer application, provides cadets with access to highly qualified and well-trained professional educators twenty-four hours per day, seven days per week in a variety of subjects during the academic year via online tutoring using the Internet. For more information, go to: <http://www.smarthinking.com/>

TutorTrac, a web-based computer application affords cadets - twenty-four hours per day - the opportunity to schedule appointments to receive assistance in the USCGA's Hewitt Writing and Reading Center.

Guide to Officer and Leader Development (GOLD)

The Guide to Officer and Leader Development (GOLD) is a 200-week conceptual framework that challenges each cadet to develop as a leader of character. The GOLD construct is grounded in educational, psychological, and sociological research, and incorporates the mission of the U.S. Coast Guard Academy (USCGA).

GOLD uses a comprehensive approach to developing high school graduates who enter the Academy's gates. The GOLD Guide articulates a process of officer and leader development in which transformation can occur by recognizing sequential stages of human and military development. From the first steps of the swabs through the arches at Chase Hall, to the commissioning oath at graduation, GOLD provides a standardized framework for cadet growth and an approach to leader development that is systematic, yet takes into account individual differences.

The USCGA has always produced excellent leaders of character. The world, however, has changed profoundly in recent years. The Coast Guard's missions have expanded in the operational environment in which recently

graduated ensigns must execute their skills has become significantly more complex as well as increasingly dangerous.

As a result of GOLD, today's graduates are more aware of the developmental processes inherent to their maturity and the power of goal-setting in achieving success. With the assistance of classmates, faculty, and staff, cadets identify goals for growth and measure their progress. These efforts enable cadets to reach beyond their current abilities and attain their greatest potential.

Center for Counseling and Development

Counselors at the center are licensed psychologists. They are readily available to meet with any student at the Academy experiencing personal, educational, vocational, military, or leadership issues.

Personal counseling sessions may address a variety of topics including: stress management, interpersonal relationships, depression, anxiety, family problems, eating concerns, sexual assault, loneliness, self-esteem, motivation, academic difficulties, study skills, and career choices. Structured group workshops are held as requested on such topics as relaxation, stress management, healthy eating, sexual assault prevention, test anxiety, and study skills.

Psychological testing and evaluation are also available to help identify personality traits, learning and attentional problems, and vocational interests.

Counseling services are strictly confidential and do not become part of a cadet's medical, academic, or military record.

The Command Religious Program

In the military environment in which Cadets live, the Superintendent is responsible for the total well-being of all the members. This includes their moral, spiritual, and religious welfare. The Superintendent 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.

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LIBRARY



Waesche Hall

The library occupies approximately 32,500 square feet in Waesche Hall, a three-story building on the north side of campus, which opened in 1974. The building is shared with the Coast Guard Museum, the Admissions Office, and the Cadet Reading and Writing Center. A wireless network is available throughout the library. All cadets are required to purchase a laptop with a standard configuration, ensuring universal access to productivity software and online library resources from anywhere on campus. Furniture arrangements are designed so that cadets, with or without laptops, have flexible space for individual or group work. In 2007, the library had 159 carrels/tables, 26 “soft” seats, and 69 other seats. Additionally, the library provides 5 public workstations, 2 workstations connected to the military network, a networked laser printer, a photocopier, and a scanner. The library is open 103.5 hours per week. A Cadet Watch is assigned to oversee building security on evenings and weekends. The library website, accessible through the campus intranet, provides 24/7 access to the local and consortium catalogs and databases, and is the primary means of delivering services and library information. The site also includes a number of subject and course research guides, and links to brief tutorials. A 24/7 chat reference service, provided through an outside contract and linked from the library website, is available to cadets when librarians are not on duty. The library maintains its own site in the Blackboard course management system and offers assistance to faculty with linking to library resources from their course sites.

Permanent collections include nearly 178,000 print and audiovisual items. Subscription access is provided to more than 55,000 periodicals. Just under 450 of these are print subscriptions while the remainder are provided through full-text databases.

Subject areas of emphasis include electrical engineering, civil engineering (including environmental engineering, mechanical engineering, marine architecture and naval engineering), marine sciences and environmental studies, operations research, leadership and management studies, American government, and since September 11, 2001, intelligence and terrorism studies. The CGA Library also continues to build its leadership collections, to support the Leadership Development Center based at the Academy, as well as the profes-

sional military studies curriculum.

The library provides orientation to all cadets during their first year at the Academy. A 45-minute library orientation is provided during Swab Summer, when cadets are undergoing basic training prior to the start of their Fourth Class (freshman) year. During the first semester, all new cadets enroll in a “first year experience” course, which is intended to develop the basic academic skills required for college success. This course includes a library component which is taught by the designated faculty member for each section. A library workbook is also assigned, which provides hands-on experience with the use of the library website, the library catalog, databases, and basic information literacy.

The G. William Miller Reading Room, complete with a book swap, popular magazines, games, and daily newspapers is a popular place for study in the library. The CGA Alumni Association provides funding for a self-service Tassimo coffee machine as well as an ongoing supply of coffee, hot chocolate, cappuccino, and tea. Snacks and soda are available from vending machines.

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

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.

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.

Minimum Course Load

With two exceptions, all cadets are required to register for a minimum of 5 academic courses of 3 or more credits during each fall and spring semester. Cadets placed in the 4-5-2 program take 4 academic courses during their first semester. Cadets offered extended opportunity may register for a reduced course load as directed by the Dean of Academics.

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

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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 Cadet's GOLD Advisory Team or 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 designated department 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:

<i>Grade</i>	<i>Quality Points</i>	<i>Description</i>
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 an-

Catalog of Courses

other 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 ceremony hosted by the 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 earn a minimum Military Precedence Index as prescribed by the Commandant of Cadets 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 or receive a mark of less than 4 on any element of the cadet evaluation.

The Military Precedence Average (MPA) determines the military precedence within the class and the order in which a cadet's name will be placed on the Active Duty Promotion List in the Coast Guard Register of Officers after commissioning. The MPA is calculated using the cadet's Cumulative Grade Point Average (CGPA), Cumulative Military Precedence Index (CMPI), and the Cumulative Physical Development Competencies (CPDC) as follows: $MPA = .70(CGPA) + .25(CMPI) + .05(CPDC)$.

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 Military Precedence List Average. The Honor Graduate designation recognizes the cadet who graduates with the highest Cumulative Grade Point 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

Catalog of Courses

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 Validation

Cadets may validate courses offered by the Engineering Department if they have accomplished requirements (b) or (c) above and gained the written approvals of the Section Chief in charge of that course, and 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 Validation

Cadets may validate courses offered by the Department of Humanities only if they have taken an accredited college course with a transcript grade of B or better and passed an examination administered by the CGA course coordinator. English composition may NOT be validated. Cadets who have earned a score of 5 on an Advanced Placement Examination in literature, U.S. history, or American government must pass an examination administered by the course coordinator to be placed out of the core course into a more advanced class in the same discipline.

Health and Physical Education Department Validation

The purpose of course validation in the Health and Physical Education (HPE) Curriculum is to permit any cadet the opportunity to validate se-

lected HPE courses based upon work completed elsewhere or his / her capacity to meet the skill and the academic criteria of a specific course. Cadets may validate select HPE courses within 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.

Management Department Validation

Cadets may validate courses offered by the Management Department if they have taken an accredited college course with a transcript grade of B or better, or if they have taken an equivalent AP high school course with a transcript grade of B or better and receive a score of 5 on the CEEB AP exam. Cadets may also be required to take an oral exam administered by the course coordinator to demonstrate adequate proficiency of the subject.

Mathematics Department Validation

Cadets may validate courses offered by the Mathematics Department if they demonstrate adequate proficiency on a comprehensive validation exam administered by the course coordinator or calculus placement program administrator. Written approval by the Mathematics Department Head is also required.

Sciences Department Validation

The validation criteria for Chemistry I and II is an AP test score of 5 or satisfactory performance on an American Chemical Society National Standardized Exam. Cadets who met either of these criteria validated BOTH Chemistry I and II.

The validation criteria used for Physics I is the attainment of a score of 4 or higher on the Physics C AP exam, or attain a grade of A in an equivalent College level course, or demonstrated proficiency on a Physics I validation exam. The validation criteria used for Physics II is very similar – the attainment of a score of 4 or higher on the Physics C AP exam, or attain a grade of A in an equivalent College level course, or demonstrated proficiency on a Physics II validation exam.

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 Maritime Studies Program
- Special programs
- Health and Physical Education Program

Catalog of Courses

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.

SUMMER ACADEMIC TERM

The Academy offers a single six-week summer academic term beginning approximately five weeks after the end of the spring semester. Enrollment is limited to the following:

- Cadets accepted into the four-five-two program
- Cadets enrolled in 3111 – Calculus I in their 4/c spring semester and have indicated a preference for a technical major
- Cadets who fail 3117 – Calculus II in their 4/c spring semester and have indicated a preference for a technical major Cadets will be registered for two academic classes during the summer term.

APPLICABILITY

The Academic Standards and Requirements defined in this Catalog apply in full to the Class of 2014, effective Fall 2010.

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 (Dean of Academics)

<u>Requirements</u>	<u>Credits</u>
1116 Statics and Engineering Design	3.00
1320 Introduction to Electrical and Computer Engineering	3.30
or	
1218 Electrical Engineering I	4.00
or	
1321 Electric Circuits and Machines	4.00
2111 English Composition and Speech	3.00
2123 Writing About Literature	3.00
2141 Leaders in U.S. History	3.00
2263 American Government	3.00
or	
2259 Principles of American Government	3.00
2391 Criminal Justice	3.00
2393 Moral and Ethical Philosophy	3.00
or	
2293 Moral, Ethical and Political Philosophy	3.00
2493 Maritime Law Enforcement	3.00
3111 Calculus I	4.00
3117 Calculus II	4.00
3213 Probability and Statistics	3.00
or	
3301 Advanced Engineering Mathematics	4.00
or	
3341 Probability Theory	3.00
or	
3343 Mathematical Statistics	3.00
5102 Chemistry I	4.00
5106 Chemistry II	4.00
5262 Physics I	4.00
5266 Physics II	4.00
5442 Atmospheric and Marine Sciences	3.00
or	
5238 Physical Oceanography	3.50
8115 Macroeconomic Principles	3.00
8211 Leadership and Organizational Behavior	3.00

Catalog of Courses

Professional Maritime Studies Program (Dean and Commandant of Cadets)

<u>Requirements</u>	<u>Credits</u>
6101 Fundamentals of Navigation	4.00
6201 Ships and Maritime Systems	3.00
6202 Applications in Navigation Lab	1.00
6301 The Maritime Watch Officer	4.00
6401 The Coast Guard Division Officer	4.00

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 physical education 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

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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 HPE courses.

<i>HPE Mandatory Core Courses</i>	<i>Credits</i>
4102 Principles of Fitness and Wellness I	1.00
4103 Personal Defense I	0.25
4111 Swimming I	0.25
4112 Principles of Fitness and Wellness 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 Enfor 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
4404 Badminton	0.25
4405 Adventure Sports I: Rock Climbing	0.50
4407 Dance	0.50
4409 Horseback Riding	0.50
4411 Scuba Diving	0.50
4414 Advanced Golf	0.25
4415 Adventure Sports II	0.50
4421 Advanced Scuba Diving	0.50
4439 Theory of Coaching	1.00
4444 Indoor Recreational Sports	0.50
4459 Sport/Wellness Leader	0.50
4464 Strength and Conditioning	0.50
4489 Selected Topics in Health and Physical Education	0.50 - 2.00

V — 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 Program 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 Civil Engineering system. Most capstone projects involve work on Coast Guard related projects. 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 ABET, Inc.

In addition to the common departmental program mission, program educational objectives and department outcomes, outcomes of the Civil Engineering Major include producing graduates who:

- have a broad base of knowledge in civil engineering represented by the structural, environmental, geotechnical, construction and civil engineering materials discipline areas,
- can perform fundamental laboratory procedures in civil engineering including the areas of geotechnical, environmental, materials and structures,
- can perform fundamental design procedures in civil engineering, including the areas of structural, environmental and geotechnical, and
- understand professional practice issues pertaining to construction management, ethics and professional licensure.

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 Mechanics of Materials

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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	Mech of Materials	1211	Dynamics
1302	Mat'ls Civil/Constr Engr	1304	Soil Mech & Fndtn Design
1309	Environmental Engr I	1313	Steel Design
1317	Struct Analysis I	1340	Fluid Mechanics
1351	Thermodynamics	1401	Construction Project Mgmt
1402	Civil Eng'ring Design	1404	Geotechnical Engr Design
1407	Environmental Engr II	1411	Reinf Concrete Design
3211	Multivariable Calculus	3215	Differential Equations

III. Upper Division Courses:

1302	Materials Civil/Constr Engr	1304	Soil Mech & Fndtn Design
1309	Environmental Engr I	1313	Steel Design
1317	Struct Analysis I	1321	Elec Cir & Machines
1340	Fluid Mechanics	1351	Thermodynamics
1401	Construction Project Mgmt	1402	Civil Engineering Design
1411	Reinf Concrete Design		

CIVIL ENGINEERING - GENERAL

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing Abt Lit.	3.00
1116	Statics & Engr Design	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wellness I	1.00	6101	Fndamntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1206	Mech of Materials	3.50	1211	Dynamics	3.00
2263	American Government	3.00	3213	Probability & Statistics	3.00
3211	Multivariable Calculus	3.00	3215	Differential Equations	3.00
4222	Professional Rescuer	2.00	4204	Lifetime Sports I: RQB	0.25

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5262	Physics I	4.00	4214	Lifetime Sports II: Golf	0.25
8211	Ldrship & Org Behavior	3.00	5266	Physics II	4.00
			6201	Ships & Maritime Sys	3.00
			6202	Apps in Navigation Lab	1.00

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1302	Mat'ls Civil/Constr Engr	4.00	1304	Soil Mech & Fndtn Dsgn	4.00
1309	Environmental Engr I	4.00	1313	Steel Design	3.00
1317	Struct Analysis I	3.00	1407	Environmental Engr II	3.00
1340	Fluid Mechanics	3.00	2391	Criminal Justice	3.00
4303	Personal Defense II	0.25	4304	Lifetime Sports III: Tennis	0.25
5442	Atmospherc & Mar Sci	3.00	6301	Maritime Watch Officer	4.00

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1321	Elec Cir & Machines	4.00	1402	Civil Engr Design	4.00
1351	Thermodynamics	3.00	2393	Moral & Ethical Phil	3.00
1401	Const Proj Mgmt	3.00	2493	Maritime Law Enfrcmnt	3.00
1404	Geotechnical Engr Desn	3.00	6401	Coast Guard Div Officer	4.00
1411	Reinf Concrete Dsgn	3.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

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, 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 ABET, Inc.

In addition to the common departmental program mission, program educational objectives and department outcomes, outcomes of the Electrical Engineering Major include producing graduates who have:

- * knowledge of probability and statistics, including applications appropriate to Electrical Engineering
- * 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
- * knowledge of advanced mathematics, typically including differential equations, linear algebra, complex variables, and discrete mathematics
- * competence in technical decision making

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
-

Catalog of Courses

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		Systems Emphasis	
1222	Signals, Systems & Trnsfrms	1222	Signals, Systems & Trnsfrms
1224	Intro to Comp Programming	1224	Intro to Comp Programming
1322	Linear Circuits	1322	Linear Circuits
1324	Digital Circ/Comp Systems	1324	Digital Circ/Comp Systems
1362	Software Design I	1326	Electromech Systems
1424	Computer Control Systems	1420	Antennas & Propagation
1426	Projects Elec/Comp Engr I	1422	Communication Systems
1429	Digital Signal Process	1424	Computer Control Systems
1432	Computer Comms & Ntwrkng	1426	Projects Elec/Comp Engr I
1436	Projects Elec/Comp Engr II	1429	Digital Signal Process
1458	Software Design II	1436	Projects Elec/Comp Engr II
3211	Multivariable Calculus	3211	Multivariable Calculus
3215	Differential Equations	3215	Differential Equations
_____	Major Area Elective	_____	Major Area Elective
_____	Major Area Elective	_____	Major Area Elective
_____	Math/Science Elective	_____	Math/Science 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 Modeling and Control of Dynamic Systems (1460). In special cases (and with prior approval by the Electrical and Computer Engineering Section Chief), Directed Studies in Electrical Engineering (1439) may be considered a major area elective. Below is a list of common major area electives for each track.

Computer Emphasis		Systems Emphasis	
1206	Mech of Materials	1206	Mech of Materials
1211	Dynamics	1211	Dynamics
1326	Electromech Systems	1327	Acoustics and Music
1327	Acoustics and Music	1340	Fluid Mechanics
1340	Fluid Mechanics	1351	Thermodynamics
1351	Thermodynamics	1362	Software Design I
1420	Antennas & Propgatn	1431	Electronic Nav Systems
1422	Communication Syst	1432	Computer Comms & Ntwks
1431	Electronic Nav Syst	1458	Software Design II

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IV. Mathematics/Science Elective:

The purpose of the mathematics/Science Elective is to offer students the chance to add breath to their Electrical Engineering course of study. Students must choose one course from the following list:

3221	Linear Algebra	3237	Discrete Mathematics
3343	Mathematical Statistics	5364	Semiconductor Physics
5477	Optics		

V. Upper Division Courses:

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 program 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)
- _____ Mathematics/Science Elective

Additionally for the Computer Emphasis:

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

Additionally for the Systems Emphasis:

- 1326 Electromechanical Systems
- 1420 Antennas and Propagation
- 1422 Communication Systems

ELECTRICAL ENGINEERING – COMPUTER EMPHASIS

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Literature	3.00
1116	Statics & Engr Dsgn	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25

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2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Willness I	1.00	6101	Fndamntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1218	Elec Engineering I	4.00	1222	Sgnls, Syst & Trnsfrms	4.00
1224	Intro to Comp Prog	3.00	1324	Digital Circ/Comp Syst	4.00
3215	Differntl Equations	3.00	3211	Multivariable Calculus	3.00
4204	Lifetime Sports I: RQB	0.25	4222	Professional Rescuer	2.00
4214	Lifetime Sports II: Golf	0.25	5266	Physics II	4.00
5262	Physics I	4.00	8211	Ldrshp & Org Behavior	3.00
6201	Ships & Maritime Sys	3.00			
6202	Apps in Navigatn Lab	1.00			

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1322	Linear Circuits	4.00	1424	Comp. Cntl Syst	3.50
1362	Software Design I	3.50	1429	Digital Signal Process	3.00
2391	Criminal Justice	3.00	1458	Software Design II	3.50
3341	Probability Theory	3.00	2263	American Government	3.00
4303	Personal Defense II	0.25	4304	LifetimeSportsIII: Tennis	0.25
6301	Maritime Watch Officr	4.00	_____	Math/Science Elctive	3.00-3.50

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1426	Proj Elec/Comp Engr I	4.00	1432	Comptr Comms& Ntwks	4.00
2493	Maritime Law Enfrcmt	3.00	1436	Projs Elec/Comp Engr II	4.00
5442	Atmospherc&Mar Sci	3.00	2393	Moral & Ethical Phil	3.00
_____	Major Area Elective	3.00-4.00	6401	Coast Guard Div Officer	4.00
_____	Major Area Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

ELECTRICAL ENGINEERING – SYSTEMS EMPHASIS

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Lit.	3.00
1116	Statics & Engr Dsgn	3.00	3117	Calculus II	4.00

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2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wllnss II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wllnss I	1.00	6101	Fndmntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1218	Elec Engineering I	4.00	1222	Sgnls, Syst & Trnsfrms	4.00
1224	Intro to Comp Prog	3.00	1324	Digital Circ/Comp Sys	4.00
3215	Differential Equations	3.00	3211	Multivariable Calculus	3.00
4204	Lifetime SportsI:RQB	0.25	4222	Professional Rescuer	2.00
4214	Lifetime SportsII:Golf	0.25	5266	Physics II	4.00
5262	Physics I	4.00	8211	Ldrshp & Org Behavior	3.00
6201	Ships & Maritme Sys	3.00			
6202	Apps in Navigtn Lab	1.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1322	Linear Circuits	4.00	1424	Comptr Control Sys	3.50
1420	Antennas&Propagatn	4.00	1429	Digital Signal Process	3.00
2391	Criminal Justice	3.00	2263	American Government	3.00
3341	Probability Theory	3.00	4304	Lifetime SportsIII:Tennis	0.25
4303	Personal Defense II	0.25	6301	Maritime Watch Officer	4.00
_____	Major Area Elective	3.00-4.00	_____	Math/Science Elect.	3.00-3.50

First Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1422	Communic. Systems	4.00	1326	Electromech Systems	3.30
1426	PrjctsElec/CompEngrI	4.00	1436	PrjctsElec/CompEngrII	4.00
2493	Maritime Law Enfcmnt	3.00	2393	Moral & Ethical Phil	3.00
5442	Atmspherc & Mar Sci	3.00	6401	Coast Guard Div Officer	4.00
_____	Major Area Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

Catalog of Courses

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 ABET, Inc.

In addition to the common departmental program mission, program educational objectives and department outcomes, outcomes 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 with statistics and linear algebra
- the ability to work professionally in both thermal and mechanical systems areas including the design and 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	Mechanics 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	Engr Material Science	1206	Mech of Materials
1208	Intr to Mech Engr Desgn	1211	Dynamics
1321	Elect Circuits & Machines	1340	Fluid Mechanics
1346	Experimental Methods	1351	Thermodynamics
1353	Thermal Systems Design	1370	Mechanisms

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1440	Machine Design	1446	Mechanical Engr Dsgn
1459	Heat Transfer	1460	Mod & Cntrl of Dyn Sys
3211	Multivariable Calculus	3215	Differential Equations
3301	Adv Engineering Math		

III. Upper Division Courses:

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

Mechanical Engineering - General

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Lit.	3.00
1116	Statics & Engr Dsgn	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wllnss I	1.00	6101	Fndmntls of Navigtn	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1206	Mech of Materials	3.50	1204	Engr Material Science	4.00
1208	Intro MechEngr Dsn	3.00	1211	Dynamics	3.00
3211	Multivrible Calculus	3.00	3215	Differential Equations	3.00
4204	Lifetime SportsI:RQB	0.25	4222	Professional Rescuer	2.00
4214	Lifetime SportsII:Golf	0.25	5266	Physics II	4.00
5262	Physics I	4.00	6201	Ships & Maritime Sys	3.00
8211	Ldrshp & Org Behvr	3.00			
6202	Apps in Navigtn Lab	1.00			

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1321	Elec Cir & Machines	4.00	1353	Thermal Sys Design	3.00
1340	Fluid Mechanics	3.00	1370	Mechanisms	4.00
1351	Thermodynamics	3.00	1459	Heat Transfer	3.00
2393	Moral & Ethical Phil	3.00	2263	American Government	3.00
4303	Personal Defense II	0.25	3301	Adv Engineering Math	4.00
4304	LfetmeSprtsIII:Tennis	0.25			
6301	Martme Watch Offcer	4.00			

Catalog of Courses

First Class Year

<i>ID</i>	<i>Class</i>	<i>Credits</i>	<i>ID</i>	<i>Class</i>	<i>Credits</i>
1346	Experimental Methods	3.00	1446	Mech Engr Design	4.00
1440	Machine Design	4.00	1460	Mod & CntrlDyn Syst	3.00
2391	Criminal Justice	3.00	2493	Maritime Law Enfrcmnt	3.00
5442	Atmospherc&MarSci	3.00	6401	Coast Guard Div Officer	4.00
_____	Free Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

NAVAL ARCHITECTURE AND MARINE ENGINEERING

The Naval Architecture and Marine Engineering (NA&ME) 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 design-team-based 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 ABET, Inc.

In addition to the common departmental program mission, program educational objectives, and department outcomes, outcomes 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
- 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	Mechanics of Materials
6201	Ships and Maritime Systems

Catalog of Courses

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	Engr Material Science	1206	Mech of Materials
1211	Dynamics	1321	Elec Cir & Machines
1340	Fluid Mechanics	1342	Prin of Naval Architecture
1346	Experimental Methods	1351	Thermodynamics
1355	Marine Engineering	1442	Prin of Ship Design
1444	Ship Design/Syst Intgr	1453	Ship Propulsion Design
1455	Ship Structures	1459	Heat Transfer
3211	Multivariable Calculus	3215	Differential Equations
3301	Adv Engineering Math	_____	Major Area Elective

III. Major Area Electives:

The purpose of this elective is to offer students the opportunity to explore a wider variety of technical topics via a pre-existing course. Any Engineering, Math, or Science course (12XX, 32XX, 52XX or above, not already taken) qualifies as a major area elective.

Below is a common list of major area electives:

1208	Intro Mech Eng Design	1222	Sgnls, Syst & Trnsfrms
1224	Intro Comp Prog	1304	Soil Mechanics
1309	Environmental Eng I	1317	Structural Analysis I
1324	Digital Cir/Comp Syst	1326	Electromech Systems
1327	Acoustics and Music	1370	Mechanisms
1401	Construction Project Mgmt	1420	Antennas & Propagation
1431	Electronic Navigation Syst	1432	ComputerComms & Ntwks
1435	Intro Aerodynamics	1451	Intro to Seakeeping
1457	Small Craft Design	1460	Mech Cntrl of Dyn Syst
1469	Directed Studies in NA&ME	3221	Linear Algebra
3231	Linear Optimization	3237	Discrete Mathematics
3311	Advanced Calculus	3335	Visual Basic
3341	Probability Theory	3447	Linear Regression
5232	Marine Biology	5234	Marine Geochemistry
5240	Meteorology	5306	Physical Chemistry
5312	Analytical Methods/Chem	5364	Semi-conductor Phycs
5366	Astronomy	5402	Organic Chemistry
5415	Hazardous Materials	5417	Toxicology
5445	Fisheries Management	5477	Optics
6439	Marine Casualty Response		

Note: Courses specifically prohibited as major area electives include: 1218 Elec Engineering I, 1302 Materials for Civil and Construction Engineers, and 1320 Intro Elec/Comp Engineering.

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IV. Upper Division Courses:

All 13XX and 14XX level courses in the Major, Advanced Engineering Math (3301), and the Major Area Elective are considered as Upper Division Courses.

***NAVAL ARCHITECTURE AND MARINE ENGINEERING -
GENERAL***

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Lit.	3.00
1116	Statics & Engr Design	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wellness I	1.00	6101	Fndamntls of Navigtn	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1206	Mech of Materials	3.50	1204	Engr Material Science	4.00
3211	Multivariable Calculus	3.00	1211	Dynamics	3.00
4222	Professional Rescuer	2.00	2263	American Government	3.00
5262	Physics I	4.00	3215	Differential Equations	3.00
6201	Ships & Maritime Sys	3.00	4204	Lifetime Sports I: RQB	0.25
6202	Apps in Navigtn Lab	1.00	4214	Lifetime Sports II: Golf	0.25
8211	Ldrshp & Org Behavr	3.00	5266	Physics II	4.00

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1321	Elec Cir & Machines	4.00	1355	Marine Engineering	3.00
1340	Fluid Mechanics	3.00	1455	Ship Structures	3.00
1342	Prin of Naval Arch	4.00	1459	Heat Transfer	3.00
1351	Thermodynamics	3.00	2391	Criminal Justice	3.00
4303	Personal Defense II	0.25	3301	Adv Engineering Math	4.00
6301	Maritime Watch Offer	4.00	4304	LifetimeSportsIII:Tennis	0.25

First Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1346	Experimental Methods	3.00	1444	Ship Dsgn/Syst Intgr	4.00
1442	Prin of Ship Design	4.00	2493	Maritime Law Enfrcmnt	3.00

Catalog of Courses

1453	Ship Propulsion Desn	3.00	5442	Atmospherc & Mar Sci	3.00
2393	Moral & Ethical Phil	3.00	6401	Coast Guard Div Officer	4.00
_____	Major Area Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

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 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 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 research opportunities in specialties represented by over twenty faculty. Select students in the major may also pursue advanced research projects in policy related to Coast Guard and Department of Homeland Security initiatives. 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.

Cadets who graduate with a degree in Government will be able to demonstrate:

- Understanding and use of multiple and competing conceptual frameworks, models, and theories in the analysis of political, policy, and international events, issues, and systems;
- Knowledge of domestic, international, multilateral, and global environments and systems;
- Knowledge of the roles and responsibilities of professional military officers within a democratic society;
- Proficiency in the research process;
- Professional communication skills in arguments and analyses; and
- Understanding of, or facility as, a leader or member of diverse groups, societies or communities that are different from self.

Acceptance into the Major

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

2111	English Composition and Speech (See Section VIII, a, below for exceptions/validations)
or	2121 The Art of Effective Writing
2123	Writing About Literature
or	2125 Writing About Literature (Honors)
2141	Leaders in U.S. History
2263	American Government
or	2259 Principles of American Government
2261	American Foreign Policy
2365	Comparative Politics

Catalog of Courses

2293 Moral, Ethical and Political Philosophy

I. Core Requirements:

Government majors should take Principles of American Government (2259) instead of American Government (2263) and Moral, Ethical and Political Philosophy (2293) instead of Moral and Ethical Philosophy (2393).

II. Major Requirements:

- 2261 American Foreign Policy
- 2323 Hum in World Lit: Arts
- 2365 Comparative Politics
or 2324 Humanities in World Lit: Latino Literature
- 2367 International Relations
or 2325 Hum in World Lit: Politics/History
- 2457 Public Policymaking
- 2463 U.S. Maritime History and Policy
- 2361 Western Political 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: Latino Literature (2324); and Humanities in World Literature: Politics and History (2325). Note: 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.

III. Track Electives:

Select either the International Affairs track or the Public Policy track. Choose four electives from those listed under the track selected. Cadets in the International Affairs track must take two semesters of Spanish, the first of which counts as a Track Elective and the second as an Other Elective. Any additional Spanish courses 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 Track Electives (Other Electives for Public Policy Track)

- | | | | |
|------|------------------------|------|------------------------|
| 2235 | Spanish I | 2236 | Spanish I/II |
| 2237 | Spanish II | 2335 | Spanish III |
| 2337 | Spanish IV | 2338 | Latin American History |
| 2341 | Europe Since 1648 | 2345 | World War II |
| 2351 | Great European Leaders | 2357 | Russia |
| 2454 | America in Nuclear Age | 2467 | Global Policy Studies |

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2469	National Security Policy	2370	Contemp U.S. Foreign Policy
2471	Area Studies	2472	Drugs Policy
2474	Politics of Interntnl Economy	2483	Intelligence & Democracy
2495	Advanced Research Projects	2496	International Law

Public Policy Track Electives (Other Electives for International Affairs Track)

2372	Political Participation	2389	Law and the Courts
2441	The Civil War Era	2454	Amer in Nuclear Age
2461	American Congress	2462	Select Topics in Pub Policy
2465	U.S. Military Policy	2467	Global Policy Studies
2469	National Security Policy	2470	American Presidential Policy
2472	Drugs Policy	2475	Media & American Politics
2483	Intelligence & Democracy	2495	Advanced Research Projects
2497	Con Law & Homeland Sec	8361	Supply Chain Management

IV. Additional Other Electives:

Cadets will choose three Other Electives from the appropriate lists above and/or the list below:

1309	Environmental Engr I	2323	Hum in World Lit: Arts
2324	Hum in World Lit: Latino Lit	2325	Hum in World Lit: Pol/Hist
2333	Select Topics in Literature	2360	Select Topics in Philosophy
2381	Social Psychology	2429	Craft of Creative Writing
3211	Multivariable Calculus	3237	Discrete Mathematics
5445	Fisheries Management	5475	Intro to Geo Spatial Sciences

Note: 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.

V. Free Electives:

Select any two courses of interest which are 3 or more credits.

VI. Special Academic Opportunities:

Select Upper Class cadets who maintain a minimum 3.0 GPA in Government courses and are deemed capable of independent research may consider the following options: *

- a. 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.
- b. Directed Study in Government, Humanities, or Law: Cadets must route a memo requesting permission to undertake a Directed Study via their

Catalog of Courses

academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

- c. Advanced Research Projects: Team-based research project entailing field and/or applied research. Project requires a major academic commitment to the design and/or assessment of governmental strategies, policies, programs, or capabilities at the national or international level.
- d. *The 3.0 requirement may be waived at the discretion of the Humanities Department Head.

VII. Definition of 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 and Placement Policies:

a. 4/c Placement

All incoming 4/c are placed into 2101, 2111, or 2121, based on a writing placement process that is conducted by the English faculty during Swab Summer and involves a committee review of student writing, standardized test and reading scores, and performance in previous writing courses.

Students placed in 2101 in the fall of 4/c year are subsequently placed into either 2111: Composition and Speech or 2123 Writing About Literature in the spring of their 4/c year. This placement process involves a review by English faculty of cadet writing and progress in 2101. Only students who are placed in 2123 the spring of their 4/c year are permitted to substitute 2101 for 2111.

b. Validation

Cadets may validate courses offered by the Department of Humanities only if they have taken an accredited college course with a transcript grade of B or better and passed an examination administered by the CGA course coordinator. English composition may NOT be validated.

c. Advanced Placement

Cadets who have earned a score of 5 on an Advanced Placement Examination in Literature, U.S. History, or American Government must pass an examination administered by the course coordinator to be placed out of the core course into a more advanced class in the same discipline. Advanced courses for each core course are listed below:

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Core Courses Acceptable Substitutions

Writing About Literature (2123) Selected Topics in Literature (2333)
 Humanities in World Literature (2323/2324/2325)
 Leaders in U.S. History (2141) American Foreign Policy (2261)
 Civil War Era (2441)
 World War II (2345)
 U.S. Military Policy (2465)
 U.S. Maritime Hist. & Policy (2463)
 American Government (2263) Public Policymaking (2457)
 International Relations (2367)
 Comparative Politics (2365)

Cadets seeking advanced placement additionally must receive permission from the Head, Department of Humanities, via a memo routed through the cadet's academic advisor, and copy to the Registrar. Government Majors may not place out of Principles of American Government (2259) or American Government (2263).

Government - General

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Literature	3.00
1116	Statics & Engr Design	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. History	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/WellnessI	1.00	6101	Fndmntals of Navigtn	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2259	Prin of Amer Govt	3.00	2261	Amer Foreign Policy	3.00
2293	Moral/Ethcl/Pol Phil	3.00	2365	Comparative Politics	3.00
3213	Probability & Statistics	3.00	4222	Professional Rescuer	2.00
4204	Lifetime Sports I:RQB	0.25	5266	Physics II	4.00
4214	Lifetime Sports II:Golf	0.25	8211	Ldrshp & Org Behavior	3.00
5262	Physics I	4.00	_____	Other Elective	3.00-4.00
6201	Ships & Maritime Sys	3.00			
6202	Apps in Navigtn Lab	1.00			

Catalog of Courses

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1320	Intro Elec&Comp Engr	3.30	23XX	Hum/Wld Lit;(2323/24/25)	3.00
2367	International Relations	3.00	2361	Western Pol Theory	3.00
2391	Criminal Justice	3.00	4304	Lifetime SportsIII:Tennis	0.25
2457	Public Policymaking	3.00	6301	Maritime Watch Officer	4.00
4303	Personal Defense II	0.25	_____	Other Elective	3.00-4.00
_____	Track Elective	3.00-3.50	_____	Track Elective	3.00-3.50

First Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2463	U.S Maritme Hist&Pol	3.00	2476	Democracy in America	3.00
5442	Atmospherc & MarSci	3.00	2493	Maritime Law Enfcmnt	3.00
6401	Coast Guard Div Officer	4.00	_____	Free Elective	3.00-4.00
_____	Free Elective	3.00-4.00	_____	Other Elective	3.00-4.00
_____	Track Elective	3.00-3.50	_____	Track Elective	3.00-3.50
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

OPERATIONS RESEARCH AND COMPUTER ANALYSIS

The Operations Research and Computer Analysis (ORCA) major provides graduates with a background in mathematics, statistics, and computer analysis. 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, use appropriate computer technology, apply these skills to specific Coast Guard problems, and 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. Our graduates have a strong background in computer programming and data analysis 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 career 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 by providing solutions to 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:

- Expediting the Pilot Scheduling Process of Coast Guard Air Station Cape Cod
- The Future of the DOG (Deployable Operations Group)
- Projecting Vessel Inspection Data for Sector New York
- Assessing Waterway Risk
- An Analysis of Video and Cost Requirements for Port Surveillance Networks
- District 7 Parasail Analysis
- Naval Engineering Support Unit Boston (NESU) Maintenance Planning

Catalog of Courses

- Analyzing Light Optimization at the U. S. Coast Guard Academy
- FORCECOM-7 Assessment Schedule Consolidation
- Aviation Logistic Center (ALC) Forecasting

The Department of Mathematics sponsors a Summer Internship Program. This program provides an opportunity for professional growth for first class cadets who have displayed exceptional abilities both academically and militarily. Summer Internship Programs expand 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 Deployable Operations Group in Arlington, VA; the Homeland Security Institute in Arlington, VA; the Coast Guard Training Center at Petaluma, CA, the Atlantic Area Operations Analysis Branch in Portsmouth VA, the Operations Systems Center in Martinsburg WV, and the Engineering and Logistics Command in Baltimore, MD.

In support of the United States Coast Guard Academy's Statement of Vision and Missions, Guiding Principles, and Shared Learning Outcomes, the Department of Mathematics' outcomes include producing graduates who:

- can effectively communicate and understand mathematical information in many venues including reading, writing, listening to, critically analyzing, and presenting;
- can interpret, model, and provide solutions to relevant problems involving traditional mathematics, statistical data, software applications, mathematical proofs, and complex real world scenarios;
- have demonstrated proficiency in all coursework required for the Operations Research and Computer Analysis degree; and
- appreciate and practice effective team membership, constructive assessment of self and others, lifelong learning, and the use of applied mathematics in solving real Coast Guard problems.

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:

All courses listed as Upper Division courses listed in section IV along with

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3211 Multivariable Calculus and 3215 Differential Equations.

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	3231	Linear Optimization
3237	Discrete Mathematics	3333	Ntwrk & Nonlin Optim
3335	Visual Basic	3336	Information Systems
3341	Probability Theory	3343	Mathematical Statistics
3351	Probability Models	3447	Linear Regression
3453	Decision Models	3463	Simulation w/Risk Analysis
3471	Operations Analysis	_____	Major Area Elective (1)

Operations Research and Computer Analysis — General

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Literature	3.00
1116	Statics & Engr Dsgn	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/WellnessI	1.00	6101	Fndmntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2263	American Government	3.00	3215	Differential Equations	3.00
3211	Multivariable Calculus	3.00	3231	Linear Optimization	3.00
3221	Linear Algebra	3.00	3237	Discrete Mathematics	3.00
4222	Professional Rescuer	2.00	4204	Lifetime Sports I: RQB	0.25
5262	Physics I	4.00	4214	Lifetime Sports II: Golf	0.25
8211	Ldrshp & Org Behavior	3.00	5266	Physics II	4.00
			6201	Ships & Maritime Sys	3.00
			6202	Apps in Navigation Lab	1.00

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2393	Moral & Ethical Phil	3.00	1320	Intr to Elec& CompEngr	3.30
3333	Ntwrk & Nonlin Optim	3.00	2391	Criminal Justice	3.00
3335	Visual Basic	3.00	3336	Information Systems	3.00

Catalog of Courses

3341	Probability Theory	3.00	3343	Mathematical Stats	3.00
4303	Personal Defense II	0.25	3351	Probability Models	3.00
6301	Maritime Watch Officer	4.00	4304	Lifetime SportsIII:Tennis	0.25

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2493	Maritime Law Enfrcmnt	3.00	3471	Operations Analysis	3.00
3447	Linear Regression	3.00	5442	Atmospherc & Mar Sci	3.00
3453	Decision Models	3.00	6401	Coast Guard Div Officer	4.00
3463	Simulatn w/Risk Anlys	3.00	_____	Free Elective	3.00-4.00
_____	Free Elective	3.00-4.00	_____	Major Area Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

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 geochemistry; chemistry of oil; the safe transport and storage of hazardous materials; survey of marine life, 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, identification 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.

In addition to the Academy's Shared Learning Outcomes, the Marine and Environmental Sciences Program Educational Objectives include producing graduates who:

1. Are Knowledgeable and Competent
 - * Demonstrate scientific and technical proficiency
 - * Synthesize information from data, knowledge from information, and wisdom from knowledge and experience
2. Think and Are Aware
 - Exhibit critical and other forms of thinking
 - Be aware of self, situation, and surroundings (changing conditions)
3. Communicate Effectively
 - Communicate results of one's work, as an oral presentation, scientific poster presentation, and technical or non-technical writing
4. Are Leaders and Role Models
 - Demonstrate Coast Guard Core Values
 - Exhibit character and integrity
 - Be self-sufficient and self-confident

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

Catalog of Courses

5106	Chemistry II
5232	Marine Biology
5234	Marine Geochemistry
5238	Physical Oceanography
5240	Meteorology
5262	Physics I
5266	Physics II

I. Core Requirements:

Substitute Physical Oceanography (5238) for Atmospheric and Marine Sciences (5442).

II. Major Requirements:

3211	Multivariable Calculus	3215	Differential Equations
5240	Meteorology	5232	Marine Biology
5234	Marine Geochemistry	5330	Geospatial Sciences I
5415	Hazardous Materials	5445	Fisheries Management

III. Major Area Electives:

Complete courses for two of the following three subject areas:

Physical

5350	Ocean Dynamics
5352	Waves and Tides
5436	Coastal Oceanography

Chem-Environmental

5306	Physical Chemistry
5312	Analytical Methods in Chemistry
5402	Organic Chemistry

Bio-Environmental

5334	Fisheries Biology
5342	Biological & Chemical Oceanography
5441	Marine Pollution

IV. Upper Division Courses:

5247	Projects in Marine Sci	5257	Projects in Physics
5306	Physical Chemistry	5312	Analytical Methods/Chem
5330	Geospatial Sciences I	5334	Fisheries Biology
5338	Marine Forecasting	5342	Biol & Chem Oceanography
5350	Ocean Dynamics	5352	Waves and Tides
5364	Semi-conductor Physics	5366	Astronomy
5379	Direct. Studies Marine Sci	5389	Directed Studies in Physics
5399	Directed Studies in Chem	5402	Organic Chemistry
5415	Hazardous Materials	5417	Toxicology

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5419	Biochemistry	5421	Projects in Chemistry
5420	Chemometrics	5429	Research in Chemistry
5430	Geospatial Sciences II	5436	Coastal Oceanography
5441	Marine Pollution	5445	Fisheries Management
5449	Research in Physics	5459	Research in Mar Science
5469	Research Geospatial Sci	5477	Optics

Marine and Environmental Sciences - General

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Literature	3.00
1116	Statics & Engr Design	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. History	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wellness II	1.00	6101	Fndmntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry	4.00			

Third Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
3211	Multivariable Calculus	3.00	3215	Differential Equations	3.00
4222	Professional Rescuer	2.00	4204	Lifetime Sports I: RQB	0.25
5232	Marine Biology	4.00	4214	Lifetime Sports II: Golf	0.25
5240	Meteorology	4.00	5234	Marine Geochemistry	3.50
5262	Physics I	4.00	5238	Physical Oceanogrphy	3.50
6201	Ships & Maritime Sys	3.00	5266	Physics II	4.00
			6202	Apps in Navigation Lab	1.00
			8211	Ldrshp & Org Behavior	3.00

Second Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
1320	Intro to Elec/Comp Engr	3.30	2263	American Government	3.00
3213	Probability & Statistics	3.00	4304	Lifetime SportsIII:Tennis	0.25
4303	Personal Defense II	0.25	6301	Maritime Watch Officer	4.00
5330	Geospatial Sciences I	3.50	_____	Free Elective	3.00-4.00
_____	Major Area Elective	3.00-4.00	_____	Major Area Elective	3.00-4.00
_____	Major Area Elective	3.00-4.00	_____	Major Area Elective	3.00-4.00

Catalog of Courses

First Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2391	Criminal Justice	3.00	2393	Moral & Ethical Phil	3.00
6401	Coast Guard Div Officer	4.00	2493	Maritime Law Enfrcmnt	3.00
_____	Free Elective	3.00-4.00	5415	Hazardous Materials	3.00
_____	Major Area Elective	3.00-4.00	5445	Fisheries Management	3.00
_____	Major Area Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.

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. This degree program is accredited by AACSB International – the Association to Advance Collegiate Schools of Business.

The following are the learning outcomes for graduates of the management degree program:

- **Leadership:** Graduates of the Management major shall be leaders of character who understand and demonstrate sound leadership principles and competencies. Graduates shall function effectively as leaders, followers, and facilitators. Graduates shall be able to conduct critical self-reflection and assessment. Graduates shall be able to direct, develop, and evaluate diverse individuals and groups.
- **Communications:** Graduates of the Management major shall be good listeners. Graduates shall be able to write clearly, concisely, and effectively. Graduates shall be able to deliver effective practiced, professional oral presentations and be able to speak confidently extemporaneously.
- **Critical Thinking:** Graduates of the Management major shall be able to effectively integrate their knowledge and skills of/in leadership, communications, technology, and business competencies into a rational decision-making and problem-solving framework.
- **Business Competencies:** Graduates of the Management major shall understand and demonstrate the following business competencies: (a) accounting, (b) economics, (c) management, (d) quantitative analysis, (e) finance, (f) marketing, (g) international issues, (h) legal and social environment issues, and (i) management of information systems.

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

Catalog of Courses

3213 Probability and Statistics
8211 Leadership and Organizational Behavior
8246 Financial Accounting

I. Core Requirements:

No substitutions are allowed.

II. Major Requirements:

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

8201	Intro to Mgmt & Bus	8217	Microeconomic Principles
8246	Financial Accounting	8331	Management Info Systems
8348	Managerial Accounting	8342	Marketing
8349	Financial Management	8357	Human Resources Mgmt
8363	Operations&Proj Mgmt	8366	Leadership & Org Dev
8441	Legal Environ Business	8443	Strategic Management
8445	Public Mgmt Consulting		

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 prior to the beginning of the semester in which taken.

1224	Intro to Comp Prog*	1362	Software Design I*
1432	Comp Comms & Network*	3335	Visual Basic*
3341	Probability Theory	3343	Mathematical Statistics
8343	Public Sector Economics	8353	Systems Analysis & Design*
8358	Negt & Conflict Mgmt	8361	Supply Chain Management
8413	Managerial Economics	8417	Investment Theory
8419	Info Technology in Orgs*	8423	Management Control
8425	Global Business & Econ	8429	Managerial Psychology
8439	Diversity & Leadership	8448	Select Topics in Fin/Acct/Ec
8449	Select Topics in IS/DS*	8450	Select Topics in Mgmt
8468	Drctd Studies Fin/Acct/Ec	8469	Directed Studies in Mgmt
8470	Directed Studies in IS/DS*		

* Cadets who wish to pursue graduate studies in Information Systems are encouraged to take Intro to Computer Programming (1224) as a Major Area Elective in the fall semester of 2/c year and Software Design I (1362) as an MAE in the fall semester of 1/c year. In order to do this, Criminal Justice (2391) should be moved to the fall semester of the 1/c year and Maritime Law Enforcement (2493) should be moved to the spring of the 1/c year. These students are then encouraged to take one of the other IS-related MAE's as a free elective in the fall semester of 1/c year (moving Maritime Law Enforcement (2493) to the spring semes-

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ter) and either Information Technology in Organizations (8419) or Computer Communications and Networking (1432) as a free elective in the spring semester of the 1/c year. This sequence of courses fulfills the prerequisite undergraduate requirements as suggested by the Special Interest Group for Management Information Systems (SIGMIS).

IV. Upper Division Courses:

Those 83XX and 84XX numbered courses normally taken in the 2/c and 1/c year, respectively, as per the Management major program of study.

Management - General

Fall Semester

Spring Semester

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
0901	Fourth Class Exp	1.00	2123	Writing About Literature	3.00
1116	Statics & Engr Dsgn	3.00	3117	Calculus II	4.00
2111	Eng Comp & Speech	3.00	4103	Personal Defense I	0.25
2141	Leaders in U.S. Hist	3.00	4112	Prin Fitness/Wellness II	1.00
3111	Calculus I	4.00	5106	Chemistry II	4.00
4102	Prin Fitness/Wellness I	1.00	6101	Fndmntls of Navigation	4.00
4111	Swimming I	0.25	8115	Macroeconomic Prin	3.00
5102	Chemistry I	4.00			

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2263	American Government	3.00	1320	Int to Elec & Comp Engr	3.30
4204	Lifetime Sports I: RQB	0.25	3213	Probability & Statistics	3.00
4214	Lifetime Sports II: Golf	0.25	4222	Professional Rescuer	2.00
5262	Physics I	4.00	5266	Physics II	4.00
8201	Intro to Mgmt & Bus	3.00	6201	Ships & Maritime Sys	3.00
8211	Ldrshp & Org Behavior	3.00	6202	Appls in Navigation Lab	1.00
8217	Microeconomic Prin	3.00	8246	Financial Accounting	3.00

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2391	Criminal Justice	3.00	2393	Moral & Ethical Phi	3.00
4303	Personal Defense II	0.25	4304	Lifetime Sports III: Tennis	0.25
6301	Maritime Watch Officer	4.00	8342	Marketing	3.00
8331	Management Info Syst	4.00	8349	Financial Management	3.00
8348	Managerial Accounting	3.00	8363	Operations & Proj Mgmt	3.00
8357	Human Resources Mgmt	3.00	8366	Ldrshp & Org Devel	3.00

Catalog of Courses

Fourth Class Year

<u>ID</u>	<u>Class</u>	<u>Credits</u>	<u>ID</u>	<u>Class</u>	<u>Credits</u>
2493	Maritime Law Enfrmnt	3.00	5442	Atmospherc & Mar Sci	3.00
6401	Coast Guard Div Officer	4.00	8441	Legal Environ Business	3.00
8443	Strategic Management	3.00	8445	Public Mgmt Consulting	3.00
_____	Major Area Elective	3.00-4.00	_____	Major Area Elective	3.00-4.00
_____	Free Elective	3.00-4.00	_____	Free Elective	3.00-4.00
_____	Physical Education	0.50	_____	Physical Education	See Note

Note: First class cadets must take one health or physical education elective. A minimum of 6 academic credits in HPE courses are required for graduation.



PART V — COURSES

0901 FOURTH CLASS EXPERIENCE

This first-year orientation course focuses on providing 4/c cadets (Freshman) opportunities for self-discovery, self-assessment, and systematic personal engagement in academic, social, professional military, and community-based learning activities as they make the transition from SWAB Summer (the academy's seven-week initial military indoctrination period) to becoming full-fledged college students. The course is aligned with the academy's Guide to Officership and Leader Development (GOLD) process. Large and small faculty-led instruction, career development sessions, and independent self-paced learning activities based on cadets' interests and identified needs are included as a part of this course. Designed to assist cadets in their individual growth and development as they assume their roles as young adults in general and within the greater U.S. Coast Guard community in particular, the course also provides cadets with access to information, programs, materials, and activities on a wide range of mandatory as well as self-selected topics that can help them succeed academically and during the performance of their current and military duties.

Credit Hours: 1.00

Format: Class/Tutorial/Project/Independent Study/Teams/Lecture/Workshop/ Online/Off-Site

Prerequisites: Completion of course activity sign-ups prior to first day of class. Completion of LASSI (Learning and Study Strategies Inventory). Completion of ASVAB (ASVAB/Career Exploration Assessment)

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.

Catalog of Courses

Credit Hours:
Format:
Prerequisites:
Projected Offering: Spring

0933 JUNIOR HONORS COLLOQUIUM

Introduction to the standards of excellence and requirements for prestigious post-graduate fellowships such as the Rhodes, Marshall, Fulbright, Mitchell, Truman, Gates Cambridge, and Hertz. Grading is Satisfactory/Unsatisfactory.

Credit Hours: 1.00
Format:
Prerequisites: Recommendation by Academic Advisor and Honors Director
Projected Offering: Spring

0935 SENIOR HONORS COLLOQUIUM

Information, advising, and support for first-class cadets who are applying for prestigious postgraduate fellowships. Grading is Satisfactory/Unsatisfactory.

Credit Hours: 1.00
Format:
Prerequisites: Recommendation by Academic Advisor and Honors Director
Projected Offering: Fall

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: 1.00
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: 1.00
Format: Tutorial
Prerequisites:
Projected Offering: Fall and Spring

1116 STATICS AND ENGINEERING DESIGN

An introduction to the techniques of engineering problem solving and design. An introduction to vectors, composition of forces, and the drawing and use of free body diagrams. The study of distributed force systems, concentrated forces and Coulomb friction as applied to structures. The course emphasizes the application and analysis of collinear, concurrent and non-concurrent two- and three-dimensional equilibrium force systems applied to particles and rigid bodies, including beams, trusses, frames and machines. These techniques are also applied in ship stability analyses involving weight shift, addition and removal. The course includes an integrated, multi-discipline project with written reports.

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 MECHANICS OF MATERIALS

The study of stress, strain and deformations resulting from loads applied to deformable bodies. Major topics include stress-strain relationships, torsion, normal stress, shear stress, combined stresses, beam deflection, column buckling, and design of beams and shafts.

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

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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: 3115 or 3117

Corequisite: 3215

Projected Offering: Fall

1222 SIGNALS, SYSTEMS AND TRANSFORMS

The study of continuous and discrete linear systems through signal analysis,

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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 MATERIALS FOR CIVIL AND CONSTRUCTION ENGINEERS
(TRANSFERS)**

Special course in Material Science - aggregates, 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 MATERIALS FOR CIVIL AND CONSTRUCTION ENGINEERS

The study of the civil engineering and construction materials such as aggregates, concrete, asphalt concrete, steel, wood and geosynthetics. Emphasis is placed on understanding the engineering properties of these materials and how they affect material selection, construction methods and performance. The relevant aspects of the science and technology of the engineering properties are discussed, but focus is on practical applications, construction practices and quality control. Placement and construction methods/procedures, especially for Portland cement concrete (PCC), asphalt concrete (AC) and major applications of geosynthetic materials are addressed. Students will be exposed to the use of standard specifications and methods of

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testing for the determination or evaluation of the engineering properties of these materials. Course includes a pavement design project and two field trips.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 1116
Projected Offering: Fall

1304 SOIL MECHANICS AND FOUNDATION DESIGN

A study of the engineering characteristics of soil. The fundamentals of soil behavior, and its use as a construction material. The effect of water movement through soil including flow nets. The effective stress principle, one-dimensional settlement analysis, shear strength, lateral earth pressure, and bearing capacity of soils. The design of foundations, retaining walls and slopes.

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

1310 ENVIRONMENTAL ENGINEERING LAB

This course is required and only available to students who took AFA CE 362 while on exchange. The overload course consists of the laboratory portion of 1309 Environmental Engineering I.

Credit Hours: 1.00
Format: Laboratory
Prerequisites: 5106, AFA CE 362
Projected Offering: Fall

1311 SPECIAL TOPICS IN GEOTECHNICAL ENGINEERING

This course is required and only available to students who took AFA CE 390 while on exchange. This overload course will primarily consist of topics in

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lateral earth pressure, retaining wall, some aspects of shallow foundations, theory of soil consolidation, training in the Geoslope/Geostudio analysis software package, and the technical paper and presentation to be completed within the framework of 1304 Soil Mechanics and Foundations in the spring semester.

Credit Hours: 1.00

Format: Class

Prerequisites: 1116, AFACE 390

Projected Offering: Spring

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

A comprehensive technical introduction to electrical and computer engineering topics critical to the Coast Guard and Homeland Security. Principles and applications of digital information, audio and image processing, radio communications, electronic navigation, computer communications and networking. Laboratory work incorporates MATLAB scripting, network configuration, GPS geocaching and handheld voice communications to reinforce theory and bridge technologies to Coast Guard operations in an interactive hands-on setting.

Credit Hours: 3.30

Format: Class/Laboratory

Prerequisites:

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Corequisite: 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: 3115 or 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: 1322
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 course introduces the engineering application of Naval Architecture and Marine Engineering principles to students who plan to continue a focus within the three (3) semester design sequence in the 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

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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 NA&ME students will participate in the Hewitt Writing Contest.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites:
Corequisite: 1340
Projected Offering: Fall

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, 1351, and 3301
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, transient flow and non-flow processes. Applications of thermodynamics to power and refrigeration cycles, psychrometrics, 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. 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

1355 MARINE ENGINEERING

This is a first course in Marine Engineering. It addresses the design and operation of machinery onboard ships and boats. Thermodynamics and electricity are reviewed and applied to shipboard propulsion and electric power. Energy conversion, power plant concepts, and shipboard main machinery are studied. Diesel engines, gas turbines, and shipboard auxiliary systems are studied.

Credit Hours: 3.00
Format: Class
Prerequisites: 1340, 1342, and 1351
Projected Offering: Spring

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 Permission of Instructor
Projected Offering: Fall

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: Spring

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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, scheduling, life-cycle cost estimating, facility risk analysis, engineering ethics, and overall project management. 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 final report and presentation to their client.

Credit Hours: 4.00
Format: Project
Prerequisites: 1401
Projected Offering: Spring

1404 GEOTECHNICAL ENGINEERING DESIGN

This course provides students with the tools required for the design of geotechnical support systems. The focus is on the design of these systems through the completion of several project assignments. Course components include subsurface exploration, design of shallow foundations, design of pile foundations, design of drilled shafts foundations, lateral earth pressure and design of rigid and flexible retaining structures, construction dewatering, soil improvement, and ground modification.

Credit Hours: 3.00
Format: Class
Prerequisites: 1304
Projected Offering: Fall

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

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: 1206 and 1302
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,

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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 (not offered in spring 2010)

1419 DIRECTED STUDIES IN CIVIL ENGINEERING

Individual Projects in Civil Engineering involving reading, design, analysis, or applications. Oral briefing and final research report are required.

Credit Hours: 3.00

Format: Directed Studies

Prerequisites: Permission of Project Advisor and Civil Engineering Section Chief

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 analyze a problem or specification requirement and craft a solution using computer modeling.

Credit Hours: 4.00

Format: Class/Laboratory

Prerequisites: 1218, 3211, and 5266

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

This course introduces the student to classical methods of automatic control theory and design. The class will first learn to model linear systems. Using these models, the class will explore the system's time and frequency response, conduct error analysis and determine stability, then use classical compensation methods to control the system. This course will expand on the theory and applications seen in previous courses, namely Signals, Systems and Transforms, and Linear Circuits. The laboratory exercises will apply classroom concepts to design a real-time controller for linear time-invariant systems. Modern controls theory will be explored as time permits. Computer applications MATLAB and Simulink will be used extensively.

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 during the senior year. The focus of this course will be taking students through the first half of the Engineering Design Cycle. Classroom discussions will focus on 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 confronted 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

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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
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 3301 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 IN 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. The focus of this course will be taking students through the second half of the Engineering Design Cycle, and Project Management. 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,

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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 runs concurrently with the Ship Structures course (1455) and Ship Propulsion Design course (1453) and addresses the hull design, arrangements, and missions of the senior project. 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

1451 INTRODUCTION TO SEAKEEPING

Seakeeping is the study of the motions of a ship or floating structure, when subjected to waves, and the resulting effects on humans, systems, and mission capability. This course introduces special analysis and uses it to model sea wave excitation. Ship motions are studied with six degree of freedom rigid body motions and Response Amplitude Operators (RAO's) are introduced. Seakeeping performance is measured with performance criteria and discussed. Considerations for preliminary design are introduced as well as methods of controlling of ship motions.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 1211, 1340, 3301
Projected Offering: As Required

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. This course runs concurrently with the Principles of Ship Design course (1442) and the Ship Structures course (1455) and addresses the propulsion design of the senior project. The project is completed in the Ship Design/System Integration course (1444).

Credit Hours: 3.00
Format: Class/Project

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Prerequisites: 1351, 1353, and 1355
Projected Offering: Fall

1455 SHIP STRUCTURES

This course introduces the design and analysis of ship structures. The course includes still water and wave induced vessel loading. The analysis of primary, secondary, and tertiary hull stresses and the application of ABS rules to ship structural design are addressed. Longitudinal bending and shear are discussed as well as elastic and plastic plate bending and buckling. Fatigue is introduced, as well as hull materials and vessel construction methods. The course includes homework, exams, and a model scale structural design and construction project. The model scale project provides an opportunity to apply and integrate the basic principles of buoyancy, stability, and ship structures. Computer analysis of ship structures is introduced and applied to the model scale project.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 1204 and 1206
Projected Offering: Spring

1457 SMALL CRAFT DESIGN

Small Craft Design offers the opportunity to create a comprehensive first design of a small sailboat or powerboat. Tailored to the amateur sailing or boating enthusiast with an engineering background, this course will build upon the prerequisite stability, structural, resistance, and computational analysis techniques as applied to the Design Spiral. Boat design and construction will be discussed in theory and in practice to provide the student with an expanded understanding of the boat and sea interface. The course balances engineering and creativity through the design of a small craft from scratch. Computer Aided Design (CAD) will be relied on heavily, with reference to classical boat design methodology and current classification society rules and guidance. A final design will be created through an understanding of the necessary relationships between hull geometry, hydrostatics, stability, resistance/power, keel/rudder/sail design, structure, hull and rig construction, and materials.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 1340
Projected Offering: Spring

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: Spring

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.

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

1460 MODELING AND 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: Spring

1466 HEATING, VENTILATION, AND AIR CONDITIONING PRINCIPLES

Fundamentals of heating, ventilating and air conditioning systems for buildings. Qualitative and quantitative study topics include psychrometric properties, space air conditioning for design and off-design conditions, air contaminant control, human comfort, heat transfer U-values, heat and mass transfer in buildings, transmission and infiltration losses, solar radiation fundamentals and irradiation modeling, fenestration heat gains, cooling loads, heat extraction rate, fuel estimation, air distribution, fan selection and duct design basics. The Department of Energy simulation software may be used.

Catalog of Courses

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

1469 DIRECTED STUDIES IN NAVAL ARCHITECTURE AND/OR MARINE ENGINEERING

Individual Projects in Naval Architecture and Marine Engineering involving reading, design, analysis, or applications. Oral briefing and final research report are required.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Approval of Advisor and NA&ME Section Chief
Projected Offering: Fall and Spring

1479 DIRECTED STUDIES IN 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

1491 FUNDAMENTALS OF ENGINEERING EXAM REVIEW

This course, offered as a review, guides 1/c cadets in the engineering majors through a series of topics with the goal of assisting them in their preparation for the Fundamentals of Engineering (FE) exam. Because this exam is the first step toward professional licensure for these engineering graduates, all 1/c engineers are encouraged to take the FE exam. Course review topics follow guidelines established by the National Council of Examiners for Engineering and Surveying. Example review topics include: Statics, Mechanics of Materials, Dynamics, Fluid Mechanics, Mathematics, Thermodynamics, Chemistry, Electric Circuits, Material Science, Engineering Economics and Probability and Statistics.

Credit Hours: 1.00
Format: Class
Prerequisites: 1/c Engineering Major
Projected Offering: 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, Writing About Literature in the spring; all others will be required to take 2111, English Composition and Speech in the spring and 2123 as upper-class.

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:

Catalog of Courses

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 WRITING ABOUT LITERATURE

Introduction to the genres of poetry, short stories, and plays. The figurative language of literature (ex. narrative structure, conflict, irony, and allegory) is discussed relative to the genres. The course is also a study of literary criticism for fiction. Students write intensively in this course and complete literary analysis papers as well as work on projects that improve public speaking skills.

Credit Hours: 3.00

Format: Class

Prerequisites: 2101 or 2111 or 2121

Projected Offering: Fall and Spring

2125 WRITING ABOUT LITERATURE (HONORS)

A literary study of the genres of poetry, short story, and plays, this course is intended for students who demonstrate advanced standing in their writing abilities and/or in their knowledge of literature. The figurative language of literature (ex. narrative structure, conflict, irony, and allegory) is discussed relative to the genres. The course is also a study of literary criticism for fiction. Students write intensively in this course and complete literary analysis papers as well as work on projects that improve public speaking skills. Placement in this course by recommendation of English instructor only. This course replaces 2123, Writing About Literature.

Credit Hours: 3.00

Format: Seminar

Prerequisites: 2101 or 2111 or 2121

Projected Offering: Spring

2141 LEADERS IN UNITED STATES HISTORY

A survey of the major social, economic, political, and diplomatic developments of the United States. The course focuses on the role of key leaders using biographies, primary and secondary documents, substantial reading, 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: 4.00

Format: Class/Laboratory

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: 4.00

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: 4.00

Format: Class/Laboratory

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

Catalog of Courses

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: 2141
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: TBD

2285 SOCIAL SCIENCE RESEARCH METHODS

Introduction to the concepts, methods, and tools used in the analysis and presentation of data in the social sciences. This knowledge requires an understanding of two components: research design and statistical inference. In the first component the student learns how to discriminate between theories,

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pose proper research questions, construct relevant hypotheses, make valid causal inferences, and test their hypotheses. The second component offers students an empirical means to pursue the scientific study of all things sociopolitical. By the end of the course, students should have mastered the basic requirements to conduct, comprehend, and critique research in the social sciences.

Credit Hours: 3.00
Format: Class
Prerequisites: 2259 or 2263, and 3213
Projected Offering: Spring

2293 MORAL, ETHICAL, AND POLITICAL PHILOSOPHY

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

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

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Other Elective.

Credit Hours: 3.00
Format: Seminar
Prerequisites: 2123 or 2125
Projected Offering: Spring-Odd

2324 HUMANITIES IN WORLD LITERATURE: LATINO LITERATURE

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: 2123 or 2125
Projected Offering: Fall–Odd; Spring–Even

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: 2123 or 2125
Projected Offering: Spring-Odd

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: Class
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

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Format: Seminar
Prerequisites: 2123 or 2125
Projected Offering: Spring 2013

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: 2236 or 2237
Projected Offering: Fall

2336 CONVERSATIONAL SPANISH

A course designed to help students maintain language proficiency and develop stronger conversational skills. Weekly reflection journals are required in addition to active contributions to classroom conversation. Grades are based on quality of journals, class participation, and audio recordings evaluated for breadth of vocabulary, fluidity, pronunciation and grammatical sophistication.

Credit Hours: 1.00
Format: Class
Prerequisites: 2335 (Spanish III) or higher
Projected Offering: Spring

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

Catalog of Courses

2341 EUROPE SINCE 1648

A study of the major political, social, economic, intellectual and international developments in Europe from the Peace of Westphalia to 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

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: 2141

Projected Offering: TBD

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: 2141

Projected Offering: TBD

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 twentieth-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.

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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. 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

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 2012

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: TBD

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

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 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: This course is normally reserved for 2/c and 1/c cadets.

Projected Offering: Fall and Spring

2393 MORAL AND ETHICAL PHILOSOPHY

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; full-year course

Format: Seminar

Prerequisites:

Projected Offering: Fall and Spring

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 project. Limited to advanced students with previous significant course work in the humanities.

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Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor and Humanities Department Head approval
Projected Offering: Fall and Spring

2423 GENDER, RACE AND LEADERSHIP

This course aims to offer cadets an opportunity to explore how gender and race affect perceptions of leaders and leadership and to consider how these forces affect them and their leadership. To provide critical framework for discussions about leadership, students will read texts in gender and race theory.

Credit Hours: 3.00
Format: Class
Prerequisites: This course is normally reserved for 1/c cadets.
Projected Offering: Fall

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: 2123 or 2125
Projected Offering: Spring 2013

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 ERA

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

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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. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor and Humanities 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

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

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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. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor and Humanities Department Head approval
Projected Offering: Fall and Spring

2461 AMERICAN CONGRESS

This course is designed to immerse students in the theory and practice of the United States Congress. Structured around the core functions of the legislative branch - representation, legislation, and oversight - this course begins with an intensive look at the theory of Congress and transitions to a congressional simulation where students play the role of elected Members of Congress. Through the simulation, students will internalize theory while building an awareness of their role, as citizens and Coast Guard officers, in the American law-making process.

Credit Hours: 3.00
Format: Seminar
Prerequisites: 2259 or 2263
Projected Offering: Fall-Odd

2462 SELECTED 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: Fall and Spring

2463 UNITED STATES MARITIME HISTORY AND POLICY

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); normally reserved for 1/c and 2/c

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 begins with the National Security Act of 1947, proceeds through the impact of the 1986 Goldwater-Nichols reforms, and ends with a consideration of the post-September 11, 2001 security environment.

Credit Hours: 3.00

Format: Seminar/Class

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

Projected Offering: Fall

2470 AMERICAN PRESIDENTIAL POLICY

This course examines the roles of the President, the Cabinet departments, White House staff and Executive Office agencies in making foreign and domestic policy. 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.

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

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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.

Credit Hours: 3.00
Format: Seminar
Prerequisites: 2141, 2259 or 2263
Projected Offering: Spring-Odd

2473 THE HISTORY, PHILOSOPHY, AND THEOLOGY OF ISLAM

This course provides an introduction to Islam by exploring its historical development, with a particular emphasis on Islamic theology and philosophy, up to and including contemporary developments. Students will become familiar with the origin and development of Islam, with the unity and diversity of Islam, with classical Islamic philosophy and theology, with the rise and fall of Islamic dynasties and empires, and with the rise of fundamentalist Islam. Students will explore key contemporary issues within Islam, especially the issues of war, women, and democracy, and will examine predominantly Islamic nations in light of what they have studied.

Credit Hours: 3.00
Format: Seminar
Prerequisites:
Projected Offering: Spring

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: 8115
Projected Offering: TBD

2475 MEDIA AND AMERICAN POLITICS

Media and American 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: Seminar
Prerequisites: 2457
Projected Offering: Spring-Odd

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. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor’s Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor and Humanities Department Head approval
Projected Offering: Fall and Spring

Catalog of Courses

2481 INTELLIGENCE AND NATIONAL SECURITY POLICY

This course is normally for Non-Government majors only. 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.

Credit Hours: 3.00
Format: Lecture
Prerequisites: 2263
Projected Offering: Fall and Spring

2483 INTELLIGENCE AND DEMOCRACY

This course is intended for Government majors. 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.

Credit Hours: 3.00
Format: Seminar/Class
Prerequisites: 2259 or 2263, 2367, 2457, and 2469
Projected Offering: Spring

2487 DIRECTED STUDIES IN STRATEGIC INTELLIGENCE

A semester long directed topic/research in intelligence studies culminating in the completion of an Intelligence Assessment or Intelligence related research project. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Seminar/Class
Prerequisites: Instructor and Humanities Department Head approval
Projected Offering: Fall and 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. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor and Humanities 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; This course is normally reserved for 1/c cadets.
Projected Offering: Fall and Spring

2495 ADVANCED RESEARCH PROJECTS

Team-based original research projects entailing field and/or applied research for highly qualified cadets. Project requires a major academic commitment to the design and/or assessment of governmental strategies, policies, programs, capabilities, and/or organizations at the national or international level. Project also requires development of advanced research competencies. Oral briefings and final research reports are required. Cadet projects are supervised jointly by faculty and sponsoring agency teams.

Credit Hours: 3.00 per semester
Format: Directed Study
Prerequisites: Permission of supervising team
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

Catalog of Courses

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

Advanced independent research project which is the culmination of significant course preparation in specific area of study. Guided by committee chaired by permanent faculty member, under supervision of Department Head and publicly defended. Limited to advanced students.

Credit Hours: 3.00
Format: Directed Studies/Tutorial/Independent Research
Prerequisites: Approval of academic advisor, thesis advisor, and Humanities 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. Cadets must route a memo requesting permission to undertake a Directed Study via their academic advisor, course instructor, the proposed course instructor's Section Chief, and the Humanities Department Head.

Credit Hours: 3.00
Format: Directed Studies/Project
Prerequisites: 2391, 2259, and one additional law course; instructor and Humanities 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 analysis involving Mathematica, a computer algebra system for technical computation, is 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 analysis involving Mathematica, a computer algebra system for technical computation, is 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 analysis involving Mathematica, a computer algebra system for technical computation, is 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 analysis involving Mathematica, a computer algebra system for technical computation, is utilized.

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

3211 MULTIVARIABLE CALCULUS

An 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

Catalog of Courses

calculus.

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

3213 PROBABILITY AND STATISTICS

An exploration of 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

An intermediate course in the methods of solving ordinary differential equations. Topics include first order equations, higher order linear equations, 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

The 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 analysis is utilized.

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

3231 LINEAR OPTIMIZATION

The theory and application of deterministic models of operations research used in the optimization of linear functions of several variables subject to

linear constraints. Topics include linear programming, simplex-based methods, sensitivity analysis, and integer programming. Computer analysis is utilized.

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

3237 DISCRETE MATHEMATICS

An 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

An upper division course for Engineering majors designed to provide a background and working knowledge of higher level mathematics not provided in other courses. The topics introduced are Linear Algebra and Probability and Statistics. The primary objectives are to develop a basic understanding of matrix algebra techniques and probability theory, utilize these concepts in solving a variety of Engineering applications, and the ability to read and discuss the fundamentals of the topics introduced. Computer projects will be assigned to enable students to solve more complex problems further demonstrating the application of the concepts to Engineering applications.

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

The theory and application of network problems, nonlinear programming, and dynamic programming. Computer analysis is utilized.

Credit Hours: 3.00
Format: Class/Project

Catalog of Courses

Prerequisites: 3211, 3231 or permission of instructor
Projected Offering: Fall

3335 VISUAL BASIC

An introduction to programming using Visual Basic. Topics include programming fundamentals, decision structures, loops, arrays, algorithms, objects, software design 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: 3237 or permission of instructor
Projected Offering: Fall

3336 INFORMATION SYSTEMS

An introduction to computer information systems development utilizing databases. Topics include computer hardware and software, software design and development processes, database concepts, database design, and database applications development with Access and Excel. Exercises and a project with an emphasis on decision support applications enable cadets to develop information systems that are well structured and exploit database technology.

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3335
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 analysis is 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 analysis is 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 include Markov Chains, queuing systems, reliability theory, and forecasting. Applications are examined from many areas with an emphasis placed on Coast Guard related systems. Computer analysis is utilized.

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

3447 LINEAR REGRESSION

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

Credit Hours: 3.00
Format: Class/Project
Prerequisites: 3221, 3343 or 3213
Projected Offering: Fall

3453 DECISION MODELS

An introduction to decision analysis, risk, utility theory, game theory, inventory models and other topics in decision modeling. Computer analysis is 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: Fall

Catalog of Courses

3471 OPERATIONS ANALYSIS

A capstone project 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 and Computer Analysis 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 topic 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 PRINCIPLES OF FITNESS AND WELLNESS 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 cardiorespiratory 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

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

U. S. Coast Guard Academy

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 PRINCIPLES OF FITNESS AND WELLNESS 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

Catalog of Courses

problem solving and application of rescue principles. Successful completion of this course will lead to selected certification.

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. Fee required.

Credit Hours: 1.00

U. S. Coast Guard Academy

Format: Class/Laboratory/16 weeks
Prerequisites: 4111 and 4222
Projected Offering: 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

4405 ADVENTURE SPORTS I: ROCK CLIMBING

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

Credit Hours: 0.50
Format: Laboratory
Prerequisites:
Projected Offering: Fall

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. Fee required.

Catalog of Courses

Credit Hours: 0.50
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: Fall

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

U. S. Coast Guard Academy

Format: Laboratory/16 weeks

Prerequisites:

Projected Offering: 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

4489 SELECTED TOPICS IN HEALTH AND PHYSICAL EDUCATION

This course will explore topics in wellness and physical activity that extend skills and concepts presented in the Health and Physical Education program. Topics will vary based on instructor and student interest.

Credit Hours: 0.5 – 2.0

Format: Dependent on topic

Prerequisites: Permission of the Department Head

Projected Offering: 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

Catalog of Courses

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
Projected Offering: Spring

5232 MARINE BIOLOGY

Consideration of the marine biosphere, marine life, and habitats with emphasis on interaction in food chains and human impacts. 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 GEOCHEMISTRY

Introduction to the concepts of physical geology with emphasis on the marine realm. Topics include chemical exchanges at hydrothermal vents, global geochemical cycles of carbon, and the distribution of organic matter, nutrients, contaminants and metals in the environment. Labs/field trips focus on map interpretation, analytical techniques, and field surveying techniques.

Credit Hours: 3.50
Format: Class/Laboratory
Prerequisites: 5106, Instructor's approval for non-majors
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, 5262
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: Instructor's approval for non-majors
Corequisite: 5262
Projected Offering: Fall

5247 PROJECTS IN MARINE SCIENCE

Start-up, completion, or involvement in ongoing research projects as an assistant in data collection or analysis. Final project is required.

Credit Hours: 1.00
Format: Directed Studies
Prerequisites: Approval of Project Advisor and Marine Science Section Chief
Projected Offering: Fall and Spring

5257 PROJECTS IN PHYSICS

Start-up, completion, or involvement in ongoing research projects as an assistant in data collection or analysis. Final project is required.

Credit Hours: 1.00
Format: Directed Studies
Prerequisites: Approval of Project Advisor and Physics Section Chief
Projected Offering: Fall and Spring

5262 PHYSICS I

Basic concepts of Newtonian mechanics, 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

Catalog of Courses

5266 PHYSICS II

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

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: 3.50
Format: Class/Laboratory
Prerequisites: 5106 and 3211
Projected Offering: Fall

5312 ANALYTICAL METHODS IN CHEMISTRY

The course focuses on the theory, technology, design, function, and application of modern analytical instrumentation including liquid and gas chromatography separations and emission, absorption, mass, and nuclear magnetic resonance spectroscopies for detection and identification of organic and inorganic chemicals in air, water, soil, or biological samples. Cadets will develop scientific research and communications skills during the course that will be applied to conduct an end-of-semester original experiment with a research team. Experiments emphasize current Coast Guard and Homeland Security applications in environmental and forensic science.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 5106
Projected Offering: Spring

5330 GEOSPATIAL SCIENCES I

This course introduces students in the Marine and Environmental Sciences major 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

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in lecture and lab portions of course in order to complete an end-of-semester GIS project.

Credit Hours: 3.50
Format: Class/Laboratory
Prerequisites: Instructor's approval for non-majors
Projected Offering: Fall

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 for non-majors
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 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.

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Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 5106 and 5232, or Instructor's approval for non-majors
Projected Offering: Spring

5350 OCEAN DYNAMICS

This course emphasizes the mathematical description of the ocean's response to the various forces that affect its motion. Emphasis is placed on the assumptions and approximations used in developing these mathematical descriptions, and on the physical understanding of the fluid characteristics represented by the equations. The basic concepts of fluid dynamics are first presented with an emphasis on total acceleration and continuity of volume. The equations of motion for fluids on a rotating earth are derived, and effects of turbulent motion are introduced. Steady-state solutions to the equations of motion, including Ekman dynamics, are examined. The geostrophic approximation, its consequences, and 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 investigate the properties and behavior of rotating fluids and to apply the equations of motion to real-world flows modeled in rotating fluid tanks.

Credit Hours: 3.50
Format: Class/Laboratory
Prerequisites: 3211, 5238, 5240, and 5262
Projected Offering: Fall

5352 WAVES AND TIDES

Waves and Tides, which follows Ocean Dynamics (5350), is the second course in the Physical Oceanography course sequence. While Ocean Dynamics (5350) focuses entirely on time-independent (i.e. steady-state) flow, this course covers the time-dependent phenomena of linear ocean waves. Beginning with a mathematical treatment of surface gravity waves, the course includes discussion of ocean waves on a variety of temporal and spatial scales, from centimeter-scale gravity-capillary waves to planetary-scale Rossby waves and fundamental theories of tides. The effect of Earth's rotation is considered for large-scale waves. In the laboratory portion of the course, students learn to apply concepts and data analysis methods presented in lecture to real wave data using MATLAB, a versatile mathematical modeling software program.

Credit Hours: 3.50
Format: Class/Laboratory
Prerequisites: 3215, 5238, 5240, 5262, and 5350
Projected Offering: Spring

5364 SEMICONDUCTOR PHYSICS

Study of properties of semiconductors. Crystalline structure, electron energy

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levels, impurity levels, electrical conduction, electron and hole currents. 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

5379 DIRECTED STUDIES IN MARINE SCIENCE

Individual program of advanced readings or laboratory projects in marine science.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Instructor's approval
Projected Offering: Fall and Spring

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

5399 DIRECTED STUDIES IN CHEMISTRY

Individual program of advanced readings or laboratory projects in chemistry.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: 5106 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

Catalog of Courses

spectrometry, nuclear magnetic resonance, infrared spectroscopy, and computer modeling.

Credit Hours: 4.00
Format: Class/Laboratory/Project
Prerequisites: 5106
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: Instructor's approval for non-majors
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: 5106 or equivalent
Projected Offering: Spring

5419 BIOCHEMISTRY

A survey of the principles of biochemistry and molecular biology, including the structure and function of molecules important for life, such as amino acids, sugars, nucleic acids, lipids, and carbohydrates. Topics will include concepts of catabolism and metabolism, biological macromolecule structure/function relationships, DNA structure and replication, and protein synthesis. An overview of laboratory techniques important in modern biochemistry will also be covered including computational biology.

Credit Hours: 3.00
Format: Lecture
Prerequisites:

Projected Offering: Fall

5420 CHEMOMETRICS

A workshop-style course focused on the theory and application of multivariate and multi-way pattern recognition, curve resolution, classification, and regression. Linear algebra concepts necessary for discussion of these topics will be covered. The theory of methods including Principal Components Analysis, Parallel Factor Analysis, and Partial Least Squares regression will be covered and applied by students to instrumental and survey data sets including images.

Credit Hours: 1.00
Format: Lecture
Prerequisites:
Projected Offering: Fall

5421 PROJECTS IN CHEMISTRY

Start-up, completion, or involvement in ongoing research projects as an assistant in data collection or analysis. Final project is required.

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 laboratory projects in chemistry. Final project report and presentation at Cadet Research Symposium are required.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Approval of Research Advisor and Chemistry Section Chief
Projected Offering: Fall and Spring

5430 GEOSPATIAL SCIENCES II

This course examines advanced topics in geospatial sciences, including the physics and technology of remote sensing theory and advanced GIS analytical techniques. The principles of physical radiation, which form the foundation for remotely measuring surface processes, are first discussed in detail. Advanced GIS analytical techniques such as spatial, geostatistical, three-dimensional, and network analysis are then discussed. Hands-on activities allow for further application and exploration of these techniques. 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

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Prerequisites: 5330 or 5475
Projected Offering: Spring

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, 5238, 5262, and 5350
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 and 5342, or Instructor's approval for non-majors
Projected Offering: Fall

5442 ATMOSPHERIC AND MARINE SCIENCES

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, 1/c Standing or Instructor's permission
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

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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: Instructor's approval for non-majors
Projected Offering: Spring

5449 RESEARCH IN PHYSICS

Individual or team laboratory projects in physics. Final project report and presentation at Cadet Research Symposium are required.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Faculty Research Advisor and Physics Section Chief approval
Projected Offering: Fall and Spring

5459 RESEARCH IN MARINE SCIENCE

Individual or team laboratory projects in marine science. Final project report and presentation at Cadet Research Symposium are required.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: Faculty Research Advisor and Marine Science Section Chief approval
Projected Offering: Fall and Spring

5469 RESEARCH IN GEOSPATIAL SCIENCES

Individual or team laboratory projects in geospatial sciences. Final project report and presentation at Cadet Research Symposium are required.

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 not in the Marine and Environmental Sciences major 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. Students will be expected to apply GIS principles learned in lecture and lab

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portions of course in order to complete an end-of-semester GIS project. Students in the Marine and Environmental Sciences major cannot take this course in lieu of 5330, Geospatial Sciences I.

Credit Hours: 3.00
Format: Class/Laboratory
Prerequisites:
Projected Offering: Spring, as required

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

6101 FUNDAMENTALS OF NAVIGATION

Fundamentals of Navigation is an exploration of the basic principles of earth's characteristics and terrestrial navigation for which a Deck Watch Officer or entry level officer will be responsible. In the earth's characteristics module, the emphasis is on earth's coordinate system, magnetism of the earth, chart projections, chart preparation, and various distance, speed, and time relationships. The terrestrial navigation module focuses on positioning techniques, compass computation, calculation of tides and currents, anchor selection, tactical characteristics, coastal and transoceanic voyage planning, and aids to navigation. Students are also introduced to Coast Guard requirements for celestial theory including azimuth and amplitude. The emphasis of the instruction is to prepare cadets for experiential learning afloat as a navigation team member during the common portion of the 3/c summer training program. A short research project covering selected navigational topics integrates course material and primary source research the students submit in a written form.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: None
Projected Offering: Fall and Spring

6201 SHIP AND MARITIME SYSTEMS

Provides fundamental technical knowledge of ships and maritime systems. A baseline understanding is developed to support future assessment of impact,

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benefit, and risk of decisions involving design, acquisition, operation, regulation, law enforcement, damage control, maintenance, and salvage of ships and maritime systems. Specific subject areas include international/domestic rules and regulations, intact and damage stability, marine structures, ship propulsion, primary and auxiliary ship systems, marine salvage, ship motions, ship handling, and offshore structures.

Credit Hours: 3.00
Format: Class/Laboratory
Prerequisites: 6101
Projected Offering: Fall and Spring

6202 APPLICATIONS IN NAVIGATION LAB

Applications of Navigation is a lab based course that meets once per week. This course continues the developmental journey by building upon the fundamental navigation preparation of 6101 and the common experience of 3/c summer. The goal is to build proficiency in voyage planning and as a navigation team member through further preparation, practice and an introduction to navigation applications and tools available in the fleet. The first module focuses on voyage planning through the research of applicable publications prior to transiting through an unfamiliar port. The introduction to the navigation brief as a tool for risk mitigation is discussed. The second module improves the navigation team skills learned in 6101 and the proficiency required to navigate a ship through restricted, coastal and open ocean environments. The third module introduces cadets to the basics of relative motion theory with the initial exploration of maneuvering boards for course, speed, closest point of approach, avoidance and intercepts, secondary effects, true wind and desired apparent wind.

Credit Hours: 1.00
Format: Laboratory
Prerequisites: 6101
Projected Offering: Fall and Spring

6301 THE MARITIME WATCH OFFICER

The Maritime Watch Officer explores knowledge and skills vital to successful performance as a Maritime Watch Officer for the entry level graduate. This course builds upon the individual navigation proficiency gained during the prerequisite courses and summer training programs and introduces new watch team skills applicable to the maritime watch. In addition to refreshing navigation team skills taught in Nautical Science I and II, students develop new skills such as advanced navigation coordination; advanced relative motion theory and practice coupled with collision avoidance and briefing the command; electronic navigation theory and practice; basic, routine and emergency shiphandling procedures and practice; external communications; and Bridge Resource Management knowledge, skills, and techniques. Classroom theoretical

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discussions are reinforced and applied in the various visual and radar simulators and CGA training vessels within a watch team construct. Team Coordination Training concepts are further analyzed in group projects wherein cadets present the causal factors and potential corrective actions surrounding selected Coast Guard Cutter mishaps.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 6101, 6201, 6202
Projected Offering: Fall and Spring

6401 THE COAST GUARD DIVISION OFFICER

This capstone course integrates prior nautical science topics with selected Coast Guard organizational, operational 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 careers. Cadets prepare for these responsibilities in this course by discussing Coast Guard leadership, operations, and personnel management issues in depth. Lab assignments in the bridge 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 communications. A major oral and written assignment requires thorough introspection into one's personal leadership philosophy, and comprises the senior year Class of 1959 Writing and Speaking Contests.

Credit Hours: 4.00
Format: Class/Laboratory
Prerequisites: 6101, 6201, 6202, 6301
Projected Offering: Fall and Spring

6439 MARINE CASUALTY RESPONSE

Provides a basic application of engineering principles used during marine casualty response operations, i.e., ship collisions, allisions, groundings, and marine firefighting. The course expands on the basic fundamentals of naval architecture, marine structures, and statics to solve real-world engineering problems created by marine casualties. Hands-on learning and case studies of real-world marine casualties are used as the backdrop for applying engineering fundamentals. Basic concepts include: vessel nomenclature, hydrostatics, intact and damaged stability, trim, hull girder strength, evaluation of secondary and local structural strength, basic damage control, and environmental factors, as well as USCG roles and responsibilities.

Credit Hours: 3.00
Format: Class
Prerequisites: 1116 and 6201
Projected Offering: Fall

6459 SELECTED TOPICS IN PROFESSIONAL MARITIME STUDIES

In depth examination of a terrestrial, celestial, or electronic navigation topic or a stability, damage control, shiphandling, shipboard leadership framework or ship related training system topic. Specific course content will vary based upon emerging and relevant navigation, training, or leadership issues, institutional and organizational needs, and students' interests. Includes additional reading, writing, research, and/or casework.

Credit Hours: 1.00
Format:
Prerequisites: 6101
Projected Offering: Fall and Spring

6469 PROJECTS IN PROFESSIONAL MARITIME STUDIES

Start-up, completion, or involvement in ongoing research projects as an assistant in data collection or analysis. Final project is required.

Credit Hours: 1.00
Format: Project
Prerequisites: 6101, 6201, 6202
Projected Offering: Fall and Spring

6489 DIRECTED STUDIES IN PROFESSIONAL MARITIME STUDIES

Advanced tutorial concentrating on specific topics in the area of cutter, sector or aviation operations to include but not limited to any current tactics, practice, or procedure (TPP). It is expected the student will develop a hypothesis regarding an impaired or flawed TPP, conduct an investigation into the current state, and develop a study to quantify, document and prove/disprove the hypothesis. 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 a Professional Maritime Studies faculty member. Limited to advanced students who have completed course work and shown significant interest in Professional Maritime Studies.

Credit Hours: 3.00
Format: Directed Studies
Prerequisites: 6101, 6201, 6202, 6301
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

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8201 INTRODUCTION TO MANAGEMENT AND BUSINESS

Provides an overview of the history and development of management and business including the areas of planning, organizing and control. Provides an introduction to the functional areas of business as well as an introduction to the Management major.

Credit Hours: 3.00

Format: Class/Project

Prerequisites:

Restriction: Management majors only

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

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

8246 PRINCIPLES OF 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

8331 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: 4.00

Format: Class/Project/Laboratory

Prerequisites: 1320 or permission of the instructor

Projected Offering: Fall

8342 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:

Projected Offering: Spring

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, 8217

Projected Offering: On demand

8346 INTERMEDIATE FINANCIAL ACCOUNTING

This course is a continuation of 8246, Principles of Financial Accounting. This course will delve more deeply into the technical aspects of accounting, stressing the role played by International Standards on US GAAP, as well as greater depth in the treatment of complex accounting issues, such as revenue recognition, stock and stock options, pensions, and related advanced topics.

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The focus will be on how various accounting policy choices affect the formal financial statements and how assumptions can radically change these reported outcomes.

Credit Hours: 3.00
Format: Class
Prerequisites: 8246
Projected Offering: Spring

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: 8246
Projected Offering: Fall

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: Class
Prerequisites: 3213, 8246
Projected Offering: Spring

8353 SYSTEMS ANALYSIS AND DESIGN

Examination of the concepts, tools, and development methodologies used in information systems analysis and design. Feasibility study, requirements analysis, design, and development documentation are covered. The system development life cycle, prototyping, data modeling, and user involvement are also covered. Course prepares students to improve organizational functions through the System Development Life-Cycle in roles varying from System Analyst to System User. A real-world application is conducted through a term project.

Credit Hours: 3.00
Format: Class/Project/Cases
Prerequisites: 8331 or equivalent

Projected Offering: Spring

8357 HUMAN RESOURCES MANAGEMENT

Examination of the fundamentals of Human Resource management theory as it pertains to supervisors and managers. Topic coverage includes recruitment, selection, performance evaluations, retention, training issues, and EEO guidelines. Emphasis on applications of the theory. Use of student presentations and term paper.

Credit Hours: 3.00
Format: Seminar/Cases/Project
Prerequisites: 8211
Projected Offering: Fall

8358 NEGOTIATIONS AND CONFLICT MANAGEMENT

Designed for relevance to the broad spectrum of bargaining problems faced by the manager and professional. Provides understanding of the theory and processes of negotiation as practiced in a variety of settings, including government, commercial and labor negotiations. Special emphasis on sources of power in negotiations. Covers conflict management as a first party and as a third party (third party skills include helping others deal directly with their conflicts, mediation, investigation, arbitration, and helping the system itself to change as a result of a dispute. Allows students an opportunity to develop negotiations skills experientially and to understand negotiation in a useful analytical framework. Emphasizes simulations, exercises, role playing, and cases.

Credit Hours: 3.00
Format: Class/Seminar
Prerequisites: 8211
Projected Offering: Fall

8360 COST ACCOUNTING

This course provides a comprehensive study of the field of cost accounting, one of the critical accounting skill sets required for all practicing financial managers. Topics covered briefly in Managerial Accounting will be expanded upon, while additional advanced topics, such as joint cost allocation, will be introduced. Students will increase their analytical skills and ability to work with complex cost problems including the development of budgets and capital budgeting procedures. Topics will be explored from several perspectives: for-profit versus governmental standards, integration with financial accounting, and international vs. US standards and practices. Successful completion of Financial Accounting (8246) and Managerial Accounting (8348) are required for admittance to this course.

Credit Hours: 3.00
Format: Class
Prerequisites: 8246, 8346, and 8348 or permission of Instructor

Catalog of Courses

Projected Offering: Fall

8361 SUPPLY CHAIN MANAGEMENT

The concepts, issues, and techniques for managing supply chains. Topics include transportation economics, material and distribution requirements, electronic communication and tracking systems, and international supply chain planning.

Credit Hours: 3.00
Format: Class/Seminar
Prerequisites: 8115, 8217
Projected Offering: Spring

8363 OPERATIONS AND PROJECT MANAGEMENT

The study of operations management and 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, 8331
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: Spring

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

8415 PERSONAL FINANCE

A study of issues relevant to personal finance. Topics include budgets, insurance, taxes, markets, investments, retirement, and estate planning.

Credit Hours: 1.00

Format: Class

Prerequisites:

Projected Offering: Fall and 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: Spring

8419 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

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, 8217

Corequisites: 8246

Projected Offering: Fall

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8425 GLOBAL BUSINESS AND ECONOMIC ISSUES

Introduction to the concepts, framework and issues of global business: multinational firms; international trade; and the cultural, political, institutional, social, and economic environment of the global marketplace.

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

8429 MANAGERIAL PSYCHOLOGY

A rigorous reading-intensive study of advanced behavioral science topics such as the MBTI, positivist psychology, transactional analysis, commitment, motivation, and emotional intelligence. Emphasis on theoretical understanding and application. Extensive student participation and class leadership.

NOTE: A significant reading assignment and entrance exam are required for admission to the course.

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

8439 DIVERSITY AND LEADERSHIP

The course will examine diversity as a complex phenomenon and provide students with the understanding necessary to lead effectively in an increasingly diverse workplace. The course will demand serious, critical engagement in order to develop the awareness, knowledge, and skills necessary to create and lead inclusive, multicultural organizations.

Credit Hours: 3.00
Format: Seminar
Prerequisites: 8211
Corequisites: 8366
Projected Offering: Fall

8441 LEGAL ENVIRONMENT OF BUSINESS

Legal and policy issues affecting managerial decision-making. Topics include: business organizations, contracts and commercial transactions, environmental and employment law.

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

8443 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, 8217, 8246, 8349, and 8366
Restrictions: 1/c Management majors only
Projected Offering: Fall

8445 PUBLIC MANAGEMENT CONSULTING

The capstone course for the Management Major teaches the fundamentals of management consulting as part of a project-based experience. Students learn the basics of internal and career consulting. Topics include the consulting process; the ethics of consulting; and issues surrounding the use of consultants. Exploring the nature of consulting from the vantage points of both consultant and client, the course is designed for students who find themselves serving as an internal consultant, do occasional consulting, or need to hire or work with external consultants.

Credit Hours: 3.00
Format: Project/Seminar
Prerequisites: 8357 and 8443
Restrictions: 1/c Management majors
Projected Offering: Spring

8448 SELECTED TOPICS IN FINANCE, ACCOUNTING, AND ECONOMICS

In depth examination of advanced finance, accounting, or economics topics. Specific content of course will vary based upon emerging and relevant finance, accounting, and economics theory, institutional and organizational needs, and students interests. Includes extensive reading, writing, research, and/or casework.

Credit Hours: 3.00
Format: Class
Prerequisites:
Restrictions: 1/c cadets
Projected Offering: Fall and Spring

8449 SELECTED TOPICS IN INFORMATION SYSTEMS AND DECISION SCIENCES

In depth examination of advanced information system or decision science topics. Specific content of course will vary based upon emerging and relevant information and decision science theory, institutional and organizational needs, and students interests. Includes extensive reading, writing, research, and/or

Catalog of Courses

casework.

Credit Hours: 3.00
Format: Class
Prerequisites:
Restrictions: 1/c cadets
Projected Offering: Fall and Spring

8450 SELECTED TOPICS IN MANAGEMENT AND LEADERSHIP

In depth examination of advanced management and/or leadership topics. Specific course content will vary based on emerging management and 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, ACCOUNTING, AND ECONOMICS

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 AND LEADERSHIP

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

8470 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, 8363 or equivalent courses

Projected Offering: Spring



Catalog of Courses

PROJECTED OFFERINGS

<u>Course</u>	<u>Course Title</u>	'10-'11		'11-'12		'12-'13		'13-'14	
		<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>
0901	Fourth Class Experience	F		F		F		F	
0924	Connecticut College	F	S	F	S	F	S	F	S
0925	Scholar's Project		S		S		S		S
0933	Jr Hnrs Colloquium		S		S		S		S
0935	Sr Hnrs Colloquium	F		F		F		F	
0940	Peer Tutoring	F	S	F	S	F	S	F	S
1116	Statics & Engr Dsgn	F	S	F	S	F	S	F	S
1204	Eng Material Science		S		S		S		S
1206	Mechncs of Materials	F		F		F		F	
1208	Into Mech Engr Dsgn	F		F		F		F	
1211	Dynamics		S		S		S		S
1218	Elec Engineering I	F		F		F		F	
1222	Sgnls/Sys & Trnsfrms		S		S		S		S
1224	Intro Comp Prog	F		F		F		F	
1301	Materials for Civil Engr (T)	F		F		F		F	
1302	Materials for Civil Engr	F		F		F		F	
1304	Soil Mechanics/Found		S		S		S		S
1309	Environmental Engr I	F		F		F		F	
1310	Environmental Engr Lab	F		F		F		F	
1311	SpclTpcs Geotech Engr		S		S		S		S
1313	Steel Design		S		S		S		S
1317	Struct Analysis I	F		F		F		F	
1320	Intro to Elec/Comp Engr	F	S	F	S	F	S	F	S
1321	Elec Cir & Machines	F		F		F		F	
1322	Linear Circuits	F		F		F		F	
1324	Digital Circ/Cmp Sys		S		S		S		S
1326	Electromech Sys		S		S		S		S
1327	Acoustics and Music		S		S		S		S
1340	Fluid Mechanics	F		F		F		F	
1342	Prin of Naval Arch	F		F		F		F	
1346	Experimental Methods	F		F		F		F	
1351	Thermodynamics	F		F		F		F	
1353	Thermal Systems Dsgn		S		S		S		S
1355	Marine Engineering		S		S		S		S
1362	Software Design I	F		F		F		F	
1366	Intro to GUI Prog				S		S		S
1370	Mechanisms		S		S		S		S
1395	Projects in Engr	F	S	F	S	F	S	F	S
1401	Const Proj Mgmt	F		F		F		F	
1402	Civil Eng Design		S		S		S		S
1404	Geotech Engr Design	F		F		F		F	
1407	Enviromntl Engr II		S		S		S		S
1411	Reinf Concrete Dsgn	F		F		F		F	
1414	Struct Dsgn Extreme Events		S		S		S		S
1419	Dir Studies in CE	F	S	F	S	F	S	F	S

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Course	Course Title	'10-'11		'11-'12		'12-'13		'13-'14	
		F	S	F	S	F	S	F	S
1420	Antennas & Propagatn	F		F		F		F	
1422	Communication Syst	F		F		F		F	
1424	Computer Cntrl Sys		S		S		S		S
1426	Prjcts El/Cmp Engr I	F		F		F		F	
1429	Digital Signal Procs		S		S		S		S
1431	Electronic Nav Syst		S		S		S		S
1432	Computer Comms & Ntwks		S		S		S		S
1435	Intro Aerodynamics		S		S		S		S
1436	Prjcts El/Cmp Engr II		S		S		S		S
1439	Dir Studies/EE	F	S	F	S	F	S	F	S
1440	Machine Design	F		F		F		F	
1442	Prin of Ship Design	F		F		F		F	
1444	Ship Dsgn/Syst Intgr		S		S		S		S
1446	Mechanical Engr Dsgn		S		S		S		S
1451	Intro to Seakeeping								
1453	Ship Propulsion Dsgn	F		F		F		F	
1455	Ship Structures	F	S		S		S		S
1457	Small Craft Design		S		S		S		S
1458	Software Design II		S		S		S		S
1459	Heat Transfer		S		S		S		S
1460	Mod&Ctrl of Dyn Sys		S	F		F		F	
1466	HVAC Principles		S		S		S		S
1469	Dir Studies/NA&ME	F	S	F	S	F	S	F	S
1479	Dir Studies/ME	F	S	F	S	F	S	F	S
1480	Design Project Mgt	F		F		F		F	
1489	Sel.Topics in El/Cmp Engr	F	S	F	S	F	S	F	S
1491	FE Review		S		S		S		S
2101	Intro College Comm	F		F		F		F	
2111	Eng Comp & Speech	F	S	F	S	F	S	F	S
2121	Art of Effctv Wrtnng	F		F		F		F	
2123	Writing About Literature	F	S	F	S	F	S	F	S
2125	Writing About Lit (H)		S		S		S		S
2141	Leaders in U.S. Hist	F	S	F	S	F	S	F	S
2235	Spanish I	F		F		F		F	
2236	Spanish I/II		S		S		S		S
2237	Spanish II		S		S		S		S
2259	Prin of Amer Govt	F		F		F		F	
2261	Amer Foreign Policy		S		S		S		S
2263	American Government	F	S	F	S	F	S	F	S
2283	Evaluation & Cnslng								
2285	Soc Sci Resrch Methods		S		S		S		S
2293	Moral/Ethcl/Pol/Phil	F		F	S	F	S	F	S
2315	Drawing I		S		S		S		S
2323	Hum/World Lit: Arts		S						
2324	Hum/World Lit: Lat Am								
2325	Hum/World Lit: Pol/Hist				S		S		S
2331	CG Spanish		S		S		S		S

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Course	Course Title	'10-'11		'11-'12		'12-'13		'13-'14	
		F	S	F	S	F	S	F	S
2333	Slctd Topics in Lit		S		S		S		S
2335	Spanish III	F		F		F		F	
2336	Cnverstional Spanish		S		S		S		S
2337	Spanish IV		S		S		S		S
2338	Latin American Hist	F		F		F		F	
2341	Europe Since 1648		S				S		
2345	World War II			F		F		F	
2351	Great European Ldrs								
2357	Russia				S				
2360	Sel Topics in Phlsphy								
2361	Western Pol Theory		S		S		S		S
2365	Comparative Politics		S		S		S		S
2367	Interntl Relations	F		F		F		F	
2370	Contem. U.S. For. Policy								
2372	Political Partcptn			F		F		F	
2381	Social Psychology								
2389	Law and the Courts								
2391	Criminal Justice	F	S	F	S	F	S	F	S
2393	Moral & Ethical Phil	F	S	F	S	F	S	F	S
2395	Rhtic & CrtRm Advocacy	F	S	F	S	F	S	F	S
2399	Projects in Govt	F							
2421	Dir Stds/Humanities	F	S	F	S	F	S	F	S
2423	Gender/Race/Ldrship	F							
2429	Craft of Creative Writing		S		S		S		S
2439	Advanced Spanish	F		F		F		F	
2441	Civil War Era	F		F		F		F	
2449	Dir Studies/Philosophy	F	S	F	S	F	S	F	S
2454	Amer in Nuclear Age		S						
2457	Public Policymaking	F		F		F		F	
2459	Dir Studies/History	F	S	F	S	F	S	F	S
2461	American Congress			F		F		F	
2462	Slct Tpcs in Public Policy	F	S	F	S	F	S	F	S
2463	U.S. Maritime Hist/Pol	F		F		F		F	
2465	U.S. Military Policy				S				S
2467	Global Pley Studies	F	S	F		F		F	
2469	Natl Security Policy	F		F		F		F	
2470	Amer President Polcy				S		S		S
2471	Area Studies	F	S		S		S		S
2472	Drugs Policy		S		S		S		S
2473	Islam			F				F	
2474	Politics of Intl Econ			F				F	
2475	Media & Am Politics						S		
2476	Democracy in America		S		S		S		S
2479	Dir Studies/Govt	F	S	F	S	F	S	F	S
2481	Intell & Nat Sec Pol	F	S	F	S	F	S	F	S
2483	Intell & Democracy		S		S		S		S
2487	Dir Studies/Intell	F	S	F	S	F	S	F	S

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Course	Course Title	'10-'11		'11-'12		'12-'13		'13-'14	
		F	S	F	S	F	S	F	S
2489	Dir Studies/Psy	F	S	F	S	F	S	F	S
2493	Maritime Law Enfcmnt	F	S	F	S	F	S	F	S
2495	Adv Research Proj	F	S	F	S	F	S	F	S
2496	International Law	F		F		F		F	
2497	Constit Law & H. S.		S		S		S		S
2498	Senior Thesis	F	S	F	S	F	S	F	S
2499	Dir Studies/Law	F	S	F	S	F	S	F	S
3107	Intro to Calculus	F		F		F		F	
3111	Calculus I	F	S	F	S	F	S	F	S
3112	Calculus I		S		S		S		S
3115	Calculus II (V)	F		F		F		F	
3117	Calculus II	F	S	F	S	F	S	F	S
3211	Multivariable Calc	F	S	F	S	F	S	F	S
3213	Probability & Stat	F	S	F	S	F	S	F	S
3215	Differential Eqtns	F	S	F	S	F	S	F	S
3221	Linear Algebra	F		F		F		F	
3231	Linear Optimization		S		S		S		S
3237	Discrete Mathematics		S		S		S		S
3301	Adv Engineering Math		S		S		S		S
3311	Advanced Calculus		S		S		S		S
3333	Network & Nonlin Optim	F		F		F		F	
3335	Visual Basic	F		F		F		F	
3336	Information Systems		S		S		S		S
3341	Probability Theory	F		F		F		F	
3343	Mathematical Stats		S		S		S		S
3351	Probability Models		S		S		S		S
3447	Linear Regression	F		F		F		F	
3453	Decision Models	F		F		F		F	
3463	Simulation w/Risk Anlys	F		F		F		F	
3471	Operations Analysis		S		S		S		S
3477	Proj in Ops Research	F		F		F		F	
3479	Dir Studies/OR	F	S	F	S	F	S	F	S
4101	Dvlmntl Swimming	F		F		F		F	
4102	Prin Fitness/Well I	F		F		F		F	
4103	Personal Defense I		S		S		S		S
4111	Swimming I	F	S	F	S	F	S	F	S
4112	Prin Fitness/Well II		S		S		S		S
4204	Lifetime Sports I/RQB	F	S	F	S	F	S	F	S
4214	Lifetime Sports II: Golf	F	S	F	S	F	S	F	S
4222	Professional Rescuer	F	S	F	S	F	S	F	S
4303	Personal Defense II	F	S	F	S	F	S	F	S
4304	Lifetime Sports III: Tennis	F	S	F	S	F	S	F	S
4400	Remdial Physic Tng	F	S	F	S	F	S	F	S
4401	Water Safety Inst		S		S		S		S
4404	Badminton	F	S	F	S	F	S	F	S
4405	Adventure Sports I:RC	F		F		F		F	
4407	Dance	F	S	F	S	F	S	F	S

Catalog of Courses

Course	Course Title	'10-'11		'11-'12		'12-'13		'13-'14	
		F	S	F	S	F	S	F	S
4409	Horseback Riding	F	S	F	S	F	S	F	S
4411	Scuba Diving	F	S	F	S	F	S	F	S
4414	Advanced Golf	F	S	F	S	F	S	F	S
4415	Adventure Sports II		S		S		S		S
4421	Advanced Scuba Diving	F	S	F	S	F	S	F	S
4439	Theory of Coaching	F	S	F	S	F	S	F	S
4444	Indoor Recrtnl Sports		S		S		S		S
4459	Sport/Wellness Leader	F	S	F	S	F	S	F	S
4464	Strength & Conditioning		S		S		S		S
4489	Sel Topics/HPE	F	S		S		S	F	S
5102	Chemistry I	F	S	F	S	F	S	F	S
5106	Chemistry II		S		S		S		S
5232	Marine Biology	F		F		F		F	
5234	Marine Geochemistry		S		S		S		S
5238	Physical Oceanogrphy		S		S		S		S
5240	Meteorology	F		F		F		F	
5247	Projects in Mar Sci	F	S	F	S	F	S	F	S
5257	Projects in Physics		S	F	S	F	S	F	S
5262	Physics I	F		F		F		F	
5266	Physics II		S		S		S		S
5306	Physical Chemistry	F		F		F		F	
5312	Analytl Methods/Chem		S		S		S		S
5330	Geospatial Sciences I	F		F		F		F	
5334	Fisheries Biology	F		F		F		F	
5338	Marine Forecasting		S		S		S		S
5342	Bio/Chemical Oceans		S		S		S		S
5350	Ocean Dynamics	F		F		F		F	
5352	Waves & Tides		S		S		S		S
5364	Semi-conductor Phycs				S		S		S
5366	Astronomy	F		F		F		F	
5379	Dir Studies/MarSci		S	F	S	F	S	F	S
5389	Dir Studies/Physics	F	S	F	S	F	S	F	S
5399	Dir Studies/Chem	F	S	F	S	F	S	F	S
5402	Organic Chemistry	F		F		F		F	
5415	Hazardous Materials		S		S		S		S
5417	Toxicology		S		S		S		S
5419	Biochemistry			F		F		F	
5420	Chemometrics			F		F		F	
5421	Projects in Chem	F	S	F	S	F	S	F	S
5429	Research in Chem	F	S	F	S	F	S	F	S
5430	Geospatial Sciences II				S		S		S
5436	Coastal Oceanography	F		F		F		F	
5441	Marine Pollution	F		F		F		F	
5442	Atmospherc & Mar Sci	F	S	F	S	F	S	F	S
5445	Fisheries Management		S		S		S		S
5449	Research in Physics		S	F	S	F	S	F	S
5459	Research in Mar Sci	F	S	F	S	F	S	F	S

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<u>Course</u>	<u>Course Title</u>	'10-'11		'11-'12		'12-'13		'13-'14	
		<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>	<u>F</u>	<u>S</u>
5469	Research in GS	F	S	F	S	F	S	F	S
5475	Intro Geospatial Sci		S		S		S		S
5477	Optics			F		F		F	
6101	Fund of Navigation	F	S	F	S	F	S	F	S
6201	Ships & Maritime Sys	F	S	F	S	F	S	F	S
6202	Apps in Nav Lab	F	S	F	S	F	S	F	S
6301	Maritime Watch Offcr	F	S	F	S	F	S	F	S
6401	CG Div Officer	F	S	F	S	F	S	F	S
6439	Marine Casualty Resp	F		F		F		F	
6459	Sel Tpcs ProMarStds	F	S	F	S	F	S	F	S
6469	Proj in Pro Mar Dev	F	S	F	S	F	S	F	S
6489	Dir Stds ProMarDev	F	S	F	S	F	S	F	S
8115	Macroeconomic Prin	F	S	F	S	F	S	F	S
8201	Intro to Mgmt & Bus	F	S	F	S	F	S	F	S
8211	Ldrshp/Org Behavior	F	S	F	S	F	S	F	S
8217	Microeconomic Prin	F		F		F		F	
8246	Financial Accounting		S		S		S		S
8331	Management Info Sys	F		F		F		F	
8342	Marketing		S		S		S		S
8343	Public Sector Economics								
8346	Intermediate Financial Acct	F			S		S		S
8348	Managerial Accounting	F		F		F		F	
8349	Financial Management		S		S		S		S
8353	Systms Analy & Desgn				S		S		S
8357	Human Resources Mgt	F		F		F		F	
8358	Negt & Conflict Mgmt	F		F		F		F	
8360	Cost Accounting			F		F		F	
8361	Supply Chain Management				S		S		S
8363	Ops Research & Proj Mgmt		S		S		S		S
8366	Ldrshp & Orgn Dvlmnt		S	F	S	F	S	F	S
8413	Managerial Econ		S		S		S		S
8415	Personal Finance	F	S	F	S	F	S	F	S
8417	Investment Theory		S		S		S		S
8419	Info Technlgy in Orgs			F		F		F	
8423	Management Control			F		F		F	
8425	Global Bus & Econ			F		F		F	
8429	Managerial Psychology	F	S		S		S		S
8439	Diversity and Leadership		S	F		F		F	
8441	Legal Environ Bus				S		S		S
8443	Strategic Management	F		F		F		F	
8445	Public Mgmt Consult		S		S		S		S
8448	Sel Tpcs Fin/Acct/Ec	F	S	F	S	F	S	F	S
8449	Sel Tpcs IS/DS	F	S	F	S	F	S	F	S
8450	Sel Topics in Ldrshp	F	S	F	S	F	S	F	S
8468	Dir Stdy/Fin/Acct/Ec		S		S		S		S
8469	Dir Studies/Mgmt		S	F	S	F	S	F	S
8470	Dir Studies in IS/DS	F	S		S		S		S

PART VI — DIRECTORY

BOARD OF TRUSTEES

- Ronald T. Hewitt, Rear Admiral, Assistant Commandant for Human Resources (CG-1), Chair
- Charles W. “Skip” Bowen, Master Chief, Master Chief Petty Officer of the Coast Guard (CG-00B)
- Robert S. Branham, Rear Admiral, District Commander, Seventh District (CCGD7)
- Manson K. Brown, Rear Admiral, District Commander, Fourteenth District (CCGD14)
- J. Scott Burhoe, Rear Admiral, Superintendent (USCGA)
- Joseph R. Castillo, Rear Admiral, District Commander, Eleventh District (CCGD11)
- Kevin S. Cook, Rear Admiral, Director of Prevention Policy (CG-54)
- Terri A. Dickerson, Director, Office of Civil Rights (CG-00H)
- Daniel R. May, Rear Admiral, Director of Reserve and Training (CG-13)
- Thomas P. Ostebo, Rear Admiral, Assistant Commandant for Engineering and Logistics (CG-4)
- Ronald J. Rabago, Rear Admiral, Director of Acquisition Programs and Program Executive Officer (CG-93)
- Sandra L. Stosz, Rear Admiral, Director, Enterprise Strategy, Mgmt & Doctrine Oversight (CG-095)
- Keith A. Taylor, Rear Admiral, Assistant Commandant for Resources, Chief Financial Officer (CG-8) Kevin S. Cook, Rear Admiral, Director of Prevention Policy (CG-54)
- Peter W. Melera, Chief of Military Operations, USCG Auxiliary

SPECIAL REPRESENTATIVES

- Robert B. Hallock, II, President and Chief Executive Officer, Chatham Model Boatworks
- Richard D. Herr, Vice Admiral, USCG, Ret.
- Richard W. Schneider, Rear Admiral, USCGR, Ret., President, Norwich University
- Executive Secretaries
- Eric P. Brown, Captain, Assistant Superintendent (USCGA)
- Cameron T. Naron, Captain, Office Chief, Leadership and Professional Development (CG-133)

EMERITI

Distinguished Professors Emeriti

Robert G. Boggs, Professor, Ph.D., P.E.
Thomas D. Combs, Jr., Captain, USCG (Ret.), Ph.D.
Irving H. King, Professor, Ph.D.
Albert L. Lawrence, Captain, USCG (Ret., Dec.)
Nathan L. Marvin, Professor, M.A.
Nelson W. Nitchman, Professor, B.A.
Ephraim P. Rivard, Captain, USCG (Ret.)
Stanley L. Smith, Captain, USCG (Ret.), M.S.
Roderick M. White, Captain, USCG (Ret.), Sc.D.

Professors Emeriti

G. Phillip Boeding, Professor, M.S.
Gaston N. Buron, Professor, Ph.D. (Posthumously)
Geoffrey A. Cardinali, Associate Professor, M.A.
J. Richard Christman, Professor, Ph.D.
Richard T. Close, Professor, Ph.D.
John D. Crowley, Professor, Ph.D.
Attilio E. DeFilippis, Associate Professor, M.A.
Robert L. DeMichiell, Captain, USCG (Ret.), Ph.D.
Charles Dennis, Associate Professor, M.S.
Gregg W. Dixon, Professor, Ph.D.
John R. Donnellan, Associate Professor, M.S.
Robert Dixon, Jr., Assistant Professor
Howard C. Dunn, Jr., Professor, Ph.D.
Joseph B. Egan, Captain, USCG (Ret.), Ph.D.
Edwin Emery, Professor, Ph.D. (Posthumously)
Paul F. Foye, Captain, USCG (Ret.), M.A. (Posthumously)
Robert J. Fuller, Captain, USCG (Ret.), Ph.D.
Bruce S. Gathy, Professor, Ph.D.
Otto E. Graham, Captain, USCG (Ret.), B.A.
Wayne R. Grondlund, Captain, USCG (Ret.), Ph.D.
Thomas J. Haas, Captain, USCG (Ret.) Supervisory Professor, Ph.D.
J. Barton Hoag, Captain, USCG (Ret.) Ph.D. (Posthumously)
Paul H. Johnson, Associate Professor, M.A., M.A.L.S.
Raymond A. Kambeitz, Associate Professor, M.S.
Frank S. Kapral, Captain, USCG (Ret.), M.S.
Leonard J. Kelly, Captain, USCG (Ret.), Ph.D.
Ronald C. Kollmeyer, Captain, USCG (Ret.), Ph.D.
Saul Krasner, Professor, Ph.D.
John B. Mahon, Captain, USCG (Ret.), M.A.
Ernest J. Manfred, Professor, D.A.

Catalog of Courses

Philip I. Mathew, Professor, Ph.D.
David A. McGill, Professor, Ph.D. (Posthumously)
Michael E. McKaughan, Professor, Ph.D.
Jordon L. Pecile, Professor, M.A.
Raymond J. Perry, Captain, USCG, Ph.D.
Don C. Pinhey, Associate Professor, M.S.
Earl H. Potter III, Captain, USCG (Ret.), Ph.D.
Robert E. Reed-Hill, Captain, USCG (Ret.)
Faye J. Ringel, Professor, Ph.D.
Larry E. Rutledge, Associate Professor, M.S.
David A. Sandell, Captain, USCG (Ret.), Ph.D.
William A. Sanders, Supervisory Professor, Ph.D.
Carl W. Selin, Captain, USCG (Ret.), Ph.D.
Bruce C. Skinner, Captain, USCG (Ret.), Nav.E
Richard E. Slimak, Professor, Ph.D.
Gwendolyn R. Stevens, Professor, Ph.D.
Douglas S. Tolderlund, Professor, Ph.D.
David W. Weber, Professor, Ph.D.
Sherman S. Weidenbaum, Professor, Ph.D.
Ronald A. Wells, Captain, USCG (Ret.), Ph.D.
Nils H. Wessell, Professor, Ph.D.
Malcolm J. Williams, Captain, USPHS (Ret.), Ph.D. (Dec.)
Joseph J. Wolcin, Professor, Ph.D.
Jimmie D. Woods, Captain, USCG (Ret.), Ph.D.

ACADEMY PERSONNEL

Office of the Superintendent

J. Scott Burhoe, Rear Admiral, USCG, Superintendent
James Rendon, Captain, USCG, Assistant Superintendent
John Niece, Master Chief, USCG, Command Master Chief
Alan LaPenna, Lieutenant Commander, USCG, Planning Officer
Ashley Crouch, Lieutenant, Assistant Planning Officer/Superintendent's Aide
Antonio Farias, Director, Diversity Affairs
Bonnie Fogell, YNC (Ret.), USCG, Executive Assistant to the Superintendent

Institutional Research

Leonard M. Giambra, Ph.D., Director, Institutional Research
Erich Stein, Lieutenant Commander, USCG, Assistant Director
Daniel J. King, Statistical Assistant

Chaplain's Office

W. Kyle Fauntleroy, Captain, CHC, USN, Command Chaplain
Daniel L. Mode, Lieutenant Commander, CHC, USN, Staff Chaplain
Lori L. Kleppe, Lieutenant, CHC, USN, Staff Chaplain

U. S. Coast Guard Academy

Judy Zakutansky, Administrative Assistant

Civil Rights Office

Kenneth Hunter, Civil Rights/EEO Officer

Kristen Kraemer, Lieutenant Junior Grade, USCG, Equal Opportunity Advisor

Legal

Jim Pruett, Commander, USCG, J.D., Staff Judge Advocate/Legal Officer

Bryan Pape, Lieutenant Commander, USCG, J.D., Deputy Staff Judge Advocate/Principal Assistant Legal Officer

Benjamin Karpinski, Lieutenant, USCG, Assistant Staff Judge Advocate/Assistant Legal Officer

Museum

Hallie Brooker, Museum Curator

Center for Counseling and Development

Robert Murray, Ed.D., Professor, Director of Counseling, Licensed Psychologist

L. Imani Price, Ph.D., Psychologist

ACADEMIC DIVISION

Kurt J. Colella, Captain, USCG (Ret.), Ph.D., Professor, P.E., Dean of Academics

Richard Sanders, Captain, USCG, Ph.D., Associate Professor, Associate Dean (collateral)

Evelyn Ellis, Ed.D., Associate Dean of Academic Support Services

Anne Morrissey, Lieutenant Commander, USCG, M.B.A., Assistant Professor, Assistant Dean (collateral)

Melinda D. McGurer, Commander, USCG, Ph.D., Associate Professor, Director, Academic Advising (collateral)

Rita J. Smith, Administrative Assistant

Registrar

Donald E. Dykes, M.S., Registrar

Mary J. Crevier, M.A., Associate Registrar

Christopher White, Education Support Assistant

Library

Patricia A. Daragan, M.L.S., Director of the Library

Richard Everett, Head, Reference and Instruction

Lucia Maziar, Head, Library Automation and Technical Services

Susan Cornacchia, Reference/Instruction Librarian

Pauline Lamarre, Cynthia Juskiewicz, Janet Whitty, Jean Potvin — Library Technicians

Catalog of Courses

Engineering Department

Vincent Wilczynski, Captain, USCG, Ph.D., Professor, Department Head

Civil Engineering Section

Jonathan C. Russell, Captain, USCG, Ph.D., P.E., Professor, Section Chief

Corinna Fleischmann, Lieutenant Commander, USCG, M.S., P.E., Assistant Professor

Hudson Jackson, Ph.D., P.E., Assistant Professor

Brian Maggi, Lieutenant Commander, USCG, M.S., P.E., Assistant Professor

David F. Mazurek, Ph.D., P.E., Professor

David Plantz, Ph.D., Lecturer

Nathan Rumsey, Lieutenant, USCG, M.B.A., P.E., Instructor

Kassim Tarhini, Ph.D., P.E., Lecturer

Daniel Ursino, Lieutenant Commander, USCG, M.S., P.E., Assistant Professor

Sharon Zelmanowitz, Ph.D., P.E., Professor

Electrical and Computer Engineering Section

Keith Gross, Ph.D., P.E., Professor, Section Chief

Joseph Benin, Lieutenant, USCG, M.S., P.E., Instructor

Richard W. Freeman, Ph.D., Lecturer

Richard J. Hartnett, Ph.D., P.E., Professor

Anthony Hawes, Lieutenant Commander, USCG, M.S., P.E., Assistant Professor

Matthew Kempe, Lieutenant, USCG, M.S., Instructor

Charles Novak, Lieutenant, USCG, M.S., Instructor

Robert R. Oatman, Commander, USCG, M.S., Associate Professor

Rhett R. Rothberg, Lieutenant Commander, USCG, M.S., Assistant Professor

Kelly Seals, Lieutenant Commander, USCG, M.S., P.E., Assistant Professor

Brett Sovereign, Ph.D., NSA Visiting Professor

Terry Vogler, M.S., P.E., Lecturer

Mechanical Engineering Section

Carla J. Egelhoff, Ph.D., P.E., Professor, Section Chief

Ronald S. Adrezin, Ph.D., P.E., Associate Professor

Kara L. Burns, Lieutenant, USCG, M.S., M.B.A.-P.M., Instructor

David C. Clippinger, Commander, USCG, Ph.D., P.E., Associate Professor

Matthew Edwards, Commander, USCG, M.S., M.S.E., P.E., Associate Professor

Andrew Foley, Ph.D., P.E., Professor

Charles Hatfield, Commander, USCG, M.S.E., Associate Professor

Jessica Rozzi-Ochs, Lieutenant Commander, USCG, M.S., Assistant Professor

Alex Tsai, Ph.D., Assistant Professor

Naval Architecture and Marine Engineering Section

Todd E. Taylor, Ph.D., Associate Professor, Section Chief

Scott Calhoun, Lieutenant Commander, USCG, M.S., Assistant Professor

U. S. Coast Guard Academy

Michael Corl, Lieutenant Commander, USCG, Ph.D., Assistant Professor
Thomas W. DeNucci, Lieutenant Commander, USCG, M.S., Assistant Professor
Edward Diehl, M.S., Lecturer
Elizabeth Garcia, Ph.D, Lecturer
Nicholas Parker, Lieutenant, USCG, M.S., Instructor
William M. Simpson, Jr., Ph.D., Lecturer
Susan Swithenbank, Ph.D, Assistant Professor
Christopher Wolfe, Lieutenant Commander, USCG, M.S., Assistant Professor

Humanities Department

Glenn Sulmasy, Captain, USCG, J.D., L.L.M., Professor, Department Head

Law Section

Russ Bowman, Lieutenant Commander, USCG, J.D., Section Chief
Christopher Tribolet, Lieutenant Commander, USCG, J.D., Assistant Professor

English and Foreign Languages Section

Jose B. Gonzalez, Ph.D., Professor, Section Chief
L. Anne Flammang, Captain, USCG, Ph.D., Professor, Department Head
Brian Krautler, Lieutenant Commander, USCG, M.A., Assistant Professor
Elizabeth Rivero, Ph.D., Assistant Professor
Alexander Waid, Ph.D., Associate Professor
Karen A. Wink, Ph.D., Associate Professor

Government/History/Ethics Section

Brigid M. Pavlonis, Commander, USCG, M.A.L.D, Associate Professor, Section Chief
Robert C. Ayer, Captain, USCG, Ph.D., Professor
Timothy Balunis, Lieutenant, USCG, M.A., Instructor
Camilla Bosanquet, Lieutenant Commander, USCG, M.A., Assistant Professor
Ryan Chevalier, Lieutenant, USCG, M.P.P., Instructor
Antonia Gay, Lieutenant Commander, USCG, MSSI, Assistant Professor
Christopher LaMonica, Ph.D., Assistant Professor
Melissa Matthes, Ph.D., Assistant Professor
Brian McSorley, Lieutenant Commander, USCG, M.A., Assistant Professor
Dwayne Ripley, Lieutenant, USCG, MSSI, Instructor
Erik Wingrove-Haugland, Ph.D., Professor
Judith A. Youngman, Ph.D., Professor
Richard Zuczek, Ph.D., Professor

Mathematics Department

Mark B. Case, Captain, USCG, Ph.D., Professor, Department Head
Sam Cheung, Lieutenant, USCG, M.S., Instructor

Catalog of Courses

Richard Chmielecki, Lieutenant, USCG, M.S., Instructor
Ian D. Frommer, Ph.D., Assistant Professor
David Gudbrandsen, Lieutenant Commander, USCG, M.S., Assistant Professor
Eric C. Johnson, Ph.D., Associate Professor
Katherine B. Krystinik, Ph.D., Professor
Melinda D. McGurer, Captain, USCG, Ph.D., Professor
Janet A. McLeavey, Ph.D., Professor
Maurice D. Murphy, Lieutenant Commander, USCG, M.S., Assistant Professor
Russell A. Rushmeier, Ph.D., Associate Professor
Kurt A. Sebastian, Captain, USCG, Ph.D., Professor
Meghan K. Steinhaus, Lieutenant, USCG, M.S., Instructor

Science Department

Glenn S. Frysinger, Ph.D., Professor, Department Head

Chemistry Section

Gregory J. Hall, Lieutenant Commander, USCG, Ph.D., Assistant Professor, Section Chief
Richard B. Gaines, Captain, USCG, Ph.D., Professor
Angelique M. Geyer, Lieutenant, USCG, M.S., Instructor
Tiffany St. George, Lieutenant Commander, USCG, M.S., Assistant Professor
Joshua Gray, Ph.D., Assistant Professor
Jody J. Maisano, Lieutenant, USCG, M.S., Instructor
Margaret Kennedy, Lieutenant, USCG, M.S., Instructor
Richard W. Sanders, Captain, USCG, Ph.D., Professor

Marine Science Section

Karina L. Mrakovcich, Ph.D., Professor, Section Chief
Deanna L. Bergondo, Ph.D., Assistant Professor
Charlene Forgue, Lieutenant, USCG, M.S., Instructor
Victoria Futch, Lieutenant, USCG, M.S., Instructor
Lucy Vlietstra, Ph.D., Associate Professor
Sam C. Wainright, Ph.D., Professor

Physics Section

Richard N. Paolino, Ph.D., Professor, Section Chief
Lorraine A. Allen, Ph.D., Associate Professor
Royce W. James, Lieutenant, USCG, Ph.D., Instructor
Jennifer Konon, Lieutenant, USCG, M.S., Instructor
Briana Jewczyn, Lieutenant, USCG, M.S., Instructor
Richard Walsh, Lieutenant Commander, USCG, M.S., Assistant Professor

Management Department

Michael H. Schuster, Ph.D., Professor, Department Head
Gregory R. Barbiaux, Lieutenant Commander, USCG, M.B.A., Assistant Professor
Jeffery Brewer, Lieutenant, M.B.A., Instructor
Laurel R. Goulet, Ph.D., Professor
Carol J. McNair, Ph.D., Professor
Darell D. Singleterry, Commander, USCG, M.B.A., Associate Professor
Paul S. Szwed, Captain, D.Sc., Professor
Dominic P. Tenorio, Lieutenant, M.B.A., Instructor
John B. White, Ph.D., Professor
Alina M. Zapalska, Ph.D., Professor

Health and Physical Education Department

Daniel Rose, M.Ed., Department Head, Head Track and Field Coach (Indoor/Outdoor) (Men and Women)
Ethan E. Brown, M.Ed., Professional Faculty, Head Cross Country Coach (Women)/Assistant Track and Field Coach (Indoor/Outdoor) (Men and 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, Assistant Softball Coach and Director of Intramurals
Bill George, M.S., Professional Faculty, Head Football Coach
Susan Grant, M.S., Professional Faculty, Head Soccer Coach (Women) and Assistant Track and Field Coach (Men and Women)
Ulysses C. Grant, M.S., Professional Faculty, Head Baseball Coach and Assistant Football Coach
Barry H. Hurst, B.S., USN Ret., Aquatics Instructor (OCS, LDC)
Kevin W. Jaskiewicz, M.S., Professional Faculty, Head Basketball Coach (Men) and Assistant Baseball Coach
Andrew P. Halvorson, Lieutenant, M.B.A., Instructor
Anna W. Hickey, Lieutenant Commander, USCG, M.B.A., Assistant Professor
Brooke S. Stutzman, Ph.D., Associate Professor
Donna Koczajowski, M.S., Professional Faculty, Head Softball Coach and Assistant Soccer Coach (Women)
Raymond LaForte, M.S., Professional Faculty, Assistant Football and Assistant Track and Field Coach
Chris Parsons, M.S., Professional Faculty, Head Soccer Coach (Men)
John P. Westkott, M.S., Professional Faculty, Head Swimming Coach (Men and Women)
Mary Westkott, M.S., Professional Faculty, Assistant Swimming Coach (Men and Women)

Catalog of Courses

ADMISSIONS DIVISION

Stephan Finton, Captain, USCG, M.B.A., Director of Admissions
Patricia Soares, M.A., Associate Director of Admissions
Sheryl Miner, Secretary

Recruiting

Michael Thomas, Lieutenant Commander, USCG, M.S., Associate Director of Admissions for Recruiting
Lindsey Seniuk, Lieutenant, USCG, B.S., Assistant Director for Campus Programs
Caroline Bladen, Lieutenant, USCG, B.S., Admissions Officer
Kathleen Sullivan, Lieutenant Junior Grade, USCG, B.S., Admissions Officer
Cosimo Cambi, Lieutenant, USCG, B.S., Admissions Officer
Guillermo Holmes, Lieutenant Junior Grade, B.A., Admissions Officer
James Kopcsay, Ensign, USCG, B.A., Admissions Officer
Kathleen Parker, Recruiting Support Staff

Diversity and Outreach

Daniel Pinch, M.S., Associate Director of Admissions for Diversity and Outreach
Christopher Culpepper, Lieutenant, USCG, B.S., Admissions Officer
Fredrick Pugh, Lieutenant, USCG, B.A., Admissions Officer

Marketing

Leo Gonot, M.S., Associate Director of Admissions for Marketing
Bill Bauer, A.D., Marketing Support Staff
Leann Strickland, B.A., Web Information Director

Operations

Chris McMunn, M.S., Associate Director of Admissions for Operations
Donna Homiski, Operations Support Supervisor
Brad Beckwith, Operations Support Staff
Kathy Lyons, Operations Support Staff

Volunteer Programs

Tamara McKenna, M.B.A, Associate Director of Admissions for Volunteer Programs
Jeff Creighton, Volunteer Programs Support Staff
Patty Giannattasio, B.A., Volunteer Programs Support Staff

ATHLETICS DIVISION

Raymond Cieplik, Ph.D., Professor, Director of Athletics
Peter K. Barry, M.A., Professional Faculty, Head Basketball Coach (Men)
Robert Bono, Basketball Coach (Associate)
Ethan Brown, M.S., Professional Faculty, Assistant Track and Field Coach,
Head Women's Cross Country

U. S. Coast Guard Academy

Bruce Cobb, Athletic Equipment Room Manager
Steve Eldridge, M.S., Associate Professor, Head Wrestling and Head Cross
Country Coach (Men)
Jeremy Fields, A.T.C., Athletic Trainer
Jack Flaherty, Equipment Room Staff
Dana R. Fleischmann, M.S, Professional Faculty, Assistant Football Coach
and Director of Intramurals
Richard Gaines, Captain, USCG, Ph.D., Head Basketball Coach (Women)
Bill George, M.S., Professional Faculty, Head Football Coach
Susan Grant, M.S., Head Soccer Coach (Women)
Ulysses C. Grant, M.S., Professional Faculty, Head Baseball Coach, Assis-
tant Football Coach
Marc Grindstaff, Equipment Room Staff
Steve Hargis, B.S., Head Crew/Rowing Coach
James Hazlin, B.S., Head Tennis Coach
Donna Koczajowski, M.S., Professional Faculty, Head Softball Coach
Raymond Laforte, M.S., Professional Faculty, Assistant Football Coach
Art Lamoureux, B.S., Athletic Operations Director
Michael E. McKaughan, Ph.D, Academic Faculty, Head Rifle Coach
Jennifer Meuse, Head Crew Coach (Women)
Anne Millovitsch, A.T.C., Athletic Trainer
Robert Mullooney, M.S., Head Volleyball Coach (Women)
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)
Jeremy Rice, M.S., A.T.C., Athletic Trainer
Daniel Rose, M.S., Professional Faculty, Head, Department of Health and
Physical Education, Track (Indoor/Outdoor) (Men and Women)
Jason S. Southard, B.S., Sports Information Director
Andrea Stewart, Director of Office Operations, Senior Woman Administrator
John P. Westkott, M.S., Professional Faculty, Head Swimming Coach (Men
and Women)
Mary Westkott, M.S., Professional Faculty, Assistant Swimming Coach (Men
and Women)

CADET DIVISION

John C. O'Connor III, Captain, USCG, B.A., M.A., Ed.M, C.A.S, Ed.D, Com-
mandant of Cadets
Christine Rose, Administrative Assistant

Cadet Branch

Christina Davidson, Commander, USCG, M.S., Assistant Commandant of Ca-
dets

Catalog of Courses

William Nunes, Lieutenant Commander, USCG, M.B.A., Cadet Activities/Regimental Officer

LuAnn Kehlenbach, Lieutenant, USCG, B.S., M.S., Alfa Company Officer

David Bradley, Lieutenant Commander, USCG, M.S., Bravo Company Officer

David Stutt, Lieutenant USCG, B.S., Charlie Company Officer

Jonathan Harris, Lieutenant, USCG, M.S., Delta Company Officer

Allison Dussault, Lieutenant, USCG, M.S. Echo Company Officer

Valerie Boyd, Lieutenant, USCG, M.S., Foxtrot Company Officer

Catherine Carabine, Lieutenant Commander, USCG, B.S., Golf Company Officer

Benjamin Spector, Lieutenant, USCG, M.S., Hotel Company Officer

Anthony McDade, Senior Chief Petty Officer, USCG, Alpha Company Chief

Michael Pipech, Chief Petty Officer, USCG, Bravo Company Chief

Gilbert Page, Chief Petty Officer, USCG, Charlie Company Chief

William Martin, Chief Petty Officer, USCG, Delta Company Chief

Richard Harris, Chief Petty Officer, USCG, Echo Company Chief

Excor Padro, Chief Petty Officer, USCG, Foxtrot Company Chief

Peter MacDougall, Senior Chief Petty Officer, Golf Company Chief

Virginia Yoder, Senior Chief Petty Officer, Hotel Company Chief

Cadet Activities

Robert G. Newton, Ph.D., Assistant Professor, Director, Cadet Vocal Activities

Kirk Edwards, Chief Warrant Officer, Director, Cadet Bands

Margaret J. Bowen, Director, Cadet Social Activities

Carey McNeil, Director, Cadet Activities

Steve Loyd, Chase Hall Building Manager

Cadet Professional Maritime Studies

Diane Durham, Commander, USCG, B.A., M.B.A., Chief, Cadet Professional Maritime Studies Branch

Joyce Hatch, Administrative Assistant

Jerry Smith, Lieutenant, USCG, B.A., PMS IV Instructor

Jeremy Montes, Lieutenant, USCG, B.S. PMS I Instructor

Kent Shafer, Chief Petty Officer, USCG, M.S., PMS I Instructor

Michael Keyser, Lieutenant, USCG, PMS I Course Coordinator

Kristina Bove, Lieutenant, USN, B.S., PMS II Instructor

Nicole Tesoniero, Lieutenant, USCG, B.S., PMS II Course Coordinator

Bradley Brunaugh, Lieutenant, USCG, B.S., PMS III Course Coordinator

Kjell Rommerdahl, Lieutenant, USCG, B.S., PMS III Instructor

Nicholas Seniuk, Lieutenant, USCG, B.S., PMS III Instructor

John McTamney, Lieutenant, USCG, B.S., PMS IV Course Coordinator

Tom Crowley, Lieutenant, USCG, B.S., PMS II Instructor

Ryan Waitt, Lieutenant, USCG, B.S., PMS IV Instructor

Jamie Koula, Electronics Technician First Class, USCG, SCANTS Maintenance

U. S. Coast Guard Academy

Cadet Training

Jeffrey Haukom, Commander, USCG, M.S., Cadet Training Officer
Gregory Rothrock, Lieutenant Commander, USCG, M.S., Training Officer for
Character Development
Michael Newell, Lieutenant, USCG, M.S., Associate Director, Institute for
Leadership
Jon Berkshire, Lieutenant, USCG, B.S., Training Officer for Career Develop-
ment
Stacey Dawson, Lieutenant Junior Grade, USCG, B.S., Training Coordinator
Chad Barber, Chief Warrant Gunner, USCG, Armory Officer
Joe Harvey, Chief Warrant Personnel Officer, USCG, Chief, Cadet Administra-
tion

Waterfront

Allen L. Kruger, II, Chief, Sailing and Seamanship
Douglas Clark, Director of Sailing
Charles Olsen, Waterfront Facility Manager
Hartley Kelly, Sail Training Instructor
Mark Zagol, Inter-Collegiate Coach
Jack Neades, Offshore Coach
Brian Swingly, Assistant Sailing Coach
York Bergin-Pugh, Assistant Sailing Coach
Samantha Egger, Financial Assistant
Richard Locker, Maintenance Scheduler
John Teeson, Maintenance Scheduler
Peter Fenn, Maintenance Scheduler
Ronald Burns, Dockmaster
Bobby Troupe, Machinery Technician First Class, USCG
Victor Carter, Electricians Mate, First Class, USCG
Kenneth Corey, Marine Maintenance Technician
Jack Grady, Marine Maintenance Technician
James Hartley, Marine Maintenance Technician
Steven Lemay, Marine Maintenance Technician
Richard Locker, Marine Maintenance Technician
Robert Rogers, Marine Maintenance Technician
John Stewart, Marine Maintenance Technician

INFORMATION SERVICES DIVISION

Andrew Sorenson, Commander, USCG, M.S., Chief Information Officer
Karen A Smith, B.S., Deputy Chief Information Officer Administrative Sys-
tems Branch
Jason Warren, Lieutenant, USCG, B.S., Branch Chief Communications Branch
Guy O. Cranfill, Information Systems Technician Senior Chief, USCG, Branch
Chief

Catalog of Courses

FACILITIES ENGINEERING DIVISION

G. Scott Gesele, Commander, USCG, M.S., P.E., Division Chief
Construction and Engineering Branch
Gregory J. Carabine, M.S., C.F.M., Chief, Construction and Engineering Branch
Public Works Branch
Dianna Bo, Lieutenant Commander, USCG, M.S., P.E., Public Works Officer

Environmental and Safety Branch

Mark Buck, P.E., Chief, Environmental and Safety Branch

***HEALTH, SAFETY, AND WORK-LIFE FIELD OFFICE,
NEW LONDON (HSWL FONL)***

Marc A. Getka, Captain, USPHS, MD, Field Office Director, Family Practice,
Aviation Medical Officer
Kelly Buttrick, Captain, USPHS, Senior Dental Officer
Richard Hedlund, Captain, USPHS, Psychiatrist
Josiephina Souza, Captain, USPHS, Flight Surgeon
Robert Dvorak, Commander, USPHS, Dental Officer
Joseph Perez, Commander, USPHS, Family Practice, Flight Surgeon
James Czarzasty, Commander, USPHS, Pharmacy Officer
Yao Peng, Lieutenant Commander, Dental Officer
Ramon Ector, Lieutenant Commander, USPHS, Physical Therapist
Charlene Criss, Lieutenant, Physician Assistant
Leah Mooney, Lieutenant, Clinic Administrator
Daniel Lindner, Ensign, Physician Assistant

ALUMNI ASSOCIATION

James A. Sylvester, Commander, USCG (Ret.), M.B.A., President
John C. Maxham, Captain, USCG (Ret.), Nav.E, M.S.M.E., Vice President for
Development

ACADEMIC STATISTICS

CLASS OF 2009 STATISTICS

Sworn In	307
Graduated	228
Commissioned	223
Men Graduated	164
Women Graduated	64
International Cadets	3
Graduated with High Honors	50
Graduated with Honors	59

MAJORS (8)

Civil Engineering	36
Electrical Engineering	20
Mechanical Engineering	18
Naval Architecture and Marine Engineering	18
Government	50
Operations Research and Computer Analysis	26
Marine and Environmental Sciences	30
Management	27
Double Majors:	
Operations Research and Computer Analysis/Government	1
Operations Research and Computer Analysis/Electrical Engineering	1
Electrical Engineering/ Operations Research and Computer Analysis	1

Graduation Speaker:

Secretary, Department of Homeland Security, Janet Napolitano