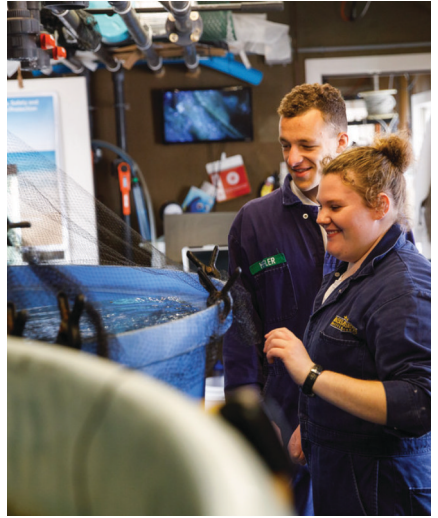


# Massachusetts Maritime Academy



## CATALOG 2021-2022





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# I. INSTITUTIONAL INFORMATION

## A. ACADEMY MISSION STATEMENT

**The mission of the Massachusetts Maritime Academy is to provide a quality education for graduates serving in the merchant marine, the military services, and those who serve the interests of the Commonwealth, Nation and global marketplace. The Academy does so by combining a rigorous academic program with a regimented lifestyle that instills honor, responsibility, discipline, and leadership.**

## B. POLICY ON OPEN EDUCATIONAL RESOURCES

The Massachusetts Maritime Academy (MMA) community recognizes the need for the adoption, use, and development of Open Educational Resources (OER) at MMA. OER use by our faculty is an effective means of adhering to MMA's mission to provide a quality education and maintain rigorous academic standards. Further, OER can enhance teaching efficiency and effectiveness through the ability to focus, analyze, augment, and evolve course materials. Likewise, OER often improve student retention and educational equity through affordability and increased access. We encourage their inclusion, adoption, and development across all areas of MMA's curricula.

*Unless they volunteer for a military commissioning program, cadets do not have a military obligation while attending Massachusetts Maritime Academy, and there is none after graduation*

## **C. BOARD OF TRUSTEES 2021-2022**

Jessica L. Waters, Chair

Brian J. Connor, Vice Chair

Marisol A. Chalas, LTC, USAR

James F. Kane

Julie McMichen

Kaemon Park (student trustee)

Melissa K. Panchley

Daniel L. Shores

Mary R. Thomann

Eric Turkington

Geoffrey Wilkinson

### **NOTICE**

The rules, regulations, policies, fees and other charges, courses of study, and academic requirements that appear in this catalog were in effect at the time of its publication. This catalog is published for informational purposes only and does not constitute a contract between the Academy and any student, applicant for admission, or other person. The Academy reserves the right to introduce, change, or eliminate rules, regulations, policies, fees and other charges, courses of study, and academic requirements. The Academy will give as much advance notice as it considers feasible or appropriate, but it reserves the right in all cases to do so without notice.

It is the policy of Massachusetts Maritime Academy not to discriminate on the basis of race, creed, religion, color, gender, sexual orientation, age, disability, veteran status, marital status or national origin in its admissions, employment, and other activities.

Massachusetts Maritime Academy policies can be accessed at the Consumer Information link located on the Academy's home page.

This catalog was published in September 2021.

## D. Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. § 1232g; 34 CFR Part 99) is a Federal law that protects the privacy of student education records. The law applies to all schools that receive funds under an applicable program of the U.S. Department of Education.

FERPA gives parents certain rights with respect to their children's education records. These rights transfer to the student when he or she reaches the age of 18 or attends a school beyond the high school level. Students to whom the rights have transferred are "eligible students."

Eligible students have the right to inspect and review the student's education records maintained by the school. Schools are not required to provide copies of records unless, for reasons such as great distance, it is impossible for eligible students to review the records. Schools may charge a fee for copies.

Eligible students have the right to request that a school correct records which they believe to be inaccurate or misleading. If the school decides not to amend the record, the eligible student then has the right to a formal hearing. After the hearing, if the school still decides not to amend the record, the eligible student has the right to place a statement with the record setting forth his or her view about the contested information.

MMA must have written permission from the eligible student in order to release any information from a student's education record, even to the student's parents. However, FERPA allows schools to disclose those records, without consent, to the following parties or under the following conditions (34 CFR § 99.31):

School officials with legitimate educational interest; Other schools to which a student is transferring; Specified officials for audit or evaluation purposes; Appropriate parties in connection with financial aid to a student; Organizations conducting certain studies for or on behalf of the school; Accrediting organizations; To comply with a judicial order or lawfully issued subpoena; Appropriate officials in cases of health and safety emergencies; and State and local authorities, within a juvenile justice system, pursuant to specific State law.

Schools may disclose, without consent, "directory" information," which MMA defines as follows: student's name, hometown and state, major field of study, dates of attendance, degrees and awards, licenses and certificates, participation in officially recognized sports and activities, weight and height of athletic team members, most recent previous school attended, and a photograph. However, schools must tell eligible students about directory information and allow students a reasonable amount of time to request that the school not disclose directory information about them. Schools must notify eligible students annually of their rights under FERPA. The actual means of notification (special letter, inclusion in a PTA bulletin, student handbook, or newspaper article) is left to the discretion of each school.



## E. HISTORY



The Massachusetts Maritime Academy was founded in 1891 as the Massachusetts Nautical Training School, a floating maritime trade school housed aboard the school ship USS *Enterprise* and berthed next to the USS *Constitution* in Boston Harbor. Upon moving to Cape Cod's Hyannis Harbor in 1942, the Academy assumed its present name, and by 1946 it was authorized by Legislature to grant the Bachelor of Science degree. In 1948, after utilizing a variety of training ships during World War II, the Academy obtained the USS *Charleston*, a U.S. Navy gunboat. Because the *Charleston's* draft exceeded the depth of Hyannis Harbor, the campus was moved that year to its present location in the village of Buzzards Bay.

During its 130-year history, the Academy has grown from an entering class of 40 cadets to a fully accredited, coeducational college offering undergraduate and

graduate degrees and enrolling nearly 1600 students, making it the largest uniformed maritime academy in the United States.

While adhering firmly to its traditional mission as a maritime college, the Academy has diversified its degree offerings in response to a changing environment for higher education and the needs of a dynamic maritime industry. Accredited by the New England Commission of Higher Education [NECHE], the Commonwealth's Leadership University currently offers Bachelor of Science degrees in seven major programs, each of which emphasizes a blend of liberal arts and sciences with technical and professional studies.

Graduates of the Academy's two oldest programs, Marine Transportation and Marine Engineering, earn twofold credentials: A Bachelor of

Science degree and a professional license as Third Mate or Third Assistant Engineer, both unlimited as to waters or vessel size or horsepower.

The first Bachelor of Science degrees in Facilities and Plant Engineering (now Facilities Engineering) were awarded in 1993, while the first Bachelor of Science degrees in Marine Safety and Environmental Protection (now Marine Science, Safety and Environmental Protection) were awarded in 1995. Since then, the Academy has further expanded its degree offerings by awarding its first Bachelor of Science degrees in International Maritime Business in 2004, Emergency Management in 2005, and Energy Systems Engineering in 2016.

The Academy has also instituted three graduate degree programs: the Master of Science degree in Facilities Management in 2003, the Master of Science degree in Emergency Management in 2007, and the Master of Science in Maritime Business Management in 2018.

The International Maritime Business program is accredited by the International Accreditation Council for Business Education (IACBE) in 2015. The first IMB class to graduate under this accreditation was in 2015.

The Bachelor of Science program in Energy Systems Engineering is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>. The first ESE class to graduate under this accreditation was in 2016.

The Academy's training vessel, the USTS *Kennedy*, makes annual sea term voyages lasting approximately two months to the Caribbean Sea and Pacific Ocean.

To better serve its students and meet the demands of its unique educational mission, the Academy continues to upgrade its campus and Facilities. A new academic building has been approved, in order to provide much-needed up-to-date lab space, with construction likely starting in 2023. A new dorm/conference center building will replace the Beachmoor as well.

Funded in part by a generous donation from the American Bureau of Shipping, the ABS Information Commons was completed and opened in September 2011.

The Academy has also launched two annual publications. In 2010, the first volume of *The Nautilus: A Maritime Journal of Literature, History, and Culture* was published. Edited by Dr. Kathryn Mudgett, *The Nautilus* features essays and reviews of books on a range of maritime subjects in the humanities. In 2013, the Academy published the first volume of *Turning Tides*, a student journal in literature and the arts.

Two times each year, the External Affairs Division publishes *Massachusetts Maritime Academy Magazine*, a publication highlighting Academy news and alumni accomplishments.

# F. ACCREDITATION

The Academy is a state university, one of twenty-nine public colleges and universities supported by the Commonwealth of Massachusetts.

Regionally, Massachusetts Maritime Academy is accredited by the **New England Commission of Higher Education (NECHE)**.

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

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

Inquiries regarding the accreditation status by the New England Commission of Higher Education should be directed to the administrative staff of the institution. Individuals may also contact:

**New England Commission of Higher Education**  
**3 Burlington Woods Drive, Burlington, MA 01803-4514**  
**(781) 425-7785 E-Mail: [info@neche.org](mailto:info@neche.org)**

The Academy receives additional support from the United States Department of Transportation's Maritime Administration (MARAD) and the Department of the Navy, which provide legal authorization and support for its maritime programs. The Code of Federal Regulations (46 CFR Part 310) identifies Massachusetts Maritime Academy as one of the six state maritime colleges approved by MARAD to prepare graduates for federal license examination as third mate, ocean vessels, unlimited tons, or third assistant engineer, steam, gas turbine, and motor, unlimited horsepower.

The Academy is federally recognized by MARAD in accordance with curriculum standards as directed by Section 1304(f)(1)(B) of the Maritime Education and Training Act of 1980 (Public Law 96-453). The Academy is subject to review every five years by the USCG/MARAD.

The Academy's bachelor of science degree program in International Maritime Business is accredited by the **International Accreditation Council for Business Education (IACBE)**, <http://www.iacbe.org>.

The Energy Systems Engineering bachelor degree program at Massachusetts Maritime Academy is accredited by the **Accreditation Board for Engineering and Technology (ABET)**, <http://www.abet.org>.

## II. ADMISSIONS



### A. Requirements

To be considered for admission to Massachusetts Maritime Academy, candidates must be capable of college-level study and have successfully completed high school courses in the following six subject areas:

- four courses in **mathematics**, (Algebra I, Algebra II, and Geometry or Trigonometry or comparable coursework), including mathematics taken during the final year of high school;
- four courses in **English**, including grammar, composition, writing skills, and literature;
- two sequential, one-year courses in either a classical or modern **foreign language**;
- two courses in **social science**, including one in United States history;

- three courses from **natural science** and/or **physical science** and/or **technology/engineering**, including three courses with laboratory work. Technology/engineering courses must be designated as science courses (taken for science credit) by the high school; chemistry and physics are strongly recommended;
- at least two other **elective** courses from the above subjects or from the Arts and Humanities or Computer Science.

### Admissions Committee

The Office of Admissions begins to review applications in early fall. November 15 is the early action deadline. Students who submit their application and all supporting documents on or prior to November 15 will be notified of a decision before the end of December. At that time,



students will either be accepted or moved to rolling admission. Rolling admission review (accept, deny, or wait list) will begin on a regular basis at the conclusion of early action review when practicable, and no later than December 15, until the class is filled.

Admission to the Academy is based upon a complete evaluation of a candidate's academic record, testing information (including SAT or ACT scores), letters of recommendation, extracurricular and community activities, and leadership potential. A personal interview is recommended but not required as part of the admission process.

All information regarding interviews, tours, and admission to the Academy, including details of all requirements and application forms, may be obtained by visiting the MMA web site or calling the Office of Admissions at (800) 544-3411.

### **Physical Examination**

Participation in the Regiment of Cadets is physically and mentally demanding. Enrollment in some programs is therefore contingent on the applicant being physically and mentally qualified. In general, illnesses or physical problems that would render the applicant unable to perform the regular duties of an officer of a ship at sea as determined by USCG standards disqualify students from the Marine Transportation or Marine Engineering major. Any questions regarding potential eligibility for USCG licensure based on a physical or mental condition may be discussed

with Health Services by calling (508) 830-5048 or by emailing [nurse@maritime.edu](mailto:nurse@maritime.edu).

Accepted candidates are required to complete a physical examination by a physician of their choice and at their own expense. They must submit proof of compliance with the vaccination requirements of the Academy.

Massachusetts Maritime Academy is a drug-free and smoke-free campus. Upon entry, all cadets are subject to random chemical screening.

Candidates interested in serving as commissioned officers in the United States uniformed services are subject to certain minimum physical requirements. Additionally, candidates wishing to serve as officers in the United States Merchant Marine are subject to certain minimum physical requirements prescribed by the United States Coast Guard for licensing eligibility.

U.S. Coast Guard regulations concerning the original licensing of Merchant Marine Officers require applicants to meet specific vision requirements. Deck officers must have vision correctable to at least 20/40 in one eye and be able to pass a U.S. Coast Guard approved color vision test. Engineering officers must have vision correctable to at least 20/50 in one eye and be able to distinguish red, green, blue, and yellow as determined by a medical professional. Uncorrected vision of greater than 20/200 may be subjected to the U.S. Coast

Guard waiver process. Inadequate color perception will disqualify an applicant for licensure.

Students in U.S. Coast Guard license-track programs (Marine Transportation or Marine Engineering) must satisfy U.S. Merchant Marine medical requirements (719-K) within nine months of beginning the program.

### **Students with Disabilities**

Massachusetts Maritime Academy is committed to providing reasonable accommodations for students with documented disabilities. The Director of Disability Resources works with the faculty and campus departments to provide support for students with disabilities in compliance with the mandates of Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and the ADA Amendments Act of 2009.

At the post-secondary school level, a student must disclose his or her learning differences in order to receive reasonable academic accommodations. The Voluntary Disclosure of Disability form is available from the Disability Resource Office (DRO) or by download on the MMA web site.

Once the disclosure form is completed, a student must submit documentation from a qualified professional stating the nature of the disability and its impact on the student's learning in the college environment. This evaluation documentation must have been completed within three years of

enrollment at MMA and must include recommendations from the evaluator that address the specific learning disability. An individualized education plan (I.E.P.) or 504 plan without underlying assessment documentation is not acceptable. The required documentation criteria are also available for download on the MMA web site.

Once documentation is received and reviewed by the Director of Disability Resources, a support services plan is developed with the student. Depending upon the nature of the disability, students may be eligible for one or more of the following accommodations:

- extended time for quizzes and tests (not to exceed time and one-half),
- preferential seating,
- reduced-distraction room for testing,
- priority registration,
- word processor use,
- use of tape recorder for lectures,
- textbooks on electronic media.

Reasonable accommodations will be arranged for a student, provided the accommodations do not substantially alter the fundamental nature of the academic class or program.

The Disability Resource Office is located on the third floor of the ABSIC Building. For questions or concerns about documentation guidelines or the accommodation

process, please visit the Disability Resource link on our web site or call the Disability Resources Coordinator at (508) 830-5350.

## **B. Transfer Admissions**

The Academy honors the Department of Higher Education's Commonwealth Commitment Compact for the following undergraduate programs: Emergency Management, Energy Systems Engineering, Facilities Engineering, International Maritime Business, and Marine Science, Safety and Environmental Protection.

Admission applications from students wishing to transfer to MMA from accredited institutions of higher education will be given full consideration. Transfer credit will be evaluated by the Registrar. The amount of credit awarded will be on a course-by-course basis depending on applicability to the Academy curriculum.

Students considering a transfer to the Academy should obtain information on the process from the Admissions page of the MMA web site.

The Academy maintains a transfer course policy that includes but is not limited to the following criteria:

1. The transferred course must be offered at an accredited institution;
2. Authorization to take the course for transfer credit will be granted or denied at the discretion of the Dean of Undergraduate Studies with the advice and consent of the respective

chairperson of the academic department in which the course is offered at the Academy;

3. A minimum grade of "C" (2.0 or higher) must be obtained in the course for it to be deemed successfully completed. A grade of "P" or its equivalent received during the Spring 2020 semester will also be deemed to be successfully completed. The grade received for the course transferred will not be included in calculating the student's CGPA and will not appear on the transcript;
4. An official transcript showing completion of the course must be sent to the Admissions Office as soon as possible. Credit for the course will not be awarded until after the official transcript is received;
5. Students transferring into the Regiment in spring semester must meet the Massachusetts Department of Higher Education transfer guidelines. They are required to participate in freshman orientation.

Students intending to major in Marine Transportation or Marine Engineering must anticipate spending at least three full years at the Academy, regardless of the number of transfer credits accepted, in order to fulfill the course and license requirements of the degree/license programs. Students in these programs must fulfill federal and international regulations, including

the Merchant Marine Training and Education Act of 1980; the United States Coast Guard regulations for obtaining a Merchant Marine Officer's license; the Maritime Administration's regulations for State Maritime Academies found in Title 46 of the Code of Federal Regulations; and the Standards of Training, Certification, and Watchkeeping for Seafarers (STCW) promulgated by the International Maritime Organization (IMO).

## C. Tuition Policy

All Massachusetts residents will be subject to in-state tuition. All New England (Connecticut, Maine, New Hampshire, Rhode Island, and Vermont) residents will be subject to New England regional tuition. Residents of all other states and international students will be subject to out-of-state-tuition. Students who have a break in enrollment at the Academy will be subject to the tuition rates in place at the time of re-admission.

Out-of-state veterans and their dependents who will be receiving federal benefits while attending MMA will be charged the in-state tuition rate.

## Residency

An initial determination of a student's state of residency is made by the Admissions Office at the time of application. Requests to change a student's state of residency are carefully considered on a case-by-

case basis and must be made in accordance with Academy policy. Residency decisions will be based on the student's dependency status as defined by the Free Application for State Aid (FAFSA). If the student is under the age of 24, residency is based on the parent's legal state of residence.

## Residency Policy Regulations Governing the Classification of Students for Tuition and Fee Purposes for Military/Veterans/National Guard

Active members of the Armed Forces of the United States, including their spouses and dependent children, who are stationed in Massachusetts in connection with military service, are eligible for Massachusetts residency status immediately upon being assigned to Massachusetts. Eligibility\* will continue as long as the student maintains continuous enrollment.

Veterans and their dependents who are receiving educational benefits through the GI Bill are eligible for Massachusetts Residency for tuition and fee purposes immediately upon proof of veteran benefit eligibility for the student with a Certificate of Eligibility from the VA.

*\*Eligibility to be defined under the current GI Bill®.*

**GI Bill® is a registered trademark of the US Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official US government website at <https://www.benefits.va.gov/gibill>**



## D. International Students

The Academy encourages applicants from all over the world to join the growing number of international cadets who have chosen to study within Massachusetts Maritime Academy's unique higher education setting. At MMA, international students are not only immersed in American culture, but they also experience the distinctive discipline, knowledge, and leadership taught by the Regiment of Cadets.

Although the application requirements for international students are similar to those of traditional students, there are important differences that an international applicant must consider, including the following:

Students who previously attended another higher education institution after secondary school—either in the United States or abroad—must comply with transfer student requirements and meet requirements specific to international students.

MMA does not offer financial aid to incoming international students, but they may qualify for merit-based scholarships. In subsequent years, they may apply for additional MMA merit-based scholarships.

During the admission process, international students are required to submit an F1 Affidavit of Financial Support, along with supporting documentation demonstrating that they are able to fund their four years of study through a combination of their own funds and/or any other source of financial assistance.

International students may be required to submit TOEFL, IELTS, or Duolingo scores and SAT or ACT scores as part of their application packet. All other English proficiency exams may be reviewed on an individual basis. These scores may be waived if the student has proper documentation to substitute for the aforementioned requirements.

Prospective international students may submit application documents (e.g., diplomas, transcripts, immunization records, etc.), translated and evaluated by a third-party provider, electronically.

If documents must be sent as hard copies, students are strongly encouraged to do so well in advance of application deadlines.

Admission standards are identical for all applicants, regardless of citizenship, and all applications are evaluated based upon the same admissions criteria.

# III. FINANCIAL INFORMATION

## A. Fees

The following costs apply to students entering or being re-admitted to MMA during or after the fall of 2020. Massachusetts Maritime Academy reserves the right to adjust the charges at any time before the charges are incurred by the student. **Unless otherwise specified, all charges are annual.**

### General Charges

Application for admission (non-refundable)

Application .....	\$50
Enrollment fee (not a deposit) .....	\$400
Books and supplies (estimated) .....	\$1,500

Residency	Tuition & Fees	Room & Board	Annual Total
In-State (MA only)	\$10,516	\$13,578	\$24, 094
New England Regional (CT, ME, NH, RI, VT)	\$15,914	\$13,578	\$29,492
Out-of-State & International	\$25,104	\$13,578	\$38,682

### Additional Fees (to be added to above costs)

Orientation (first year only) .....	\$1,373
Program Fees (Facilities Engineering & Energy Systems Engineering) .....	\$1,328
Program Fees (Marine Engineering & Marine Transportation) .....	\$1,874
Seabag (first year only) .....	\$2,500
Health Insurance (if not covered by outside plan and waived online; estimate) .....	\$3,300
Continuing Education Courses (winter/summer) .....	\$340/credit
Maritime Academy Preparatory Seminar (MAPS) (estimate) .....	\$1,900

### Summer and Winter Fees

Training Cruise (Facilities Engineering, Marine Engineering, & Marine Transportation) ..	\$5,038
Training Cruise (Non-matriculated, visiting students) .....	\$8,820
Experiential Learning (Emergency Management) .....	\$3,548
Experiential Learning (Marine Science, Safety & Environmental Protection) .....	\$4,715
Experiential Learning (Energy Systems Engineering) .....	\$4,715
Experiential Learning (International Maritime Business-during 2nd year of study) ..	\$5,293
Commercial Shipping .....	\$3,189
Co-op (6 credits) .....	\$3,189
Co-op (3 credits) .....	\$1,595

### Other Charges (Non-refundable)

The following fees are paid only by students to whom the specified conditions apply:

Late registration fee .....	\$100
Late payment fee:	
1-29 days late .....	\$100
30 or more days late (additional fee) .....	\$150
Returned check/payment fee .....	\$50

Based on the Veteran's Access, Choice, and Accountability Act of 2014, qualifying Veterans, dependents, and other eligible individuals who qualify for benefits under Chapter 31 and Chapter 33, who do not meet the standard definition of an in-state student, but who are currently living in Massachusetts, regardless of permanent residency, will be charged the in-state tuition rate.

## B. Payment Policies

Registration and confirmation of class assignments are not complete until financial clearance is received, indicating full payment or partial payment in accordance with the deferred payment policies described below. In the event that the student fails to attend class or leaves the Academy for any reason, the student must formally withdraw through the Registrar's Office. Failure to complete this withdrawal process will result in continued obligation for tuition and other charges. No student may withdraw from the Academy in good standing or graduate unless all current obligations to the Academy are paid in full.

Based on the Veterans Benefits and Transitions Act of 2018, MMA will not impose any penalty on any individual who is entitled to educational assistance under Chapter 31, Vocational Rehabilitation and Employment, or Chapter 33, Post-9/11 GI Bill ® benefits ('covered individual'). Students will be considered 'covered individuals' as soon as they submit their VA eligibility paperwork to the Office of Student Financial Services.

These covered individuals will not be assessed late fees, will not be denied access to classes, libraries, or other institutional facilities, or be required to borrow additional funds, because of the individual's inability to meet his or her financial obligations to the Academy due to the delayed disbursement funding from VA under Chapter 31 or 33. These students

will be permitted to attend or participate in the course of education during the period beginning on the date on which the individual provides MMA a certificate of eligibility for entitlement to educational assistance under Chapter 31 or 33. A “certificate of eligibility” can also include a “Statement of Benefits” obtained from the Department of Veterans Affairs’ (VA) website (eBenefits, or a VA 28-1905 form for Chapter 31 authorization purposes) and ending on the earlier of the following dates:

- \* The date on which payment from the VA is made to the institution;
- \* 90 days after the date the institution certified tuition and fees following the receipt of the certificate of eligibility.

Expenses not covered by the VA must be settled by the due date on the billing statement.

**GI Bill ® is a registered trademark of Veterans Affairs (VA).  
More information about education benefits offered by VA is  
available at the official US government website at  
<https://www.benefits.va.gov/gibill>.**

## **How to Pay**

The Academy uses a paperless e-billing/e-refund system, which provides fast and efficient delivery of tuition bills, refunds, and online account management. The Student Finance link in the Self-Service portal is available for student account management.

Payment for tuition and fees is due before the start of each term. Secure payments can be made through Web Advisor via credit card, debit card, or automatic withdrawal from checking or savings accounts. This service is available 24/7, account updates are available in real time under the Activity Details in Self-Service, and participants will receive e-mail confirmation when a payment is submitted. Credit card payments are assessed a 2.75% convenience fee by the credit card processor. Non-US credit cards are assessed a 4.25% fee.

MMA accepts payment by check via mail and by check at the Office of Student Financial Services in Flanagan Hall. Checks should be made payable to Massachusetts Maritime Academy and should include the student’s name and ID number. Books and supplies are purchased directly from the Academy’s bookstore, operated by Follett, Inc. Accordingly, these items require a separate check or credit card payment to the bookstore.



### **Course Overloads and Reduced Loads**

Full-time undergraduate tuition and fees are fixed, per-semester charges and include the cost of a student's normal academic curriculum requirements for the semester. They apply to credit loads between (and inclusive of) 12 and 20. Part-time tuition and fees apply for reduced credit loads under 12, and overload tuition and fees apply for credits taken in excess of 20. The part-time tuition and fees are pro-rated and based on residency status. The overload tuition and fees are in addition to the full-time tuition and fees and billed per credit hour over 20 at the current in-state tuition and fee cost per credit (waived for approved dual majors). A breakdown of part-time costs can be found on our website.

### **Tuition Reimbursement**

Many companies reimburse a student or employee upon successful completion of courses. In these instances, students are responsible for paying their bills at the beginning of the semester. Tuition may not be left unpaid pending reimbursement by an employer.

### **Change of Address**

Students must inform the Registrar's Office of any billing address changes and should update this information through the Self-Service portal.

## **C. Refund Policies**

The MMA refund policy complies with state and federal guidelines and applies to all tuition, fees, room, and board. A copy of the refund policy is included in the Academic Standards Manual provided to each student. The refund policy is also available on the Massachusetts Maritime Academy web site.

Academy operating expenses and student charges are determined on an annual basis. The refund policies have been established both in recognition of the Academy's advance commitment to operating expenses and in a spirit of fairness to students who withdraw from the Academy.

### **Tuition**

Consideration for refund of tuition and fees requires written notice to the Registrar's Office of the student's intention to drop a course or withdraw from the Academy. The date this notice is received by the Registrar's Office is the effective date for determining the refund amount according to the following schedule.

### **Maritime Academy Preparatory Seminar**

There is no refund of MAPS fees after the first day of classes (50% refund before the end of the first day).

## **Orientation Fee + Seabag**

There is no refund of orientation fees after the first day of orientation.  
There is no refund of the seabag fee after the first day of orientation.

## **Academic Semesters**

Withdrawal prior to first day of classes:

Full refund of tuition, fees, room, and board charges

Withdrawal during first week of classes:

80% refund of tuition and fees

No refund for room and board charges

Withdrawal during second week of classes:

50% refund of tuition and fees

No refund for room and board charges

Withdrawal during third week of classes:

20% refund of tuition and fees

No refund for room and board charges

Withdrawal after the third week of classes:

No refund

Withdrawal from the training cruise, cooperative education, commercial shipping, or experiential learning on or after the first day:

No refund

## **Room and Board**

In accordance with the MMA refund policy, there will be no refund of room and board charges after the start of each semester.

## **Other Charges**

All other fees and charges are non-refundable unless specifically stated in this catalog.

## **Refund Payments**

Refund payments of credit balances will not be made until the student's scholarships, loans, and grants are received and credited to the student's account. The refund process generally begins after the end of the drop period each semester.

Students should consult with the Office of Student Financial Services and review the section titled "Financial Aid" (below) for information on the effect of withdrawal or change in course load on financial aid. The student must pay all charges owed at the time of withdrawal or dismissal.

## **D. Financial Information**

It is the Academy's policy to withhold all diplomas, degrees, official transcripts, and other official recognition of work done at the Academy from students with any outstanding debts to the Academy.

Students must pay fees in full before their registration for subsequent semesters. Payments may be made by credit card, personal check, certified check, money order, or autopayment through Self-Service.

### **Payment by Outside Agencies**

If a student's charges are to be paid by an outside agency, a payment authorization from that agency must be received by the Office of Student Financial Services prior to the bill due date. It is the student's responsibility to ensure that all necessary information is submitted and that payment is made by the due date.

### **Waivers**

Anyone eligible for course tuition or fee waivers must submit documentation to the Office of Student Financial Services. Waivers cannot be applied retroactively.

### **Billing Problems**

Any discrepancies in a bill should be brought to the attention of the Office of Student Financial Services. In case of a billing dispute, the undisputed portion of the bill must be paid by the due date to avoid incurring late fees.

### **MMA Payment Plan**

The Academy offers an optional payment program for those who wish to pay on a monthly basis. This program establishes a contract whereby a fixed amount is paid monthly to the Academy by ACH or credit card. The cost of books, seabag, supplies, and escrow deposits are excluded. Interest is not charged on the unpaid balance.

## **E. Financial Aid**

In compliance with federal and state regulations, financial aid is offered to students with demonstrated need as determined by the FAFSA. To make a college education affordable, it is the Academy's policy to give students with the greatest demonstrated need the highest level of grant aid. Self-help aid, such as loans and Federal work-study, is equally apportioned to all students with need as funding allows.

A student must demonstrate financial need, which is the difference between a student's educational costs and the amount that the student and his or her parents are expected to provide as determined by an evaluation of the family's financial information provided on the Free Application for Federal Student Aid (FAFSA).

Eligibility for federal, state, and institutional funds will be based on family financial information and formulas legislated by Congress. These calculations yield an equitable and reasonable assessment of a family's ability to contribute to educational expenses. Priority is given to those students who submit all required application materials by March 1 (new students) or May 1 (current students).

The FAFSA must be completed each year to apply for all federal, state, and institutional financial aid.

### **Financial Aid Eligibility**

To be eligible for federal, state, and institutional financial aid, the student must

- be a U.S. citizen or permanent resident;
- be accepted for admission to the Academy;
- be enrolled in good standing;
- maintain satisfactory academic progress;
- be registered with the Selective Service if the student is male, is at least eighteen years old, was born after December 31, 1959, and is not a current member of the active armed service (males age twenty-six and older are not required to register with the Selective Service);
- not be in default on any Title IV loans or owe a repayment on any Title IV grant (Pell or SEOG).

### **Financial Assistance Offered by Branches of the U.S. Armed Forces**

Optional military service is an entirely voluntary source of financial aid for men and women who choose to enlist or commission in one of the following branches of the United States military service: the United States Air Force, United States Army, United States Coast Guard, United States Marine Corps, United States Navy, Massachusetts National Guard, or Army ROTC, each of which may provide its own student financial assistance plan. Recruiters can provide more details on this kind of financial assistance.

The Massachusetts National Guard provides tuition and fee assistance to active members. Students interested in the tuition and fee benefit should speak directly with their Massachusetts National Guard unit.

Veterans (and dependents of veterans) may qualify for certain educational benefits. Interested individuals should contact the Veterans Administration or visit their web site at [www.gibill.va.gov](http://www.gibill.va.gov).

## **U.S. Army Reserve Officer Training Corps (ROTC) Financial Assistance**

U.S. Army ROTC financial assistance programs include four-, three-, and two-year scholarships, depending on availability; monthly stipend awards for selected sophomore, junior, and senior cadets; and the opportunity to earn tuition/fee benefits by joining the Army National Guard or Army Reserve while in ROTC.

## **Scholarships**

Freshman scholarships are awarded by the Admissions Scholarship Committee in accordance with the specific criteria for each scholarship and are distributed by the Office of Student Financial Services. A separate application is not necessary. **All** eligible students **will** be considered for scholarships for which they qualify and **will** be notified by the Admissions Office.

In September, enrolled students may **apply** for additional available scholarships for the winter, and in March they can apply for scholarships for the following academic year. The application is available online during the application period, and students are notified of the application period and deadline date via e-mail. These scholarships have varied criteria and are available to **all** majors, but emphasis is placed on need after completion of a Free Application for Federal Student Aid (FAFSA).

Several agencies offer privately administered scholarship opportunities through the MMA Office of Student Financial Services. Information about such opportunities is available on the financial services web page, under the Types of Aid link. Application dates are announced to students through e-mail as they become available.

## **Financial Aid from Outside Sources**

Receipt of outside funding may affect the student's financial aid offer. Students receiving scholarships or other resources from outside agencies must notify the Office of Student Financial Services. In most cases, such scholarship funds must be received by the Academy to be used as credit against institution charges.

## **Financial Aid and Satisfactory Academic Progress**

In accordance with federal and state regulations, **all** students who **apply** for federal, state, and institutional financial assistance, including student loans and parent PLUS loans, must maintain satisfactory academic progress. A large number of private, credit-based alternative loans also require that the student maintain satisfactory academic progress. Satisfactory academic progress standards for cumulative grade point average (CGPA) and successfully completed credits since beginning at MMA are evaluated at the end of each academic year, **following** the close of the spring semester. After evaluation, aid applicants **will** be notified if they do not meet the standards to qualify for aid in the coming year.

Students who do not apply for financial aid at the time of review will be evaluated when a financial aid application is received.

*Massachusetts Maritime Academy Policy:* In accordance with applicable federal regulations, the MMA satisfactory academic progress policy requires that students meet both qualitative and quantitative standards for maintaining satisfactory academic progress for financial aid. For financial aid purposes, all grades are used in determining a students CGPA, including failures that are replaced by passing grades. This may differ from the way that these grades are treated by the Registrar’s Office.

*Qualitative Measure:* Students must have a financial aid calculated cumulative grade point average (see above), on a 4.0 basis, according to the following schedule:

<u>Attempted Credits</u>	<u>Minimum Cumulative GPA</u>
0-12	1.50
12.01-36	1.80
Greater than 36	2.00

*Quantitative Measure (Maintenance of Effort):* The student’s entire MMA academic record is reviewed, and the student must successfully complete (pass) at least 67% of all attempted credits. Attempted credits include all credits for which a passing grade, a failing grade, an incomplete grade, or a withdrawal are recorded. The majority of students who fail to meet the completion rate requirement are students who withdraw, for any reason, during a semester.

Any student who does not meet these standards is not eligible for financial aid. Any aid awarded prior to the determination of unsatisfactory academic progress will be cancelled.

Students have the right to appeal the determination of unsatisfactory academic progress if extremely unusual circumstances (e.g., accident, prolonged illness, death in the family) contributed to the student’s failure to maintain satisfactory academic progress. Students not meeting the satisfactory academic progress standards are sent a notice outlining their deficiencies, along with an appeal form. The instructions on this form must be followed when submitting an appeal.



All appeals must be submitted in writing to the Satisfactory Academic Progress Committee, c/o Director of Student Financial Services. Appeals can be e-mailed, but are only accepted if sent from the student's MMA e-mail address. Appeals that do not address all of the points required by the form will automatically be denied.

If the appeal is granted, a written plan developed in conjunction with the Director of Student Financial Services and signed by the student must be submitted to the Office of Student Financial Services no later than one week prior to the start of the semester. The agreement must outline the student's specific academic plan to ensure that the student will be in compliance with the satisfactory academic progress policy by the end of the term specified in the agreement. At a minimum, the plan must include the number of credits the student will take each semester and the minimum grade point average the student must maintain each semester specified in the agreement. For some students, the agreement may be only one semester in length; for others, it may encompass multiple semesters, depending upon how close the student is to being in compliance with the policy.

### **Financial Aid Withdrawal Process**

Students who receive any financial aid, including grants, scholarships, and federal loans, are subject to the Federal Return of Title IV Funds requirement, which provides a formula to determine the amount of financial aid a withdrawn student may retain. The requirement applies to all students who withdraw from the Academy, including students who do not follow the official withdrawal process and students who are dismissed by the Academy. The requirement remains in effect through the 60% point of the semester, after which the student is entitled to all aid awarded for the semester. MMA applies the same formula to state and institutional scholarships when a student withdraws, whether officially or unofficially, and when a student is dismissed for any reason.

In accordance with these guidelines, the student may retain only a pro-rated portion of the financial aid awarded, regardless of whether the student qualifies for a tuition and fee refund. Based on the student's length of enrollment, MMA must return grants, scholarships, and loans to the federal, state or institutional agency that made the award. If a student completes 45% of a semester, for example, that student is eligible for only 45% of the offered financial aid for the semester. MMA will return the remaining 55% to the awarding agency or institution. In most cases, the student will end up with a balance due to the Academy.

If the student received a cash disbursement of federal aid in the form of refund, or used anticipated aid in the campus bookstore, he or she may owe a repayment to the federal government. A student who withdraws may owe a repayment to the Academy or to the federal or state agency providing the financial aid.

## F. Student Incentive Payment (SIP)

SIP is a Department of Transportation (DOT)/MARAD incentive payment program that is offered to Midshipmen in the Strategic Sealift Midshipman Program (SSMP). The SIP Program is governed under 46 CFR 310.7 and is a voluntary program designed to assist cadets in defraying the cost of tuition, uniforms, books, and subsistence in return for a specific service obligation by the cadet.

As an incentive to become licensed officers in the United States Merchant Marine, the U.S. Department of Transportation's (DOT) Maritime Administration (MARAD) provides a limited number of Student Incentive Payment (SIP) Program allocations to each of the six state maritime academies (SMA). Those eligible to receive SIP may be awarded Federal funding of up to \$32,000 in accordance with the following payment structure:

Freshman applicants enrolled in a four-year degree program:

- Year 1: \$4,000
- Year 2: \$4,000
- Year 3: \$12,000
- Year 4: \$12,000

Sophomore applicants enrolled in a four-year degree program:

- Year 1: \$4,000
- Year 2: \$14,000
- Year 3: \$14,000

Junior applicants enrolled in a four-year degree program:

- Year 1: \$16,000
- Year 2: \$16,000

### Service Obligation

SIP incurs a separate service obligation to MARAD, under the Department of Transportation. The MARAD service obligation is in addition to and concurrent with the service obligation to the Navy. If you apply and are selected by a SMA to participate in the SIP Program, you must sign a Service Obligation Contract (SOC) MA Form 890, and it must be approved by MARAD. If you are under 18 years old, your parent or guardian must sign your contract also. When you reach 18 years old, you will sign the SOC again without a parent or guardian's signature.

Note: All SIP related requests and inquiries should be routed through the MMA SIP Coordinator.

## IV. ACADEMIC PROGRAMS AND SUPPORT SERVICES



### A. General

Massachusetts Maritime Academy is a four-year, residential college accredited by the *New England Commission of Higher Education* and a member of the Massachusetts State University system. The Academy awards a Bachelor of Science degree in seven undergraduate programs and a Master of Science degree in three graduate programs. The seven undergraduate degree programs are:

- *Marine Engineering with USCG License,*
- *Marine Transportation with USCG License,*
- *Facilities Engineering,*
- *Marine Science, Safety and Environmental Protection,*
- *International Maritime Business,*
- *Emergency Management,*
- *Energy Systems Engineering.*

The three graduate degree programs are:

- *Facilities Management,*
- *Emergency Management,*
- *Maritime Business Management.*

The Academy's curricula are continually evolving in response to changes in the industries served by its programs. The Academy provides an exceptionally high level of academic support for an excellent instructional program. Course requirements and offerings are routinely evaluated and revised by departmental committees, the All University Committee, the Curriculum Committee, and the Graduate Education Council.

### **Academic Credit Hour Definition**

In accordance with federal guidelines, Massachusetts Maritime Academy defines the credit hour to reasonably approximate the following:

- A credit hour for a class is one hour of classroom or direct faculty instruction and two hours of out-of-class student work per week over a semester;
- A credit hour for laboratories is two hours of lab time and two hours of out-of-class student work per week over a semester;
- A credit hour for an online class is one hour of direct synchronous or asynchronous instruction and two hours of out-of-class student work per week over a semester.

- A credit hour for cooperative education placements or experiential learning opportunities is a minimum of 40 contact hours, plus 5 hours of independent student project work if a project is required.

Note: in accordance with federal guidelines, MMA operates on a 50-minute hour for definition of a credit hour and defines a typical workday as eight contact hours.



## **B. Undergraduate Programs**

Incoming students must declare a major as part of the admissions process.

The academic year consists of two academic semesters of approximately fifteen weeks each and an intersession period during which qualified students are expected to complete one or more of the following: sea term, cooperative education placements, experiential learning opportunities, commercial shipping, or courses through continuing education.

Normally, each student is enrolled in five or six three-credit academic courses per semester. However, a student can retain full-time status by maintaining a minimum course load of twelve credit hours each academic semester. Students who do not successfully complete all of the courses designated during the appropriate semesters in the curriculum for their major must understand that such failure may affect their class designation, their expected date of graduation, their eligibility for financial aid, and their academic standing.

To carry a semester course load in excess of 19.5 credits, a student must first consult with his or her academic advisor and then obtain permission from the Dean of Undergraduate Studies or his/her designee. Note: overload tuition and fees apply for credits taken in excess of 20.0 (see "Payment Policies" in the Financial Information section for more details).

Policies" in the Financial Information section for more details).

The curriculum for each major is designed to be completed in a systematic and sequential manner. Each semester, students are expected to enroll in courses appropriate to their academic standing and class designation.

### ***Bachelor of Science Degree Programs***

Bachelor of Science degrees are offered in each of the following seven academic programs:

#### **Emergency Management**

This program provides graduates with the education and skills necessary for successful careers in public service and private industry. Career opportunities generated through this science-based curriculum include public sector positions in disaster management, law enforcement, fire science, and private sector positions in business continuity, health care, and risk management.

#### **Energy Systems Engineering**

This program prepares graduates for careers in the fast-growing conventional and alternative energy industries, including engineering design, operations, testing, and management positions in power generation, power distribution, and control systems. The program requires all incoming students to be calculus ready.

The Energy Systems Engineering bachelor degree program at Massachusetts Maritime Academy is accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>.

### **Facilities Engineering**

This program prepares graduates for careers in facilities engineering, management, and operations in positions providing for the safe, economical, sustainable and compliant operation of the equipment and systems found in large, complex facilities, such as manufacturing plants, office buildings, hospitals, and power plants.

### **International Maritime Business**

This program, accredited by the International Accreditation Council for Business Education (IACBE), provides students with a high-quality general business education that specializes in the maritime, transportation, and ocean industries, and prepares them for rewarding careers in general business, shipping and transportation operations, chartering and brokerage, port and terminal operations, maritime law and insurance, logistics, freight forwarding, and supply chain management.

### **Marine Engineering**

This program prepares graduates for careers as licensed engineering officers in the United States Merchant Marine and for shore-side careers in engineering, operations, and management positions in the many associated industries.

### **Marine Science, Safety and Environmental Protection**

This program prepares students for a wide range of rewarding government, non-profit, and private sector careers in the fields of environmental protection, environmental management, and marine and industrial health and safety.

### **Marine Transportation**

This program prepares students for careers as USCG licensed deck officers in the U.S. Merchant Marine, as well as allowing them to transfer into shore-side management and operations positions within the transportation, intermodal, and petroleum industries.

### ***Major Program Requirements***

A major program at Massachusetts Maritime Academy includes approximately 128 credits of academic semester courses plus sea terms, cooperative education placements, and/or experiential learning opportunities. Programs of study for each of the Academy's degree programs are shown in tables in the following chapter ("Curricula"). Within each program, the academic courses are designated in the categories of *Major* courses, *General Education* courses, and *Support* courses. Each major program includes at least two free electives. Students may choose to add more free elective courses, a concentration, or a minor.

### ***Major Courses***

Approximately sixty credits in each degree program are designated as *Major* courses. These courses are related specifically to the degrees offered and usually offered by the department of the degree program.

### ***General Education Courses***

Certain required courses in the Humanities Department, the Social Science Department, and the Science



and Mathematics Department are designated as *General Education* courses. Some of these courses are specified, and some are selected by the student. Additional information is included in the “General Education Requirements” section.

### ***Support Courses***

Courses that are outside of those designated as *Major* courses or *General Education* courses but required by a degree program are designated as *Support* courses.

### ***Naval Science Courses***

Courses presented by the Department of Naval Science are required to qualify for a commission in the U.S. Navy Reserve or as an active duty officer. Naval Science courses are designated as free elective courses.

### ***Sea Terms and Commercial Shipping***

Students in the Marine Transportation or Marine Engineering program must complete sea service, satisfying STCW and U.S. Coast Guard license criteria.

Sea service is accrued by sailing on the USTS *Kennedy* and by sailing on commercial ships. At least three experiences will be aboard the USTS *Kennedy*. Students who meet the necessary requirements typically participate in a commercial ship experience during their junior year. Commercial shipping experiences must comply with USCG and MARAD requirements.

Equivalent sea time calculations are in compliance with USCG program approval. Students must complete all sea time as a prerequisite for taking the USCG license examinations.

### ***Cooperative Education Placements***

Depending upon the major, students completing a shore-side degree program must participate in up to three cooperative education placements.

The Office of Career and Professional Services will assist students in locating and setting up cooperative education placements. Three or six credits are earned for successful completion of cooperative education placement and required academic work.

### ***Experiential Learning Opportunities***

Depending upon the major, students completing a non-license degree program may be required to complete experiential learning opportunities. These opportunities introduce students to working environments related to a specific program of study. Through instruction and practice, the experiences reinforce core concepts learned within the degree major. Students earn academic credit for successfully completing experiential learning opportunities. The length of such opportunities varies.

### **Civic Engagement**

Civic engagement is an essential component of the academic programs and student life at the Academy. Part of the educational goal of the Academy is to expose students to ideas about civic rights and responsibilities and to encourage students to become active participants in the civic society of our state and nation. At MMA, an array of courses include components of civic learning and civic engagement. The campus also offers many opportunities for students to participate in civic activities. All cadets within the Regiment of Cadets are exposed to leadership development with an emphasis on duty, responsibility, and accountability, which prepares them to become active citizens. In addition, most students volunteer in service programs and outreach activities in the community.

### **C. General Education Requirements**

Students at Massachusetts Maritime Academy participate in the General Education curriculum in order to obtain the full benefits of a college education and the skills and knowledge for success in their future education and careers.

Moving beyond the bounds of the major requirements, students are encouraged to become lifelong learners through a balanced variety of courses.

These courses contain enough depth and breadth in the areas of humanities, social science, mathematics, and science to

provide the student with the skills necessary to succeed in an increasingly complex world. These fields of knowledge foster the aesthetic appreciation, quantitative reasoning, critical thinking, ethical analysis and evaluation, citizenship, and strong communication skills necessary for further self-development and personal inquiry.

As part of the General Education requirements, students must also complete the writing proficiency requirements, including the writing proficiency examination (WPE), which is taken at the end of HU-1111 *English Composition*. Students who do not pass the WPE will be required to take HU-6062 *Applied Writing before taking HU-1222 Writing About Literature*.

*Missing the WPE exam is considered failure unless evidence of extenuating circumstances is provided to and accepted by the WPE Coordinator.*

The courses which fulfill the General Education Requirements for each department are described below.

#### **Humanities**

The required courses in the Humanities Department build skills in reading, writing, critical thinking, and communication; aesthetic and cultural awareness; and humanistic inquiry.

In the first semester, students take a composition course that focuses on the skills necessary for logical

presentation of thoughts and ideas in clear, concise language. In the second semester, students take *Writing About Literature*, where they read, analyze, and interpret fiction, poetry, and drama for meaning, technique, cultural and historical context, and significance as literary art.

Students are then required to select two electives in the Humanities: a literature course (Group I) chosen from a variety of genres, historical periods, and subject matter, followed by either another literature course or a non-literature course (Group II) chosen from a broad range of offerings within the department.

- GEHU-1 HU-1111 *English Composition* or HU-6012 *Advanced Expository Writing* (with permission of the department chair)
- GEHU-2 HU-1222 *Writing About Literature*
- GEHU-3 One course from Humanities Group I
- GEHU-4 One course from either Humanities Group I or Group II

#### HUMANITIES GROUP I

- HU-5021 *Literature of the Sea*
- HU-5022 *Literature and Film*
- HU-5023 *Irish Literature*
- HU-5024 *Shakespeare's Tragedies and Comedies*
- HU-5025 *Short Stories*
- HU-5026 *Literature and Mythology*
- HU-5027 *Literature of the Supernatural*

- HU-5028 *Drama*
- HU-5029 *Contemporary Literature*
- HU-5030 *Poetry*
- HU-5031 *War Literature*
- HU-5032 *American Literature I: Colonial to the Civil War*
- HU-5033 *American Literature II: Civil War to the Present*
- HU-5034 *Writers of the American South*
- HU-5035 *American Theater*
- HU-5036 *Survival Literature*
- HU-5038 *Moby-Dick*
- HU-5039 *Detective Literature*
- HU-5040 *The Graphic Novel*
- HU-5041 *African American Literature: Pre-Harlem Renaissance*
- HU-5042 *African American Literature Through the Blues*
- HU-5043 *African American Literature: Post-Harlem Renaissance*
- HU-5044 *Post-Humanism Literature*
- HU-5046 *The Hunger Games*
- HU-5055 *Irish Fiction*
- HU-5056 *Sports Literature*
- HU-5057 *Science Fiction*
- HU-5090 *Special Topics: Humanities Group I*

#### HUMANITIES GROUP II

- HU-2141 *Spanish I*
- HU-2242 *Spanish II*
- HU-2341 *Elementary Chinese I*
- HU-2342 *Elementary Chinese II*
- HU-6012 *Advanced Expository Writing*
- HU-6045 *Environmental Writing*
- HU-6051 *Philosophy*
- HU-6054 *Ethics*

- HU-6055 Introduction to World Religions*
- HU-6057 Composing in New Media*
- HU-6060 Creative Writing: Poetry*
- HU-6061 Creative Writing: Fiction*
- HU-6063 Introduction to Women's/ Gender Studies*
- HU-6064 Women and Film*
- HU-6065 Creative Writing: Nonfiction*
- HU-6071 Public Speaking*
- HU-6072 Business Communications*
- HU-6073 Technical Writing*
- HU-6080 Introduction to Art*
- HU-6090 Special Topics: Humanities Group II*

### **Social Science**

The courses from the Social Science Department strive to make students aware of the richness of their civilization and society and to prepare them to think critically about their world. They also strengthen their skills in written and oral expression. Students first study the social, intellectual, political, and economic history of the modern era in Western Civilization and then explore the nature of American political culture in American Government.

After taking two courses as a base, students take three additional courses from the Social Science Department. They will take one course in each of three groupings, which will further broaden their critical thinking and writing skills.

The underlying principles of our economic system, the dynamics of capitalism, and the fundamentals of the international economy are studied in Group I courses, where the students choose either Microeconomics or Macroeconomics.

To acquire a clear understanding of the legal regulations and legal dynamics of the fields they are entering, students take one course from Group II.

Finally, to develop a well-rounded education, students select one additional course from the Social Science Department's Group III electives, which provide a wide range of offerings in history, geography, sociology, psychology, anthropology, behavioral science, economics and economic policy, and military affairs.

- GESS-1 SS-1211 Western Civilization*
- GESS-2 SS-2121 American Government*
- GESS-3 One course from Social Science Group I*
- GESS-4 One course from Social Science Group II*
- GESS-5 One course from Social Science Group III*

### **SOCIAL SCIENCE GROUP I**

- SS-2131 Microeconomics*
- SS-2231 Macroeconomics*

### **SOCIAL SCIENCE GROUP II**

- MS-3142 Environmental Law*
- SS-3221 Business Law*
- SS-3222 Real Estate Law*
- SS-3223 European Union Law*
- SS-3224 International Business Law*

- SS-3225 *Admiralty & Maritime Law*
- SS-4122 *International Law*
- SS-4123 *International Law & Legislative Compliance for Mariners*
- SS-4132 *Legal Issues in Emergency Management*

#### SOCIAL SCIENCE GROUP III

- SS-2232 *World Economic Geography*
- SS-2233 *Political Geography*
- SS-3141 *Introduction to Psychology*
- SS-3211 *American Maritime History*
- SS-3212 *U.S. Foreign Policy since 1945*
- SS-3213 *Sea Power in World History*
- SS-3214 *Europe in the Middle Ages*
- SS-3216 *Ancient History Seminar*
- SS-3217 *Vietnam and U.S. Policy*
- SS-3218 *Civil War and Reconstruction*
- SS-3219 *American History I: Origins to 1865*
- SS-3220 *American History II: 1865 to the Present*
- SS-3233 *Chinese Economy*
- SS-3241 *Sociology*
- SS-3242 *Ancient Greece*
- SS-3243 *Ancient Rome*
- SS-3246 *U.S. Energy Policy: Both Global & Domestic*
- SS-3247 *Modern Irish History*
- SS-3248 *New England History*
- SS-4311 *20th-Century History*
- SS-4317 *Intelligence and National Security Policy*

#### Science and Mathematics

The required courses from the Science and Mathematics Department enhance the ability to think quantitatively, critically, and logically, and they illustrate the manner in which problems of a quantitative nature are solved through the use of algorithms and logical thought.

Students study fundamental mathematical functions in Precalculus with Trigonometry and explore the basic concepts of analysis in either Calculus I or Applied Calculus, depending on their major. Then students take one additional mathematics course with a Calculus I or Applied Calculus prerequisite. Thus, students learn to use mathematics, including calculus, in problem solving; to use technology appropriately in this process; and to apply mathematics to problems arising in other disciplines.

In the required science courses, students apply the scientific method in a variety of classroom and laboratory settings. In so doing, they develop the ability to carefully collect, organize, and analyze data for the purpose of synthesizing a model for better understanding or problem solving.

Basic concepts of matter are explored in Chemistry I to increase students' understanding of technology, health, and environmental issues.

Students study the laws of nature in College Physics I or Engineering Physics I in order to develop a method of reasoning that will enable them to interpret physical events in a rational manner. To add necessary depth to their study of natural science, students also select a sequential laboratory science course in either chemistry or physics.

- GESM-1 SM-1111 *Precalculus with Trigonometry*
- GESM-2 SM-1131 *Chemistry I*
- GESM-3 SM-1212 *Calculus I* or SM-1214 *Applied Calculus*
- GESM-4 One course from *Science and Mathematics Group I*
- GESM-5 One course from *Science and Mathematics Group II*
- GESM-6 One course from *Science and Mathematics Group III*

#### SCIENCE AND MATHEMATICS GROUP I

- SM-2113 *Calculus II*
- SM-2115 *Applied Environmental Mathematics*
- SM-2117 *Quantitative Methods for Management*
- SM-2119 *Applied Mathematics for Deck Officers*
- SM-2218 *Statistics*

#### SCIENCE AND MATHEMATICS GROUP II

- SM-2121 *College Physics I*
- SM-2123 *Engineering Physics I*

#### SCIENCE AND MATHEMATICS GROUP III

- SM-1232 *Chemistry II*
- SM-2222 *College Physics II*
- SM-2224 *Engineering Physics II*
- SM-2233 *Organic/Hazardous Materials Chemistry*

#### **Firefighting Training**

In collaboration with Mass. Fire Academy, MMA presents a United States Coast Guard approved training program in basic and advanced marine firefighting required of all cadets seeking a marine license. Lecturers from the Mass. Firefighting Academy provide specialized instruction to cadets.





## D. Undergraduate Minors and Concentrations

### *Undergraduate Minors*

A minor is a program of study of at least 18 credits outside the student's major that typically begins in the junior year with courses taken between semesters five through eight. With departmental permission, students with a 2.5 or higher cumulative grade point average (CGPA) may declare a minor. To declare a minor prior to the junior year, a student must also have completed either Calculus I or Applied Calculus.

Minor classes must be taken at the Academy. With the exception of electives or free electives for each major, a course cannot be counted twice; that is, it cannot fulfill both a requirement for the major and a requirement for the minor.

The following minors are currently offered at Massachusetts Maritime Academy.

#### **Energy Management Minor**

*Coordinator: Professor Gail Stephens*

Open to Marine Engineering and Facilities Engineering majors. This minor prepares students for careers ashore and/or for advanced studies in energy management, alternative and renewable energy, and power generation fields in the operation of large, complex facilities. Required Courses:

- SM-2218 *Statistics or SM-3005  
Probability and Statistics*
- EN-3801 *Energy Strategy and  
Management*
- EN-3802 *Energy Systems*



#### AND THREE COURSES FROM THE FOLLOWING:

- EN-2701 *Introduction to Design*
- EN-3102 *System Dynamics  
and Vibrations*
- EN-4121 *Electrical Power  
Distribution (ME only)*
- EN-4222 *HVAC (ME only)*
- EN-7141 *Advanced CAD*
- EN-7142 *Diesel Engines (FE only)*
- EN-7144 *Nuclear Power*
- EN-7146 *Heat and Mass Transfer*
- EN-7151 *Commercial Turbines  
(ME only)*
- EN-7214 *Industrial Wastewater  
Treatment*
- EN-7241 *As-built CAD*
- EN-7247 *Construction Methods  
and Materials*
- HU-6073 *Technical Writing*
- SS-3264 *U.S. Energy Policy:  
Global and Domestic*



### **Facilities Operations Minor**

*Coordinator:* Professor Carlos Montanez

Open to Marine Engineering and Energy Systems Engineering majors. This minor prepares students for careers ashore and/or for advanced studies in facilities management and operation, stationary engineering (power generation), or wastewater treatment technology, as they relate to the operation of large, complex facilities.

#### **REQUIRED COURSES:**

- EN-2222 *Commercial Boilers*
- EN-3213 *Refrigeration  
(ESE majors)*
- EN-3214 *Municipal Wastewater  
Treatment*
- EN-4222 *HVAC (ME majors)*

#### **AND THREE COURSES FROM THE FOLLOWING:**

- EN-2111 *Auxiliary Machinery II  
or EN-2121 Auxiliary  
Machinery II for  
Facilities (ESE only)*
- EN-4121 *Electrical Power  
Distribution (ME only)*
- EN-4224 *Facilities Planning  
and Management*
- EN-7141 *Advanced CAD*
- EN-7142 *Diesel Engines*
- EN-7144 *Nuclear Power*
- EN-7151 *Commercial Turbines*
- EN-7214 *Industrial Wastewater  
Treatment*
- EN-7241 *As-built CAD*
- EN-7247 *Construction Methods  
and Materials*
- HU-6073 *Technical Writing*
- IM-3131 *Principles of Finance*
- SM-2218 *Statistics (ME only)*

### **Homeland Security Minor**

*Coordinator:* Professor George Cadwalader

Open to all majors. The minor in Homeland Security is offered to students in all majors. The minor is intended to provide students with a broad understanding of the international and domestic security issues involved in homeland security. Courses provide a focus on various professions and levels of government involved in homeland security and on related topic areas.

Emergency Management students are required to complete any six of the courses listed below. Students in other majors are required to complete three of the courses listed below as well as EM-2213 *National Security in Emergency Management*, EM-4226 *Transportation Security*, and EM-3214 *International Terrorism*.

- EM-3214 *International Terrorism*
- EM-4112 *Fire Dynamics*
- EM-7220 *Cyber Security*
- EM-7221 *Military Operations  
and Security*
- EM-7222 *Legal Issues in Homeland  
and National Security*
- EM-7223 *Select Issues in Law  
Enforcement*
- EM-7224 *Transnational Crime*
- EM-7226 *Fundamentals of  
Leadership*
- EM-7228 *Comparative Homeland  
Security*
- SS-2232 *World Economic  
Geography*
- SS-2233 *Political Geography*
- SS-4317 *Intelligence and  
National Security Policy*

## **International Maritime Business Minor**

*Coordinator:* Professor Paul Szwed

Open to all majors except International Maritime Business. For the seagoing majors who plan to start a shore-based career, for those interested in a graduate degree in business or law, or for those inclined towards entrepreneurial ventures, the IMB minor provides a basic business background with specialization in the shipping industry.

### **REQUIRED COURSES:**

*IM-2121 Principles of Accounting I*

*IM-2211 The Business of Shipping*

### **STUDENTS MUST ALSO TAKE FOUR COURSES FROM THE FOLLOWING:**

*IM-XXXX Any course with an IM  
designation as long as  
prerequisites are met*

*HU\_6072 Business Communications*

*MT-3252 Port and Terminal  
Operations Management*

*SM-2117 Quantitative Methods  
for Management*

*SS-3225 Admiralty and Maritime  
Law*

*SS-3231 Cultural Factors in  
International Business*

## **Marine Biology Minor**

*Coordinator:* Professor Francis Veale, Jr.

Open to all majors. To earn a minor in Marine Biology, students must complete six of the seven following courses:

:

*MS-4305 Principles of  
Aquaculture*

*MS-4321 Biology of Fishes*

*MS-4322 Marine Botany*

*MS-4329 Marine Mammals*

*MS-4333 Marine Invertebrate  
Zoology*

*MS-4334 Tropical Marine Ecology*

*MS-4342 Marine Microbiology*

## **Marine Construction Minor**

*Coordinator:* Prof. Peter Carroll

Open to all engineering majors. This minor prepares students for careers or advanced studies in the fields of marine construction or construction project management as these fields relate to large and complex construction projects in the shore-side or marine environment.

### **REQUIRED COURSES:**

*EN-7247 Construction Methods  
& Management*

*EN-7257 Marine Construction I*

*EN-7262 Marine Construction II*

### **AND THREE COURSES FROM THE FOLLOWING:**

*EN-3102 System Dynamics  
and Vibrations  
(ME & FE only)*

*EN-4121 Electrical Power  
Distribution (ME only)*

*EN-4253 Construction Industry  
Cooperative*

*EN-7141 Advanced CAD*

*EN-7142 Diesel Engines  
(FE & ESE only)*

*EN-7151 Commercial Turbines  
(ME & ESE only)*

*EN-7241 As-built CAD*

*HU-6073 Technical Writing*

*MS-2244 Introduction to GIS*

*MS-3121 Physical Geology*

### **Marine Science, Safety and Environmental Protection Minor**

*Coordinator:* Professor Francis Veale, Jr.

Open to all majors except Marine Science, Safety and Environmental Protection. Students must complete each of the following six courses:

- MS-1111 Fundamentals of Occupational Health & Safety*
- MS-1211 Current Environmental Problems*
- MS-3142 Environmental Law*
- MS-4263 Oil Spill Management*
- MS-4271 Advanced Principles of Occupational Health & Safety*
- MS-4341 Ecological Sustainability*

### **Occupational Health & Safety Minor**

*Coordinator:* Professor Francis Veale, Jr.

Open to all majors except Emergency Management. To earn a minor in Occupational Health and Safety, students must complete each of the following six courses:

- MS-4271 Advanced Principles of Occupational Health and Safety*
- MS-4272 Environmental Health and Safety Audit Program*
- EM-2111 Infectious Agents*
- EM-3212 Toxicology*
- EM-3213 Public Health Issues in Emergency Management*
- SM-3111 Introduction to Radiological Materials*



## ***Undergraduate Concentrations***

With departmental permission, students with a minimum CGPA of 2.5 may enroll in a concentration of study. A concentration is a program of study with at least 12 credits within the student's major field but not prescribed in the major program. These courses are typically taken during semesters five through eight.

Concentration courses must be taken at the Academy. With the exception of electives or free electives for each major, a course cannot be counted twice; that is, it cannot fulfill both a requirement for the major and a requirement for the concentration.

### **Homeland Security Concentration**

*Coordinator:* Professor George Cadwalader

Open to all majors. This concentration gives Emergency Management students the opportunity to use their four free electives for specialized study of homeland security.

#### **REQUIRED COURSES:**

*EM-3214 International Terrorism*  
*EM-7220 Cyber Security*

#### **AND TWO OF THE FOLLOWING ELECTIVES:**

*EM-4112 Fire Dynamics*  
*EM-7221 Military Operations and Security*  
*EM-7222 Legal Issues in Homeland and National Security*  
*EM-7223 Select Issues in Law Enforcement*  
*EM-7224 Transnational Crime*  
*EM-7226 Fundamentals of*

#### *Leadership*

*EM-7228 Comparative Homeland Security*  
*SS-2232 World Economic Geography*  
*SS-2233 Political Geography*  
*SS-4317 Intelligence and National Security Policy*

### **Marine Biology Concentration**

*Coordinator:* Professor Francis Veale, Jr.

Open to all majors. This concentration provides students with a series of electives focused on particular aspects of the field of marine biology.

#### **REQUIRED COURSES:**

*MS-4305 Principles of Aquaculture*  
*MS-4321 Biology of Fishes*  
*MS-4322 Marine Botany*  
*MS-4333 Marine Invertebrate Zoology*

### **Occupational Health & Safety Concentration**

*Coordinator:* Professor Francis Veale, Jr.

Open to all majors. This concentration gives students an opportunity for specialized study in occupational health and safety.

#### **TAKE ANY FOUR COURSES FROM THE FOLLOWING:**

*EM-2111 Infectious Agents (any major except EM)*  
*EM-3212 Toxicology*  
*EM-3213 Public Health Issues in Emergency Management (any major except EM)*  
*MS-4271 Advanced Principles of Occupational Health & Safety*  
*MS-4272 Environmental Health and Safety Audit Program*  
*SM-3111 Radiological Materials*

## **Shipboard Environmental, Health and Safety Officer Concentration**

*Coordinator: Professor Francis Veale, Jr.*

Open to Marine Science, Safety and Environmental Protection majors. This provides students with a series of electives that will enhance their opportunities for being an Environmental, Health and Safety Officer aboard cruise and merchant vessels. Students will be required to participate for three weeks in the winter Sea Term aboard the T.S. *Kennedy*, generally in their 3rd year. The curriculum will highlight specific environmental topics for which such an officer would be responsible, with particular emphasis on Marine Pollution (MARPOL) Annexes and other regulations.

### **REQUIRED COURSES:**

- MT-1111 Vessel Familiarization and Basic Safety Training*
- EN-3214 Municipal Wastewater Treatment or MS-9143 Wastewater Treatment Plant Operations*
- MS-1313 Shipboard Environmental Operations (3 weeks)*
- MS-4232 Introduction to MARPOL*

## **E. Dual Degree and 4+1**

Students with a minimum cumulative grade point average of 3.0 may enroll in a dual-degree program with the permission of the department chairperson of each program. Interested students may pursue dual-degree combinations by presenting their proposals for approval by the chairperson of each department.

In order to officially declare a dual-major before the end of the third semester, a student must have completed either Calculus I or Applied Calculus.

### **4+1 Program**

The 4+1 program is aimed at the eligible, high-achieving cadet who is prepared to launch his or her graduate education in the senior year of undergraduate studies. Motivated students from any of the seven MMA undergraduate degree programs can apply to any of the three MMA graduate degree programs in the spring semester of the junior year. Accepted students would begin taking master's-level classes in the fall semester of the senior year alongside their graduate classmates, a student body comprising working professionals, at the Conference Center at Waltham Woods in Waltham, MA.

4+1 students complete five of their master's classes during their senior year. Optimally, these students will have found a job upon graduating from their undergraduate program and will complete the remaining master's-level courses during their

first year of employment. Such employment is not required but is strongly encouraged.

The first five courses of the 4+1 program will be offered at a highly discounted rate to accepted undergraduate students. In addition, with department chair approval an accepted student may use two of the five graduate classes taken in the first three semesters to fulfill undergraduate electives, assisting students with time management while dual-enrolled.

Note: Students cannot reside on Campus following graduation from an undergraduate degree program, but hotel lodging is provided in Waltham on graduate class weekends.

### ***4+1 Degree Programs***

Each of the three Master's degrees offers a specialized management curriculum.

### **Emergency Management**

The graduate program in Emergency Management comprises 34 credits. Its mission is to provide graduates with the knowledge, skills and tools necessary to implement both proactive and reactive strategies to reduce the cost of a disaster in life and property and thus to be successful emergency managers and leaders in both the public and private sectors.

### **Facilities Management**

The graduate program in Facilities Management comprises 31 credits. Its mission is to challenge students to think and act on a broader and higher plane. These skills should directly help them to succeed in their personal and professional careers.

### **Maritime Business Management**

The graduate program in Maritime Business Management comprises 31 credits. Its mission is to produce highly skilled maritime business managers by providing students with the knowledge and tools necessary to become creative problem solvers, leading to success in senior maritime business management and leadership positions.

### **4 + 1 Admissions Criteria**

Students interested in the 4+1 program must have a minimum GPA of 3.0 and submit the following to apply:

1. a complete online application;
2. two recommendations;
3. a written statement of professional objectives that includes both long- and short-term professional goals and indicates how the graduate program will help the student achieve these goals;
4. a current résumé.

For more information on the program, please visit [www.maritime.edu/graduate-studies](http://www.maritime.edu/graduate-studies) or contact Graduate Programs at 508-830-5096 or at [graduate@maritime.edu](mailto:graduate@maritime.edu).



## **F. Military Commissioning Opportunities**

In recent years, MMA students have been commissioned upon graduation as officers in the National Guard, the U.S. Army, the U.S. Coast Guard, the U.S. Marine Corps, the U.S. Navy, and the U.S. Navy Reserve.

### ***Navy Strategic Sealift Midshipman Program (SSMP)***

The Department of Naval Science administers the Strategic Sealift Midshipman Program (SSMP).

The Strategic Sealift Midshipman Program (SSMP) is a unique type of NROTC Unit that is only offered at the seven maritime schools, and it differs in several key ways. Upon graduation, the SSMP allows students earning a Coast Guard License to be directly commissioned as officers into the Strategic Sealift Officer Program (SSOP), a specialized component of the Navy Reserve. Formerly known as the Merchant Marine Reserve, the SSOP is a cadre of naval officers who are licensed merchant mariners with sealift, maritime operations, and logistics subject matter expertise. The SSOP is called upon to provide integrated sealift operations in support of National Defense.

SSMP Midshipmen who commission into the Navy Reserve will have an eight-year military service obligation. The program also offers a limited number of opportunities to pursue an Active Duty commission. This limited number of billets is based upon the current needs of the Navy and is not guaranteed. If selected for active duty, an individual incurs a military obligation that is dependent upon the community.

Once commissioned into the Navy Reserve, Strategic Sealift Officer Program Officers serve in an Active Reserve status as either Individual Ready Reserve (IRR) or Selected Reserve (SELRES), with the majority of members falling under the Individual Ready Reserve. Strategic Sealift Officers are reservists who serve on periods of active duty to support both afloat and shore-side military and reserve fleet operations that call for the training and experience of Merchant Marine Officers. While most members of the SSOP work in the maritime industry in their civilian careers, doing so is not a requirement of the program.



***U.S. Army Reserve Officer  
Training Corps (ROTC)***

Army ROTC is a mentally and physically challenging opportunity available to cadets who are interested in serving their country as officers in the nation's most senior service, who are ready to achieve an unparalleled level of confidence and excellence as leaders, and who are committed to scholarship and physical fitness. The program includes weekly classes in leadership,

customs and traditions, and other subjects, and it incorporates hands-on, practical training. Cadets in the program undergo physical training twice each week and field training exercises once each semester. They also participate in various social events, benefit from affiliation with prestige organizations, and have the opportunity to attend, as cadets, such elite schools as Airborne and Air Assault. Freshmen attend ROTC classes at the Academy, while sophomores, juniors, and seniors attend classes at nearby Stonehill College.



## G. Graduate Programs

### ***Master of Science Degrees***

The Academy offers three Master of Sciences degrees: Emergency Management, Facilities Management, and Maritime Business Management

All graduate classes are held at 860 Winter Street, Waltham, Massachusetts, 02451.

Courses meet on alternating week-ends on Friday evenings from 5:00 p.m.–10:00 p.m. and on Saturdays from 8:00 a.m.–6:00 p.m. The alternating weekend format provides students the opportunity to conduct research, meet with student teams, and satisfy classroom objectives for the next class meeting. The program begins with a one-day orientation. Each entering class comprises approximately 24 students, who progress through the program as a cohort.

### ***Admission Requirements***

The minimum requirements for admission to an MMA graduate program are as follows:

- candidate must possess a bachelor's degree;

- candidate should have a minimum of two years professional work experience, though recent college graduates will be considered;
- unless an applicant has a 3.0 undergraduate GPA, possesses a Master's Degree, or has significant and relevant professional and/or life experience, he/she may be required to take the Graduate Management Admission Test (GMAT) or the Graduate Record Examination (GRE);
- candidate must provide two professional recommendations;
- candidate must provide official college transcripts from each college attended;
- candidate must provide a current résumé;
- candidate must provide a written statement of professional objectives, both long- and short-term, indicating how the graduate program will help the individual achieve these objectives.

For more information, contact Graduate Programs at (508) 830-5096.



## Emergency Management

The Master of Science in Emergency Management (MSEM) program is designed to provide graduates with the knowledge, skills, and tools necessary to implement both proactive and reactive strategies to reduce the cost of a disaster in life and property and thus to be successful emergency managers and leaders in both the public and private sectors. The program's graduates will possess the problem-solving capabilities to prepare for, respond to, recover from, and mitigate disasters and emergencies. The program provides a multi-disciplinary approach requiring a core set of courses addressing issues common to virtually all hazards and courses addressing special topics, including public health and transportation security.

The degree is offered in a 17-month executive format with 10 three-credit courses and one four-credit capstone course (total 34 credits):

EM-5000 Organizational Behavior  
EM-5020 Legal Issues  
EM-5060 Hazards Risk Management  
EM-5080 Strategic Planning and Budgeting  
EM-5120 Emergency Operations  
EM-5140 Public Health Issues  
EM-5150 Principles of Emergency Management  
EM-5160 Business Continuity and Disaster Recovery  
EM-5180 Transportation Security Management  
EM-5190 National Security in Emergency Management  
EM-5200 Capstone Seminar

## Facilities Management

The Master of Science in Facilities Management (MSFM) program is designed to give students the knowledge and skills to become creative problem solvers and thus to succeed in a variety of senior facilities management and leadership positions. The program emphasizes that good ideas are not enough and that implementation is what separates excellence from mediocrity in management and leadership. The curriculum provides current and prospective facilities managers with the personal, interpersonal, and group skills necessary to implement creative ideas and thus reduce the gap between good ideas and accepted practices.

The degree is offered in a 17-month executive format with 9 three-credit courses and one four-credit capstone course (total 31 credits):

FM-5000 Organizational Behavior  
FM-5020 Financial Analysis  
FM-5060 Legal and Regulatory Issues  
FM-5090 Emergency Preparedness  
FM-5100 Operations Management  
FM-5120 Human Resource Management  
FM-5150 Business Sustainability  
FM-5160 Project Management  
FM-5170 Energy Management  
FM-5180 Capstone Seminar

### **Maritime Business Management**

The Master of Science in Maritime Business Management (MSMB) is designed to give students the knowledge and skills to become creative problem solvers and thus to succeed in a variety of senior business, management, and leadership positions. The program emphasizes that good ideas are not enough and that implementation is what separates excellence from mediocrity in management and leadership. The MSMB program prepares students for executive leadership responsibilities in maritime business and supply chain management, in both the public and private sectors, by helping students develop technical expertise and a strategic mindset to improve the performance of the many facets of the complex global transportation systems—preparing them for careers in local, regional, or global maritime business and supply chain management.

The degree is offered in a 17-month executive format with 9 three-credit courses and one four-credit capstone course (total 31 credits):

- MB-5100 Economics of the Maritime Industry*
- MB-5110 Maritime Law, Policy, and Regulations*
- MB-5120 Project Management in Maritime Business*
- MB-5130 Global Logistics and Supply Chain Management*
- MB-5140 Financial Analytics*
- MB-5150 Operations Management in Maritime Business*
- MB-5160 Transportation Security Management*
- MB-5170 Organizational Behavior*
- MB-5180 Maritime Leadership and Risk Management*
- MB-5200 Capstone Seminar in Maritime Business*





## H. Academic Support

### **Academic Advising**

The academic advising system is an integral part of the student experience at MMA. Students are able to rely on the experience of the faculty and the up-to-date information faculty provide in order to facilitate their studies.

Advisors are available to assist students in developing their educational plan; in selecting a major, minor, or concentration; and in registering for courses. The advisor may provide guidance regarding academic alerts, mid-term deficiency reports, and academic probation. Most importantly, advisors are available to students seeking assistance concerning course material. In short, the academic advisor's knowledge and experience can be valuable resources for students.

### **Academic Resource Center**

The Academy is firmly committed to assisting students in maintaining satisfactory progress in their degree programs by providing first-year programming, tutoring, disability services, and supplemental advising resources through its Academic Resource Center (ARC), located on the third floor of the ABS Information Commons.

The ARC comprises five academic support units, each of which provides critical support in a particular area.

The *Learning Support Center* offers faculty and peer tutoring in science, technology, engineering, mathematics, business, and a host of other subjects.

The *Writing Center* offers tutoring in written and verbal communication to support literature and composition courses as well as other courses with an oral or written communication component. The Writing Center also assists students with professional correspondence relevant to their future careers.

The *Testing Center* administers standard assessment instruments for placement and to evaluate student proficiencies.

The *Advising Office* offers academic advising services and provides resources for college skills and success.

*ADA Compliance* is administered by the Assistant Dean of Academic Resources and the Director of Student Academic Support. Students with learning differences can contact the office at x5120 or by email at [ADacompliance@maritime.edu](mailto:ADacompliance@maritime.edu).

The ARC provides tutoring and other services and resources throughout the academic year at no cost to students. Services are offered in a supportive, accommodating learning environment by appointment and on a drop-in basis. Students are strongly advised to utilize these services and resources, which impart valuable skills for success in college and beyond.

# V. CURRICULA

## B.S. Marine Transportation

Semester 1	Credits	Semester 2	Credits
<b>EN-1112</b> Engineering Systems & Safety	3	<b>HU-1222</b> Writing About Literature	3
<b>HU-1111</b> English Composition	3	<b>SM-1214</b> Applied Calculus	3
<b>SM-1111</b> Precalculus w/ Trigonometry	3	<b>SM-2121</b> College Physics I	3.5
<b>SM-1131</b> Chemistry I	3.5	<b>SS-1211</b> Western Civilization	3
<b>MT-1111</b> Vessel Familiarization & BST	4	<b>MT-1221</b> Coastal Navigation	3
Total Credits	16.5	Total Credits	15.5

**ST-0999** Sea Term I 6

Semester 3	Credits	Semester 4	Credits
<b>SM-2119</b> Applied Mathematics for Deck Officers	3	<b>SS-2121</b> American Government	3
<b>SM-2222</b> College Physics II	3.5	<b>MT-2222</b> Celestial Navigation	4
<b>MT-2121</b> Deep Sea Navigation	3	<b>MT-2231</b> Basic Seamanship	4
<b>MT-2141</b> Ship Construction	3	<b>MT-3122</b> Radar Observer Certification	3
<b>MT-2161</b> Rules of the Road	3	<b>MT-3221</b> Electronic Navigation	4
Total Credits	15.5	Total Credits	18

**MT-2371** Sea Term II: MT 6

Semester 5	Credits	Semester 6	Credits
<b>GEHU-3</b> Humanities Group I	3	<b>GESS-3</b> Social Science Group I	3
<b>MT-3151</b> Dangerous Liquid Cargo	4	<b>GESS-5</b> Social Science Group III	3
<b>MT-3222</b> ARPA	2	<b>MT-3224</b> ECDIS	3
<b>MT-4122</b> GMDSS	4	<b>MT-3231</b> Applied Shiphandling	3
<b>MT-4132</b> Advanced Seamanship	4	<b>MT-4241</b> Stability & Trim	3
Total Credits	17	Total Credits	18

**MT-3372** Commercial Sea Term: MT 6

Semester 7	Credits	Semester 8	Credits
<b>GEHU-4</b> Humanities Group I or II	3	<b>EN-7142</b> Diesel Engines	3
<b>SS-4123</b> Internat'l Law & Legisl. Compliance	3	<b>MT-3261</b> Containeriz. & Modern Cargo Stowage	3
<b>MT-3131</b> Meteorology	3	<b>MT-4251</b> Marine Safety	3
<b>MT-4133</b> Bridge Resource Management	4	<b>MT-4252</b> Licensing Seminar: MT	3
Free Elective II	3	Total Credits	12
Total Credits	16	Total Credits	12

**MT-4371** Sea Term IV: MT 6

### STCW Courses Required for the Degree

<b>FF-0102</b> FR Firefighting Practicum (Sem 1)	<b>LB-0203</b> FR STCW Immersion Suit Practicum (Sem 1)
<b>FF-0104</b> SO Firefighting Practicum (Sem 3)	<b>PE-0031</b> Basic Safety CPR (Sem 1)
<b>FF-0106</b> JR Firefighting Practicum (Sem 6)	<b>PE-0032</b> STCW Medical Care Provider (Sem 8)
<b>FF-0108</b> SR Firefighting Practicum (Sem 7)	<b>PS-0301</b> FR STCW Personal Survival (Sem 1)
<b>LB-0201</b> STCW Qualifications (Sem 3 or 4)	<b>SR-0401</b> FR STCW Pers. Safety/Soc. Respon. (Sem 1)
<b>LB-0202</b> STCW Lifeboatman Exam (Sem 4)	<b>STCW-VPDSD</b> (Sem 1)

# A. Marine Transportation

This program prepares cadets for careers as USCG licensed ship deck officers. Cadets build a foundation to transfer into management and operations positions within the intermodal, transportation, and petroleum industries.

Skills are learned through extensive theoretical education that is applied practically via navigation, seamanship, ship construction, ship handling, and stability. Cadets graduate with an ability to stand proper and safe navigational and deck watches at the Third Mate level per STCW requirements. Cadets train on campus in state-of-the-art ship simulators as well as aboard commercial vessels and Academy training vessels.

Four sea terms are required and graduates must pass examinations conducted by the United States Coast Guard in order to qualify as third mate, steam, and motor vessels of unlimited tonnage on the oceans. Licensure also requires completing Standards of Training, Certification and Watchkeeping (STCW) requirements.

## MT Learning Outcomes:

- Acquired knowledge, experience and training needed to obtain the necessary licenses, certificates and documentation for a Third Mate's position on any U.S. Flag vessel sailing upon Oceans.
- Ability to stand proper and safe Navigational and Deck watches at the Third Mate level.
- An inculcated sense of honor, decency and ethics that will allow our graduates to bring credit to Massachusetts Maritime Academy and the U.S. Merchant Marine.

## Possible Career Paths:

Third Mate or navigation officer on oceangoing ships

Mate on a tugboat

Many MMA MT graduates have gone on to work for organizations such Military Sealift Command, Maersk, American Maritime Officers, Kirby Corporation, Moran Towing or McDonough Marine.



# Marine Transportation

## Marine Transportation Eligibility

To remain in Marine Transportation, a student must

pass MT-1111 Vessel Familiarization and Basic Safety Training with a grade of C- or better,

pass EN-1112 Engineering Systems and Safety with a grade of C- or better,

pass MT-1221 Coastal Navigation by the second attempt with a grade of C- or better

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

Prerequisites for Sea Term I include successful completion of EN-1112 Engineering Systems and Safety, MT-1111 Vessel Familiarization and Basic Safety Training, and SM-1111 Precalculus with Trigonometry.

Additionally, any student who falls below Academic Good Standing will be removed from Sea Term I and reviewed by the Academic Review Board as per the Academic Standards.

The MT curriculum offers opportunities for a number of minors and/or concentrations.

## Minors:

Homeland Security

International Maritime Business

Marine Biology

Marine Science, Safety, and Environmental Protection

Occupational Health and Safety

## Concentrations:

Homeland Security

Marine Biology

Occupational Health and Safety

# B.S. Marine Engineering

Semester 1	Credits	Semester 2	Credits
<b>HU-1111</b> English Composition	3	<b>HU-1222</b> Writing About Literature	3
<b>MT-1111</b> Vessel Familiarization & BST	4	<b>SM-1212</b> Calculus I	3
<b>SM-1111</b> Precalculus w/ Trigonometry	3	<b>SM-1232</b> Chemistry II	3.5
<b>SM-1131</b> Chemistry I	3.5	<b>SS-1211</b> Western Civilization	3
<b>EN-1112</b> Engineering Systems & Safety	3	<b>EN-1211</b> Auxiliary Machinery I	3.5
Total Credits	16.5	Total Credits	16
<b>ST-0999</b> Sea Term I	6		

Semester 3	Credits	Semester 4	Credits
<b>SM-2113</b> Calculus II	3	<b>GESS-3</b> Social Science Group I	3
<b>SM-2123</b> Engineering Physics I	3.5	<b>SM-2214</b> Differential Equations	3
<b>SS-2121</b> American Government	3	<b>SM-2224</b> Engineering Physics II	3.5
<b>EN-1212</b> Computer-Aided Design (CAD)	1	<b>EN-2211</b> Mechanics	3
<b>EN-2111</b> Auxiliary Machinery II	4	<b>EN-2232</b> Internal Combustion Engines I	4
<b>EN-2112</b> Machine Tool Technology	2	Total Credits	16.5
Total Credits	16.5		
<b>EN-2231</b> Sea Term II: ME	6		

Semester 5	Credits	Semester 6	Credits
<b>SM-3125</b> Engineering Physics III	3	<b>GEHU-3</b> Humanities Group I	3
<b>EN-3112</b> Strength of Materials	3	<b>EN-3111</b> Electrical Machines	3
<b>EN-3112L</b> Strength of Materials Lab	1	<b>EN-3111L</b> Electrical Machines Lab	1
<b>EN-3131</b> Steam Generators	3.5	<b>EN-3211</b> Thermodynamics	3
<b>EN-3212</b> Electronics	3	<b>EN-3216</b> Operational Controls	3
<b>EN-3212L</b> Electronics Lab	1	<b>EN-3233</b> Steam & Gas Turbines	4
Total Credits	14.5	Total Credits	17
<b>EN-3231</b> Sea Term III: ME	6	OR	
<b>EN-3232</b> Commercial Sea Term: ME	6		

Semester 7	Credits	Semester 8	Credits
<b>SS-4123</b> Internat'l Law & Legisl. Compliance	3	<b>GEHU-4</b> Humanities Group I or II	3
<b>EN-3213</b> Refrigeration	2.5	<b>GESS-5</b> Social Science Group III	3
<b>EN-4111</b> Fluid Mechanics	3	<b>EN-4151</b> Applied Naval Architecture for ME	3
<b>EN-4112</b> Thermodynamics/Fluids Lab	1	<b>EN-4232</b> License Seminar: Engineering	3
<b>EN-4131</b> Internal Combustion Engines II	4	Free Elective II	3
Free Elective I	3	Total Credits	15
Total Credits	16.5		
<b>EN-4231</b> Sea Term IV: ME	6		

## STCW Courses Required for the Degree

<b>FF-0102</b> FR Firefighting Practicum (Sem 1)	<b>LB-0203</b> FR STCW Immersion Suit Practicum (Sem 1)
<b>FF-0104</b> SO Firefighting Practicum (Sem 3)	<b>PE-0031</b> Basic Safety CPR (Sem 1)
<b>FF-0106</b> JR Firefighting Practicum (Sem 6)	<b>PE-0032</b> STCW Medical Care Provider (Sem 8)
<b>FF-0108</b> SR Firefighting Practicum (Sem 7)	<b>PS-0301</b> FR STCW Personal Survival (Sem 1)
<b>LB-0201</b> STCW Qualifications (Sem 3 or 4)	<b>SR-0401</b> FR STCW Pers. Safety/Soc. Respon. (Sem 1)
<b>LB-0202</b> STCW Lifeboatman Exam (Sem 4)	<b>STCW-VPDSD</b> (Sem 3)

## B. Marine Engineering

The Marine Engineering program prepares graduates for careers as licensed engineering officers in the United States Merchant Marine as well as engineering positions in associated shore-side industries. ME majors gain a firm grasp of mechanical and electrical engineering systems through classroom and hands-on learning. This includes approximately 50 days of practical shipboard training each year, typically during the annual sea term aboard the Training Ship (T.S.) Kennedy or on a commercial merchant ship assignment.

### Learning Outcomes:

In order to produce competent and conscientious Marine Engineering Officers in accordance with the Standards for Training and Certification of Watchstanders (STCW) and United States Coast Guard (USCG) regulations, graduates must be able to:

- Apply general education knowledge to appreciate the impact of engineering solutions on society as a whole.  
  
Apply mathematics, science and engineering knowledge to solve engineering problems.
- Gather, analyze and interpret engineering data.
- Communicate effectively in English using written, oral and graphic formats.
- Function effectively as a member of a multidisciplinary team.
- Satisfactorily meet all STCW Competencies (listed separately) required to be licensed as a Marine Engineering Officer on board a ship in accordance with USCG regulations.
- Apply for, be examined for, and receive a Merchant Marine Officer License issued by the USCG for a Third Assistant Engineer of Steam, Motor and Gas Turbine vessels any horsepower.

The U.S. Maritime Administration requires that all senior ME students complete all their academic program requirements and earn their USCG license for a Third Assistant Engineer of Steam, Motor and Gas Turbine vessels any horsepower prior to receiving their ME degree.

# Marine Engineering

## Marine Engineering Eligibility

To remain in Marine Engineering, a student must

pass MT-1111 Vessel Familiarization and Basic Safety Training with a grade of C- or better,

pass EN-1112 Engineering Systems and Safety with a grade of C- or better,

pass SM-1111 Precalculus with Trigonometry by the second attempt with a grade of C- or better,

pass SM-1212 Calculus I by the second attempt with a grade of C- or better,

pass EN-2211 Mechanics by the third attempt.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

Prerequisites for Sea Term I include successful completion of EN-1112 Engineering Systems and Safety, MT-1111 Vessel Familiarization and Basic Safety Training, and SM-1111 Precalculus with Trigonometry (with a grade of C- or above).

Additionally, any student who falls below Academic Good Standing will be removed from Sea Term I and reviewed by the Academic Review Board as per the Academic Standards.

# Marine Engineering

Four sea terms are required for the ME degree and cadets must pass examinations conducted by the United States Coast Guard in order to qualify as a third assistant engineer, steam, motor, and gas turbine, unlimited horsepower. Licensure is dependent upon successful completion of Standards of Training, Certification and Watchkeeping (STCW) requirements.

The objective is to earn a USCG Third Assistant Engineering License for unlimited horsepower Steam, Diesel or Gas Turbine power propulsion systems (three licenses total) that are challenging to obtain and demonstrate the breadth of knowledge amassed.

The examinations are administered by the United States Coast Guard with the ultimate goal of preparing students to eventually reach the level of Chief Engineer.

## Minors Available for ME Majors:

Emergency Management  
Facilities Operations  
Homeland Security  
International Maritime Business  
Marine Biology  
Marine Science, Safety, and Environmental Protection  
Occupational Health and Safety

## Concentrations Available for ME Majors:

Homeland Security  
Marine Biology  
Occupational Health and Safety

## Careers:

The ME program prepares graduates for careers as licensed engineering officers in the United States Merchant Marine and for engineering positions in associated shoreside industries. Many graduates later go on to become senior management executives.

Possible positions for a Marine Engineering major include: Chief Engineer on a merchant ship; Port Engineer for an marine related company; Executive management for major corporations; Field service engineers throughout industry .

# B.S. Facilities Engineering

Semester 1	Credits
<b>HU-1111</b> English Composition	3
<b>MT-1111</b> Vessel Familiarization & BST	4
<b>SM-1111</b> Precalculus w/ Trigonometry	3
<b>SM-1131</b> Chemistry I	3.5
<b>EN-1112</b> Engineering Systems and Safety	3
Total Credits	16.5
<b>ST-0999</b> Sea Term I	6

Semester 2	Credits
<b>HU-1222</b> Writing About Literature	3
<b>SM-1212</b> Calculus I	3
<b>SM-1232</b> Chemistry II	3.5
<b>SS-1211</b> Western Civilization	3
<b>EN-1212</b> Computer-Aided Design (CAD)	1
<b>EN-1222</b> Auxiliary Machinery I for Facilities	3.5
Total Credits	17

Semester 3	Credits
<b>HU-6073</b> Technical Writing	3
<b>GESS-3</b> Social Science Group I	3
<b>SM-2113</b> Calculus II	3
<b>SM-2123</b> Engineering Physics I	3.5
<b>EN-2121</b> Auxiliary Machinery II for FE	4
Total Credits	16.5

Semester 4	Credits
<b>SM-2214</b> Differential Equations	3
<b>SM-2224</b> Engineering Physics II	3.5
<b>EN-2112</b> Machine Tool Technology	2
<b>EN-2211</b> Mechanics	3
<b>EN-2222</b> Commercial Boilers	3.5
Total Credits	15

**EN-2221** Cooperative I: FE 6

Semester 5	Credits
<b>SM-3125</b> Engineering Physics III	3
<b>SS-2121</b> American Government	3
<b>EN-3111</b> Electrical Machines	3
<b>EN-3111L</b> Electrical Machines Lab	1
<b>EN-3112</b> Strength of Materials	3
<b>EN-3112L</b> Strength of Materials Lab	1
<b>EN-3214</b> Municipal Wastewater Treatment	3
Total Credits	17

Semester 6	Credits
<b>GEHU-3</b> Humanities Group I	3
<b>EN-3211</b> Thermodynamics	3
<b>EN-3212</b> Electronics	3
<b>EN-3212L</b> Electronics Lab	1
<b>EN-3213</b> Refrigeration	2.5
<b>EN-7151</b> Commercial Turbines	3
Total Credits	15.5

**EN-3221** Cooperative II: FE 6

Semester 7	Credits
<b>GESS-4</b> Social Science Group II*	3
<b>EN-3216</b> Operational Controls	3
<b>EN-4111</b> Fluid Mechanics	3
<b>EN-4112</b> Thermodynamics/Fluids Lab	1
<b>EN-4121</b> Electrical Power Distribution	3
Free Elective	3
Total Credits	16

Semester 8	Credits
<b>GEHU-4</b> Humanities Group I or II	3
<b>GESS-5</b> Social Science Group III	3
<b>EN-4222</b> Heating, Ventilation & Air Conditioning	3
<b>EN-4224</b> Facilities Planning & Management	3
Free Elective II	3
Total Credits	15

**EN-4221** Cooperative III: FE 6  
**EN-4225** Alternative Co-op 3

\*MS-3142 Environmental Law or SS-3221 Business Law or SS-4132 Legal Issues in EM

## STCW Courses Required for the Degree

None Required

## C. Facilities Engineering

The FE program prepares students for careers in facilities engineering, management, and operations. Large facilities, manufacturing plants, office buildings, hospitals, and power plants require safe, economical, compliant, and sustainable operation.

Students acquire critical problem-solving skills, as well as an ability to gather, analyze, and interpret data. They learn how to use modern engineering tools and techniques to safely operate and maintain building management systems. This knowledge is reinforced through three required co-ops.

Students must pass the Facilities Engineering Qualification Exam (FEQE). If certain electives are taken, cadets are also eligible to take the Massachusetts Stationary Engineer license and the Massachusetts Municipal Wastewater Operator license exams. Cadets in the FE major participate in a first-year sea term for immediate exposure to a working power plant system.

### Learning Outcomes:

The overarching goal of the FE program is to produce a competent and conscientious facilities engineer who will be prepared to take on a responsible role as a contributing member of our highly technical society. FE graduates should be able to:

- \*Apply general education knowledge to appreciate the impact of engineering solutions on society as a whole.
- \*Apply mathematics, science, and engineering knowledge to solve engineering problems.
- \*Gather, analyze and interpret engineering data.
- \*Communicate effectively in English using written, oral and graphic formats.
- \*Function effectively as a member of a multidisciplinary team.
- \*Use engineering tools and techniques to safely operate, maintain and repair equipment, machinery and engineering systems typically found in an industrial facility.
- \*Understand and comply with applicable environmental regulations, building codes, sustainability goals and similar requirements at an industrial facility in accordance with local, state or federal legislative requirements.



# Facilities Engineering

## Exam Information:

As a condition for graduation, all students in the FE major are required to take and pass the Facilities Engineering Qualification Exam (FEQE), which is administered during the student's senior year. The FEQE is a three hour comprehensive exam that includes 90 multiple choice questions, which test the student's overall mathematics, applied science and engineering knowledge. The FEQE also includes an essay question to evaluate the student's writing ability.

## Facilities Engineering Eligibility

To remain in Facilities Engineering, a student must

- pass EN-1112 Engineering Systems and Safety with a grade of C- or better,
- pass SM-1111 Precalculus with Trigonometry by the second attempt with a grade of C- or better,
- pass SM-1212 Calculus I by the second attempt with a grade of C- or better,
- pass EN-2211 Mechanics by the third attempt.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

Prerequisites for Sea Term I include successful completion of EN-1112 Engineering Systems and Safety, MT-1111 Vessel Familiarization and Basic Safety Training, and SM-1111 Precalculus with Trigonometry (with a grade of C- or above).

Additionally, any student who falls below Academic Good Standing will be removed from Sea Term I and reviewed by the Academic Review Board as per the Academic Standards.

# Facilities Engineering

The FE curriculum offers students numerous opportunities for minors and /or concentrations:

## Minors:

Energy Management  
Homeland Security  
International Maritime Business  
Marine Biology  
Marine Construction  
Marine Science, Safety, and Environmental Protection  
Occupational Health and Safety

## Concentrations:

Homeland Security  
Marine Biology  
Occupational Health and Safety

## Careers:

The Facilities Engineering program prepares graduates for careers in facilities engineering, management, and operations. Facilities engineers are responsible for the safe, economical, compliant and sustainable operation of various equipment and systems in large facilities such as manufacturing plants, office buildings, hospitals, and power plants.

MMA Facilities Engineers can be found in every business sector, in every level of management throughout industry, all across the globe.

Possible positions for a Facilities Engineering major include:

Director of Facilities  
Vice President of Operations  
President of start-up company (self-employed)  
Senior Executive Management  
Engineering Systems Specialist

# B.S. Marine Science, Safety and Environmental Protection

Semester 1	Credits	Semester 2	Credits
<b>HU-1111</b> English Composition	3	<b>HU-1222</b> Writing About Literature	3
<b>SM-1111</b> Precalculus w/ Trigonometry	3	<b>SM-1131</b> Chemistry I	3.5
<b>MS-1111</b> Fundam. of Occup. Hlth. & Safety	3	<b>SM-1214</b> Applied Calculus	3
<b>MS-1211</b> Current Environmental Problems	3	<b>MS-2221</b> General Biology	3.5
<b>MS-1252</b> Earth Science	3.5	<b>MS-2244</b> Introduction to GIS	3
Total Credits	15.5	Total Credits	16

**MS-1311** Experiential Learning: MSSEP 3

Semester 3	Credits	Semester 4	Credits
<b>SM-2115</b> Applied Environmental Mathematics	3	<b>GEHU-3</b> Humanities Group I	3
<b>MS-2233</b> Organic/Hazardous Mat. Chemistry	3.5	<b>SM-2121</b> College Physics I	3.5
<b>SS-1211</b> Western Civilization	3	<b>SM-2218</b> Statistics	3
<b>MS-2131</b> Introduction to Communications	3	<b>SS-2121</b> American Government	3
<b>MS-XXXX</b> Departmental Elective I	3	<b>MS-XXXX</b> Departmental Elective II	3
Total Credits	15.5	Total Credits	15.5

Semester 5	Credits	Semester 6	Credits
<b>GESS-1</b> Social Sciences Group I	3	<b>SM-3234</b> Environmental Chemistry	4
<b>MS-3121</b> Physical Geology	3	<b>MS-3221</b> Oceanography	3
<b>MS-3132</b> Life Sciences Lab	1	<b>MS-3242</b> Hazardous Materials Management	3
<b>MS-3141</b> Coastal Ecology	3	<b>MS-4263</b> Oil Spill Management	3
<b>MS-3142</b> Environmental Law	3	<b>MS-XXXX</b> Departmental Elective IV	3
<b>MS-XXXX</b> Departmental Elective III	3	Total Credits	16
Total Credits	16		

**MS-3351** Cooperative I: MSSEP 6

Semester 7	Credits	Semester 8	Credits
<b>GEHU-4</b> Humanities Group I or II	3	<b>GESS-5</b> Social Science Group III	3
<b>MS-4111</b> Environmental Monitoring I	3	<b>MS-4211</b> Environmental Monitoring II	3
<b>MS-4141</b> Coastal Zone Management	3	<b>MS-4231</b> Risk Communication	3
<b>MS-4142</b> Human Health and Risk	3.5	<b>MS-4241</b> Environmental Risk	3
Free Elective I	3	Free Elective II	3
Total Credits	15.5	Total Credits	15

**MS-4411** Cooperative II: MSSEP 3

## STCW Courses Required for the Degree

None Required

## D. Marine Science, Safety, and Environmental Protection

The Marine Science, Safety, and Environmental Protection (MSSEP) program focuses on environmental safety, marine science, and public health issues. Graduates are prepared for careers that tackle global challenges such as climate change, diminishing natural resources, environmental degradation, ever-increasing safety and environmental regulations, green and sustainable development, and increasing energy demands.

First-year cadets participate in a tropical ecology field course in Bermuda. Cadets study the complexity of the ecosystems while basking in the natural environment. They also have an opportunity to enjoy snorkeling and hikes through mangroves and tropical dry forests.

This program requires a six-week co-op/internship and a three-credit co-op, with opportunities in industries such as cruise lines, environmental compliance, consumer and industrial goods, federal agencies, and research institutions.

### Learning Outcomes:

- Understand the principal ecological, geological, and chemical characteristics of marine and coastal environments.
- Understand current environmental problems and risk to effectively manage marine resources, coastal zones, and hazardous materials.
- Be able to utilize geographic information systems (GIS) for planning and management applications.
- Master practices in marine and industrial safety.
- Understand written and oral communication within the environmental profession.
- Use the scientific method to construct and execute research projects in aquatic environments.
- Gain exposure to a career in MSSEP during cooperative experiences and internships.

# Marine Science, Safety, and Environmental Protection

A number of minors and concentrations are available to MSSEP majors:

## Minors:

Marine Biology  
Homeland Security  
International Maritime Business  
Occupational Health and Safety

## Concentrations:

Homeland Security  
Marine Biology  
Occupational Health and Safety  
Shipboard Environmental Health and Safety (exclusive to MSSEP)

## Careers:

Environmental and safety officer at sea (on cruise ships, drilling ships, oil rigs, NOAA Corps, Coast Guard) and on land with numerous companies and institutions

Environmental consultants and remediation specialist

US Environmental Protection Agency or State Department of Environmental Protection Department scientists and safety specialist

NOAA Fisheries or State Division of Marine Fisheries scientist and safety specialist

Environmental manager

Scientific research technician

Law enforcement

GIS professional

Educator

# B.S. Emergency Management

## Semester 1 Credits

<b>HU-1111</b>	English Composition	3
<b>EM-1411</b>	Public Safety	3
<b>SM-1111</b>	Precalculus w/ Trigonometry	3
<b>EM-2212</b>	Introduction to Emergency Mgmt.	3
<b>MS-2221</b>	General Biology	3.5

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Total Credits 15.5

## Semester 2 Credits

<b>HU-1222</b>	Writing About Literature	3
<b>SM-1131</b>	Chemistry I	3.5
<b>SM-1214</b>	Applied Calculus	3
<b>SM-2121</b>	College Physics I	3.5
<b>EM-1215</b>	EM Policy and Procedure	3

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Total Credits 16

**EM-1311** Experiential Learning: EM 3

## Semester 3 Credits

<b>EM-2120</b>	Emergency Management Planning	3
<b>SM-2233</b>	Organic/Hazardous Mat. Chemistry	3.5
<b>SS-1211</b>	Western Civilization	3
<b>EM-2144</b>	Foundational Technologies in EM	3
<b>EM-4222</b>	Crisis Communication	3

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Total Credits 15.5

## Semester 4 Credits

<b>GESS-3</b>	Social Science Group 1	3
<b>SM-2218</b>	Statistics	3
<b>SS-2121</b>	American Government	3
<b>EM-4225</b>	Emergency Management Operations	3
<b>EM-2213</b>	National Security in Emergency Mgt.	3

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Total Credits 15

**EM-3311** Cooperative I: EM 6

## Semester 5 Credits

<b>MS-3242</b>	Hazardous Materials Management	3
<b>EM-2111</b>	Infectious Agents	3
<b>EM-3121</b>	Risk Management	3
<b>EM-7210</b>	Business Continuity	3
	Free Elective I	3

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Total Credits 15

## Semester 6 Credits

<b>GEHU-3</b>	Humanities Group I	3
<b>EM-3211</b>	Natural Hazards	3
<b>EM-7225</b>	Infrastructure Protection	3
<b>EM-3213</b>	Public Health Issues in EM	3
	Free Elective II	3

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Total Credits 15

**EM-4311** Cooperative II: EM 6

## Semester 7 Credits

<b>GEHU-4</b>	Humanities Group I or II	3
<b>SS-4132</b>	Legal Issues in Emergency Mgmt.	3
<b>EM-4133</b>	Exercise Planning and Development	3
<b>EM-4113</b>	International Relief	3
	Free Elective III	3

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Total Credits 15

## Semester 8 Credits

<b>GESS-5</b>	Social Science Group III	3
<b>EM-4226</b>	Transportation Security	3
<b>EM-4223</b>	IT in Emergency Mgmt. & Operations	3
<b>EM-4224</b>	Emergency Management Capstone	3
	Free Elective IV	3

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Total Credits 15

## STCW Courses Required for the Degree

None Required

# E. Emergency Management

Providing graduates with the education and skills necessary for successful careers in public service and private industry, the Emergency Management science-based curriculum prepares students for positions in fields such as disaster management, law enforcement, fire science, risk management, business continuity, military service, and health care.

The EM program requires students to complete at least two co-ops (six credits each). First-year cadets participate in experiential learning programs with Habitat for Humanity, or at the Outdoor Leadership School, or in Guatemala.

Certificate options include Emergency Medical Technician (EMT) and Massachusetts Firefighter I and II certification through Barnstable County

## EM Learning Outcomes:

- Understand the four phases of Emergency Management; mitigation, preparedness, response, and recovery, applied across an All Hazards/Whole Community Approach to Emergency Management.
- Identify the scientific principles involved in the development of mitigation and preparedness policies, strategies and tactics.
- Understand scientific principles involved in the development of multi-level response and recovery policies, strategies, and tactics.
- Evaluate the social science components of Emergency Management related to government, the private sector, to nongovernmental organizations, communities, and to individuals.
- Apply the Incident Command System and analyze its relationship to national preparedness goals.
- Apply new and emerging emergency management technologies across phases of Emergency Management.



# Emergency Management

The curriculum offers several options for minors and concentrations for EM majors:

## Minors:

Homeland Security  
International Maritime Business (IMB)  
Marine Biology  
Marine Science, Safety, and Environmental Protection (MSSEP)

## Concentrations:

Homeland Security  
Marine Biology  
Occupational Health and Safety

## Study Abroad Opportunity:

The Massachusetts Maritime Academy currently maintains an exchange program with the University College, Copenhagen. Eligible cadets may apply in the fall semester of their junior year. Up to three students will study abroad and complete an internship during the spring semester of their junior year. The study abroad program satisfies 15 credits. University College is located in central Copenhagen. Students have rich opportunities to explore not only Copenhagen, but the rest of Denmark, and other European countries. The course in Denmark is approximately 8 weeks long. Previous coursework was focused on Refugees and Mass Migration.

## Some Career Possibilities:

Director of Emergency Preparedness  
Law Enforcement  
Risk Management  
Operations Management  
Emergency Medical Technician  
Firefighter  
Military

# B.S. International Maritime Business

Semester 1	Credits	Semester 2	Credits
<b>HU-1111</b> English Composition	3	<b>SM-1131/2121</b> Chem I or Coll. Physics I	3.5
<b>SM-1111</b> Precalculus w/ Trigonometry	3	<b>HU-1222</b> Writing About Literature	3
<b>SS-2131</b> Microeconomics	3	<b>SM-1214</b> Applied Calculus	3
<b>IM-1214</b> Foundations in Business Computing	3	<b>IM-3122</b> Business Data Analysis	3
<b>IM-2211</b> The Business of Shipping	3	<b>IM-1211</b> Organization Management	3
Total Credits	15.5	Total Credits	15.5

Semester 3	Credits	Semester 4	Credits
<b>GESM-5</b> Science & Mathematics Group III	3.5	<b>HU-6072</b> Business Communication	3
<b>SM-2117</b> Quantitative Methods for Management	3	<b>IM-2221</b> Principles of Accounting II	3
<b>IM-1212</b> Macroeconomics for Business	3	<b>SM-1131/2121</b> Chem I or Coll. Physics I	3.5
<b>IM-2121</b> Principles of Accounting I	3	<b>IM-3231</b> Vessel Chartering and Brokerage	3
<b>HU-XXXX</b> Foreign Language I	3	<b>IM-2231</b> Business Decision and Strategy	3
Total Credits	15.5	Total Credits	15

**IM-3411** Experiential Learning: IMB 6

Semester 5	Credits	Semester 6	Credits
<b>SS-1211</b> Western Civilization	3	<b>GEHU-3</b> Humanities Group I	3
<b>SS-3225</b> Admiralty and Maritime Law	3	<b>GESS-5</b> Social Science Group III	3
<b>IM-3111</b> Transportation Operations Mgmt.	3	<b>SS-2121</b> American Government	3
<b>IM-3133</b> Finance I	3	<b>SS-3221</b> Business Law	3
<b>IM-3241</b> Principles of Marketing	3	<b>IM-3233</b> Finance II	3
Total Credits	15	<b>IM-4211</b> Business Ethics & Negotiation	3
		Total Credits	18

**IM-3311** Cooperative I: IMB 6

Semester 7	Credits	Semester 8	Credits
<b>MT-3252</b> Port & Terminal Operations Mgmt.	3	<b>GEHU-4</b> Humanities Group I or II	3
<b>IM-4111</b> Marine Insurance	3	<b>IM-4212</b> Capstone Seminar in IMB	3
<b>IM-4112</b> Internat'l Business & Ocean Shipping	3	<b>IMB Elective II</b>	3
<b>IM-4151</b> Supply Chain Management	3	<b>IMB Elective III</b>	3
<b>IMB Elective I</b>	3	<b>Free Elective II</b>	3
<b>Free Elective I</b>	3		
Total Credits	18	Total Credits	15

**IM-4311** Cooperative II: IMB 6

## STCW Courses Required for the Degree

None Required

## F. International Maritime Business

The International Maritime Business (IMB) program prepares students to be business professionals serving the global marketplace and the complex supply chains that enable the global economy.

Students acquire wide-ranging business skills — such as accounting, economics, finance, and negotiations — and maritime industry knowledge — such as admiralty law, port terminal operations, and shipping. These unique skills provide IMB majors with an edge in the increasingly global marketplace. With 90% of goods traveling by ship at some point in the journey from origin to destination, the industry is in need of professionals with this specific focus.

In the spirit of the Academy's Learn-Do-Learn philosophy, in addition to traditional academic coursework, all students will complete one IMB experiential learning program (international, domestic, maritime, or online) and two cooperative experiences. Sea Term I (ST-0999) and experiential learning programs from other majors are not considered equivalent to the IMB experiential learning program, but are counted as electives.

Accredited by the International Accreditation Council for Business Education (IACBE), the IMB program combines the breadth of high-quality business education with a focus on the maritime sector.

### Learning Outcomes:

- Demonstrate knowledge of key concepts, principles, and practices in business and maritime domains.
- Apply appropriate analytic techniques to solve problems and support decision making.
- Comprehensively explore issues, ideas, evidence, and perspectives in order to accept or formulate an opinion or conclusion.
- Effectively listen and read to gain information. IMB students will effectively speak and write to share information.
- Perform effectively as a team member and leader.
- Demonstrate ability to perform in professional settings.

# International Maritime Business

## Minors:

Homeland Security  
Marine Biology  
Marine Science, Safety, and Environmental Protection  
Occupational Health and Safety

## Concentrations:

Homeland Security  
Marine Biology  
Occupational health and Safety

## Careers:

The IMB major prepares graduates in the foundation of general business, with a focus on the maritime sector, and prepares them for careers in the fields of management, logistics, transportation, operations, shipping, chartering, and maritime business. These unique skills provide cadets with an edge in the increasingly global marketplace. Many IMB graduates go on to work in the following fields:

General Business (Accounting, Analytics, Marketing, Sales)  
Project Management  
Shipping & Operations  
Vessel Chartering & Brokerage  
Port & Terminal Operations  
Maritime Law & Insurance  
Logistics & Supply Chain Management

## Certification Opportunities:

The opportunities for professional certifications available to IMB students are vast. For example, after taking business courses, students will be ready to sit for a variety of certification examinations, such as Certificate in Business Analysis, Certified Associate in Project Management, or Certified Managerial Accountant. The showcase certification is offered through the Institute for Chartered Shipbrokers. Starting with Business of Shipping, IMB's seven maritime courses provide the knowledge necessary to sit for the qualifying exams right on campus in the only exam center in the US. With as little as two exams, students can obtain a Foundation Diploma, and by passing seven exams, students will earn what is known as the Professional Qualifying Examination, a premier, globally recognized, maritime credential.

# B.S. Energy Systems Engineering

Semester 1	Credits
<b>HU-1111</b> English Composition	3
<b>SM-1131</b> Chemistry I	3.5
<b>SM-1212</b> Calculus I	3
<b>SS-1211</b> Western Civilization	3
<b>EN-1112</b> Engineering Systems & Safety	3
Total Credits	15.5

Semester 2	Credits
<b>HU-1222</b> Writing About Literature	3
<b>SM-1232</b> Chemistry II	3.5
<b>SM-2113</b> Calculus II	3
<b>SM-2123</b> Engineering Physics I	3.5
<b>EN-1214</b> Computer Modeling	1
<b>EN-1222</b> Auxiliary Machinery I for Facilities	3.5
Total Credits	17.5

Semester 3	Credits
<b>SM-2214</b> Differential Equations	3
<b>SM-2224</b> Engineering Physics II	3.5
<b>SS-2121</b> American Government	3
<b>EN-2101</b> Engineering Statics	3
<b>EN-2112</b> Machine Tool Technology	2
<b>EN-2901</b> Computer Methods in Engineering	1
Total Credits	15.5

Semester 4	Credits
<b>SM-3125</b> Engineering Physics III	3
<b>SM-6115</b> Calculus III	3
<b>GESS-3</b> Social Science Group I	3
<b>EN-3112</b> Strength of Materials	3
<b>EN-3112L</b> Strength of Materials Lab	1
<b>EN-3212</b> Electronics	3
<b>EN-3212L</b> Electronics Lab	1
Total Credits	17
<b>EN-2242</b> Cooperative I: ESE	6

Semester 5	Credits
<b>EN-2701</b> Introduction to Design	3
<b>EN-3102</b> System Dynamics & Vibration	3
<b>EN-3111</b> Electrical Machines	3
<b>EN-3111L</b> Electrical Machines Lab	1
<b>EN-3201</b> Fluid Dynamics	3
<b>EN-7146</b> Heat and Mass Transfer	3
Total Credits	16

Semester 6	Credits
<b>GEHU-3</b> Humanities Group I	3
<b>SM-3005</b> Probability and Statistics	3
<b>EN-3603</b> Instrumentation & Control	3
<b>EN-3603L</b> Instrumentation Lab	1
<b>EN-3802</b> Energy Systems	3
<b>EN-4803</b> Thermodynamics of Power Systems	3
<b>EN-4803L</b> Power Systems Lab	1
Total Credits	17
<b>EN-3242</b> Cooperative II: ESE	6

Semester 7	Credits
<b>GESS-5</b> Social Science Group III	3
<b>EN-3801</b> Energy Strategy and Management	3
<b>EN-4222</b> Heating, Ventilation & AC	3
<b>EN-4704</b> Energy Systems Design I	3
Free Elective I	3
Total Credits	15

Semester 8	Credits
<b>GEHU-4</b> Humanities Group I or II	3
<b>GESS-4</b> Social Science Group II*	3
<b>EN-4121</b> Electrical Power Distribution	3
<b>EN-4705</b> Energy Systems Design II	3
Free Elective II	3
Total Credits	15

<b>EN-4242</b> Cooperative III: ESE	6
<b>EN-4225</b> Alternative Co-op	3

\*MS-3142 Environmental Law or  
SS-3221 Business Law

## STCW Courses Required for the Degree

None Required

## G. Energy Systems Engineering

The ESE program, accredited by ABET (the Accreditation Board for Engineering and Technology), prepares students for careers in in engineering planning, design, and installation of technical equipment systems required for power generation and management. These systems assist in the distribution of electrical power with the ability to engage in all facets of energy engineering. The fast-growing energy industry — including conventional and alternative — demands graduates with technical problem-solving skills.

MMA students are ready to meet these demands.

Advanced mathematics and applied engineering courses drive curriculum and help students to develop technical skills; field work focuses on the necessary teamwork, communication, critical thinking, and ethical components. For example, in Costa Rica's rain forests, students explore natural resources and help develop a sustainable community at the local and national level.

This program requires students to complete at least two co-ops and to take the nationwide Fundamentals of Engineering (FE) exam. An optional USCG Marine Engineer license can be attained by completing a dual major in Marine Engineering (MENG) and four sea terms.

### Learning Outcomes:

- Ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- Ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
- Ability to communicate effectively with a range of audiences
- Ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

# Energy Systems Engineering

## Additional Learning Outcomes:

- Ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
- Ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
- Ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Energy Systems Engineering Eligibility

Because quantitative reasoning is essential to successfully advance in the Energy Systems Engineering major, a student must be Calculus I ready in order to enroll in the major. To remain in Energy Systems Engineering, a student must

pass EN-1112 Engineering Systems and Safety with a grade of C- or better,

pass SM-1212 Calculus I by the end of the second semester with a grade of C- or better,

pass EN-2101 Engineering Statics on the first attempt with a grade of C- or better.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

Prior to receiving the diploma, an ESE student must sit for the FE examination (NCEES), a nationally recognized examination and the first step to becoming a professional engineer.

Note: Energy Systems Engineering students are not permitted to take SM-1111 Precalculus with Trigonometry as a free elective.



# Energy Systems Engineering

The ESE curriculum offers a number of opportunities for minors and/or concentrations:

## Minors:

Facilities Operations  
Homeland Security  
International Maritime Business  
Marine Biology  
Marine Construction  
Marine Science, Safety, and Environmental Protection  
Occupational Health and Safety

## Concentrations:

Homeland Security  
Marine Biology  
Occupational Health and Safety

## Careers:

What makes this major so unique is that MMA graduates pursue work in every engineering field for which they have a passion. The limits are self imposed. In particular, renewable energy firms regularly reach out to ESE graduates.

Possible positions for an Energy Systems Engineering major include:

Design engineer  
Energy Analyst  
Professional Engineer  
Test engineer

# VI. ACADEMIC COURSES

## A. Undergraduate Courses

COURSE	NAME	CREDIT
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<b>EM-1215</b>	<b>Emergency Management Policy and Procedure</b>	<b>3</b>
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Emergency Management operates within a complex framework across the phases of mitigation, preparedness, response and recovery. Students will review and analyze key federal emergency management policies including the National Incident Management System (NIMS), the National Preparedness Goal, the National response Framework, the National Disaster Recovery Framework, and the National mitigation Framework, among others. Students will also compare and contrast these policies with the empirical emergency management research.

*Prerequisite:* EM-2212

*STCW:* None

<b>EM-1311</b>	<b>Experiential Learning in EM</b>	<b>3</b>
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These courses introduce students to the concepts and purposes of public service. They are designed to provide a broad range of opportunities and experiences related to public service and on working in the public and private sectors. The courses will involve hands-on learning and classroom instruction, and require a structured written submission. These courses support core EM concepts and give students the opportunity to work directly with vulnerable populations and/or with the systems and organizations that support them. The courses are scheduled over two weeks during the winter break period.

*Prerequisites:* EM-2212, SM-1111

*STCW:* None

<b>EM-1411</b>	<b>Public Safety</b>	<b>3</b>
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Public safety refers to the welfare and protection of the general public. This course exposes students to the governmental and non-governmental agencies who are responsible for public safety, and extends beyond discussion of police, fire, and emergency medical response. The course also explores themes such as food and water safety, transportation, infrastructure, and disease. Students will also examine and discuss controversial issues in public safety.

*Prerequisites:* None

*STCW:* None

<b>EM-2111</b>	<b>Infectious Agents</b>	<b>3</b>
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This course introduces students to the biology of pathogenic microbes; the disease process; the immune system; the mechanisms by which vaccines, antibiotics, and antivirals work to protect us from disease; and the ways in which humans have unwittingly (and sometimes intentionally) promoted the spread of infectious disease within the United States and around the world. Topics will be presented in the context of emergency management, with focus on public health issues and bioterrorism.

*Prerequisite:* MS-2221

*STCW:* None

COURSE	NAME	CREDIT
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**EM-2120 Emergency Management Planning 3**

The course provides students with an in-depth understanding of the Emergency Management planning process, which provides the foundation for all EM-related activities and functions. Students will gain an in-depth understanding of each stage and function of the five stages of the Planning Cycle, and will become familiar with: EM planning doctrine and guidance used by federal and state agencies; the relationship between planning and preparedness; and the development and support of an Emergency Operations Plan.

*Prerequisite:* EM-2212

*STCW:* None

**EM-2144 Foundational Topics in EM 3**

This course introduces EM students to five broad foundational information technology topic areas, including: basic information technology architecture, including data architecture; information technology management practices and organizational structures; remote sensing and geographic information systems (GIS); unmanned systems (air-, ground-, and sea-based); and data analytics and artificial intelligence (AI). The baseline knowledge acquired in this course is crucial to understanding how current and emerging technologies support and enable emergency operations.

*Prerequisite:* EM-2122

*STCW:* None

**EM-2212 Introduction to Emergency Management 3**

An introduction to the disciplines, authorities, and policies involved in the field of emergency management. Topics include: hazard analysis and underlying social and environmental processes, vulnerability analysis, hazard mitigation, emergency response, and disaster recovery.

*Prerequisite:* None

*STCW:* None

**EM-2213 National Security in Emergency Management 3**

This course is designed to provide students with a comprehensive understanding of topic areas related to homeland and national security. Students will be introduced to decision making organizations and structures, such as the National Security Council, and gain an understanding of the roles and responsibilities of the national defense, national intelligence, and law enforcement communities. Students will be guided by the National Protection Framework and by the National and Homeland Security strategies of the United States.

*Prerequisite:* None

*STCW:* None

**EM-3121 Risk Management 3**

This course follows the FEMA protocol of organizing resources, assessing risks, developing a mitigation plan, and implementing the plan. Assessing the risk is the major part of the course as it involves identifying the hazards, profiling the hazard events, inventorying assets, and estimating losses.

*Prerequisites:* EM-2144, EM-2120

*STCW:* None

COURSE	NAME	CREDIT
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**EM-3211 Natural Hazards 3**

The Strategic National Risk Assessment divides risk into man-made and natural threats. This course will examine natural threats and hazards, including earthquake, flood, animal disease outbreak, human pandemic, hurricane, space weather, tsunamis, volcano, and wildfires. Students will use case studies to develop a comprehensive understanding of the public policy and scientific methods used by emergency managers.  
*Prerequisites: EM-2144, EM-2120*

**EM-3212 Toxicology 3**

This course introduces students to the concepts of human toxicology, mechanisms of toxic action, and detailed processes of the exposure to chemicals. Students will be introduced to the mechanisms responsible for the manifestation of toxicity; that is, how a toxicant enters the organism, how it interacts with target organs and molecules, and how the organism deals with the insult.  
*Prerequisites: SM-2233, EM-2111* *STCW: None*

**EM-3213 Public Health Issues in Emergency Management 3**

This course introduces students to the general roles and responsibilities of the public health system in the United States and to the role public health plays in emergency preparedness, response, recovery, and mitigation. Included in this introduction is an examination of the tools that public health agencies use to prepare for and respond to emergencies. Selected topics include traditional and non-traditional disease surveillance; outbreak investigations; isolation and quarantine; emergency dispensing sites, rapid health assessments, sheltering displaced populations; and vector control programs.

*Prerequisite: EM-2111* *STCW: None*

**EM-3214 International Terrorism**

This course provides a comprehensive introduction to the complex topic of global terrorism. It provides an in-depth analysis of the history of global terrorism, the ideological forces behind global terrorism, terrorism funding networks and systems, and the psychology and processes used to recruit terrorists. The course will also examine past and current policies, programs, and processes designed to combat terrorism.  
*Prerequisite: None* *STCW: None*

COURSE	NAME	CREDIT
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**EM-3311 Cooperative I: Emergency Management 6**

The co-op experience requires a student to work approximately six weeks during the winter or summer break period in a field related to emergency management. The co-op requires students to submit a structured academic report at the conclusion of the experience. Emergency management co-ops are coordinated through the Career Services Office and approved by the EM department chairperson.

*Prerequisite: EM-4225*

*STCW: None*

**EM-4112 Fire Dynamics 3**

This course will provide fundamental information relating to the history of the fire service including formation, organization and operation of a fire prevention bureau. The course will include the recognition of hazards, their corrections and the relationship of prevention measures to built-in fire protection systems. Codes and standards will be discussed and used to help understand their relations to the behavior of fire. Topics of fire behavior will include combustion, chemistry, flames, transmission, burning, ignition, explosions including detonation, deflagration, vapor clouds, and BLEVEs.

*Prerequisite: None*

*STCW: None*

**3**

**EM-4113 International Relief**

This course will examine the evolution of both natural and man-made humanitarian crises, applying traditional emergency management prevention, mitigation, protection, response, and recovery principles. Students will examine roles played by governments, militaries, non-governmental organizations, the private sector, and the United Nations. The course will also examine humanitarian policies and law as these relate to obligations to respond and support. The course will also examine the roles and relationships between international relief communities and the people they attempt to serve.

*Prerequisite: EM-2120*

*STCW: None*

**EM-4133 Exercise Planning and Development 3**

This course is designed to draw on the courses, experiences, and internships students have completed during the EM program at MMA. Students will develop the knowledge and skills to plan, design, develop, and manage a wide range of exercises related to EM. Using the Homeland Security Exercise Evaluation Program (HSEEP), students will learn the terminology, process, and goals associated with developing real-world scenarios to support community and/or organizational goals and objectives. Instruction will combine lecture, self-study, independent team study, and work. By the end of the course, students will be expected to develop, design, and present a comprehensive table-top exercise that meets the requirements of the HSEEP program.

*Prerequisite: EM-3211*

*STCW: None*

COURSE	NAME	CREDIT
<b>EM-4222</b>	<b>Crisis Communication</b>	<b>3</b>
This course focuses on crisis communication and management, emphasizing the practical application of policies, strategies, and tactics through an emergency management perspective. Students will be guided by the National Emergency Communications Plan and State Communications Interoperability Plans.		
<i>Prerequisite: EM-2212</i>		<i>STCW: None</i>
<b>EM-4223</b>	<b>IT in Emergency Management and Operations</b>	<b>3</b>
This course covers the role of information and information technology in all phases of emergency management, determining disaster and crisis information requirements: information technologies can be applied to a crisis, disaster, and emergency management. Case studies will be developed and practical applications modeled on simulators.		
<i>Prerequisite: EM-2144</i>		<i>STCW: None</i>
<b>EM-4224</b>	<b>Emergency Management Capstone</b>	<b>3</b>
Students will have an option to either participate in a directed field level exercise working with local emergency management personnel or complete a structured research paper on an emergency management topic approved by the instructor.		
<i>Prerequisite: EM-4133</i>		<i>STCW: None</i>
<b>EM-4225</b>	<b>Emergency Management Operations</b>	<b>3</b>
This course is designed to enable students to understand the ICS/ EOS implementation strategies, or action plans, for communities. The course reviews the ICS and EOC models of emergency management operations, including coordination, communication, and chief executive decision making and places ICS in the context of the National Incident Management System (NIMS) and National Response Framework (NRF).		
<i>Prerequisite: EM-2120</i>		<i>STCW: None</i>
<b>EM-4226</b>	<b>Transportation Security</b>	<b>3</b>
This course will provide an in-depth analysis of topics and issues related to transportation security. Students will analyze safety, security, and emergency management issues that pertain to transportation networks within the maritime, aviation, and terrestrial domains. They will also discuss and analyze domestic and international threats and solutions associated with various intermodal transportation related networks and systems.		
<i>Prerequisite: None</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>EM-4311</b>	<b>Cooperative II: Emergency Management</b>	<b>6</b>
<p>The co-op experience requires a student to work approximately six weeks during the winter or summer break period in a field related to emergency management. The co-op requires students to submit a structured academic report at the conclusion of the experience. Emergency management co-ops are coordinated through the Career Services Office and approved by the EM department chair.</p> <p><i>Prerequisite:</i> EM-3311 <span style="float: right;"><i>STCW:</i> None</span></p>		
<b>EM-4320</b>	<b>EM Independent Study</b>	<b>3</b>
<p>Opportunity for upperclass students to conduct independent study under the guidance of a department faculty member following department guidelines.</p> <p><i>Prerequisite:</i> None <span style="float: right;"><i>STCW:</i> None</span></p>		
<b>EM-7210</b>	<b>Business Continuity</b>	<b>3</b>
<p>This course is an introduction to business continuity and disaster recovery. The course content and sequence are based on the NFPA 1600 Standard, Federal Emergency Management Agency's Guide for Business, and the 10 Best Practices for Business Continuity Professionals as outlined by the DJI. Course topics include disaster terminology; public and private partnerships for emergency and crisis management; the hazard risk management process; business impact analysis, training and exercises; emergency response; business continuity and recovery; the role of the crisis management team; and crisis communication.</p> <p><i>Prerequisite:</i> EM-2212 <span style="float: right;"><i>STCW:</i> None</span></p>		
<b>EM-7220</b>	<b>Cyber Security</b>	<b>3</b>
<p>This course will explore the varying concepts surrounding cyber security in both the public and private sectors. The course will examine current threats and practices, efforts to combat cyber security threats, and the roles of government and private sector organizations.</p> <p><i>Prerequisite:</i> None <span style="float: right;"><i>STCW:</i> None</span></p>		
<b>EM-7221</b>	<b>Military Operations and Security</b>	<b>3</b>
<p>This course examines the role and organization of the United States Department of Defense. The course will provide students with an in-depth examination of how the U.S. military is organized, trained, equipped, and employed to support and defend homeland and national security interests. Students will examine the role of the National Guard and reserve forces and examine the military's role in supporting civil authorities in times of crisis and emergencies.</p> <p><i>Prerequisite:</i> None <span style="float: right;"><i>STCW:</i> None</span></p>		



COURSE	NAME	CREDIT
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**EM-7222 Legal Issues in Homeland and National Security 3**

This course examines the domestic legal framework that pertains to the U.S. government's execution of national and homeland security policies. It is a rigorous, upper-level course that will require students to master complex materials related to topic areas that include constitutional separation of powers related to national and homeland security; prosecution of national and homeland security criminal cases in civilian courts; identification of the legal implications of emerging technologies in national and homeland security; and understanding legal issues related to intelligence collection.

*Prerequisite:* None

*STCW:* None

**EM-7223 Select Issues in Law Enforcement 3**

This course examines the role of law enforcement in emergency management. Students will examine the challenges faced by law enforcement agencies as they seek to protect communities while navigating new threats and safeguarding civil rights. Topics include the theory and application of community policing; police history and roles; the application and enforcement of criminal laws and procedure; and an overview of criminal justice system procedures and processes.

*Prerequisite:* None

*STCW:* None

**EM-7224 Transnational Crime 3**

This course will provide an overview of transnational crime and its effects on the political, economic, and social development of the United States and the international community. The links between international crime and terrorism will be addressed, and the course will provide an overview of a broad range of topics, including, but not limited to, drug smuggling, human trafficking, money laundering, and the proliferation of weapons of mass destruction. Also discussed will be impediments to effective control of transnational organized crime arising from globalization and the technological revolution as well as how transnational crime has been facilitated by open trade, travel, and telecommunication.

*Prerequisite:* None

*STCW:* None

COURSE	NAME	CREDIT
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### **EM-7225 Infrastructure Protection**

**3**

This course will provide students with a foundation for protecting infrastructure as part of the business continuity process. The course will provide an overview of DHS critical infrastructure (CI) sectors, enabling legislation, and directives and documents, such as the National Infrastructure Protection Plan (NIPP). Students will be introduced to critical assets, the threat environment, public-private partnership protection efforts, and strategies and methods for protecting infrastructure.

*Prerequisite:* EM-7210

*STCW:* None

### **EM-7226 Fundamentals of Leadership**

**3**

Graduates of Massachusetts Maritime Academy are called upon to be active leaders in their careers and communities. Through case studies, discussion, and guided self-reflection, this course instills in students the skills, strategies, and knowledge to be effective and ethical leaders of themselves and others, with the objective of empowering them to achieve their highest potential in all professional and personal endeavors.

*Prerequisite:* None

*STCW:* None

### **EM-7227 Strategies in Waste Management**

**3**

This course provides an overview of solid waste management systems and emergency and debris management, including a historical perspective. Topics include the history of American solid waste, World War II and the birth of industrialization and urbanization, effects of globalism as it pertains to per-capita consumerism, environmental legislation, global perspective on solid waste management, history of American emergency management systems, emergency classification, systems of response during a disaster, FEMA and other federal response, technology, and information sharing during an emergency.

*Prerequisite:* None

*STCW:* None

### **EM-7228 Comparative Homeland Security**

**3**

This course provides students a detailed examination of the national counterterrorism and homeland security strategies, policies, and practices employed by a variety of countries in Europe and Western Asia. Understanding how other countries cope with the terrorism phenomenon while balancing the need for security and the demands of a free society is the central theme of the course. The course includes a survey of counterterrorism policy responses in liberal democracies across the globe.

*Prerequisites:* None

*STCW:* None



**EN-1222    Auxiliary Machinery I for Facilities                      3.5**

*Prerequisites: EN-1112, SM-1111 (minimum C- in both courses)*  
*STCW: Knowledge and Practical*

This course gives students a first-hand look at how Costa Rica has used its natural resources to develop a sustainable community at both the local and national levels. By visiting EARTH University (Escuela de Agricultura de la Region Tropical Humeda) in the tropical rain forests of Costa Rica, students will learn how this tropical community is balancing the preservation of their natural resources with agricultural and energy needs of their societies. A large portion of the class will focus on the myriad ways power is generated for the community, from traditional hydropower to renewable energy sources. Students will engage in an immersive cultural exchange with the people of Costa Rica.

STCW: None

Course covers static analysis of two- and three-dimensional bodies in equilibrium; determination of forces, moments, couples, and equivalent force systems; forces in members due to concentrated and distributed loads; analysis of trusses, frames, and machines; shear and bending moment diagrams; frictional forces; determination of centers of gravity and moment of inertia. The course is a more thorough treatment of the material in EN-2211, emphasizing vector algebra and application of integral calculus.

STCW: None



COURSE	NAME	CREDIT
<b>EN-2211</b>	<b>Mechanics</b>	<b>3</b>
Includes static analysis of rigid bodies; determination of forces in members due to concentrated and distributed loads; analysis of trusses, frames, and machines; shear and bending moment diagrams; and determination of centers of gravity and moment of inertia. Credit will not be given for both EN-2211 and EN-2101.		
<i>Prerequisites:</i> SM-2113, SM-2123		<i>STCW:</i> None
<b>EN-2221</b>	<b>Cooperative I: Facilities Engineering</b>	<b>6</b>
The co-op experience requires a student to work a minimum of six weeks, during the summer session, in industry for academic credit. The student will be exposed to “real life” experiences through these co-ops and will gain firsthand knowledge of practices and technology presently being used by the facilities professional. The co-op requires a technical report to be submitted and requires an evaluation by the supervisor.		
<i>Prerequisites:</i> EN-2121, SM-2123		<i>STCW:</i> None
<b>EN-2222</b>	<b>Commercial Boilers</b>	<b>3.5</b>
Covers the construction, operation, maintenance, and code regulations pertinent to conventional power plant boilers, steam engines, and turbines. Emphasis is placed on the ASME Code; Massachusetts General Laws, Chapter 146; and the National Board Inspection Code [Lab time required]		
<i>Prerequisite:</i> EN-2121; <i>Corequisite:</i> SM-1212		<i>STCW:</i> None
<b>EN-2231</b>	<b>Sea Term II: Marine Engineering</b>	<b>3</b>
Provides an opportunity for cadets to obtain sea service and engineering watchstanding experience in a structured shipboard training program which is compliant with Chapter III of STCW and the requirements of 46 CFR. The training uses a building-block approach, bringing the cadet up to an acceptable level of proficiency in each area of required competence. Shipboard training is closely integrated with the shore-based academic curriculum at the Academy which includes a range of simulation and practical lab experiences. All phases of training are conducted by STCW Qualified Instructors and Designated Examiners.		
<i>Prerequisites:</i> EN-2111, SM-1212 (minimum C- in both courses); ST-0999		<i>STCW:</i> Knowledge & Practical

COURSE	NAME	CREDIT
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**EN-2232 Internal Combustion Engines I 4**  
 Covers the construction, running gear functions, and operating principles of the diesel engine, as applied to marine installations. The lab sessions will involve the student in diesel engine operation and maintenance both in the shop and aboard the various Academy vessels. [Lab time required]  
*Prerequisites: EN-2111; SM-1212 (minimum C- in both courses)*  
*STCW: Knowledge*

**EN-2242 Cooperative I: Energy Systems Engineering 6**  
 The co-op experience requires a student to work in industry a minimum of 240 hours in the summer or winter for academic credit. The student will be exposed to real-life experiences and gain firsthand knowledge of practices and technologies presently used. The co-op requires the student to submit a technical report and requires an evaluation by the student's supervisor.  
*Prerequisites: EN-2112, EN-2101, SM-2224* *STCWN: one*

**EN-2701 Introduction to Design 3**  
 The purpose is to introduce students to the design process by having them participate in a semester-long design project. The project goals and design constraints will be well-defined by the instructor, but multiple solutions to the problem will be possible. Students will be required to make technical decisions, some of which may be based on incomplete information. Student teams will be expected to design, build, and test an electromechanical device. Using tools in the machine shop, students will be expected to manufacture components they have designed, and they will be expected to provide design and component drawings in CAD. The course will culminate with a working prototype. [Lab time required]  
*Prerequisites: EN-1214, EN-2101, EN-2112, SM-2224* *STCW: None*

**EN-2901 Computer Methods in Engineering 1**  
 Introduction to the design of computer programs to address engineering problems. Basic program concepts, including variables and arrays, functions, looping, branching, input/output techniques, file management, and data structures. Application of programming to solve mathematical problems in algebra, linear algebra, calculus, and linear and differential equations is emphasized. Data is displayed and analyzed through computer-based plotting and curve fitting techniques.  
*Prerequisites: SM-2113, SM-2123* *STCW: None*



COURSE	NAME	CREDIT
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## EN-3102 System Dynamics and Vibrations 3

This course covers kinematics and kinetics of rigid bodies, including energy and momentum methods, and free and forced vibrations of rigid bodies, with and without damping. The course emphasizes a systems approach, which involves analysis of a given situation followed by application of the principles studied. Design considerations will be discussed. *Prerequisites:* EN-2101, EN-3212, EN-3212L, SM-2214 *STCW:* None

<b>EN-3111</b>	<b>Electrical Machines</b>	<b>3</b>
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Students study AC and DC theory as applied to motors, generators, and power distribution systems. The course also considers preventative maintenance and repair of rotating and static electrical equipment; turboelectric drive principles and operation; and U.S. Coast Guard electrical engineering rules and regulations. The lab component covers ship and shore-side machinery.

## STCW: Knowledge

## EN-3111L Electrical Machines Lab 1

Theoretical and practical aspects of the operation and maintenance of electrical machinery, including: electric circuits and wiring, AC and DC motors and generators, transformers, motor controls, and troubleshooting.  
*Corequisite: EN-3111* *STCW: Practical*

## EN-3112 Strength of Materials 3

Studies the fundamental concepts of the mechanics of materials, including stress, strain, and deformation due to tensile and compressive forces, torsion, bending moments, transverse shear, and temperature changes. It also studies statically indeterminate problems, power transmission, stress concentration factor, beam design, columns, and buckling.

*Prerequisite:* EN-2101 or EN-2211; *Corequisite:* SM-2214    *STCW:* None

## EN-3112L Strength of Materials Lab 1

This lab reinforces the basic concepts of normal stress, shear stress, torsion, beam bending and deflection, and beam design as taught in the Strength of Materials course. Formal engineering reports are required with emphasis on writing and spreadsheet skills.

STCW: None

COURSE	NAME	CREDIT
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### **EN-3131 Steam Generators**

**3.5**

Covers the design, construction, and operation of steam generators (boilers). It also considers fuels and their combustion, combustion equipment, combustion control, feedwater regulators, air heaters, economizers, superheaters, reheaters, boiler water treatment, and auxiliary boilers. A lab aboard the Academy's training ship is included, emphasizing boiler external fittings, safety valves, fuel oil systems, and main and auxiliary steam systems. [Lab time required]

*Prerequisite:* SM-2113

*STCW: Knowledge & Practical*

### **EN-3201 Fluid Dynamics**

**3**

In this course, more in depth than in EN-4111, students study the fundamentals of fluid dynamics. Topics include hydrostatics (pressure distribution, forces on submerged surfaces, Archimedes' principle), Newton's law of viscosity, use of differential and finite control volume analysis with the basic laws (conservation of mass, momentum, and energy), differential formulation of basic laws (Navier-Stokes), piping systems, vorticity, boundary layers, drag coefficient, and turbulence.

*Prerequisites:* EN-2101, SM-2214

*STCW: None*

### **EN-3211 Thermodynamics**

**3**

Covers the application of the basic laws of thermodynamics to open and closed systems including refrigeration, air conditioning, and various power cycles with special emphasis on the steam power cycle.

*Prerequisite:* SM-3125

*STCW: None*

### **EN-3212 Electronics**

**3**

Theory of basic solid-state electron devices. Power circuits. Use of analog and digital integrated circuits in control systems for logic, interlocks, and automated machinery control.

*Prerequisite:* SM-2224

*STCW: Knowledge*

### **EN-3212L Electronics Lab**

**1**

This lab supports the Electronics course (EN-3212). Participants learn to use electronic instruments by taking measurements on analog and digital circuits constructed during the lab period. The measurements are then used to verify the analytical relationships developed in the classroom.

*Corequisite:* EN-3212

*STCW: None*

COURSE	NAME	CREDIT
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**EN-3213 Refrigeration 2.5**

An in-depth study of refrigeration and the design, operation, maintenance, and repair of environmental control systems. The impact of refrigerants regarding ozone depletion and global warming is covered in detail. [Lab time required]

*Prerequisite: SM-3125*

*STCW: Knowledge & Practical*

**EN-3214 Municipal Wastewater Treatment 3**

A survey course of municipal wastewater treatment from the equipment, operations, and management viewpoints. Also included are several lab sessions to demonstrate standard monitoring tests such as settleable solids, BOD, total suspended solids, residual chlorine, trend analysis, and fecal coliform.

*Prerequisites: either SM-1212 or SM-1214 & either SM-1232 or SM-2233*

*STCW: None*

**EN-3216 Operational Controls 3**

A study of the principles of industrial measurement and control with an emphasis on practical applications aboard ship and in industry. Methods of sensing, measuring and transmitting data from industrial processes; feedback, automatic control systems, closed loop systems, controllers, control modes, and control configurations. Mechanical, electronic, analog and digital control mechanism will be discussed, as will programmable logic controllers.

*Corequisite: EN-3212**STCW: Knowledge*

**EN-3221 Cooperative II: Facilities Engineering 6**

The co-op experience requires a student to work a minimum of six weeks, during the summer or winter session, in industry for academic credit. The student will be exposed to “real life” experiences through these co-ops and gain firsthand knowledge of practices and technology presently being used by the facilities professional. The co-op requires a technical report to be submitted and requires an evaluation by the supervisor.

*Prerequisites: EN-2112, EN-2211, EN-2221, EN-2222, SM-2224*

*STCW: None*

COURSE	NAME	CREDIT
<b>EN-3231</b>	<b>Sea Term III: Marine Engineering</b>	<b>6</b>
<p>Provides an opportunity for cadets to obtain sea service and engineering watchstanding experience in a structured shipboard training program which is compliant with Chapter III of STCW and the requirements of 46 CFR. The training uses a building-block approach bringing the cadet up to an acceptable level of proficiency in each area of required competence. Shipboard training is closely integrated with the shore-based academic curriculum at the Academy which includes a range of simulation and practical lab experiences. All phases of training are conducted by STCW Qualified Instructors and Designated Examiners.</p> <p><i>Prerequisites: EN-2112, EN-2231, EN-2232 (minimum C- in all three courses)</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>EN-3232</b>	<b>Commercial Sea Term: Marine Engineering</b>	<b>6</b>
<p>Replaces Sea Term III. Qualified cadets are afforded an opportunity to train aboard a commercially-operated vessel in an engineering capacity for a maximum of sixty days in lieu of sailing aboard the Academy training ship. The student must have had junior status during the previous academic term.</p> <p><i>Prerequisites: EN-2112*, EN-2211, EN-2232*, SM-2224, EN-2231*, STCW-VPDSD (*minimum C-)</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>EN-3233</b>	<b>Steam and Gas Turbines</b>	<b>4</b>
<p>Covers the principles, design, operation, maintenance, and repair of marine steam turbines including their reduction gears, thrust bearings, couplings, governors, and lubrication systems. Line shafting, bearings, and propellers are other topics included. This course also includes an introduction to the design and operation of gas turbines. [Lab time required]</p> <p><i>Prerequisite: EN-3131 (minimum C-)</i> <span style="float: right;"><i>STCW: Knowledge &amp; Practical</i></span></p>		
<b>EN-3242</b>	<b>Cooperative II: Energy Systems Engineering</b>	<b>6</b>
<p>The co-op experience requires a student to work in industry a minimum of 240 hours in the summer or winter for academic credit. The student will be exposed to real-life experiences and gain firsthand knowledge of practices and technologies presently used in the engineering field. The co-op requires the student to submit a technical report and requires an evaluation by the student's supervisor.</p> <p><i>Prerequisites: SM-3125, SM-6115, EN-2242, EN-3112, EN-3212</i></p> <p style="text-align: right;"><i>STCW: None</i></p>		

<b>COURSE</b>	<b>NAME</b>	<b>CREDIT</b>
<b>EN-3603</b>	<b>Instrumentation and Control</b>	<b>3</b>
	Covers instrumentation and control fundamentals and applications to facility systems including documentation. Both analog and digital control systems are covered. It is also an introduction to programmable logic controllers.	
	<i>Prerequisites: EN- 2901, EN-3212, EN-3212L</i>	<i>STCW: None</i>
<b>EN-3603L</b>	<b>Instrumentation and Control Lab</b>	<b>1</b>
	This lab is designed to put the instrumentation part of instrumentation and control (INC) into practice. In the INC, the instrumentation is tied to the software. A controller is designed by adding closed-loop feedback and controller dynamics to improve the quality of the system response to a variety of inputs. The focus of this lab will be on digital electronics. The core of the controller work will be based on Matlab (using C-like commands) and Simulink (using graphical, block diagram programming). This course will prepare the student for work in automatic control system design and advanced controller applications.	
	<i>Corequisite: EN-3603</i>	<i>STCW: None</i>
<b>EN-3801</b>	<b>Energy Strategy and Management</b>	<b>3</b>
	Students will examine and analyze how “energy” impacts the decision-making process from a strategic and operational perspective in today’s business sectors and how current events impact the global energy arena. Topics include types of power generating systems; procurement of energy commodities; the energy market; commercial versus residential energy systems issues; commercial energy audits; energy conservation measures; incorporation of LEED in building design; long-range energy strategies; and how analysis of energy consumption patterns impact management’s financial decisions.	
	<i>Prerequisites: EN-3802 and EN-3211 or EN-4803</i>	<i>STCW: None</i>
<b>EN-3802</b>	<b>Energy Systems</b>	<b>3</b>
	This course presents technical, environmental, social, political, and economic aspects of current and future energy systems used to meet the demands of a global society with regard to electrical power, transportation, manufacturing, agriculture, and more. Fossil fuel power and transportation technologies and their impacts on the environment and climate are discussed, as are present and future development of alternative and/or renewable electrical power generation technologies (including nuclear, wind, solar, hydropower, and geothermal). Students will make engineering estimates of various resources and match them with energy requirements for various uses/applications, and will complete a project which involves developing a moderately complex energy system and analyzing it for feasibility. Required course for ESEN majors.	
	<i>Prerequisite: SM-3125</i>	<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>EN-4111</b>	<b>Fluid Mechanics</b>	<b>3</b>
	Covers the fundamental principles of fluid statics, pipe flow, open channel flow, lift and drag, pumps and turbines, and flow measuring devices. <i>Prerequisites: EN-2211, SM-3125</i>	<i>STCW: None</i>
<b>EN-4112</b>	<b>Thermodynamics/Fluids Lab</b>	<b>1</b>
	Practical lab experience demonstrating the fundamental principles of fluid mechanics and thermodynamics. Topics include conservation of energy, efficiency, Bernoulli's principle, frictional losses, pump analysis. Formal engineering reports are required with emphasis on writing and spreadsheet skills. <i>Prerequisite: EN-3211; Corequisite: EN-4111</i>	<i>STCW: Knowledge</i>
<b>EN-4121</b>	<b>Electrical Power Distribution</b>	<b>3</b>
	Provides an understanding of industrial electrical power distribution systems. Emphasis is placed on the load subsystem and fault protection. Design calculations are based on the methods of the National Electrical Code. <i>Prerequisite: EN-3111</i>	<i>STCW: None</i>
<b>EN-4131</b>	<b>Internal Combustion Engines II</b>	<b>4</b>
	Studies diesel engine systems and various methods of application. Engine operation, installation, and maintenance are also considered, as well as diesel engine drive trains and torque conversion. The lab is divided between shipboard systems and the diesel lab ashore. [Lab time required] <i>Prerequisite: EN-2232 (minimum C-)</i>	<i>STCW: Knowledge &amp; Practical</i>
<b>EN-4151</b>	<b>Applied Naval Architecture for Marine Engineers</b>	<b>3</b>
	The course includes general naval architecture nomenclature, ship sizes and geometry, hydrostatic curves, transverse and longitudinal stability calculations, identification of principal structural members, and calculations for ship strength curves. The course also studies resistance relationships between an actual ship and a ship model, ship propulsion design requirements, and sizing of a ship's engine and power plant. <i>Prerequisite: EN-3112</i>	<i>STCW: Knowledge</i>

COURSE	NAME	CREDIT
<b>EN-4221</b>	<b>Cooperative III: Facilities Engineering</b>	<b>6</b>
<p>The co-op experience requires a student to work a minimum of six weeks, during the summer or winter session, in industry for academic credit. The student will be exposed to “real life” experiences through these co-ops and gain firsthand knowledge of practices and technology presently being used by the facilities professional. The co-op requires a technical report to be submitted and requires an evaluation by the supervisor.</p> <p><i>Prerequisites: EN-3213, EN-3221</i> <i>STCW: None</i></p>		
<b>EN-4222</b>	<b>Heating, Ventilation, and Air-Conditioning</b>	<b>3</b>
<p>Covers the theory, design, construction, operation, and maintenance of conventional heating, ventilating, and air-conditioning systems.</p> <p><i>Prerequisite: either EN-3213 or EN-4803 &amp; EN-4803L</i> <i>STCW: None</i></p>		
<b>EN-4224</b>	<b>Facilities Planning and Management</b>	<b>3</b>
<p>Designed to enhance the skills required of a future facilities engineer or manager by providing a comprehensive introduction to the responsibilities facing facilities management professionals and the techniques used to meet these challenges. Topics include; project management, planning, budgeting, engineering economics, and human resource principles required to effectively design, operate, and maintain complex facilities.</p> <p><i>Prerequisite: EN-4221</i> <i>STCW: None</i></p>		
<b>EN-4231</b>	<b>Sea Term IV: Marine Engineering</b>	<b>6</b>
<p>Provides an opportunity for cadets to obtain sea service and engineering watchstanding experience in a structured shipboard training program which is compliant with Chapter III of STCW and the requirements of 46 CFR. The training uses a building-block approach bringing the cadet up to an acceptable level of proficiency in each area of required competence. Shipboard training is closely integrated with the shore-based academic curriculum at the Academy which includes a range of simulation and practical lab experiences. All phases of training are conducted by STCW Qualified Instructors and Designated Examiners.</p> <p><i>Prerequisites: LB-0201, EN-3213, EN-4131, EN-4112 &amp; either EN-3231 or EN-3232</i> <i>STCW: Knowledge &amp; Practica</i></p>		



COURSE	NAME	CREDIT
<b>EN-4232</b>	<b>License Seminar: Marine Engineering</b>	<b>3</b>
<p>A comprehensive review of all marine engineering science subject matter on which cadets are examined by the U.S. Coast Guard to qualify for licensing as third assistant engineer, steam and diesel unlimited horsepower. Includes Engineerroom Resource Management and Fatigue Training.  <i>Prerequisites: EN-4231 (minimum C-) and USCG licensing prerequisites</i>  <i>STCW: None</i></p>		
<b>EN-4242</b>	<b>Cooperative III: Energy Systems Engineering</b>	<b>6</b>
<p>The co-op experience requires a student to work a minimum of six weeks, during the winter session, in industry for academic credit. The student will be exposed to “real life” experiences through these co-ops and gain firsthand knowledge of practices and technology presently being used by the facilities professional. The co-op requires a technical report to be submitted and requires an evaluation by the supervisor.  <i>Prerequisites: EN-3242, EN-3801, EN-4222, EN-4704</i>    <i>STCW: None</i></p>		
<b>EN-4704</b>	<b>Energy Systems Design I</b>	<b>3</b>
<p>In this design-oriented course, students obtain practical experience in the application of engineering skills and project management in the solution of various engineering problems.  <i>Prerequisites: EN-2701, EN-3802, EN-4803, EN-4803L</i>    <i>STCW: None</i></p>		
<b>EN-4705</b>	<b>Energy Systems Design II</b>	<b>3</b>
<p>The course emphasizes team design, construction, and testing of an energy system device. Creation of CAD drawings, fabrication with tools in the Machine Shop, critical design reviews, technical report and presentation. Application and constraints are determined by the student, but the design project and prototype must be related to an energy system. Continuation of the design project from <i>EN-4704</i> is projected. Open-ended projects are encouraged.  <i>Prerequisite: EN-4704</i>    <i>STCW: None</i></p>		
<b>EN-4803</b>	<b>Thermodynamics of Power Systems</b>	<b>3</b>
<p>More in depth than EN-3211, this course will cover the 2nd Law of Thermodynamics and its effect on the thermal efficiency of heat engines and power plants. It will also introduce the property of entropy and its use in analyzing power cycles and subsidiary components, such as turbines, compressors, pumps and pistons. These concepts will be applied to analyze engineering power cycles, including the Otto, Diesel and Brayton gas cycles, the Rankine vapor power cycle used in steam power plants, binary and combined cycles, and cogeneration. Fuel combustion and compressible flows in nozzles will also be covered.  <i>Prerequisites: SM-3125; EN-7146</i>    <i>STCW: None</i></p>		

COURSE	NAME	CREDIT
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### **EN-4803L Power Systems Lab** **1**

This course provides students with hands-on experience in thermo-fluid aspects of industrial power systems. The lab will demonstrate selected topics covered in EN-4803 and EN-3201. Topics include applications of the 1st and 2nd Laws of Thermodynamics, compressible ideal gases, fluid pumps, internal combustion engines, and steam cycles and properties. Students will learn experimental methods and the concepts of measurement accuracy, precision, bias, and aliasing. They will become familiar with the use of computer-linked data acquisition systems, digital thermocouples and pressure transducers, as well as analog pressure gages, manometers, flow meters, and dynamometers and stroboscopes for torque and shaft rotational speed measurement. Students will maintain a detailed lab notebook and will communicate the results of these experiments in written engineering technical reports and memoranda. A summary group design project will be assigned to foster teamwork and professional engineering communications, both written and verbal.  
*Corequisite: EN-4803* *STCW: None*

### **EN-7141 Advanced Computer Aided Design** **3**

This course introduces the principles of 3-D parametric solid modeling using Solidworks. Students will design components, produce three dimensional graphical models, and create detailed drawings.  
*Prerequisites: EN-1212, SM-2113* *STCW: None*

### **EN-7142 Diesel Engines** **3**

Required for the Marine Transportation major starting with the Class of 2019. Open to Facilities Engineering and Energy Systems Engineering majors on a space-available basis. This course covers diesel engine theory, operation, components, and systems. Systems include lubrication, cooling, fuel, electrical, air and exhaust, and drive train. Troubleshooting and maintenance are also covered. This course is equivalent to the Masters, Mates, and Pilots Union MITAGS Diesel Engines Control course.  
*Prerequisites: MT-3371, MT-3372, EN-2211, or EN-3112* *STCW: None*

### **EN-7144 Nuclear Power** **3**

An introduction to nuclear power including basic theory, reactor fuel and cores types of reactors, radiation hazards, and safeguards.  
*Prerequisite: SM-3125* *STCW: None*

COURSE	NAME	CREDIT
<b>EN-7146</b>	<b>Heat and Mass Transfer</b>	<b>3</b>
Studies transient and steady-state heat conduction in one and two dimensions, free and forced convection, and radiation from simple bodies. Special topics include heat exchangers and numerical methods. <i>Prerequisite: SM-3125; Corequisite: EN-3201</i>		<i>STCW: None</i>
<b>EN-7151</b>	<b>Commercial Turbines</b>	<b>3</b>
This course provides the student with an understanding of steam and gas turbine principles, theory, construction concepts, operation maintenance, and safety practices. The course will discuss the various types of power generation facilities including conventional steam plants, gas turbine simple and combined cycle, and co-generation using reciprocating engines. <i>Prerequisites: SM-3125 &amp; either EN-2222 or EN-3131</i>		<i>STCW: None</i>
<b>EN-7214</b>	<b>Industrial Wastewater Treatment</b>	<b>3</b>
Provides an overview of the basic concepts of physical and chemical treatment, the function of related equipment and support systems; and the environmental responsibilities required to safely and properly operate, maintain, and manage an industrial wastewater treatment facility. <i>Prerequisites: SM-1232, SM-2113, and either EN-2111 or EN-2121</i>		<i>STCW: None</i>
<b>EN-7221</b>	<b>Cooperative Elective: Facilities Engineering</b>	<b>6</b>
The co-op experience requires a student to work a minimum of six weeks, during the summer or winter session, in industry for academic credit. The student will be exposed to “real life” experiences through these co-ops and gain firsthand knowledge of practices and technology presently being used by the facilities professional. The co-op requires a technical report to be submitted and requires an evaluation by the supervisor. <i>Prerequisite: EN-4221</i>		<i>STCW: None</i>
<b>EN-7241</b>	<b>As-built CAD</b>	<b>3</b>
This is an advanced CAD course covering process piping fundamentals for facilities process piping systems. Typical pipe drawing concepts used in the preparation of existing conditions (As-Builts), Piping Arrangements, Process & Instrumentation Diagrams (P&I.D.), Isometrics and Specs for engineering. Introduction to 3D piping using Rhino. <i>Prerequisites: EN-1212, SM-2113</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
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**EN-7247 Construction Methods and Materials 3**

This course covers the fundamental concepts of construction methods, materials, and equipment as they are employed in construction and assembly. The course also gives students the opportunity to conduct an analytic study of a large project under construction. The course covers the application and utilization of various types of construction equipment, the calculation of the production of equipment usage, the evaluation and selection of equipment, and the planning and analysis of earthwork construction. In addition, the course addresses site planning, including plane, topographic, and construction surveying.

*Prerequisites: EN-2101 or EN-2211*

*STCW: None*

**EN-7257 Marine Construction I 3**

This course covers the environmental and geotechnical aspects as well as the ecological impacts of coastal and offshore marine construction, seafloor modifications, and dredging. The course will also provide in-depth coverage of the unique engineering methods and the operational, material, and equipment challenges encountered in the installation or construction of various harbor, coastal, and near-shore structures.

*Prerequisites: EN-3112, EN-7247*

*STCW: None*

**EN-7262 Marine Construction II 3**

This course is a continuation from Marine Construction I and focuses on the construction of offshore platforms, floating structures, and other offshore technologies. Also covered will be submarine pipelines and cables, repairs and improvements to existing marine structures, and the disposal and salvage of obsolete, deteriorated, or damaged offshore structures.

*Prerequisite: EN-7257, Corequisite: EN-3201 or EN-4111*

*STCW: None*

**EN-7271 Construction Industry Cooperative 6**

This is an optional summer or winter cooperative experience for students enrolled in the Marine Construction minor. It requires a student to work for a minimum prescribed time period in the construction or marine construction industry for academic credit. The student will be exposed to real-life experiences and gain firsthand knowledge of practices and technologies used by construction professionals. The cooperative experience requires the submission of a technical project report and evaluation by the supervisor.

*Prerequisite: EN-7247*

*STCW: None*

COURSE	NAME	CREDIT
<b>EN-8000</b>	<b>Independent Study</b>	<b>3</b>
<p>This course provides an opportunity for students to conduct an independent study under the guidance of a department faculty member, while following specific guidelines. Approval of department chair is required.</p> <p><i>Prerequisite: Approval of department chair</i> <i>STCW: None</i></p>		
<b>FF-0102</b>	<b>Freshman Firefighting Practicum</b>	<b>0</b>
<p>Provides minimum standard of competence in fire prevention and fire-fighting. Instruction and practical training in the use of fire extinguishers, hoses and self-contained breathing apparatus. Emphasis on the chemistry of a fire and emergency evacuation. A component of STCW Basic Training; first component of four year's training for Basic and Advanced Marine Firefighting certification (Table A-VI/3).</p> <p><i>Prerequisite: None</i> <i>STCW: Knowledge &amp; Practical</i></p>		
<b>FF-0104</b>	<b>Sophomore Firefighting Practicum</b>	<b>0</b>
<p>Second component of training for Basic and Advanced Firefighting certification (Table A-VI/3). Instruction in fire behavior, fire attacks, personal protective equipment and fire fighting equipment on ship. Practical training at the Barnstable training site.</p> <p><i>Prerequisite: FF-0102</i> <i>STCW: Knowledge &amp; Practical</i></p>		
<b>FF-0106</b>	<b>Junior Firefighting Practicum</b>	<b>0</b>
<p>Third component of training for Basic and Advanced Firefighting certification (Table A-VI-3). Instruction in fire protection systems, fire detection, main engine room fires and flammable liquids and gases. Practical training on site at the Barnstable training site.</p> <p><i>Prerequisite: FF-0104</i> <i>STCW: Knowledge &amp; Practical</i></p>		
<b>FF-0108</b>	<b>Senior Advanced Firefighting</b>	<b>0</b>
<p>Final component of training for Basic and Advanced Marine Firefighting certification (Table A-VI/3). Instruction in shipboard firefighting tactical hazards, fire party drills and organization, and hazardous materials. Advanced practical training in the shipboard fire simulator at the Barnstable training site.</p> <p><i>Prerequisite: FF-0106</i> <i>STCW: Knowledge &amp; Practical</i></p>		

COURSE	NAME	CREDIT
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### **HU-1111 English Composition 3**

English Composition guides students in discovering and creating meaning through language and writing and provides further guidance as they generate ideas and organize structures for reflection, persuasion, analysis, and argument. The course provides opportunities to critically read and examine various texts, to explore and analyze different rhetorical strategies, to develop and support a controlling idea and/or thesis statement, to study the writing process, and to revise meaningfully and independently. It gives guidance in synthesizing and documenting information and offers suggestions for effective grammar, usage, punctuation, spelling, or other mechanics, as needed. The course asks students to collaborate with their classmates and instructor through team assignments, discussion, presentations, individual conferences and, when appropriate, peer review. By focusing first on fluency, then on clarity, then on correctness, the course gives students ample opportunity to develop and refine their writing skills for various audiences and purposes, both in and beyond college. (Minimum C- grade required to receive course credit).

*Prerequisite: None*

*STCW: Knowledge*

### **HU-1111L Writing Lab 0**

Writing Labs provide two hours per week to Fall HU-1111 English Composition students who may need extra time to work with a faculty instructor on their writing. The labs are offered without credits, and without grading. Instead, the labs are purely a tool to improve student writing in a pressure-free and dedicated environment. Students will work on writing assignments from their classes, develop tools and strategies for their writing, and actively reflect on the process of writing.

### **HU-1222 Writing About Literature 3**

This course provides an introduction to the understanding and appreciation of prose, poetry and drama. Students will read, analyze, and write about the genres from different critical perspectives. Students will study representative authors and be exposed to a variety of forms and styles from a wide range of historical periods.

*Prerequisite: HU-1111 or HU-6012*

*STCW: None*

### **HU-2141 Spanish I 3**

An introduction to the essentials of Spanish pronunciation and grammar with concentration on the development of listening and speaking skills. Reading and writing proficiency also will be stressed, as well as the development of an understanding of the culture of the Spanish-speaking people.

*Prerequisite: HU-1222*

*STCW: None*

COURSE	NAME	CREDIT
<b>HU-2242</b>	<b>Spanish II</b>	<b>3</b>
	Focuses on continued stress in aural proficiency in the language and development of reading and writing skills. Sufficient emphasis on communicative competence and in understanding and appreciating Hispanic culture are also emphasized.	
	<i>Prerequisite: HU-2141</i>	STCW: None
<b>HU-2341</b>	<b>Elementary Chinese I</b>	<b>3</b>
	An introduction to the Chinese language and culture, with emphasis on the basic skills of understanding, reading, speaking, and writing Chinese.	
	<i>Prerequisite: HU-1222</i>	STCW: None
<b>HU-2342</b>	<b>Elementary Chinese II</b>	<b>3</b>
	A continuation of the course Elementary Chinese I (HU-2341), introducing students to the Chinese language and culture, with emphasis on the basic skills of understanding, reading, speaking, and writing Chinese.	
	<i>Prerequisite: HU-2341</i>	STCW: None
<b>HU-5021</b>	<b>Literature of the Sea</b>	<b>3</b>
	This course examines a variety of prose and poetry where the sea acts as setting, symbol, and microcosm for human experience. Works by such authors as Cooper, London, Verne, Conrad and Melville may be included.	
	<i>Prerequisite: HU-1222</i>	STCW: None
<b>HU-5022</b>	<b>Literature and Film</b>	<b>3</b>
	This course involves the study of selected literary works and the viewing of their film productions. Students will compare and analyze the transformation from literature to film.	
	<i>Prerequisite: HU-1222</i>	STCW: None
<b>HU-5023</b>	<b>Irish Literature</b>	<b>3</b>
	This course is a survey of major Irish writers, which may include the works of such writers as James Joyce, W.B. Yeats, J.M. Synge, G.B. Shaw, Sean O'Casey, Frank O'Connor, and Seamus Heaney. The course focuses on the religion, politics, social justice, and culture in Irish literature.	
	<i>Prerequisite: HU-1222</i>	STCW: None
<b>HU-5024</b>	<b>Shakespeare's Tragedies and Comedies</b>	<b>3</b>
	An examination of the principal tragedies and comedies of Shakespeare with an emphasis on the literary value of the plays as opposed to the theatrical elements of Shakespeare's art.	
	<i>Prerequisite: HU-1222</i>	STCW: None

COURSE	NAME	CREDIT
<b>HU-5025</b>	<b>Short Stories</b>	<b>3</b>
<p>This course explores the development of the short story form and how it reflects societal and cultural changes from the nineteenth century to the present. Students will read, analyze and discuss different forms and styles and techniques by a variety of representative authors.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5026</b>	<b>Literature and Mythology</b>	<b>3</b>
<p>This course focuses on folklore and mythology of western society in literature and film. Students will examine readings from a psychological and sociopolitical perspective and trace the variations that have occurred over the centuries.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5027</b>	<b>Literature of the Supernatural</b>	<b>3</b>
<p>Students study the tale of terror, a form also known as Gothic. Among the most important and popular of these works are: Frankenstein: The Modern Prometheus, The Strange Case of Dr. Jekyll and Mr. Hyde, and Dracula. The literature of the supernatural provides a foundation from which to examine mankind's moral, social, and intellectual struggles or responsibilities within the context of our fascination with mystery, evil, and horror.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5028</b>	<b>Drama</b>	<b>3</b>
<p>This course will examine the history and development of drama with an emphasis upon literary analysis of plays to illustrate the major themes, styles, and historical periods of dramatic literature.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5029</b>	<b>Contemporary Literature</b>	<b>3</b>
<p>This course will introduce the student to a variety of literary forms and genres from the late twentieth and early twenty-first centuries. Students will be expected to read, analyze and write about the literary works and movements.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5030</b>	<b>Poetry</b>	<b>3</b>
<p>This course will examine the history and development of poetry. Students will be introduced to the basic elements of prosody and will study a variety of forms and styles.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
<b>HU-5031</b>	<b>War Literature</b>	<b>3</b>
<p>Students explore the literature of war through the writings of memoirists, novelists, poets, and journalists. Various conflicts will be covered during the semester, from ancient battles to revolutionary, civil, and world wars. The experiences of front-line troops will be emphasized. Readings will include nonfiction, fiction, and poetry; representative films may be watched. Students will analyze and discuss various narratives, as well as examine political and moral dilemmas raised by the texts.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5032</b>	<b>American Literature I: Colonial Period to Civil War</b>	<b>3</b>
<p>This course explores the development of a distinctly American literature from the time of the settlement of the colonies to the Civil War period. Canonical works will be examined with a focus on form, theme, and cultural context.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5033</b>	<b>American Literature II: Civil War to the Present</b>	<b>3</b>
<p>This course introduces students to the growth and development of American Literature from the Civil War to the present. Students will study literary texts from representative authors and literary movements written in a variety of forms, styles, and genres. Special attention will be paid to the development of our national identity through literary experience.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5034</b>	<b>Writers of the American South</b>	<b>3</b>
<p>This course is focused on Southern writers, Southern literature, and Southern culture. Students will read such authors as William Faulkner, Frederick Douglass, Zora Neale Hurston, Maya Angelou, Thomas Jefferson, and Mark Twain. We will cover themes and topics in a variety of genres, including novels, short stories, poems, and autobiographies; attempt to position these works within their social contexts; and explore how class, race, gender, sexuality, and religion, among other axes of identity, have factored into Southern literary production. Specific sites of interrogation will include slavery—its legacies and impact on race and ethnicity; the politics of women's writing; the creation and deployment of the Southern Gothic; the omnipresence of class tensions; and the recurring penchant for agrarianism. Questions explored will include the following: What is the South? Where does our notion of the South come from? Is there such a thing as Southern literature?</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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### **HU-5035 American Theater 3**

This course will pursue American Theater from its nineteenth-century imitations of British popular theater to its development and emergence as a unique and vital theater during the twentieth century. The focus will be on how Americans portrayed and projected an American identity through theater, exploring playwrights who transformed and created a western theater native to the United States. American playwrights to be surveyed will include, but not be limited to, Eugene O'Neill, Lillian Hellman, Langston Hughes, Tennessee Williams, and William Gillette.

*Prerequisite:* HU-1222

*STCW:* None

### **HU-5036 Survival Literature 3**

Students will examine the literature of survival through the writings of explorers, adventurers, and POWs. Both factual and fictional works will be discussed and may include some of the following: *Into Thin Air*, *In the Heart of the Sea*, *The Great Escape*, *Shackleton's Boat Journey*, *In the Land of White Death*, *Kolyma Tales*, and *The Long Walk*. We will also examine the psychology of survival through the works of Epictetus, Bruno Bettelheim, Viktor Frankl, and Primo Levi. Representative films may be included in the course. Students will analyze and discuss survival narratives and the political and moral dilemmas raised by the clash of man with nature or man with man.

*Prerequisite:* HU-1222

*STCW:* None

### **HU-5038 Moby-Dick: The Great American Sea Novel 3**

Why is *Moby-Dick* considered the greatest sea novel in literature and by many to be the greatest American novel despite the many challenges it poses to readers? In this course, we will carefully read *Moby-Dick* in order to analyze and interpret the novel's social, political, economic, psychological, environmental, religious, mythological, and literary issues, as well as the biography of Herman Melville, in order to address this question.

*Prerequisite:* HU-1222

*STCW:* None

### **HU-5039 Detective Literature 3**

This course introduces students to the history and development of modern detective literature, namely mystery fiction that revolves around a detective. The course will focus on the emergence and development of the detective as a product of modernist society that satisfies the need for a superior being, or unique individual who can solve the seemingly unsolvable. Students will read and analyze representative works in order to explore the major themes and recurring popularity of the literary detective.

*Prerequisite:* HU-1222

*STCW:* None

COURSE	NAME	CREDIT
<b>HU-5040</b>	<b>The Graphic Novel</b>	<b>3</b>
<p>This course will examine graphic literature as a storytelling medium. We will look at the history of graphic narrative through a study of the development of this “new” graphic genre beginning with early pictorial storytelling through comics in the mid-twentieth century and ending with the “modern” graphic narrative of the twenty-first century. Narrative theory on comics and sequential art will be considered, and (graphic) literary texts will be examined in terms of their visual and narrative points of view and in their historical and cultural contexts.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5041</b>	<b>African American Literature: Pre-Harlem Renaissance</b>	<b>3</b>
<p>This course addresses African American literary works from their beginnings up until the Harlem Renaissance of the 1920s. We will examine a variety of textual representations of African American identity, race in America, slavery, resistance to slavery, white supremacy, African American masculinity, African American femininity, multiracialism, racial oppression, and racial justice. We will also investigate the relationship of these texts to epochal events in American history, such as the Middle Passage, the Civil War, The Anti-Slavery Movement, the Anti-Lynching Movement, the Women’s Movement, and the Great Migration. In addition, we will explore several genres of literature, including autobiography, poetry, essays, and speeches.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5042</b>	<b>African American Literature Through the Blues</b>	<b>3</b>
<p>This course invites students to see popular culture—blues, in particular—as a rich site for cultural interpretation. Students will look at the interplay between music and literature in the African American tradition, beginning roughly with the rise of commercially recorded blues in the 1920s and continuing into the present. Students will consider two aesthetic exchanges between music and literature: first, the way in which musical form provides the basis for a distinct <i>literary</i> aesthetic; and second, the way in which the cultural figure of the blues (and later, jazz) performer serves as an image that is crucial to characterization and voice in African American literature. Along the way, students will listen to the blues, watch several films and video clips that engage the blues either implicitly or explicitly, and think about how an aural form like the blues exerts influence on written texts.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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### **HU-5043 African American Literature: Post-Harlem Renaissance 3**

This course addresses African American literary works that mainly were created after the Harlem Renaissance of the 1920s. We will examine a variety of textual representations of African American identity, race in America, slavery, resistance to slavery, white supremacy, African American masculinity, African American femininity, biracialism, racial oppression, and racial justice. We will also investigate the relationship of these texts to epochal events in American history, such as the Civil War and the Great Migration. In addition, we will explore several genres of literature, including autobiography (Frederick Douglass and Malcolm X), novella (Nella Larsen), novel (Maya Angelou, Ernest Gaines, Zora Neale Hurston, Toni Morrison), drama (Lorraine Hansberry), and film (Imitation of Life). We will also, more briefly, consider African American art, music, and dance, especially in relation to African American literature.

*Prerequisite:* HU-1222

*STCW:* None

### **HU-5044 Post-Humanism Literature 3**

According to David Eagleman, “We’re at a moment in human history when the marriage of our biology and our technology will transcend the brain’s limitations. We can hack our own hardware to steer a course into the future. This is poised to fundamentally change what it will mean to be human.” In this course we study in literature, film, and other media what it means to be human as we evolve beyond the humanist view of humans as autonomous, self-willed, individual agents separate from other life forms. Viewing humans as co-evolving and enmeshed with other forms of life, the environment, and technology leads to speculation as to what the transhuman and/or posthuman future may look like.

*Prerequisite:* HU-1222

*STCW:* None

### **HU-5046 Contemporary Literature: *Hunger Games* 3**

Suzanne Collins’ *Hunger Games* trilogy explores a wide variety of contemporary american fears, anxieties, and hopes for the United States projected into a dystopian future. Through class discussion, discussion board posts, small group presentations, a web site project, and essays, students will analyze and interpret the trilogy in terms of contemporary cultural, political, social, economic, and psychological issues.

*Prerequisite:* HU-1222

COURSE	NAME	CREDIT
<b>HU-5055</b>	<b>Irish Fiction</b>	<b>3</b>
<p>This course explores modern and/or contemporary Irish fiction. The course will focus on either one Irish fiction writer or a sampling of such writers. This flexibility to move entirely from one writer to a collection of writers will allow the course to breathe over time and remain fresh. Irish fiction writers who might be considered, to name only a few, include James Joyce, Elizabeth Bowen, Edna O'Brien, Maeve Binchy, Roddy Doyle, and Colm Toibin. The course will, in many respects, represent a continuation of the current Irish Literature course, which primarily focuses on the significant Irish literature represented by Ireland's great playwrights and poets.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5056</b>	<b>Sports Literature</b>	<b>3</b>
<p>About two-thirds of Americans describe themselves as sports fans, and hundreds of billions of dollars are spent on American sports annually, including on ticket sales, merchandise, gambling, and more. But what does this obsession with sports say about us as a nation? How do sports help to shape our national and individual identities? How are issues of class, race, and gender in the US heightened in or mitigated by the sports arena? Why has so much literature focused on sports? And what can those texts show us about ourselves, about the sports themselves, and about our culture in general? In order to explore these questions and others, students will read fiction, non-fiction, and poetry, and will view two films that deal with sports.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5057</b>	<b>Science Fiction</b>	<b>3</b>
<p>This course introduces science fiction as a genre dedicated to interrogating and inspiring the human experience. Students will consider science fiction from a wide range of historical periods, authors, themes, and mediums. More than aliens and spaceships, special attention will be paid to exploring how fictional worlds can comment on our social and cultural experiences. Students will reflect on the writing of and the ideas in the texts as well as how even imagined technology can shape and motivate us today.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-5090</b>	<b>Special Topics: Humanities Group I</b>	<b>3</b>
<p>Students will have the opportunity to study a variety of literary topics not listed in the course catalog. Such topics may include: Survey of Women Authors or Gender Issues in Literature; Multiethnic Literature in America; Irish Theater, World Literature, etc.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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<b>HU-6012</b>	<b>Advanced Expository Writing</b>	<b>3</b>
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This course will provide students with a continuation and further development of writing skills and the writing process introduced in English Composition. This course meets the General Education and STCW requirements for English Composition. (Minimum C- grade required to receive course credit).

*Prerequisite: None*

## STCW: Knowledge

<b>HU-6045</b>	<b>Environmental Writing</b>	<b>3</b>
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Through close reading, rhetorical and literary analysis, students will learn how authors from a wide variety of backgrounds and contexts have explored the human relationship with nature and environmental problems. Students will then draw upon their own research and experience to craft original compositions about their relationship to and care for specific natural places. Students will write in a variety of styles and forms.

*Prerequisite: HU-1222*

<b>HU-6051</b>	<b>Philosophy</b>	<b>3</b>
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A general introduction to major issues in the four central areas of philosophical inquiry: theory of knowledge, philosophy of mind, ethics, and political philosophy. Topics include the nature of perception and knowledge, conflicting definitions of truth, the scientific method and the growth of knowledge, free will and responsibility, artificial intelligence, pleasure and happiness, the foundations of our moral beliefs, the legitimation of political authority, the tension between liberty and equality in a democracy, and social justice.

*Prerequisite: HU-1222*

STCW: None

<b>HU-6054</b>	<b>Ethics</b>	<b>3</b>
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An introduction to various approaches to moral reasoning, this course includes both an overview of the history of Western moral philosophy and practical applications of moral theory to real-world case studies. Topics include how an issue becomes a moral issue, moral blindness, the evolutionary foundations of humans' moral attitudes, and the relationship between ethics and social customs. Four major historical approaches are considered: Ancient Greek Virtue Ethics, Judeo-Christian and Feminist Ethics of Care, the Utilitarian focus on consequences, and the rights-based approach of Immanuel Kant. The course concludes by reviewing a nine-step procedure for making moral decisions in business and personal life.

*Prerequisite: HU-1222*

STCW: None

COURSE	NAME	CREDIT
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### **HU-6055 Introduction to World Religions 3**

Focusing on the role that religion plays as people try to understand the meaning of their lives, this course is an introduction to basic ideas in seven of the world's major religions: Hinduism, Buddhism, Confucianism, Daoism, Judaism, Christianity, and Islam. The atheist critique of religion also is considered, as is the nature of justified belief in science and religion.

*Prerequisite: HU-1222*

*STCW: None*

### **HU-6057 Composing in New Media 3**

This paperless writing course is taught in a computer-mediated classroom. Although much of the course will be dedicated to learning the technical skills required to create and publish web documents, the focus is on practical applications. In a combination workshop/discussion format, the course explores the history, development, theories, concepts, and skills involved in web-based communication and asks students to think critically about many of the issues and problems which these new composing technologies have introduced. All written documents produced in this course will be presented in an electronic format. Prior web design or creation experience is not necessary to be successful.

*Prerequisite: HU-1222*

*STCW: None*

### **HU-6060 Creative Writing: Poetry 3**

This course introduces students to the basic elements of reading and writing poetry. Students will divide their time between discussions of craft—analyzing the work of published writers—and critiquing one another's poetry. By the conclusion of the course, students will have written and revised poems in a wide variety of styles and forms.

*Prerequisite: HU-1222*

*STCW: None*

### **HU-6061 Creative Writing: Fiction 3**

In this course, students are introduced to the reading and writing of literary fiction. Through a workshop format, students will learn to give and receive criticism with tact and precision. By the conclusion of the course, students will have learned how to reveal character, heighten drama, craft dialogue, and manipulate point of view in order to write compelling fiction.

*Prerequisite: HU-1222*

*STCW: None*





COURSE	NAME	CREDIT
<b>HU-6065</b>	<b>Creative Writing: Nonfiction</b>	<b>3</b>
<p>This course introduces students to the reading and writing of creative nonfiction. Through writing memoirs, essays, and investigations, students will learn how to shape compelling narratives to reveal larger truths about themselves and the world. By the conclusion of the course, students will be able to unite facts with figurative language, sensory details, and artful syntax to create memorable nonfiction.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-6071</b>	<b>Public Speaking</b>	<b>3</b>
<p>Designed to give students training and practice in speaking before large or small groups. It includes organization of materials, speaking from notes or manuscripts, and using effective rhetorical devices. Techniques of delivery, including stage presence, articulation, voice control, and parliamentary rules are also included.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-6072</b>	<b>Business Communications</b>	<b>3</b>
<p>This course introduces the basic forms of professional communication skills, from memos and basic summaries to resumes, informal reports, polished formal investigations, and oral presentations. A substantial amount of writing is assigned, and class time will be spent discussing techniques of effective writing and conducting workshops on collaborative projects.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-6073</b>	<b>Technical Writing</b>	<b>3</b>
<p>Technical Writing is designed for students preparing for careers in the sciences and applied sciences, particularly engineering. This writing course familiarizes students with the conventions and design strategies practiced in their disciplinary and institutional communities and introduces them to basic disciplinary formats, including memos, formal reports and presentations, Gantt charts, instructions, letters, résumés, and visual documents—for both electronic and hard copy. This course satisfies a Humanities Group II elective.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
<b>HU-6080</b>	<b>Introduction to Art</b>	<b>3</b>
<p>This course provides an introduction to the understanding and appreciation of art. The course will cover the basic principles of design, form, and technique as well as a brief history of art across the centuries and from different cultures. The course will further provide an understanding of how art functions as a means by which we can come to know and comprehend the world around us.</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>HU-6090</b>	<b>Special Topics: Humanities Group II</b>	<b>3</b>
<p>Students will have the opportunity to study a variety of non-literary topics in the humanities</p> <p><i>Prerequisite: HU-1222</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-1211</b>	<b>Organization Management</b>	<b>3</b>
<p>An introduction to the dynamic world of the manager. In addition to presenting principles and techniques of management in various organizational settings, the course provides focus on the development of leadership and decision-making skills. As appropriate, case studies of management issues in the maritime industry are analyzed.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-1212</b>	<b>Macroeconomics for Business</b>	<b>3</b>
<p>This course provides an exposure to the economic way of thinking, with a focus on the macro economy, geared towards business students. Topics include marginal analysis, optimization, equilibrium, business cycles, aggregate demand and aggregate supply models, determination of output, price levels and interest rates, monetary and fiscal policies, unemployment and inflation.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-1214</b>	<b>Foundations in Business Computing</b>	<b>3</b>
<p>This course emphasizes various skills that students must develop to effectively use computerized decision tools to track trends, make forecasts, and solve business problems. It is designed to provide students with a good working knowledge of Microsoft Office Excel 2013. Using these tools, students will be able to analyze spreadsheet data, compute business statistics and chart functionality.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
<b>IM-2121</b>	<b>Principles of Accounting I</b>	<b>3</b>
	An introduction to the basic principles of accounting, providing the first educational exposure to many business topics, including forms of business organization; typical business practices; and financial statements. <i>Prerequisite: None</i>	<i>STCW: None</i>
<b>IM-2211</b>	<b>The Business of Shipping</b>	<b>3</b>
	This is an introductory course that explores the organization and workings of the global shipping industry. The emphasis is on the commercial and economic factors involved and how they impact the decision making process. It examines the supply/demand equation for maritime transportation, shipping cycles, shipping markets, ship finance, operating costs, regulatory agencies and market projections. The course combines historical perspective with economic theory and practical analysis of industry performance and changes. <i>Prerequisite: None</i>	<i>STCW: None</i>
<b>IM-2221</b>	<b>Principles of Accounting II</b>	<b>3</b>
	This is the second half of the yearlong accounting course. It emphasizes advanced accounting education. Topics covered include financial statements and accounting for equities, liabilities, and corporation accounting. <i>Prerequisite: IM-2121</i>	<i>STCW: None</i>
<b>IM-2231</b>	<b>Business Decision and Strategy</b>	<b>3</b>
	This course will enable students to formulate, model, solve and create decision support systems for various business problems that can be approached analytically and quantitatively. The applications will cover diverse problem areas, such as production planning, workforce scheduling, and transportation and logistics. The course will focus on game theory and strategic behavior and on building spreadsheet-based decision support systems. <i>Prerequisites: IM-1214, SM-2117</i>	<i>STCW: None</i>
<b>IM-3111</b>	<b>Transportation Operations Management</b>	<b>3</b>
	The concepts and techniques used by logistics/transportation firms to support their fundamental task of providing logistics services to their customers. Topics include product and process strategy, quality management, production planning for manufacturing and for service organizations, and inventory management. Also includes an examination of the interactions of operations management, quantitative decision-making techniques, and information technology. <i>Prerequisite: IM-2211</i>	<i>STCW: None</i>

COURSE	NAME	CREDIT
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**IM-3122 Business Data Analysis 3**

This course provides a sound conceptual introduction to the field of statistics and its many applications in business and economics. Topics covered include probability distributions, inferential statistics, analysis of variance, regression analysis, and time series forecasting. Excel's Data Analysis Tools will be utilized in hypothesis testing, ANOVA, covariance and correlation, random number generation and regression. These analytical frameworks and tools will enable students to analyze and interpret business data and experimental results and apply all of the above to questions involving business and economics for the purpose of better decision-making.

*Prerequisites: IM-1214*

*STCW: None*

**IM-3131 Principles of Finance 3**

A broad introduction to finance covering various aspects of financial institutions and markets, personal finance, corporate finance and financial risk management. Students are introduced to the workings of equity, debt and derivative instruments and markets, taught the basics about asset acquisition, tax planning and investment principles. On the corporate finance side, capital budgeting, debt vs. equity financing and working capital management are discussed. Throughout, the course emphasizes important financial principles such as time value of money, diversification, arbitrage and leverage. The course also places heavy emphasis on the use of spreadsheets to perform various numerical calculations. Note: Credit will not be given for both IM-3131 and IM-3133.

*Prerequisite: None*

*STCW: None*

**IM-3133 Finance I 3**

Finance I focuses on introductory concepts in the field as well as on financial markets and instruments. The introductory concepts include business organizations, time value of money, interest rates and yield curves, the role of the central bank in financial markets and bond and stock valuation. Institutional features of money market, bond market, stock market and derivative markets are covered as well.

*Prerequisites: IM-1214, IM-2121*

*STCW: None*

**IM-3231 Vessel Chartering and Brokerage 3**

Operational and legal environment of ship brokerage and chartering; responsibilities of owner and charterer under various charter forms; rules and regulations concerning loading and discharging.

*Prerequisite: IM-2211*

*STCW: None*

COURSE	NAME	CREDIT
<b>IM-3232</b>	<b>Supervisory Management</b>	<b>3</b>
Designed to improve the management skills required of entry-level supervisors, and to provide current and prospective managers with the personal, interpersonal, and group skills necessary to reduce the gap between good ideas and accepted practices. Emphasis is placed on participation in practical exercises and role playing. A seminar format is utilized.		
<i>Prerequisite: None</i>		<i>STCW: None</i>
<b>IM-3233</b>	<b>Finance II</b>	<b>3</b>
Finance II covers topics in three areas: corporate finance, personal finance, and investments. Under corporate finance, topics such as capital budgeting, cost of capital, financing mix and leverage as well as creation of pro-forma financial statements are discussed. Under personal finance, typical topics covered are home purchasing, insurance planning, credit management and retirement planning. Under investments, topics covered include introduction to risk and return along with their measurement, portfolio management, mutual funds and exchange traded funds. The course stresses numerical/quantitative analysis and extensive use of spreadsheet techniques.		
<i>Prerequisite: IM-3133</i>		<i>STCW: None</i>
<b>IM-3241</b>	<b>Principles of Marketing</b>	<b>3</b>
A focus on the marketing management process and business strategic planning. The role of market research and analysis will be examined, as will consumer behavior, marketing strategies, channels of distribution, physical distribution, promotion, and pricing.		
<i>Prerequisite: None</i>		<i>STCW: None</i>
<b>IM-3311</b>	<b>Cooperative I: IMB</b>	<b>6</b>
The MMA International Maritime Business Cooperative Program (co-op) gives the student an opportunity to observe and experience the “real” world of business operations. The student is required to complete a minimum of six full work weeks. Preparation for the co-op includes class work, articulation of clear and measurable internship goals, informed selection of an appropriate business location that will meet those goals, and a commitment to discipline and hard work once on site. The co-op grade will be based in large part upon a formal project report submitted no later than 30 school days after the beginning of the following semester.		
<i>Prerequisite: IM-1211</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>IM-3352</b>	<b>Independent Study: IMB</b>	<b>3</b>
This course is an opportunity for upper class students to conduct an independent study under the guidance of a department faculty member according to IMB department guidelines.		
<i>Prerequisite: None</i>		<i>STCW: None</i>
<b>IM-3411</b>	<b>Experiential Learning in IMB</b>	<b>6</b>
After completing some introductory instruction and orientation, upper class IMB students will be required to engage in an experiential learning opportunity, choosing from the following options: International, Maritime, or IMB. The International EL course involves travel to an overseas maritime location and visits to a variety of maritime and business organizations on a faculty-led field study; in the Maritime EL course, IMB students sail aboard the training ship and attend IMB classes and tour maritime and business operations; the IMB EL experience is a virtual one, in which students learn the management consulting process and the technical and relationship skills required for external and internal consulting.		
<i>Prerequisites: IM-1211; MT-1111 or approved BST (sea term option only)</i>		<i>STCW: None</i>
<b>IM-4111</b>	<b>Marine Insurance</b>	<b>3</b>
History of marine insurance, analysis of ocean marine cargo and hull policies, categories of losses, general average, protection and indemnity insurance, and third part liability.		
<i>Prerequisite: SS-3225</i>		<i>STCW: None</i>
<b>IM-4112</b>	<b>International Business and Ocean Shipping</b>	<b>3</b>
The global business environment and its implications for operations, management, pricing, promotion, and financial strategies. The liner and tramp segments of the international marine transportation industry and their role in international trade.		
<i>Prerequisite: IM-2211</i>		<i>STCW: None</i>
<b>IM-4151</b>	<b>Supply Chain Management</b>	<b>3</b>
This course provides an introduction to global business logistics and supply chain management. Students will be introduced to supply chain strategy, design, planning, coordination, and integration. Students will develop techniques for forecasting demand, sourcing supplies, managing inventory, optimizing transportation, and enabling communication within a global supply chain.		
<i>Prerequisite: IM-3111</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>IM-4211</b>	<b>Business Ethics and Negotiation</b>	<b>3</b>
<p>This course provides an overview of two critical and interrelated dimensions in the formation of business agreements and development of contractual relationships. The first involves business ethics, which explores various aspects of business conduct in relation to principles and philosophy of morality and responsibility. The second involves negotiation, which examines how agreements between two or more interested parties are secured. Ethics and negotiation both address questions that range across the functional areas of business, including marketing, human resource management, finance and accounting, and entrepreneurship. Special attention will be given to these issues in relation to the conduct of business in the global arena, which requires appreciation of local situations, norms and cultures.</p> <p><i>Prerequisite: IM-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4212</b>	<b>Capstone Seminar in IMB</b>	<b>3</b>
<p>This capstone course integrates learning from previous IMB courses. Using concepts and models from those courses, students will examine current IMB issues through weekly case studies, independent readings, guest speakers, and seminar discussions. Students will also demonstrate their IMB proficiency through a semester-long research project on a relevant IMB issue or challenge.</p> <p><i>Prerequisites: IM-3122, IM-3231, IM-3233</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4214</b>	<b>Critical Issues in Human Resource Management</b>	<b>3</b>
<p>Human resource management (HRM) plays a critical role in shaping the type of people who are attracted to an organization, their attitudes and behavior, and ultimately their performance. This, in turn, contributes significantly to the competitive advantage and sustainability of an organization. This course seeks to offer students a perspective on contemporary issues and themes in HRM and their impact on the organization and workplace.</p> <p><i>Prerequisite: IM-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4216</b>	<b>Investments</b>	<b>3</b>
<p>This hands-on course allows students an opportunity to manage an actual investment portfolio. Initial training will cover markets, security analysis, financial data repositories, and ethical issues of portfolio management for clients. Students will divide into teams to research and periodically present to an Investment Advisory Board comprised of experts in various areas of finance. The best recommendations will be chosen and implemented.</p> <p><i>Prerequisite: IMB Majors: IM-3233; Non-majors: IM-3131</i></p>		

COURSE	NAME	CREDIT
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**IM-4251 E-Business Concepts and Development 3**

This course explores the business opportunities and challenges that come with emerging technologies in e-business. Students will critically assess the application and implications of such technologies in business management, global logistics, inventory control, and other sectors in the maritime shipping industry. An understanding of the technologies in which e-business is built will be gained through labs focusing on web development and content management systems. The final group project involves creating an e-business enterprise.

*Prerequisite: None*

*STCW: None*

**IM-4261 Special Topics in International Business 3**

This course offers a perspective on current ideas and issues within a specialized track in global business/management. The objective is to allow for a deeper engagement of the student in a more focused topic. This may involve, for example, critically assessing the business dimensions and impacts of a specific event (e.g., 2008-09 financial crisis); a scholar, school of thought, or business leader (e.g., Warren Buffett); a new methodology or application; or a scholarly piece of work. The course will have an interactive seminar orientation, requiring students to carry out research independently and in groups as well as to make professional presentations. Every attempt will be made to invite industry experts to share up-to-date information on various facets of the business world.

*Prerequisites: IM-3122, IM-4211*

*STCW: None*

**IM-4262 Special Topics in Maritime Business 3**

This course offers a perspective on current ideas and issues within a specialized track in maritime business/management. The objective is to allow for a deeper engagement of the student in a more focused topic. This may involve, for example, critically assessing the business and policy dimensions and impacts of a specific event (e.g., the Panama Canal expansion); a scholar, school of thought, or business leader (e.g., John Fredriksen); a new methodology or application; or a scholarly piece of work. The course will have an interactive seminar orientation, requiring students to carry out research independently and in groups as well as to make professional presentations. Every attempt will be made to invite industry experts to share up-to-date information on various facets of the world of maritime business.

*Prerequisite: IM-4151*

*STCW: None*



COURSE	NAME	CREDIT
<b>IM-4263</b>	<b>Entrepreneurship</b>	<b>3</b>
<p>This course provides an overview of the entrepreneurial process of creating sustainable new businesses, both for-profit and non-profit. Students learn about the roles and attributes of successful entrepreneurs while undergoing a rigorous self-assessment process. Students will interview a local entrepreneur, participate in case studies related to new ventures and have the opportunity to learn directly from a variety of speakers invited to class to share their start-up experiences, including management, marketing, financial, ethical dilemmas and many other obstacles they face as entrepreneurs.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4264</b>	<b>Managerial Accounting</b>	<b>3</b>
<p>Students learn managerial accounting concepts applied to a variety of businesses with emphasis on job order costing, process costing, cost allocation and cost-volume-profit analysis. The budgeting process will be examined using master budgets and planning, flexible budgets with standard costs and variances, capital budgets and managerial decisions.</p> <p><i>Prerequisite: IM-2121</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4265</b>	<b>Project Management</b>	<b>3</b>
<p>This is a first course in project management, one in which students will learn the knowledge, skills, and abilities necessary to be an effective project manager. They will learn how to plan, execute, and monitor a project. The course will cover the latest theories and concepts on scoping, stakeholder management, team leadership, budgeting and contracting, scheduling, quality control and assurance, and risk management. The course will include field studies, and students will experience managing a real-world project.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>IM-4266</b>	<b>The Business of U.S. LNG Trade</b>	<b>3</b>
<p>This course will explore the economics of global and North American gas markets and U.S. export projects, leading up to an examination of liquefied natural gas (LNG) shipping economics and the considerations that must inform the shipping strategy of a hypothetical U.S. export venture. Students will work in small groups to assemble data, construct forecasts, and produce a paper recommending an optimal strategy for the shipping component of a hypothetical U.S. LNG export project. Coursework will reinforce concepts from economics (use of supply and demand projections to forecast market prices in the shipping industry), financial risk management in shipping, and the development and use of spreadsheet models.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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**IM-4267 Regulatory Compliance in IMB 3**

In this course, students will learn how various authorities interact with the shipping world to ensure compliance with state, regional, federal, or international laws as expressed in several regulatory instruments or policy documents. Students will also have an opportunity to learn how matters related to the regulation of imports and exports, seaborne and land-borne transportation, handling hazardous cargo, the shipping company and its support system, ports and terminals, passenger carriage, commercial and non-commercial pleasure and fishing vessels are affected by the rules.

*Prerequisite: None*

*STCW: None*

**IM-4268 Leadership 3**

This course examines leadership and management concepts at the interpersonal and organizational levels, from both a theoretical and applied perspective. Students will explore their own leadership style and development level and how they can influence the performance of others. They will reflect upon their leadership strengths and development needs to increase their leadership potential and understanding. The class will attempt to learn and appreciate leadership lessons from the experience of others, and students will apply leadership and management concepts to their lives as leaders.

*Prerequisite: IM-1211*

*STCW: None*

**IM-4269 Polar Shipping 3**

The progressive diminution of sea ice due to climate change and the consequential increase in maritime traffic in the polar regions are well underway. The Arctic region, in particular, presents a vast commercial opportunity for trade within the region and provides the shortest route to transcontinental shipping from the high north. The emerging maritime transport routes in the ecologically fragile Arctic present monumental challenges, ranging from governance to infrastructure, to sustainable maritime commerce. The course provides holistic insight into the opportunities and challenges for global maritime commerce in this region. The technical feasibility and economic viability of the Arctic shipping routes are analyzed based upon current regulatory regimes, the evolving digital platform, and risk mitigation techniques.

*Prerequisite: None*

*STCW: None*

### **IM-4270 Sales Engineering and Management** **3**

Sales engineers are specialist sales experts who apply engineering knowledge and business consulting skills in order to understand how to plan and present complex engineered systems to their customers, including implementation advice and after-market support. Highly successful sales engineers learn to build and maintain expertise in business acumen, presentation skills, building customer relationships, engagement activities up and down customer organizations, and knowledge of target industries. This course includes the study of textbook materials, class lectures, class discussions, mock interviews, and team PowerPoint presentations.

*Prerequisites:* IM-3241

*STCW:* None

### **IM-4271 Sustainable Blue Economy** **3**

The blue economy comprises a range of economic sectors and policies involving oceanic and coastal resources. The course makes students aware of the major challenges, such as overcoming current economic trends that degrade marine resources and ecosystems; climate change; inadequate human, institutional, and technical capacity; and unsatisfactory implementation of existing policies, regulations, and instruments. Students will learn some of the tolls of environmental economics to assess the impact of market-based decisions on the sustainability of the blue economy. The course combines conceptual and experiential approaches. It involves case studies, lectures, and participation in current seminars and discussions.

*Prerequisites:* IM-2211, IM-1212

*STCW:* None

### **IM-4311 Cooperative II: IMB** **6**

This cooperative, the second mandated by the IMBU curriculum, has the same requirements of duration and submission deadlines as the first co-op, IM-3311. Students are expected to acquire additional in-depth, hands-on knowledge of operating and managing a business successfully and efficiently using the tools learned in the classroom.

*Prerequisite:* IM-3311

*STCW:* None

COURSE	NAME	CREDIT
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**IM-4410 ICS Cred. Seminar: Comm. Ship & Chartering Seminar 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on the chartering and management of commercial ships. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4420 ICS Credentialing Seminar: Liner Trades 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on the liner trades. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4430 ICS Credentialing Seminar: Offshore Support Industry 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on the offshore support industry. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4440 ICS Credentialing Seminar: Port Agency 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on port agency. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4450 ICS Credentialing Seminar: Ship Operations 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on ship operations and management. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4460 ICS Credentialing Seminar: Sale and Purchase 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on ship sale and purchase. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

**IM-4470 ICS Credentialing Seminar: Ship Financing 3**

Industry-wide credentials are widely recognized as an effective means for students to demonstrate skills and mastery in key areas. In the world of IIMB, the globally recognized Institute for Chartered Shipbrokers (ICS) offers a range of diplomas and credentials. This course will focus on shipping finance. Students will independently study the ICS course materials and then meet in a seminar to discuss key aspects of commercial ship management. Students will prepare multiple essays and are encouraged to sit for the ICS exam at the end of the semester.

*Prerequisites:* IM-3231      *Modalities:* In-Person, Hybrid, Online  
STCW: None

COURSE	NAME	CREDIT
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**LB-0201 STCW Survival Craft Qualifications 0**

Provides the minimum standard of competence in survival craft and rescue boats other than fast rescue boats (Table A-VI/2-1). Practical assessments conducted in launching—taking charge of a lifeboat during and after launch using proper commands and safety methods, starting the lifeboat engine, and recovering the lifeboat; steering—by magnetic compass; and rowing—commanding and landing the lifeboat using proper commands in various sea conditions.

*Prerequisite:* ST-0999

*STCW: Practical and Knowledge*

**LB-0202 STCW Lifeboatman Exam 0**

United States Coast Guard multiple choice exam to assess knowledge based competencies for lifeboat proficiencies. Testing is conducted during spring semester.

*Prerequisite:* None

*STCW: Knowledge*

**LB-0203 FR STCW Immersion Suit Practical 0**

Together with PS-0301 provides minimum standard of competence in personal survival techniques (Table A-VI/1-1). Assessments in water survival using approved immersion suits and/or Type I-PFD. Training in escaping from burning liquids on the surface of the water with or without approved Type I-PFD, water entry for man overboard, and shark attack precautions and deterrents.

*Prerequisite:* None

*STCW: Practical*

COURSE	NAME	CREDIT
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**MS-1111 Fundamentals of Occupational Safety and Health 3**

This course introduces the fundamental concepts of safety- and health-related topics required for a major in MSSEP. The law and insurance companies require organizations to provide safe, healthy, and environmentally friendly working conditions in order to protect individual workers and the general public. Health, safety, and risk management are essential for the successful and profitable operation of industries and businesses. These basic occupational safety and health concepts will incorporate OSHA rules, standards, and regulations relating to personal protective equipment (PPE) and the safe management of chemical, tool, machine, and electrical elements.

*Prerequisite: None*

*STCW: None*

**MS-1211 Current Environmental Problems 3**

This is the first course taken by students majoring in Marine Science, Safety and Environmental Protection (MSSEP). It introduces freshmen students to current and pressing global issues in the fields of environmental science, environmental protection and health and safety in the workplace. Topics will provide students with a broad, general perspective of issues in these fields. Some topics will be revisited in greater detail during subsequent courses in the MSSEP curriculum.

*Prerequisite: None*

*STCW: None*

**MS-1252 Earth Science 3.5**

This course evaluates natural materials and processes that make up and shape planet Earth. Students will learn the fundamental principles of geology, oceanography, and meteorology. The course covers Earth's structure, plate tectonics, natural hazards, the water cycle, and oceanic and atmospheric composition. [Lab time required]

*Prerequisite: None*

*STCW: None*

**MS-1311 Experiential Learning: MSSEP 3**

This experiential field course is designed to train students in field methods and integrative problem solving related to environmental sciences. It covers such topics as terrestrial and marine ecology, sustainability, geology, and fisheries of tropical systems. Students will gain an understanding of the scientific method and apply modern scientific techniques in the field by observing, collecting, and analyzing data through guided scientific excursions.

*Prerequisite: MS-1211*

*STCW: None*

COURSE	NAME	CREDIT
<b>MS-1313</b>	<b>Shipboard Environmental Operations</b>	<b>3</b>
<p>This course will explore shipboard international environmental compliance as well as onboard operations. The course will emphasize record keeping, onboard environmental operations, and voyage planning. Students will review basic shipboard safety, including incident response, confined space entry procedures, Lock Out / Tag Out, and hot work. Students will gain firsthand compliance experience with regard to NPDES permit and VGP reporting aboard ships and at shoreside.</p> <p><i>Prerequisite: MS-4232, MT-1111</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-2131</b>	<b>Introduction to Communications</b>	<b>3</b>
<p>The course is an investigative and practical study of communication in science and industry. Topics include: communication model and dialectics; sociolinguistics: culture and language (N.B. Includes body language); audience analysis; ethics in communication; disseminating /receiving information; forms of argumentation; oral and visual communication—the basics; forms of written communication; problem solving; consensus &amp; compliance; and conflict management.</p> <p><i>Prerequisite: HU-1111 or HU-6012</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-2221</b>	<b>General Biology</b>	<b>3.5</b>
<p>An introduction to the principles of life at the cellular and organismal levels, including such topics as the chemical basis of life, cell structure and function, photosynthesis, respiration, cell reproduction, the molecular basis of genetics, DNA technology, evolution, and ecology. It includes a brief survey of living organisms. [Lab time required]</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-2244</b>	<b>Introduction to GIS</b>	<b>3</b>
<p>This course examines in detail the fundamentals of Geographic Information Systems (GIS), which are often at the core of local government operations and being rapidly adopted by state and federal governments to manage operations from highway planning to environmental resource conservation and adopted by businesses for the purposes of market research, site selection, real estate, civil engineering, and geophysical exploration. The course emphasizes the concepts needed to use GIS correctly and effectively for manipulating, querying, analyzing, and visualizing spatial-based data. It also develops basic proficiency in industry-standard GIS (ArcGIS) software for analyzing spatial patterns in social, economic, environmental, and geologic data as well as proficiency in generating cartographic output from such analysis.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
<b>MS-3121</b>	<b>Physical Geology</b>	<b>3</b>
Introductory study of the materials, structure, and surface features of the earth. Students will examine the physical and chemical processes that modify the earth's internal and surficial features, the concept of geologic time, and the application of geologic knowledge to human environmental and resource problems.		
<i>Prerequisite: MS-1252</i>		<i>STCW: None</i>
<b>MS-3132</b>	<b>Life Science Lab</b>	<b>1</b>
This one-credit course is designed to give students practical, hands-on experience in the field and in the lab, exploring principles related to their life science classes in General Biology, Biological Oceanography, Coastal Ecology, and Conservation Biology. The class will meet for 2 hours every other week. Seven different field trips and lab exercises will be conducted during the semester. Students will prepare lab reports that will be used to evaluate their performance.		
<i>Prerequisite: MS-2221</i>		<i>STCW: None</i>
<b>MS-3141</b>	<b>Coastal Ecology</b>	<b>3</b>
This course explores the interactions among organisms and between organisms and their coastal environments. Students will evaluate the physical, geological, chemical, and biological processes influencing life in the coastal zone. Coastal environments considered include rocky shores, salt marshes, mangroves, and coral reefs. Field trips to local coastal areas.		
<i>Prerequisite: MS-2221</i>		<i>STCW: None</i>
<b>MS-3142</b>	<b>Environmental Law</b>	<b>3</b>
This three-hour introductory law course will familiarize students with the statutes, government regulations, and agreements that protect natural resources; human health; and the local, domestic, and international transboundary environment. Students will study the role of the American legal system as it functions to control and remediate environment problems; evaluate opportunities to use judicial, administrative, legislative, and economic political processes to address these problems; analyze a number of U. S. environments statutes; and examine international laws and organizations that target environmental issues of the global commons.		
<i>Prerequisite: SS-2121</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>MS-3221</b>	<b>Oceanography</b>	<b>3</b>
<p>Students will investigate the global ocean based on the latest in marine science and technology. Fundamental principles in geological, physical, chemical, and biological oceanography will be presented. This course will delve into seafloor geology, the properties of seawater, surface and deep ocean circulation, and the impacts of global climate change.</p> <p><i>Prerequisite: MS-3121</i> <i>STCW: None</i></p>		
<b>MS-3241</b>	<b>Marine Resource Management</b>	<b>3</b>
<p>Examines the myriad of issues surrounding the exploitation and governance of marine and coastal resources. These include the traditional resources of fisheries, marine flora, mariculture, oil and gas deposits, shallow-water and deep seabed minerals, transportation, and recreation. However, an investigation into the unique role that resources such as wetlands, coral reefs, estuaries, scientific research, and aesthetics play in managing the world's coasts and oceans will also be offered. Although it is important to quantify the amounts of resources present, and document their location and uses, it is imperative to also analyze each resource's jurisdictional or ownership status, applicable laws and regulations, economic and technological viability, and multiple-level (local, State, Federal, regional, and international) governance regime. This will, thus, include the study of the role of resource use conflict in policy decision-making, domestic environmental legislation, and international agreements such as the 1982 United Nations Convention on the Law of the Sea.</p> <p><i>Prerequisite: None</i> <i>STCW: None</i></p>		

COURSE	NAME	CREDIT
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**MS-3242 Hazardous Materials Management 3**

This course will focus on hazardous materials through the study of management techniques, law and policy, and scientific disciplines. The initial focus will be on the classification, handling and regulation of hazardous materials through traditional disciplines, shifting later to the exploration of methods that may be used to influence hazardous materials management. Students will utilize case studies and selected topics to understand and explore both traditional and innovative programs dealing with this subject. As our economy is global, it is imperative that proper infrastructure capable of handling hazardous materials be implemented. We will therefore explore current operations and the difficulties in establishing sustainable practices that can reduce overall liability. An emphasis on performing in a safe manner will be incorporated into the material, and the application of safety tools and techniques will be explored. Students will be given the opportunity to study present hazardous materials management programs developed at a variety of businesses and government agencies.

*Prerequisite: None*

*STCW: None*

**MS-3351 Cooperative I: MSSEP 6**

A cooperative experience in an environmentally related field wherein each student is responsible for a daily log, a report, and a presentation of the report. This cooperative is a minimum of six weeks, or thirty working days.

*Prerequisite: None*

*STCW: None*

**MS-3352 MSSEP Independent Study 1.5/3**

Opportunity for upperclass students to conduct independent study under the guidance of a department faculty member following departmental guidelines.

*Prerequisite: None*

*STCW: None*

COURSE	NAME	CREDIT
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<b>MS-4111</b>	<b>Environmental Monitoring I</b>	<b>3</b>
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This is the capstone course of the MSSEP major. Students bring all of the knowledge and skills learned in their other classes to bear on their own year-long, environmental monitoring project. The course provides an opportunity for students to design and conduct their field projects and enables students to become familiar with various techniques of environmental monitoring. Students work in small teams and conduct their field studies on a weekly basis throughout the fall semester and then continue their studies throughout the spring semester as course MS-4211, Environmental Monitoring II. Students meet regularly with faculty instructors for the course. Faculty will assist students by providing scientific and technical guidance and advice for the field projects. Students will prepare formal posters for public presentations at the end of the semester showcasing the results of their work.

*Corequisite: MS-4142*

*STCW: None*

<b>MS-4141</b>	<b>Coastal Zone Management</b>	<b>3</b>
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This three-credit course in coastal zone management (CZM) examines the many issues surrounding the governance of the coastal zone. This includes the physical setting and ecological characteristics, the public and private rights in coastal land and waters, the various legal regimes responsible for management; the policies of state and federal CZM programs, the role of conflict resolution in managing uses of the coastal zone, and integrated and international coastal zone management.

*Prerequisites: MS-3141, MS-3142*

*STCW: None*

<b>MS-4142</b>	<b>Human Health and Risk</b>	<b>3.5</b>
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This course provides students with an introduction to the concepts and implementation of occupational health problems and policy. The focus off the course is a working understanding of the regulatory environment and assessment of risk associated with various chemicals and substances in the workplace. The use of group projects enhances all of the practical details of the course and provides an excellent “hands-on” experience. [Lab time required]

*Prerequisite: SM-3234*

*STCW: None*

COURSE	NAME	CREDIT
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**MS-4211 Environmental Monitoring II 3**

This course is a continuation of MS-4111, Environmental Monitoring I. Students will continue their team-based, environmental monitoring field studies throughout the spring semester. Students meet regularly with faculty instructors for the course. Faculty will assist students by providing scientific and technical guidance and advice for the field projects. Students will prepare formal posters for public presentations at the end of the semester showcasing the results of their work.

*Prerequisite: MS-4111*

*STCW: None*

**MS-4231 Risk Communications 3**

With a focus on written and oral communication within the environmental profession, through reading, research, teamwork, writing, and oral presentation, the course answers these questions: How ought public health and risk be investigated and defined? How are these problems addressed by various groups, such as government, business, and the public?

*Prerequisite: MS-2131*

*STCW: None*

**MS-4232 Introduction to MARPOL 3**

This course will explore shipboard international environmental compliance. It will review the different levels of environmental regulations pertaining to IMO and MARPOL as well as Flag State, Port State, and NPDES/VGP. Emphases will be on record keeping and auditing of log books, such as garbage record book, oil record book, and fuel logs. Cadets will be exposed to examples of new technology in the industry and the different methods companies use to stay compliant. They will receive a basic introduction to oil spill response and response plans, internal auditing, and the self-reporting process for accidental discharges.

*Prerequisite: None*

*STCW: None*

COURSE	NAME	CREDIT
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<b>MS-4241</b>	<b>Environmental Risk</b>	<b>3</b>
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The ecological risk assessment framework (ERA) can be retroactive and predictive. A retroactive ERA estimates the risk from an existing situation, such as a contaminated site, while a predictive ERA predicts the same for a future situation, such as the proposed licensing of a new housing development. ERA integrates many scientific disciplines in estimating the probabilities of undesired ecological impacts. Industry develop ERA to determine future risk and liabilities associated with the development, use, and disposal of new or existing products. With increasing demand on our ecological resources and decreasing government budgets, resource managers and regulators use environmental risk assessment to organize scientific information and prioritize the decision-making process. Students will learn to focus and interpret scientific information that reduces uncertainty in risk assessment and helps ensure that research emphasis is placed on problems posing the greatest risks. Case studies will be used extensively to illustrate how ecological risk principles are applied to a wide range of situations.

*Prerequisite:* MS-4142

*STCW:* None

<b>MS-4263</b>	<b>Oil Spill Management</b>	<b>3</b>
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This course is an introductory examination of the many issues surrounding marine oil spills and response measures that can be implemented. Emphasis is placed on practical guidance and management. Following scientific descriptions of petroleum products and their behavior in the marine environment, the effects of oil on various ecosystems and their uses will be studied. Next, the containment, recovery, and clean up of oil spills will be analyzed in detail, as will pre- and post-spill planning and management efforts. Finally, the state, domestic, and international laws and regulations, along with efforts of the oil industry, will be examined.

*Prerequisite:* None

*STCW:* None

<b>MS-4264</b>	<b>Conservation Biology</b>	<b>3</b>
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We are in the midst of an extinction crisis. According to one estimate, at the present rate, one-quarter of the species on earth will become extinct within the next 25 years. This course explores the far-reaching problem of the decrease in the diversity of life (biodiversity). Topics include environmental degradation and habitat destruction as a result of human activities, endangered species, alien species, overexploitation, the dynamics and genetics of populations, wildlife protection, and ecological restoration. The course introduces students to techniques in conservation biology that are aimed at maintaining biodiversity.

*Prerequisite:* MS-2221

*STCW:* None

COURSE	NAME	CREDIT
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### **MS-4271 Advanced Principles of Occupational Health & Safety 3**

This course with lab further develops those areas introduced in Fundamentals of Occupational Health and Safety. The course covers an area of science devoted to the recognition, evaluation, and control of environmental and workplace hazards that may result in damage, destruction, illness, injury, or death. It covers key concepts, theories and practices, control procedures, relevant legislation, development and evaluation of sampling methods, and OSHA program development and implementation. Coursework and laboratory exercises will illustrate the understanding of some field sampling equipment and procedures as well as their uses and limitations, conducting job hazard analysis, and concepts of effectively determining and integrating OSHA workplace programs.

*Prerequisites:* MS-1111, MS-2221, MS-3242, SM-2233 *STCW:* None

### **MS-4272 Environmental Health and Safety Audit Program 3**

This course provides students with the knowledge and skills needed to design audit procedures and practices. An audit program is first and foremost a verification program. Safety audits are fact-finding missions which provide verified feedback to management on the actual procedures and equipment in an operation. Occupational safety audit programs are meant to verify that environmental, health and safety systems exist, are in use, and are effective.

*Prerequisites:* MS-4271, SM-2233

*STCW:* None

### **MS-4273 Construction Site Safety 3**

Construction is a high-hazard industry that comprises a wide range of activities involving construction, alteration, or repair. There is a current and growing need for construction safety professionals who are proficient at identifying and mitigating potential risks. We will explore current regulatory and safety requirements associated with the construction industry. Partnering with industry leaders, this blended learning course will include strong academic theories related to construction standards and will cover key concepts, theories, practices, control procedures, environmental considerations, relevant legislation, and development and implementation of required OSHA programs. Coursework and exercises will focus on OSHA regulations, hazard recognition, problem solving, safety and regulatory compliance, mitigation methods, loss control, and risk reduction. Upon successful completion of the course, students will receive an OSHA 30-Hour Construction Card.

*Prerequisite:* None

COURSE	NAME	CREDIT
<b>MS-4305</b>	<b>Principles of Aquaculture</b>	<b>3</b>
<p>This course introduces students to the aquaculture industry and to practical issues associated with bivalve and finfish aquaculture. Students will examine the past and present role of aquaculture in society and investigate issues surrounding aquaculture programs around the world. Students will apply learned concepts to bivalve or finfish cultivation projects conducted in the Massachusetts Maritime Aquaculture Lab.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-4321</b>	<b>Biology of Fishes</b>	<b>3</b>
<p>Students in this course will explore the great diversity of fishes while learning about the taxonomy, anatomy, and physiology of major fish groups. The course will focus on adaptations fishes have developed for meeting the challenges of life underwater.</p> <p><i>Prerequisite: MS-2221</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-4322</b>	<b>Marine Botany</b>	<b>3</b>
<p>This course is an introduction to marine plants: the microalgae, the seaweeds, and the flowering plants. The course consists of a survey of marine plants and discussions of their morphology, systematic relations, life histories, ecology, physiology, and economic uses. The course also covers marine primary productivity and the importance of plants to all other life in the ocean. There is a lab component and a field component. Students will learn how to take samples for algae and to identify and enumerate the algae. Field trips will include visits to local coasts and to the Gray Herbarium in Woods Hole.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-4329</b>	<b>Marine Mammals</b>	<b>3</b>
<p>This course provides an introduction to the biology of the diverse group of animals known as marine mammals (whales, dolphins, porpoises, seals, sea lions, walruses, manatees, sea otters, and polar bears), including evolution, diversity, life history, physiology, ecology, communication, and behavior. Current research, events, and policy issues will also be addressed. Special attention will be given to marine environmental protection measures to avoid ship collisions with the North Atlantic right whale.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
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**MS-4333 Marine Invertebrate Zoology 3**

Invertebrates represent 34 of the 35 phyla of animals, and comprise the preponderance of animal life in the ocean. This introductory course consists of a survey of marine invertebrates, following a phylogenetic approach, and discussions of morphology, systematic relations, life histories, and ecology. The course also summarizes marine secondary productivity (i.e., shellfish and finfish fisheries). Because there are so many invertebrates and so many phyla, the emphasis will be on the nine major invertebrate phyla. Guest speakers will include scientists from the Woods Hole scientific community.

*Prerequisite: None*

*STCW: None*

**MS-4334 Tropical Marine Ecology 3**

Tropical marine ecosystems include some of the most diverse and productive communities on Earth, and efforts to understand and protect them are priorities for marine conservation. Students in this course will learn about the ecology of tropical marine habitats and their associated biological communities. Topics will include the geology, biology, and biodiversity of coral reefs, seagrass beds, and mangrove forests; physical factors affecting the distribution and productivity of each habitat; ecological connectivity among habitats; and major threats challenging organisms that depend upon them for survival. In addition, students will become familiar with conservation programs currently underway to protect tropical marine ecosystems by exploring online databases, scientific reports, and other products developed by organizations that are charged with protecting the health of these important ecosystems.

*Prerequisite: None*

*STCW: None*

**MS-4341 Ecological Sustainability 3**

This course is designed to acquaint students with concepts and practices of using basic ecological principles to develop ecologically sound and sustainable methods for remediating the environmental impact of nutrients, sewage, wastewater, stormwater, and habitat degradation. The course has two major themes: ecological design and ecological restoration. Within these themes, we will discuss such topics as 'eco-machines,' organic gardening, composting, composting toilets, organic architecture, blue roofs, green roofs, bioswales, infiltration landscapes, pervious pavement, etc. The course has a strong practical component. Students will conduct and present their own projects in ecological design and ecological restoration.

*Prerequisite: None*

*STCW: None*

COURSE	NAME	CREDIT
<b>MS-4342</b>	<b>Marine Microbiology</b>	<b>3</b>
<p>This course explores marine microorganisms (bacteria and archaea) in marine systems. Students discuss and evaluate the role of marine microorganisms in altering the chemistry of the ocean, particularly recycling carbon and essential nutrients. This interdisciplinary course evaluates microbial interactions, marine viruses, and extremophiles.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-4411</b>	<b>Cooperative II: MSSEP</b>	<b>3</b>
<p>A cooperative experience in an environmental and/or safety related field wherein each student is responsible for a daily log, a report, and a presentation of the report. This cooperative is a minimum of three weeks, or fifteen working days.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MS-9143</b>	<b>Wastewater Treatment Plant Operations</b>	<b>3</b>
<p>This course will cover the specific processes and plant operations utilized in wastewater treatment. The operating parameters, data collection and analysis, troubleshooting, and maintenance needed for each treatment process will be covered, along with the relevant mathematics and laboratory skills required for State licensing as a Grade 4 Municipal Wastewater Operator.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MT-1111</b>	<b>Vessel Familiarization and Basic Safety Training</b>	<b>4</b>
<p>This course will teach students to react in a correct manner during fire and other emergency situations and teach them how to identify and correct deficiencies and thus prevent emergencies from occurring. The student will learn the proper use of fire fighting equipment and the measures to take in the event of a fire. The student will learn the proper use of survival equipment, and how to respond to emergency situations and take measures appropriate to his own survival and to the survival of others. The student will demonstrate the necessary knowledge, understanding in these areas. [Lab time required.]</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: Knowledge &amp; Practical</i></span></p>		

COURSE	NAME	CREDIT
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**MT-1221 Coastal Navigation 3**

This course introduces a student to the knowledge and practices necessary to carry out the routine, day-to-day navigational watchkeeping duties in a proper and safe manner. The student will be able to read and understand information from a chart, fix the ship's position in coastal waters, understand Earth's magnetism, buoyage systems, check and compare magnetic and gyro compasses, obtaining and applying compass error. In addition, the student will be introduced to the basic concepts and obtain an understanding of electronic navigational aids, Global Positioning System and Radar. Classwork is supplemented by practical chart plot exercises in the weekly labs. [Lab time required]

*Prerequisite: None*

*STCW: Knowledge*

**MT-2121 Deep Sea Navigation 3**

This course reinforces and continues the learning of the navigational processes acquired in Coastal Navigation, that are used daily while at sea. In addition to applying the previous knowledge learned, the student will learn and understand the concepts of Tides and Currents and how to calculate them. The student will also learn the concepts and calculations for the navigational sailings, voyage planning, record keeping and use of navigational publications. Classwork is supplemented by practical chart plot exercises in the weekly labs. [Lab time required]

*Prerequisites: MT-1221 (minimum C-), ST-0999 (minimum C-)*

*STCW: Knowledge & Practical*

**MT-2141 Ship Construction 3**

A basic knowledge of ship construction and design, the principal structural members of a ship, and the proper nomenclature for the various components are taught in this course. Construction materials and fabrication techniques will be studied. Students will be taught to sue ship's plans and the deadweight scale to extract pertinent data. The history of ship development will be discussed, with a focus on the various tonnages used as a measurement of a ship's size and capacity. Common loading conditions and terms will be taught and proved a base of knowledge for discussion in other courses and use in related maritime industries.

*Prerequisite: None*

*STCW: Knowledge*

COURSE	NAME	CREDIT
<b>MT-2161</b>	<b>Rules of the Road</b>	<b>3</b>
<p>This course is designed to meet all Rules of the Road knowledge-based assessments and the three performance-based assessments, each of which forms part of the requirements for Officer in Charge of a Navigation Watch (STCW 10). The objective of this rigorous program of study is to provide the student with a thorough knowledge of the content, application, and intent of the International Regulations for Preventing Collisions at Sea (COLREGS) and the Unified Inland Navigation Rules and Regulations (INLAND RULES). <i>STCW: Knowledge and Practical</i>  <i>Prerequisites: MT-1221, ST-0999 (minimum C- in both)</i></p>		
<b>MT-2222</b>	<b>Celestial Navigation</b>	<b>4</b>
<p>This course covers the requirements of the 1978 STCW Convention as amended in 1995 and 2010. The course covers the theory and practice of navigation necessary for the effective and safe navigation of a vessel, including the use of charts, position fixing by celestial observations and the extraction of information from relevant navigational publications. It introduces and focuses on the theory and practice of the use of observations of celestial bodies for determining lines of position and checking compass errors. [Lab time required]  <i>Prerequisite: MT-2121 (minimum C-)</i> <i>STCW: Knowledge</i></p>		
<b>MT-2231</b>	<b>Basic Seamanship</b>	<b>4</b>
<p>This course teaches marlinspike, lifesaving and safety equipment, advanced fire fighting techniques, use of deck machinery, boat handling, and watchstanding procedures for deck and/or bridge watchkeeping. Students will be able to apply these skills appropriately when in charge of a navigational watch. Course consists of classroom and practical experience on T.S. <i>Kennedy</i> and Academy small boats. [Lab time required]  <i>Prerequisite: ST-0999 (minimum C-)</i> <i>STCW: Knowledge</i></p>		
<b>MT-2371</b>	<b>Sea Term II: Marine Transportation</b>	<b>6</b>
<p>Provides an opportunity for cadets to obtain sea service as an officer in charge of a navigational watch in a structured shipboard training program. The training uses a building block approach, bringing the cadet up to an acceptable level of proficiency in each area of required competence. Shipboard training is closely integrated with the shore-based academic curriculum at the Academy. The Sophomore Sea Term focuses upon all facets of shipboard operations and provides cadets an opportunity to practice terrestrial navigation skills. <i>STCW: Knowledge</i>  <i>Prerequisites: MT-1221, ST-0999 (minimum C- in both)</i></p>		

COURSE	NAME	CREDIT
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**MT-2501 Introduction to Offshore Operations 3**

This introductory course covers the offshore oil exploration industry, its associated equipment, and its technology, including information on the production and support functions within the offshore industry. After completing the course, students will have a basic understanding of the offshore industry, its terminology, and its career options.

*Prerequisites:* ST-0999 & either SM-1212 or SM-1214     *STCW:* None

**MT-3122 Radar Observer Certification 3**

This course is designed to meet all RADAR Observer knowledge-based assessments and the twelve performance-based assessments, which form part of the requirements for Officer in Charge of a Navigation Watch (STCW 10). Students who successfully complete the course will be able to recognize when radar should be in use, select a suitable mode and range setting for the circumstances, set the controls for optimal performance, and will understand the accuracy limitations of the equipment in detecting targets. Students will also be able to compare the radar display with the chart, select suitable land targets, and use these targets to fix position. In addition, students will understand the need to maintain a continuing plot of ship targets that may pose a potential threat of collision, be able to derive from the plot the necessary information about the courses, speeds and closest points of approach of other ships, enabling timely action in accordance with 72-COLREGS and Inland Rules and preventing a close-quarters situation. This course satisfies the requirements for a USCG RADAR endorsement. [Lab time required]

*Prerequisites:* MT-2161, MT-2121     *STCW:* Knowledge & Practical (minimum C- in both)

**MT-3131 Meteorology 3**

This course gives a basic understanding of meteorology, and its application to shipboard operations. The student will have a knowledge of meteorological instruments and their application, knowledge of the characteristics of various weather systems, reporting procedures and recording systems, and the ability to apply the meteorological information available. In addition, the knowledge gained in this subject will serve as the basis for further training to the level of chief mate and master.

*Prerequisite:* SM-2121     *STCW:* Knowledge

COURSE	NAME	CREDIT
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<b>MT-3151</b>	<b>Dangerous Liquid Cargo</b>	<b>4</b>
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Within this course, the student will learn the characteristics, hazards and safe practices for the handling of petroleum and chemical products. Students may practice the actual loading of cargo/ballast aboard the Academy's 40-foot tank barge. In the lab, using the liquid loading simulator, students practice loading, discharging and tank cleaning. This course satisfies the knowledge-based assessments necessary for endorsements as tankerman-PIC, Tankerman-PIC (barge), Tankerman Assistant, and Tankerman-Engineer. Each student is issued a Dangerous Liquid Cargo Certificate upon satisfactory completion of this course. [Lab time required]

*Prerequisite: None*

*STCW: Knowledge*

<b>MT-3171</b>	<b>Tugs and Towing I</b>	<b>3</b>
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An introductory course on the towing industry. This course encompasses the design, construction, and use of towing vessels. Also examined are the various uses of modern tugs, including ship handling, shifting, escort services, and inland and offshore towing. In addition, emphasis is placed on the development of basic skills for handling tugs, barges, and limited-tonnage vessels. [Lab time required]

*Prerequisites: MT-1111, MT-2231 (minimum C- in both)*    *STCW: None*

<b>MT-3221</b>	<b>Electronic Navigation</b>	<b>4</b>
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This course contains knowledge of basic signaling and radiotelephone communications, including Morse code, flashing light, International Code of Signals, and of distress, urgent, safety, and navigational messages. Students will gain knowledge of basic theory of electronic navigational aids and instruments, such as GPS, DGPS, AIS, SARIS, NAVTEX, EPIRB, fathometers, lifeboat, radios, and speed logs. At completion, students will appreciate the danger of exclusive reliance on information gained from instruments. [Lab time required]

*Prerequisite: None*

*STCW: Knowledge*

COURSE	NAME	CREDIT
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**MT-3222 Automatic Radar Plotting Aids (ARPA) 2**

This course is designed to meet all ARPA knowledge-based assessments and the fourteen performance-based assessments, which form part of the requirements for Officer in Charge of a Navigation Watch (STCW 10). Students who successfully complete the course will be able to choose an appropriate mode of display, select plotting graphics controls suitable to the circumstances, make appropriate use of operational alarms, acquire and track those targets which present a potential threat of collision, extract the information needed on course, speed, and closest point of approach to enable early action and prevent a close-quarters situation, and use ARPA to confirm and monitor their actions. Students will be aware of the dangers of over reliance on automatic acquisition and tracking of targets and on operational alarms. They will also be aware of factors (including errors in course and speed inputs) which may affect accuracy and the correct functioning of the ARPA. This course satisfies the requirements for a USCG ARPA endorsement.

*Prerequisite:* MT-3122 (minimum C-) *STCW: Knowledge & Practical*

**MT-3224 Electronic Chart Display & Information System (ECDIS) 3**

This course is designed to enhance navigational safety through the correct operation of ECDIS equipment by the officer in charge of a navigational watch. The integrated lecture/lab experience will allow each student to practice each required proficiency task on individual ECDIS/simulation stations as the topic is covered. Course content covers the theory of ECDIS, IMO regulations, and requirements and performance standards governing the use of ECDIS. This course meets the STCW requirements for ECDIS certification. [Lab time required]

*Prerequisite:* MT-3222 (minimum C-) *STCW: Knowledge & Practical*

**MT-3231 Applied Shiphandling 3**

Using the Full Mission Ship Simulator (FMSS) and the training vessel *Ranger*, students will gain experience in handling vessels under all conditions. Students will gain familiarization with the use of engines and helm for ship maneuvering and of the effects on ship behavior of wind, current, shallow water, banks, narrow channels, and conditions of loading. They will also acquire a greater awareness of the importance of planning a passage or maneuver and of the need for alternative plans.

*Prerequisites:* MT-4132 & either MT-3371 or MT-3372;

*Corequisite:* MT-3222 (minimum C-) *STCW: None*

COURSE	NAME	CREDIT
<b>MT-3251</b>	<b>Maritime Security Management</b>	<b>3</b>
<p>This course provides the basic framework and knowledge to perform the duties and responsibilities of a Company Security Officer (CSO), Port Facility Security Officer (PFSO), or Ship Security Officer (SSO) as defined by the ISPS Code. Includes duties and responsibilities of a security officer, creating, implementing and maintaining a security plan, working with other security officers.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MT-3252</b>	<b>Port and Terminal Operations Management</b>	<b>3</b>
<p>Studies the history, growth, organization, and operation of major ports and transportation terminals. Emphasis is placed on the day-to-day operational, financial, and labor issues of ports and terminals. Both private and public ports are examined.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>MT-3262</b>	<b>Containerization and Modern Cargo Stowage</b>	<b>3</b>
<p>Students will be able to supervise the preparation of holds and the operation of ships' cargo gear and will be aware of the importance of adequately securing cargo to prevent damage to the ship or cargo aboard break-bulk, container, bulk and other types of dry cargo vessels, including an introduction to underway replenishment operations. Students will identify dangerous goods and know that they are to be stowed and separated according to the requirements of the IMDG Code. They will also know the hazards related to some bulk cargoes and the precautions to take during their loading and carriage. Knowledge of various water ballast systems and hatch cover systems will be imparted. Students will know the responsibilities for carrying cargo and cargo claim prevention principles.</p> <p><i>Prerequisites: MT-2141, MT-2231 (min. C- in both)</i> <span style="float: right;"><i>STCW: Knowledge</i></span></p>		
<b>MT-3371</b>	<b>Sea Term III: Marine Transportation</b>	<b>6</b>
<p>The sea term provides an opportunity for cadets to obtain sea service as an officer in charge of a navigational watch. Shipboard training focuses on all aspects of shipboard operations, the Junior Sea Term is an opportunity for the Marine Transportation Cadet to explore the vessel and learn its systems in a manner similar to that by which they would do so on a commercial sea term. The cadet will then utilize that information while assisting in the operation of the vessel and while standing daily watches. The Commercial Sea Term project is used to determine the Sea Term III grade.</p> <p><i>Prerequisites: MT-2222, MT-2371, MT-3122 (min. C- in all three)</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
<b>MT-3372</b>	<b>Commercial Sea Term: Marine Transportation</b>	<b>6</b>
	Replaces Sea Term III. Qualified deck-cadets are afforded an opportunity to train aboard commercially operated vessels in the deck-cadet rating in lieu of sailing aboard the Academy's training ship. Candidates must attain junior status during the previous academic term. A comprehensive Sea Project is due upon completion of Commercial Sea Term. <i>Prerequisites: (Min. C- in all) MT-2222, MT-2371, MT-3122, STCW-VPDSD</i> <i>STCW: None</i>	
<b>MT-3451</b>	<b>Yacht Operations</b>	<b>3</b>
	Introductory course to the exciting field of yacht operations intended to be an overall introduction to working on and around yachts. Topics include career options onboard and ashore; relations with crews, owners and charterers; onboard duties and responsibilities; yacht systems, such as households, engineering, communications, and entertainment; yacht business, including storing and supply, shore-side operations; insurance; and port clearance. <i>Prerequisite: ST-0999</i> <i>STCW: None</i>	
<b>MT-3452</b>	<b>Yacht IT/AV Systems</b>	<b>3</b>
	This is an introductory course to the field of yacht electronics. Topics include navigation systems, including electronic navigation equipment, integrated bridge systems, networking, and interchangeability; communications systems, such as satellite and WiFi; audio-visual systems, such as satellite television, audio systems, shipboard theater systems, and CCTV security systems; as well as maintenance and troubleshooting of electronics. Students will also learn the role of a yacht electronic technical officer (ETO). <i>Prerequisite: MT-3451</i> <i>STCW: None</i>	
<b>MT-3453</b>	<b>Ship's Operation</b>	<b>6</b>
	This course familiarizes non-license track students with the fundamental principles of Marine Transportation and vessel operations. Through this eight-week course, students will be introduced to navigation techniques, meteorology, maintenance, watch standing, shipboard deck operations, seamanship, shipboard safety, and firefighting training. Students will rotate through divisional responsibilities of watch, maintenance, training, and liberty when in port. <i>Prerequisite: MT-1111 or approved Basic Safety Training</i> <i>STCW: None</i>	

COURSE	NAME	CREDIT
<b>MT-4122</b>	<b>Global Maritime Distress and Safety System</b>	<b>4</b>
<p>Students will be taught to operate the radio communications required on board GMDSS-compliant vessels. Students will become proficient with GMDSS equipment and procedural operation along with developing a knowledge of radio wave propagation. The Electronic Navigation and GMDSS Solo courses contain all of the elements contained in the GMDSS model course developed in the United States. This course satisfies the requirements necessary to earn the STCW-10 endorsement as a Global Maritime Distress and Safety System Operator. [Lab time required]</p> <p><i>Prerequisite: MT-3221 (min. C-)                      STCW: Knowledge &amp; Practical</i></p>		
<b>MT-4132</b>	<b>Advanced Seamanship</b>	<b>4</b>
<p>Operating a vessel safely and efficiently under all weather conditions requires a skill set for operating and maintaining a vessel and a knowledge of a vessel's fittings and equipment. Under the supervision of experienced master mariners, students in this program develop seamanship skills through hands-on experience and learn critical thinking and problem-solving skills through the use of case studies of marine casualty investigations. This capstone course provides the new deck officer with a strong foundation in the fundamentals of traditional seamanship and exposes the individual to best practices in the ever-evolving shipboard technologies and operations necessary to compete in the global marine industry. Topics include search and rescue, damage control, marine salvage, tug and towing fundamentals, ice navigation, anchoring/mooring, heavy weather precautions, ship/helicopter operations, and advanced ship handling techniques. An intensive, hands-on seamanship lab program complements the classroom experience. [Lab time required]</p> <p><i>Prerequisite: MT-2231 (minimum C-)                      STCW: Knowledge</i></p>		
<b>MT-4133</b>	<b>Bridge Resource Management</b>	<b>4</b>
<p>A capstone assessment program allowing deck, undergraduate students an opportunity to demonstrate competency in Bridge Resource Management and Watchstanding for STCW 10 and USCG licensing requirements. Students successfully completing these competencies are capable of undertaking all of the duties and responsibilities expected of a deck watchkeeping officer. Upon successful completion of this course, a U.S. Coast Guard approved certificate is issued certifying that the holder demonstrates appropriate competence in watchkeeping, bridge team management, and bridge resource management, meeting the standards prescribed by IMO/STCW and the U.S. Coast Guard. [Lab time required]</p> <p><i>Prerequisite: MT-3231; Corequisite: MT-3224                      STCW: Knowledge &amp; Practical</i></p>		



COURSE	NAME	CREDIT
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**MT-4252 Licensing Seminar: Marine Transportation 3**

Prospective deck license candidates will be prepared for the United States Coast Guard license examination for Officer In Charge of a Navigation Watch (OICNW) and for Third Mate, Steam and Motor Vessels of any gross tons upon oceans. This objective will be achieved through a structured curriculum which includes a comprehensive review of all the nautical science disciplines. Classroom lectures, discussions, and student assignments, as well as a rigorous weekly objective testing program, will be utilized.

*Prerequisites: MT-4371 and USCG licensing prerequisites*

*STCW: None*

**MT-4371 Sea Term IV: Marine Transportation 6**

Provides an opportunity for cadets to obtain sea service as an officer in charge of a navigational watch in a structured shipboard training program. The training uses a building-block approach bringing the cadet up to an acceptable level of proficiency in each area of required competence. Shipboard training is closely integrated with the shore-based academic curriculum at the Academy. Particularly focusing on watchstanding and celestial navigation, the senior cruise is an opportunity for the Marine Transportation cadet to put together all facets of shipboard operations and to utilize them while in charge of the vessel and watches.

*Prerequisites: LB-0201, MT-3231, MT-3222 (min. C-), & either MT-3371 or MT-3372*

*STCW: Knowledge & Practical*

**MT-4451 Marine Operations and ISM Code 3**

This online elective course introduces students to the requirements of the International Safety Management Code and provides a foundation in the operational safety requirements necessary for effective operation and management of ships and tugboats. Ships of 500 GRT operating outside the boundary line are required to meet the code and undergo audits by flag state or Class to the ISM requirements. Deck officers, engineering officers, and office staff will benefit from a solid understanding of this international standard. The ISM code operational elements will be explored using a set of online lectures, discussions, reading assignments and case studies.

*Prerequisite: None*

*STCW: None*

COURSE	NAME	CREDIT
<b>NS-2111</b>	<b>Naval Science for the Strategic Sealift Officer</b>	<b>3</b>
<p>An introduction to the Merchant Marine/U.S. Naval relationship. The concept of sea power, the national importance of a viable U.S. Merchant Marine, and the mission of the U.S. Navy are among the major points covered. The basic administrative and operational organization of the U.S. Navy is examined and discussed. This course is mandatory for the Strategic Sealift Midshipman Program and prospective strategic sealift (SSMP) midshipmen. The course may also be taken as a free elective.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>NS-3111</b>	<b>Strategic Sealift Officer I</b>	<b>3</b>
<p>Provides instruction for future Strategic Sealift Officers or active duty Navy commissioning candidates. Topics of study include an introduction to naval warfare, policies, procedures, weapons systems, career opportunities, and the fundamentals of military leadership. This course is mandatory for all students seeking an SSOP-USNR reserve commission or a USN active duty commission.</p> <p><i>Corequisite: NS-2111</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>NS-4111</b>	<b>Leadership and Ethics</b>	<b>3</b>
<p>This course is an advanced leadership and management seminar designed to prepare newly commissioned naval officers with the tools necessary for effective military leadership. The course integrates an intellectual exploration of Western moral traditions and ethical philosophy with military leadership, core values, professional ethics, the Uniform Code of Military Justice, and Navy regulations. The purpose of this capstone course is to provide our future naval leaders with a sound moral leadership foundation for “real-life” military decision making. The course is mandatory for all senior SSMP Midshipmen.</p> <p><i>Prerequisites: NS-2111, NS-3111</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>NS-4211</b>	<b>Strategic Sealift Officer II</b>	<b>2</b>
<p>This course builds upon Leadership and Ethics. It constitutes the commissioning preparation for SSOP and active duty Ensigns. The course is adapted from the SSOP Post-Commissioning Indoctrination (PCI) course, and includes an in-depth study of Naval Officer practices, future responsibilities as a Naval Officer in the SSOP or active duty Navy, and practical application of officer functions. The course is mandatory for all senior SSMP Midshipmen.</p> <p><i>Prerequisite: NS-4111</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
<b>PE-0031</b>	<b>Basic Safety CPR</b>	<b>0</b>
Provides minimum standard of competence in elementary first aid (Table A-VI/1-3). A component of Basic Safety Training certification. Also provides American Red Cross First Aid/CPR certification.		
<i>Prerequisite: None</i> <span style="float: right;"><i>STCW: Knowledge &amp; Practical</i></span>		
<b>PE-0032</b>	<b>STCW Medical Care Provider</b>	<b>0</b>
Provides American Red Cross First Aid/CPR certification and STCW Medical Care Provider certification. Provides minimum standard of proficiency for persons designated to provide medical first aid on board ship.		
<i>Prerequisite: None</i> <span style="float: right;"><i>STCW: Knowledge and Practical</i></span>		
<b>PS-0301</b>	<b>STCW Personal Survival</b>	<b>0</b>
Together with LB-0203, this course provides minimum standard of competence in personal survival techniques (STCW Table A-VI/1-1). Instruction and assessment in water survival during shipboard emergency to abandon ship. Instruction in dangers to the survivor in the water and the use of personal survival clothing and lifesaving devices. A component of Basic Safety Training certification.		
<i>Prerequisite: None</i> <span style="float: right;"><i>STCW: Knowledge &amp; Practical</i></span>		
<b>SM-0112</b>	<b>Intermediate Algebra</b>	<b>0</b>
This is a review of high school algebra to prepare students for college-level mathematics. Topics include rational, radical, and quadratic equations, introduction to conics, exponential, and logarithmic functions.		
<i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span>		
<b>SM-1111</b>	<b>Precalculus with Trigonometry</b>	<b>3</b>
An introduction to algebraic, trigonometric, logarithmic, and exponential functions with applications. Analytic, graphic, and numerical methods to solve polynomial, trigonometric, exponential, and logarithmic equations and systems of linear and non-linear equations are explored. Also taught is the solution of triangles, including right triangle trigonometry, the law of sines, and the law of cosines. The use of a graphics calculator is an integral part of this course. Note: ESE students are not permitted to take this course as a free elective.		
<i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span>		
<b>SM-1131</b>	<b>Chemistry I</b>	<b>3.5</b>
An introduction to general chemistry, emphasizing descriptive chemistry, fundamental principles, and problem-solving techniques. Topics include measurements, periodic properties, chemical bonding, nomenclature, chemical reactions, and stoichiometry. [Lab time required]		
<i>Corequisite: SM-1111</i> <span style="float: right;"><i>STCW: None</i></span>		

COURSE	NAME	CREDIT
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**SM-1212 Calculus I** **3**

This course introduces fundamental skills from both differential and integral calculus. The differential calculus topics include limits, continuity, the derivative, rules for derivatives of certain algebraic and transcendental functions, applications of the derivative (such as velocity and acceleration, related rates, optimization problems), higher derivatives, the chain rule, and implicit differentiation. The integral calculus topics include anti-derivatives, the area bounded by a curve, indefinite and definite integrals, the Fundamental Theorem of Calculus, integration by substitution, the Trapezoid Rule and other methods of numerical integration. Topics are explored analytically, graphically, and numerically. The use of a graphics calculator is an integral part of this course.  
*Prerequisite: SM-1111 (minimum C-grade)* *STCW: None*

**SM-1214 Applied Calculus** **3**

This one-semester course will present differential and integral calculus using algebraic, exponential and logarithmic functions. These topics will be used to study selected applications in business and the sciences, including motion and environmental problems. This course does not fulfill the prerequisite for SM-2113. Credit will not be given for both SM-1212 and SM-1214.  
*Prerequisite: SM-1111* *STCW: None*

**SM-1232 Chemistry II** **3.5**

A continuation of Chemistry I. Topics include gas laws, solutions, acid-base theory, redox reactions, nuclear chemistry, and organic chemistry. [Lab time required]  
*Prerequisite: SM-1131* *STCW: None*

**SM-2113 Calculus II** **3**

A continuation of SM-1212 with an emphasis on engineering applications such as rectilinear motion, areas, volumes, centroids, work, and arc length. Also covered are the calculus of transcendental functions and methods of integration such as substitution, integration by parts, and partial fractions. The use of a graphics calculator is an integral part of this course.  
*Prerequisite: SM-1212 (minimum C-grade)* *STCW: None*

COURSE	NAME	CREDIT
<b>SM-2115</b>	<b>Applied Environmental Mathematics</b>	<b>3</b>
Applications of calculus and related mathematics to problems associated with environmental science and emergency management. Topics include exponential growth and decay, predator-prey problems, using counting techniques to determine probabilities, regression analysis, and difference equation modeling.		
<i>Prerequisite: SM-1212 or SM-1214</i>		<i>STCW: None</i>
<b>SM-2117</b>	<b>Quantitative Methods for Management</b>	<b>3</b>
This course studies selected mathematical techniques, including calculus, for the analysis of business and economic problems as an aid to decision-making in management. Topics may include marginal analysis, optimization, models and applications of decision theory, linear programming, the transportation problem, and network models.		
<i>Prerequisite: SM-1212 or SM-1214</i>		<i>STCW: None</i>
<b>SM-2119</b>	<b>Applied Mathematics for Deck Officers</b>	<b>3</b>
An introduction to spherical trigonometry: solution methods for both right and oblique spherical triangles including applications in great circle sailing and dead reckoning. Additional topics include applications of calculus, linear programming, and an introduction to statistics. The use of a graphics calculator is an integral part of this course.		
<i>Prerequisite: SM-1212 or SM-1214</i>		<i>STCW: None</i>
<b>SM-2121</b>	<b>College Physics I</b>	<b>3.5</b>
An introduction to the basic concepts of physics utilizing algebra and trigonometry to study the fundamental principles of vectors, statics, dynamics, energy, momentum, and circular motion. Credit will not be given for both SM-2121 and SM-2123. [Lab time required]		
<i>Prerequisite: SM-1111</i>		<i>STCW: None</i>
<b>SM-2123</b>	<b>Engineering Physics I</b>	<b>3.5</b>
An introduction to the fundamental principles of physics with an emphasis on rigid body mechanics. Newton's laws and the conservation principles of energy and momentum are included. [Lab time required]		
<i>Prerequisite: SM-1212; Corequisite: SM-2113</i>		<i>STCW: None</i>



COURSE	NAME	CREDIT
<b>SM-2214</b>	<b>Differential Equations</b>	<b>3</b>
Includes solution techniques with applications for separable and linear first-order and linear second-order differential equations. It also includes graphical and numerical solutions with the graphics calculator and/or computer software. Additional topics may include systems of differential equations, nonlinear dynamics, modeling, Laplace transforms, and series solutions.		
<i>Prerequisite: SM-2113</i>		<i>STCW: None</i>
<b>SM-2218</b>	<b>Statistics</b>	<b>3</b>
An introduction to the basic concepts of statistics with an emphasis on working with real-world data and statistical ideas. Topics include data analysis of one and two variables, confidence intervals, hypothesis testing and comparison of two means using the t-test. Technology used includes the graphics calculator, spreadsheets, and/or statistical software. Credit will not be given for both SM-2218 and SM-3005.		
<i>Prerequisite: SM-1212 or SM-1214</i>		<i>STCW: None</i>
<b>SM-2222</b>	<b>College Physics II</b>	<b>3.5</b>
A continuation of College Physics I with topics including fluids, heat, wave motion, sound, light, electricity and magnetism, AC circuits. [Lab time required]		
<i>Prerequisite: SM-2121 or SM-2123</i>		<i>STCW: None</i>
<b>SM-2224</b>	<b>Engineering Physics II</b>	<b>3.5</b>
This course is an introduction to the basic principles of electricity and magnetism with emphasis on the theory of DC and AC circuits. The topics include electric field and Coulomb's law, series and parallel circuit analysis using Ohm's law and Kirchhoff's laws, transient behavior of capacitive and inductive circuits, magnetic field and electromagnetic induction based on Faraday's law and Lenz's law, AC circuit analysis using the concepts of impedance and phasors, and AC power analysis. [Lab time required]		
<i>Prerequisite: SM-2113; Corequisite: SM-2214</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>SM-2233</b>	<b>Organic/Hazardous Materials Chemistry</b>	<b>3.5</b>
<p>An introduction to organic and inorganic chemistry with an emphasis on the materials likely to appear as a hazardous material or weapon of mass destruction. Topics include Organic Chemistry: -naming, structure, properties, reactions and decomposition mechanisms; chemistry of hazardous organic compounds; flammable gases and liquids; chemistry of corrosive materials; heats of reaction, including explosive materials; concentrations and chemistry of toxic substances; chemistry of water-reactive substances; and chemistry of explosive polymeric materials. Inorganic Chemistry: metals, non-metals, gases; and redox chemistry. [Lab time required]</p> <p><i>Prerequisite:</i> SM-1131</p> <p style="text-align: right;"><i>STCW:</i> None</p>		
<b>SM-3005</b>	<b>Probability and Statistics</b>	<b>3</b>
<p>This course provides an emphasis on statistical methods and how they can be applied to problems in science and engineering. Examples include real, contemporary data sets to show connections to industry and scientific research. The course emphasizes applications rather than theory. Topics covered include descriptive statics, probability, confidence intervals, hypothesis testing, linear correlation and regression, factorial experiments, and statistical quality control.</p> <p><i>Prerequisite:</i> SM-2113</p> <p style="text-align: right;"><i>STCW:</i> None</p>		
<b>SM-3006</b>	<b>Materials Science</b>	<b>3</b>
<p>This course will be co-taught with the Engineering Department. It will cover a wide range of materials, and involve studies of their chemical and engineering properties. Materials to be covered include crystals, semiconductors, polymers, composites and coatings. Physical and chemical properties will be discussed as a function of composition. Electrochemistry, corrosion, crystal structures, fracture mechanics, and strengthening methods are some of the topics to be covered. Real-world applications will be a focus of discussions.</p> <p><i>Prerequisite:</i> SM-1232 or SM-2233</p> <p style="text-align: right;"><i>STCW:</i> None</p>		
<b>SM-3111</b>	<b>Introduction to Radiological Materials</b>	<b>3</b>
<p>This course provides an introduction to nuclear physics, chemistry, nuclear processes, and chart of nuclides. Topics include: nuclear chemistry; radioactivity; naturally occurring radioactive isotopes; nuclear reactions; transuranium elements; energetics of nuclear reactions; nuclear fission; effect of radiation on matter; radioactive waste disposal; nuclear physics; nuclear structure; radioactivity, decay rate/half life; nuclear stability and safety; radiation detection and applications.</p> <p><i>Prerequisites:</i> SM-1131, SM-2121</p> <p style="text-align: right;"><i>STCW:</i> None</p>		

COURSE	NAME	CREDIT
<b>SM-3125</b>	<b>Engineering Physics III</b>	<b>3</b>
An introduction to the basic laws of engineering-based thermodynamics with an emphasis on open and closed systems. Some topics covered include processes and cycles, the use of property tables, the first law of thermodynamics, and the analysis of several steady- and unsteady-flow devices.		
<i>Prerequisites:</i> SM-1232, SM-2113, SM-2123		<i>STCW:</i> None
<b>SM-3234</b>	<b>Environmental Chemistry</b>	<b>4</b>
A study of the inorganic and organic chemical principles which relate to an understanding of our nonliving and living environment. Emphasis is placed on the interdependence of these natural processes. Issues relating to the disruption of these systems and the synthesis, mode of action, and mechanisms of removal of specific pollutants are among the topics discussed. [Lab time required]		
<i>Prerequisite:</i> SM-2233		<i>STCW:</i> None
<b>SM-6115</b>	<b>Calculus III</b>	<b>3</b>
An extension of material in the introductory calculus sequences including topics from among algebraic substitution, DeMoivre's theorem, Euler's formula, sequences and series (including Fourier series), series solutions of differential equations, polar coordinates, L'Hopital's rule, improper integrals, and vector calculus.		
<i>Prerequisite:</i> SM-2214		<i>STCW:</i> None
<b>SR-0401</b>	<b>STCW Personal Safety/Social Responsibility</b>	<b>0</b>
Provides minimum standards of competence in personal safety and social responsibility. Instruction in emergency procedures on board ship, precautions to prevent pollution of the marine environment, observing safe working practices, understanding shipboard orders and contributing to effective human relationships on board ship. A component of Basic Safety Training certification.		
<i>Prerequisite:</i> None		<i>STCW:</i> Knowledge
<b>SS-1211</b>	<b>Western Civilization</b>	<b>3</b>
A survey of Western civilization from the early modern period through the industrial revolution to the present. Changes in the social, intellectual, and political structure of Western civilization are stressed.		
<i>Prerequisite:</i> None		<i>STCW:</i> None

<b>COURSE</b>	<b>NAME</b>	<b>CREDIT</b>
<b>SS-2121</b>	<b>American Government</b>	<b>3</b>
	Teaches American governmental organization: local, State, and Federal offices; United States democratic processes; political organizations; and State and Federal constitutions.	
	<i>Prerequisite: None</i>	<i>STCW: None</i>
<b>SS-2131</b>	<b>Microeconomics</b>	<b>3</b>
	An examination of the structure of the market is presented, including product and factor pricing, allocation of resources and distribution of income, market equilibrium, and analysis of domestic and international problems and policies.	
	<i>Prerequisite: None</i>	<i>STCW: None</i>
<b>SS-2231</b>	<b>Macroeconomics</b>	<b>3</b>
	A survey of economic theory with an emphasis on the dynamics of the capitalist system, the role of the government, the banking structure, and international economics. Note: Credit will not be given for both IM-1212 and SS-2231.	
	<i>Prerequisite: None</i>	<i>STCW: None</i>
<b>SS-2232</b>	<b>World Economic Geography</b>	<b>3</b>
	This course focuses on the location and distribution of production, marketing, and consumption activities to a region, through an analysis of population characteristics, technological innovation, transportation systems, urban/rural interaction, and energy production and consumption.	
	<i>Prerequisite: SS-2131 or SS-2231</i>	<i>STCW: None</i>
<b>SS-2233</b>	<b>Political Geography</b>	<b>3</b>
	This course is designed to examine the geographical basis of political conflict and international relations. Emphasis will be on power and conflict in the regional framework. Topics include governing bodies from NATO to local government; terrorism, conflict and succession movements non-governmental organizations; geopolitics; power, territory, and the nation state; policy and governance.	
	<i>Prerequisite: SS-1211 or SS-2121</i>	<i>STCW: None</i>

COURSE	NAME	CREDIT
<b>SS-3131</b>	<b>Environmental Economics</b>	<b>3</b>
<p>Students study the impact of the economy on the environment and the appropriate methods to regulate economic activity so as to maintain the fragile balance between environmental, economic, and social objectives. Selected topics in environmental economics will be reviewed to illustrate the application of economic principles to environmental decision making. The course is designed to equip students to appreciate the economic arguments central to resource allocation, usage, and their environmental implications. Students will examine the trade-offs that environmental issues entail and the need to formulate policies at the national and international levels to rectify current practices harmful to the environment.</p> <p><i>Prerequisites:</i> SS-1211 &amp; either SS-2131 or SS-2231      <i>STCW:</i> None</p>		
<b>SS-3141</b>	<b>Introduction to Psychology</b>	<b>3</b>
<p>This course is an introduction to human behavior with a concentration on groups and the behavior of groups under the leadership of a tyrant. Topics include the brain; localization of functions in the brain; sensory psychology; taste, smell, and hearing; vision; sensory deprivation; introduction to motivation; sexual motivation; stress; conditioning and desensitization; memory; hypnosis and pain; genetic psychology; personality; abnormal psychology/group psychology; persuasion, propaganda, and attitude change.</p> <p><i>Prerequisite:</i> None      <i>STCW:</i> None</p>		
<b>SS-3211</b>	<b>American Maritime History</b>	<b>3</b>
<p>A study of the development of American maritime enterprise from colonial times to the era of the container ship, and its relationship to American political, economic, and cultural history.</p> <p><i>Prerequisite:</i> SS-1211      <i>STCW:</i> None</p>		
<b>SS-3212</b>	<b>U.S. Foreign Policy Since 1945</b>	<b>3</b>
<p>A study of United States foreign policy, since World War II. Emphasis is placed on current foreign policy issues in their historical context.</p> <p><i>Prerequisite:</i> SS-1211      <i>STCW:</i> None</p>		
<b>SS-3213</b>	<b>Seapower in World History</b>	<b>3</b>
<p>Power in connection with maritime states and peoples is traced as a thread in world history. An analysis of various components in seapower, such as agriculture, commerce, geopolitics, industry, political organization, population, natural resources, technology, and military and naval science are made.</p> <p><i>Prerequisite:</i> SS-1211      <i>STCW:</i> None</p>		

COURSE	NAME	CREDIT
<b>SS-3214</b>	<b>Europe in the Middle Ages</b>	<b>3</b>
<p>This seminar course covers the period from the contraction of the Roman Empire to the first stirrings of the Renaissance, circa 1450. Political events such as the consolidation and growth of national monarchies in France and England are discussed, but emphasis is placed on the intellectual, economic, and social currents of the age.</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3215</b>	<b>20th-Century History</b>	<b>3</b>
<p>This survey course traces the major social, economic, and political developments in American society. Special attention is given to the reform movements associated with the Progressive Era and the New Deal, and to America's development as a world power.</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3216</b>	<b>Ancient History Seminar</b>	<b>3</b>
<p>This course covers the development of western civilization from the Paleolithic era through the contraction of the Roman Empire to approximately 450 A.D. Although the early civilizations of Mesopotamia and Egypt are covered in some detail, emphasis is placed on the Hebrew, Greek, and Roman civilizations.</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3217</b>	<b>Vietnam and U.S. Policy</b>	<b>3</b>
<p>An analysis of the Vietnam conflict as an instrument of United States foreign policy to contain and turn back the communist insurgency. To examine the roots of the conflict, this course begins with a study of communism as a social and political philosophy. Analysis of the United States involvement in Vietnam will begin with the post World War II period (1945) and continue to the fall of Saigon (1975).</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3218</b>	<b>Civil War and Reconstruction</b>	<b>3</b>
<p>An in-depth look at the events leading up to the Civil War, analysis of the war itself, and a study of the Reconstruction period.</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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**SS-3219 American History I: Origins to 1865 3**

This survey of American History from exploration through the Civil War will focus on the political, social, economic, religious and legal aspects of American life. Topics explored will be the motives and means of exploration in the New World, early English settlement, colonial conflicts and the eventual move toward the American Revolution, the Constitution period and Early Republic, the Era of Good Feelings, the Age of Jackson and the antebellum years of America. The course will culminate in the Civil War which immeasurably changed America.

*Prerequisite:* SS-1211

*STCW:* None

**SS-3220 American History II: 1865 to the Present 3**

This survey of American history from the Civil War to the Present will focus on the political, social, economic, religious, and legal aspects of American life after the Civil War. Topics explored will be Reconstruction, Indian Wars, Urbanization, Immigration and American Imperialism, and the Reform of the Progressive Era. The course will examine America's entry into World War I and the economic boom and bust of the 1920s and 1930s. One of the main foci of the course will be the experience of the Second World War and how it has shaped American and world history since. The Cold War, the Korean and Vietnam wars and the momentous year of 1989 will be used to demonstrate how the events of World War II have changed America. The course will end by examining the 1990s and America's future.

*Prerequisite:* SS-1211

*STCW:* None

**SS-3221 Business Law 3**

An introductory, one-semester, elective course that provides students with a foundation on the legal system of the United States both on a State and Federal level, in addition to comparing briefly the civil and common law systems of jurisprudence.

*Prerequisite:* None

*STCW:* None

**SS-3222 Real Estate Law 3**

The single largest purchase the average consumer will make is a home. This course will enable students to identify potential problems relating to the purchase and rental of real estate. The course will cover real estate contracts, transfer of title, title examination, security for real estate transactions, problems with co-ownership of property, and landlord and tenant rights and responsibilities.

*Prerequisite:* None

*STCW:* None

COURSE	NAME	CREDIT
<b>SS-3223</b>	<b>European Union Law</b>	<b>3</b>
<p>An introductory course examining the legal structure and development of the European Union, the world's largest market. Students will examine the institutional law of the European Union, the interaction of this law with the national law of the 25 member states, the protection of fundamental rights, the interaction of the European Convention on Human Rights with the European Union, and the proposed European Constitution.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3224</b>	<b>International Business Law</b>	<b>3</b>
<p>This course introduces students to the legal aspects of international business transactions. Students examine the legal considerations with respect to doing business abroad and the laws dealing with the settlement of disputes, the organization and jurisdiction of international tribunals, the international sale of goods, the European Union, the transportation of goods in international trade and accompanying documents, and the general Agreement on Tariffs and Trade along with topics illustrating the legal relationship between business ventures and the international community.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3225</b>	<b>Admiralty and Maritime Law</b>	<b>3</b>
<p>In addition to examining the history and origins of maritime law and medieval sea codes, the course will cover the jurisdiction elements of present day federal admiralty practice. Additional areas to be covered include the Carriage of Goods by Sea Act, Salvage, Rights of Seamen, Limitation of Liability, and international aspects of maritime law such as the United Nations Convention on the Law of the Sea and Oil Pollution Liability.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3231</b>	<b>Cultural Factors in International Business</b>	<b>3</b>
<p>An examination of the cultural environments of international maritime business and their implications for business strategy. Examines the impact of language, religion, customs, and other cultural variables on managerial decision making in a global context.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
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**SS-3233 Chinese Economy 3**

This course deals with the historical and transitional development of the Chinese economy, focusing on the economic growth of China after 1978, when China adopted an open door policy and economic reforms. Since 2010, China has become the second largest trading country in the world, next to the U.S., and the second largest economy in the world, next to the U.S. The purpose of the course is to provide an analytical framework that will enable students to make sense of the economic miracle of China's development from a "low income" to a "middle income" country in three decades. The course will also help students understand the measures taken and unique features that enabled China to go from a GDP per capita of \$1,700 in 2005 to a GDP per capita of \$9,055 in 2012.

*Prerequisite: None*

*STCW: None*

**SS-3239 Maritime Operations 3**

Students study contemporary maritime operations worldwide from the viewpoint of the maritime financial manager with consideration given to the development of skills in a financial manager by which that individual may achieve efficient performance within the private sector of a capitalistic economy.

*Prerequisite: SS-2121*

*STCW: None*

**SS-3241 Sociology 3**

This course is an introduction to religions and politics and the background rationale for terrorism. Topics include: Social Inequality (Marxist Perspective, Ethnicity and Inequality, Social Class and Gender Stratification); Education and Training (The Role of Education, The Hidden Curriculum, Differential Achievement); Religion (Religious Organizations, Functionalist Theories, Marxist Theories, Interactionist Theories, Secularism); Deviance and Social Control (Basic Concepts, Non-Sociological Theories, Functionalist Theories, Interactionist Theories); and Power and Politics (Basic Concepts, Theories of the State, Theories of Power, Voting Behavior).

*Prerequisite: None*

*STCW: None*

COURSE	NAME	CREDIT
<b>SS-3242</b>	<b>Ancient Greece</b>	<b>3</b>
<p>The ancient Greeks are among the most fascinating people of history. An understanding of our own present civilization and culture requires a solid comprehension of the Greeks' role in shaping Western philosophy, institutions, and our basic beliefs about ourselves, society, and the universe. This course will cover the beginnings of ancient Greek civilization with the Mycenaeans and explore its evolution through the death of Alexander the Great in the early 4th century B.C. Recent archeological discoveries will be incorporated into the course presentation. Along with the main events of Greek history and society, this class will discuss Greek contributions in the areas of politics, drama, philosophy, war, science, and more. The course will conclude with Alexander the Great's conquests and the remarkable scientific contributions of Hellenism to the West.</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3243</b>	<b>Ancient Rome</b>	<b>3</b>
<p>This course is designed to give the student a solid understanding of the history, people, and contributions to the West of ancient Rome. Covering the period from Rome's founding and concluding with the collapse of the western Roman Empire during the 6th century A.D., this class will examine the history and character of the Roman people, their wars and adversaries, such as Hannibal, society, politics, ideas, the rise of Christianity, and how these affected the later development of our society. The course will conclude with an exploration of one of the great questions of history: Why did Rome ultimately collapse and does this hold any lessons for the present?</p> <p><i>Prerequisite: SS-1211</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-3246</b>	<b>U.S. Energy Policy: Both Global &amp; Domestic</b>	<b>3</b>
<p>This course will focus on the history, economics and politics, both domestic and foreign, of U.S. energy policy over the last half century. The course explores each sector of the energy industry: coal, oil, natural gas, nuclear power, hydro, and renewables.</p> <p><i>Prerequisite: None</i> <span style="float: right;"><i>STCW: None</i></span></p>		



COURSE	NAME	CREDIT
<b>SS-4123</b>	<b>Intern'l Law &amp; Legislative Compliance for Mariners</b>	<b>3</b>
<p>This course explores the basic foundations of International Law: its nature, history, theoretical underpinnings, and the players that make it all happen, such as states, international organizations, non-governmental groups, and corporations. In addition, because the Law of the Sea is a specialized area of International Law, much of this course will be devoted to the laws and regulations as they apply to the merchant mariner, including the International Convention for the Prevention of Pollution from Ships (MARPOL); International Convention for the Safety of Life at Sea (SOLAS); International Safety Management (ISM) Code; Oil Pollution Act of 1990 (OPA 90) and the U.S. Code of Federal Regulations (CFR). Finally, this course will explore the basic requirements in training, certification and watchkeeping for seafarers on an international level.</p> <p><i>Prerequisite:</i> SS-2121 <span style="float: right;"><i>STCW: Knowledge</i></span></p>		
<b>SS-4132</b>	<b>Legal Issues in Emergency Management</b>	<b>3</b>
<p>An introductory examination of the many legal issues involved in Emergency Management, the agencies which supervise them, and the programs and policies which are in place. Topics include the American political system with respect to disasters; American hazards and disaster agents; the fundamentals of emergency management; disaster laws; disaster budgeting; the federal and state organization and policy issues; intergovernmental relations; hazard mitigation within the cycle of emergency management; federal disaster assistance programs and policies; and international experience.</p> <p><i>Prerequisites:</i> EM-2212, SS-2121 <span style="float: right;"><i>STCW: None</i></span></p>		
<b>SS-4317</b>	<b>Intelligence and National Security Policy</b>	<b>3</b>
<p>This course assists students in understanding the national intelligence collection process and the use of the finished intelligence product by the policy makers. Students will examine the organization and management of the U.S. intelligence process from the generation of policy information requirements through collection, analysis, and reporting to the end user. Key concepts and lessons to be learned will be explored through case studies from the American Revolution to the current policy requirements for combating the international terrorist threat. An examination of the role of clandestine intelligence activities in a constitutional society will also be examined.</p> <p><i>Prerequisite:</i> None <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
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<b>ST-0999</b>	<b>Sea Term I</b>	<b>6</b>
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Sea Term I is a common sea term for freshmen USCG license track majors. All cadets will stand bridge and engineroom watches and receive training in basic deck and engine skills. All cadets will participate in maintenance of the vessel: deck, engine, and stewards. Cadets will also have the opportunity to visit foreign and domestic ports.

*Prerequisites: EN-1112, MT-1111 (both with grade of C- or better) and SM-1111 (with grade of C- or better for ME or FE and D- or better for all other majors)* *STCW: Knowledge & Practical*

<b>STCW-Vessel Security for Persons with Designated Security Duties (VPDSD)</b>	<b>0</b>
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The course provides an introduction to maritime security policy/regulation contained in the Safety of Life at Sea Convention and the International Code for Security of Ships and Port Facilities. The course also covers the purpose of transportation security cards and maritime security levels; the roles and responsibilities of the vessel security officer, the company security officer, and the port security officer; vessel security assessment; the vessel security plan; threat identification; threat recognition and response; and security equipment.

*Prerequisite: None* *STCW: Knowledge*

## B. Graduate Courses

Offered through the Division of Graduate and Continuing Education.

### **EM-5000 Organizational Behavior 3**

Organizational Behavior focuses on the diagnosis and improvement of human behavior in an emergency situation, with consideration of the interactions of three levels within organizations: the individual, the group and the organization itself. Students in the course will study leadership, group dynamics, motivation, power, ethics, and organizational structure and change. Recognizing that the effective emergency manager needs both knowledge and skills in organizational behavior, emphasis is placed on practical application of specific theories, models, and cases, along with simulations, exercises and role playing to develop both a conceptual understanding of appropriate managerial behaviors in different contexts and the skills necessary to undertake those activities.

*Prerequisite: Graduate status*

*STCW: None*

### **EM-5020 Legal Issues 3**

This course provides a comprehensive review of law and the judicial process; the legal relationships among individuals, society and the emergency management community; and an analysis of the concept and legal consequences of local, state, and federal control. Specific topics include constitutional issues in emergency management; public health and environmental issues associated with contamination of food and water supplies; bioterrorism and quarantine; the liability issues associated with using volunteers; public safety issues surrounding transportation security, maritime security, and chemical and nuclear security; customs and immigration law; information technology and cyber security law; laws relating to government contracts, insurance, liability, and risk.

*Prerequisite: Graduate Status*

*STCW: None*

COURSE	NAME	CREDIT
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<b>EM-5060</b>	<b>Hazards Risk Management</b>	<b>3</b>
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This course provides students with an understanding of a process and framework that may be applied at all levels of communities and governments to mitigate the effects of disasters (e.g., deaths and injuries, property loss, environmental degradation). This hazards risk management process can be used to identify, analyze, consider, implement and monitor a wide range of measures that can contribute to the public well-being. Risk management plans and mitigations will be developed for the maritime environment as well as for land-based scenarios. The hazards risk management process, as described and applied in this course, provides the general philosophy behind prevention, response, and recovery as well as information about the use of specific tools and methods for managing the risks associated with the hazards facing a community.

*Prerequisite: Graduate status*

*STCW: None*

<b>EM-5080</b>	<b>Strategic Planning and Budgeting</b>	<b>3</b>
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This course will focus on developing each student's command of the fundamental concepts used by emergency management professionals to conduct sound financial analysis and solve problems using basic and advanced financial analytical tools. The course also covers clear and effective communication of financial concepts, analysis, and conclusions for use by senior management. The course will emphasize concepts, practices, and tools essential for making decisions under routine and non-routine circumstances. Case studies will be examined to illustrate fundamental techniques for budgeting and forecasting, asset management, and maximizing resources. The course will present concepts in a manner that integrates financial analysis with strategic planning, taking a cross-disciplinary approach to budgeting and analysis, accounting, and reporting, and finding the best financial means to achieve strategic objectives.

*Prerequisite: Graduate status*

*STCW: None*

COURSE	NAME	CREDIT
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<b>EM-5120</b>	<b>Emergency Operations</b>	<b>3</b>
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This course is designed to enable students to develop Incident Command System (ICS)/Emergency Operations Center (EOC) interface implementation strategies or action plans for their communities. The course reviews the ICS and EOC models of emergency management operations, including coordination, communication, and chief executive decision making, and places ICS in the context of the evolving National Incident Management System (NIMS) and National Response Plan (NRP). It enhances the knowledge and skills needed for clarifying roles, responsibilities, and relationships prior to a disaster through small-group and large-group exercises. The course stresses that final coordination and operational structures are matters for local governments to resolve in the planning process with the state and federal government, not-for-profit organizations and the private sector. It is the intent of the course to stimulate thinking and ultimately, action in this area.

*Prerequisite: Graduate Status*

*STCW: None*

<b>EM-5140</b>	<b>Public Health Issues</b>	<b>3</b>
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The course is designed to provide guidance to hospitals, emergency medical services (EMS), health care facilities, and citizens who may become involved in a mass casualty event as a result of a hazardous materials incident, a natural physical or health hazard, or a terrorist's use of a weapon of mass destruction (WMD). The course focuses on the health provider's role and goes beyond organizational charts and checklists to deal with the entire role of the hospital inside and outside the emergency department during such incidents.

*Prerequisite: Graduate status*

*STCW: None*

<b>EM-5150</b>	<b>Principles of Emergency Management</b>	<b>3</b>
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The course is designed to provide students with a foundation in emergency management related concepts, theories, and principles through an in-depth analysis of past and current emergency management policies, practices, and events. Students will analyze and discuss national, state and local government structure, responsibilities, authorities and relationships. We will analyze and discuss National Security Presidential Directives, Homeland Security Presidential Directives, the National Response Framework, the National Disaster Recovery Framework, and the National Incident Management System. We will also discuss homeland security and emergency management related policy and strategic level decision making, international disaster and relief, business continuity theory and practice, and disaster and emergency management cycles.

*Prerequisite: Graduate status*

*STCW: None*



COURSE	NAME	CREDIT
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**EM-5160 Business Continuity and Disaster Recovery 3**

Business area analysis, business impact analysis, risk perception, risk communication, risk mitigation, risk management and the resulting preparedness actions and plans are the tools used to minimize the effect of a disaster. Risk communication, crisis and continuity management, incident response, disaster recovery and business restoration are the concepts and tools applied before, during and after a disaster. These concepts and tools will be developed in the context of maintaining the lifelines of business and industry. This is an introduction to crisis management, contingency planning and organizational continuity and recovery from a public sector emergency management and private sector business crisis management perspective. Course content and sequence are based upon the Federal Emergency Management Agency (FEMA) model of Comprehensive Emergency Management, inter- and intra-governmental relationships for emergency and disaster response, the National Response Plan (NRP), the National Incident Management System (NIMS) and a multi-function model of business crisis management and organizational continuity.

*Prerequisite: Graduate status*

*STCW: None*

**EM-5180 Transportation Security Management 3**

This course focuses on the security of the Marine Transportation System (MTS). Ninety five percent of all U.S. imports and exports are carried by sea aboard ships via hundreds of ports. From the ports, the cargo is then taken to thousands of destinations via air and land transportation modes (e.g., airline, truck, and rail), thus fueling the U.S. economic engine. These sea, air, and land transportation modes, with the port as their hub, make up the MTS. The MTS is critical to our national and economic security and significant legislation and many national policy documents have been produced to secure the system from terrorism. What have we accomplished and will we succeed? To address these questions, the course will briefly review current U.S. homeland security issues. Students will then examine terrorist threats to the MTS and the legal and policy responses to those threats, including U.S. efforts to carry out the daunting task of securing the global supply chain at sea and overseas.

*Prerequisite: Graduate status*

*STCW: None*

COURSE	NAME	CREDIT
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<b>EM-5190</b>	<b>National Security in Emergency Management</b>	<b>3</b>
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Threats to the homeland require a coordinated, interagency response with implications for both domestic and foreign policy. To better address challenges including cybersecurity, terrorism, transborder security, and information sharing, President Obama consolidated the staffs of the National Security Council and Homeland Security Council in order to integrate international, transnational, and homeland security matters in a single organization. The merger reflects the complex environment facing today's emergency management professionals. This course will address national security policy and decision-making; current threats; the roles and responsibilities of the National Security Council; the relationship between the Department of Homeland Security, the Department of Defense and other relevant agencies; and issues surrounding inter-operability at all levels of government. Case studies including the 9/11 Commission Report and the Boston Marathon bombing will be used to analyze lessons learned and best practices.

*Prerequisite: Graduate status*

*STCW: None*

<b>EM-5200</b>	<b>Capstone Seminar</b>	<b>4</b>
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The capstone course will provide an opportunity for students to integrate the core curriculum and their personal areas of interest culminating in both a written and oral capstone project presentation that addresses either solving a problem or improving a process in the field of emergency management. Specifically, students choose between the following: 1) Presenting a problem in the field of emergency management, describing what has been heretofore written about the problem, providing multiple solutions to the problem, and making a recommendation for implementation of the optimal solution; or 2) Presenting a methodology for improving a process in the field of emergency management, describing what has been heretofore written about the process, providing multiple solutions to the process, and making a recommendation for implementation of the optimal solution.

*Prerequisite: Graduate status*

*STCW: None*

<b>FM-5000</b>	<b>Organizational Behavior</b>	<b>3</b>
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Organizational issues lie at the core of operational effectiveness in facilities management. Management of individuals, teams and organizations requires a keen understanding of the principles of leadership, vision and motivation under sometimes stressful circumstances. This course provides extensive instruction in organizational behavior in the context of the modern business environment.

*Prerequisite: Graduate Status*

*STCW: None*

COURSE	NAME	CREDIT
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**FM-5020 Financial Analysis 3**

This course covers in depth the principles of financial accounting and engineering economic analysis and includes such topics as accounting statements; assets and liabilities; corporate financial reporting; inventory valuation and cost procedures; investments (stocks, bonds, land, building, and equipment); evaluation of equipment, acquisition, and depreciation; cash flow analysis; and budgetary control. Economic analysis techniques are used to evaluate alternatives for potential solutions to engineering problems. Measures such as present worth, annual worth, rate of return, and cost benefit are considered. Economic analysis as a decision-making tool will be examined.

*Prerequisite: Graduate Status*

*STCW: None*

**FM-5060 Legal and Regulatory Issues 3**

The course provides a comprehensive review of law and the judicial process; the legal relationships among society and the business community; an analysis of the concept and legal consequences of contracts; business torts and crimes; consumer protection; and personal property. The course also covers environmental laws and regulations as they apply to industrial organizations. Students explore the relationships between technology, community development, and the long-term sustainability of natural resources. Special topics include ISO 14000 standards, the role of private industry in developing new technology and the responsibilities of both business and government in the economy.

*Prerequisite: Graduate Status*

*STCW: None*

**FM-5090 Emergency Preparedness 3**

The emphasis of the course is on providing facilities managers with the strategic knowledge and tactics to prepare for, manage, and recover from an emergency or disaster. The course will require participants to ultimately create an organization-wide comprehensive integrated emergency management plan for a hypothetical corporation, and through interactive table-top exercises, test their plan's performance against internal and external threats and emergencies. Students will gain knowledge of the concepts of contingency planning, crisis management, risk assessment and mitigation, organizational continuity and incident command. They will better understand the principles and challenges of disaster planning and coordination from a business and regulatory perspective. These concepts will be of use to the students in developing effective integrated emergency preparedness and recovery plans for their own organizations.

*Prerequisite: Graduate Status*

*STCW: None*

COURSE	NAME	CREDIT
<b>FM-5100</b>	<b>Operations Management</b>	<b>3</b>
<p>The class will provide a comprehensive overview of the entire operations management (OPM) area, including specific application examples in the form of case studies (from text, instructor, and guest speakers). OPM topics include global operations; project management; forecasting; design of goods &amp; services; managing quality, process, capacity, location, and layout strategies; HR &amp; job design; supply-chain management; MRP &amp; scheduling; and maintenance &amp; reliability. A detailed module on probability and statistics will include applications to TQM, SPC, and inventory management. Real-time and video case studies (and the OPM project below) will directly explore the issues encountered by the facilities manager on topics ranging from product/process/service design to the implementation and control of ongoing operations in service and manufacturing facilities. An in-depth self-selected, OPM project provides the unique opportunity to apply OPM tools and skills to a specific facilities management topic.</p> <p><i>Prerequisite: Graduate Status</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>FM-5120</b>	<b>Human Resource Management</b>	<b>3</b>
<p>The course will be a detailed introduction to the critical human resource issues faced by facilities managers. It will examine and explore issues concerning organizational and personnel policies and practices in such areas as the human resource environment, employee relations, employment, development and performance systems, reward systems, and work systems. The course is intended to guide current and potential facilities managers in analyzing the HRM impact on both individual performance and organizational effectiveness.</p> <p><i>Prerequisite: Graduate Status</i> <span style="float: right;"><i>STCW: None</i></span></p>		
<b>FM-5150</b>	<b>Business Sustainability</b>	<b>3</b>
<p>This course explores the nature of the “triple bottom line”—the simultaneous delivery of financial, social, and environmental performance, teaching students to apply new strategic models, tools, and frameworks to incorporate social and environmental dimensions in a competitive manner. Course design will enable current and future business and facilities managers to provide guidance, leadership and support to organizations in the development and successful execution of initiatives in sustainable development. The course will include lectures, case studies, hands-on exercises, role-play simulations and active learning projects to illustrate issues related to sustainable development as well as modules on selected topics in environmental science to ground students in the science of sustainability and the related environmental challenges.</p> <p><i>Prerequisite: Graduate Status</i> <span style="float: right;"><i>STCW: None</i></span></p>		

COURSE	NAME	CREDIT
<b>FM-5160</b>	<b>Project Management</b>	<b>3</b>
<p>Project management involves conception, design, planning, implementation and evaluation of everything from cutting-edge capital intensive projects to implementation of new IT systems. The course will cover different methodologies that are commonly employed to effectively manage projects from project identification through project implementation and evaluation. The course also covers optimization techniques, system life cycles, needs analysis and critical paths and comparisons using specific software.</p>		
<i>Prerequisite: Graduate Status</i>		<i>STCW: None</i>
<b>FM-5170</b>	<b>Energy Management</b>	<b>3</b>
<p>The course will explore energy for the 21st century by looking at the supply side first including conventional, alternative and renewable energy, distributed generation, the forward capacity market, and demand response programs. Then the course will explore the demand side of energy including energy strategies, the USGBC and the LEED phenomenon, carbon trading, carbon footprints, renewable energy credits and zero net energy buildings.</p>		
<i>Prerequisite: Graduate Status</i>		<i>STCW: None</i>
<b>FM-5180</b>	<b>Capstone Seminar</b>	<b>4</b>
<p>This capstone course develops an integrated understanding of generally accepted facilities management principles along with the underlying concepts of engineering systems. Emphasis is placed on current developments within the profession. The course explores current topics in organizational development and change, including the practical and ethical issues arising in the context of national and multinational organizations, and the conduct of international business. Guest speakers augment case study analyses, seminar discussions, and student presentations. The capstone course will be integrated across the overall program of instruction.</p>		
<i>Prerequisite: Graduate Status</i>		<i>STCW: None</i>
<b>MB-5100</b>	<b>Economics of the Maritime Industry</b>	<b>3</b>
<p>This course provides an economic analysis of the different segments of the maritime industry, including an assessment of market characteristics (supply and demand), factors affecting pricing and profitability (cost and revenue), industry structure and competition, economic impacts of globalization on industry growth, and the effects of various sources of market intervention at different scales (national and international).</p>		
<i>Prerequisite: Graduate Status</i>		<i>STCW: None</i>

COURSE	NAME	CREDIT
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**MB-5110 Maritime Law, Policy, and Regulations 3**

This course focuses on the principles of maritime law that are of great concern to any maritime business manager. Students will gain an understanding of admiralty jurisdiction and the interplay with foreign and state laws and international treaties. There will be an examination of personal injury as it pertains to seamen, oil rig works, and longshoremen. Contracts concerning cargo, towing, and charters will be explored for drafting and the frequently litigated issues. Marine insurance will be explored in depth as will maritime liens, mortgages, and salvage. Finally, with the ever-growing environmental concerns, maritime pollution liabilities, and crimes will be covered.

*Prerequisite: Graduate Status*

*STCW: None*

**MB-5120 Project Management in Maritime Business 3**

This course introduces the tasks fundamental to project management. Project managers need to possess the skills to manage their teams, schedules, risks, and resources to produce a desired outcome. Students will learn the skills and tools of project management using a hands-on approach. There will be a focus on stakeholder management, as well as some of the causes of project failure and how to mitigate the causes in the planning stages of the project.

*Prerequisite: Graduate Status*

*STCW: None*

**MB-5130 Global Logistics and Supply Chain Management 3**

This course focuses on effective logistics and supply chain strategies for companies that operate globally, with an emphasis on how to plan and integrate supply chain components into a coordinated system. Students are exposed to concepts and models important in supply chain planning, with emphasis on key trade-offs and phenomena. The course introduces and utilizes key tactics, such as risk pooling and inventory placement, integrated planning and collaboration, and information sharing. Lectures, videos, simulation exercises, and case discussions introduce various models and methods for logistics and supply chain analysis and optimization.

*Prerequisite: Graduate Status*

*STCW: None*

COURSE	NAME	CREDIT
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**MB-5140 Financial Analytics 3**

This course will impart powerful, fundamental concepts and analytical techniques that will be used by maritime business management professionals in both routine, day-to-day financial and risk analysis and for major capital budgeting and asset allocation processes. The case studies chosen for this course will focus on application of fundamental techniques in the context of physical asset, asset utilization, and asset allocation problems. The material will be presented to draw on the students' experiences and work environments.

*Prerequisite: Graduate Status*

*STCW: None*

**MB-5150 Operations Management in Maritime Business 3**

The course exposes students to best-practice conceptual and decision models to develop solutions for managing operations and maritime supply chain challenges from the business world. The topics covered include scheduling, process analysis, materials management, quality, productivity, technology, critical thinking, rational decision making, and strategic planning.

*Prerequisite: Graduate Status*

*STCW: None*

**MB-5160 Transportation Security Management 3**

This course provides a layered, multi-disciplinary systems approach to transportation security management, including operational considerations that influence security management decisions. The course will provide an overview of security management in all modes of passenger and freight transportation, including maritime, aviation, public transit, rail, pipeline, intermodal cargo, and highway transportation.

*Prerequisite: Graduate Status*

*STCW: None*

**MB-5170 Organizational Behavior 3**

Strategic management of individuals, teams, and organizations in the maritime business environment requires a keen understanding of the principles of leadership, vision, and motivation under stressful circumstances. This course provides, in executive format, extensive and intense instruction in organizational behavior, organizational design, emotional intelligence, and the effective motivation and management of a variety of types of organizations.

*Prerequisite: Graduate Status*

*STCW: None*

COURSE	NAME	CREDIT
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<b>MB-5180</b>	<b>Maritime Leadership and Risk Management</b>	<b>3</b>
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This course introduces managers to emergency response regulatory framework within the U.S., shipboard emergency response planning requirements, response funding mechanisms and associated management practices, risk communication, interorganizational response management and decision-making processes, mass rescue operations, marine transportation system recovery practices, ship salvage operations, resource damage assessment, legal considerations, the role of the Qualified Individual (Q.I.), how government measures and tests industry's preparedness, as well as operational best practices and management techniques when working with impacted communities.

*Prerequisite: Graduate Status*

*STCW: None*

<b>MB-5200</b>	<b>Capstone Seminar in Maritime Business</b>	<b>4</b>
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It is the goal of the four-credit capstone project to challenge the students to inquire into what they perceive as a problem or a process that could be improved in the field of maritime business, describe the problem or flawed process, ask a hypothetical question that will be their research road map, provide alternative solutions, and provide a detailed analysis and summary of their approach and why they chose a certain solution.

*Prerequisite: Graduate Status*

*STCW: None*



# VII. ACADEMIC POLICIES AND STANDARDS



Alphabetical Grade	GPA Equivalent
A	4.00
A-	3.67
B+	3.33
B	3.00
B-	2.67
C+	2.33
C	2.00
C-	1.67
D+	1.33
D	1.00
D-	0.67
F	0.00
P (Pass)	—
I (Incomplete)	—
X (Exempt)	—
W (Withdrawn)	—

## A. Grading Standards

Letter grades are assigned to students according to a 4.0 GPA scale (see table for letter grades and corresponding GPA equivalency).

A single, alphabetical grade certified by the instructor within the deadline published on the academic calendar is assigned to each student and submitted to the Registrar.

Students questioning a grade awarded must follow the Grade Appeal Process section of this chapter.

Grade changes must be submitted in writing to the Registrar by the instructor within two weeks after the start of the term immediately following the term in which the grade was given. An extension of the two-week period may only be allowed upon special arrangement by the instructor with the Dean of Undergraduate Studies.

## **Pass-Fail**

**Eligibility:** No course required for a major degree may be taken as a pass/fail option. Permission to take an eligible course for a pass/fail grade is granted at the sole discretion of the instructor. To request the pass/fail course option, a student must have a current academic standing of junior or senior status and a minimum cumulative grade point average (CGPA) of 2.5. The student must submit a fully completed request form to the Registrar prior to the end of the add/drop period; otherwise, the student will be graded according to the existing Academic Grading Standards. A student may take no more than one pass-fail course in a given semester and no more than two pass-fail courses as part of his or her overall curriculum.

**Grading:** The student's grade shall be calculated on the same basis as that used for all other students taking the course. The student shall receive a 'P' for a grade that exceeds the instructor's established passing benchmark. The student shall receive an 'F' for a grade that falls below the instructor's established passing benchmark. A passing grade of 'P' will not affect the student's cumulative grade point average (CGPA) and will be excluded from any GPA calculations. However, a failing grade of 'F' will negatively affect the student's CGPA by the applicable course credit being included in the calculation of the semester grade point average and the CGPA.

## **Incomplete**

At the student's request, an instructor may agree to award an incomplete grade ('I') at the end of an academic term if the student has failed to meet a course requirement due to illness or other reasons beyond his or her control.

Students are authorized a maximum of two weeks into the following semester to rectify a grade of incomplete. If the incomplete is not rectified within that period, the incomplete is automatically converted to a failure ('F').

An extended period to submit a final grade may be allowed by the instructor upon approval of the Dean of Undergraduate Studies. The instructor shall submit a recommended grade to the Registrar within 48 hours of the extended period allowed above.

## **B. Coursework Policies**

### **1. Add/Drop Period**

A student may add courses, consistent with other requirements, up to six business days into the semester. A student may drop a course, consistent with other requirements, up to 15 business days into the semester.

**Note: Full-time status is considered to be twelve credits or more. Add/drop changes could affect this status.**

### **2. Withdrawal Policy**

If a student wishes to withdraw from a course after the add/drop period, he or she must obtain written acknowledgment from the instructor, the student's academic advisor, and

the Registrar. It must be understood that such withdrawal may affect the student's date of graduation, eligibility for financial aid, and anticipated graduation date.

Students may withdraw from no more than one course per semester. No student may withdraw from a course after the 10<sup>th</sup> week of classes. Students may not withdraw from a course previously failed or from SM-1111. No student may withdraw from the same course more than once. A "W" will appear on the student's transcript.

### **3. Course Exemption**

An exemption is awarded to a student who has been authorized by the Dean of Undergraduate Studies or designee to omit taking a course. Exemptions apply only to the following:

- through Advanced Placement examination, with a grade of 3 or better, the student has been determined to be proficient in course subject matter (prior to admittance only);
- through transfer credit awarded for International Baccalaureate (IB) higher-level courses in which the student has earned a score of 4 or higher. Credit is not awarded for standard-level courses. All decisions regarding transfer credit for IB courses will be made by the Registrar in consultation with the appropriate department chairperson (prior to admittance only);
- through validation of grades

received at another accredited institution of higher education with a grade of 'C' or better;

- through validation of certified professional licenses or transcripts of grades by the Dean of Undergraduate Studies or designee;
- through the College Level Examination Program (CLEP) with a score of 50 or higher with the approval of the Dean of Undergraduate Studies or designee (prior to admittance only).

### **4. Transfer Credits**

In order for a student enrolled at the Academy to receive credit for a course taken at another institution, the following conditions must be met:

- The transfer course must be offered at an accredited institution;
- The catalog description of the course must be substantially similar to that of the corresponding Academy course and be of equal or greater credit hours;
- A request for approval to take the course for transfer credit must be submitted to the appropriate department chairperson at least two weeks prior to the start of the course;
- A student who requests a transfer course while enrolled during a semester at the Academy as a full-time student will have his or her course load reviewed specifically

to determine whether the transfer course will constitute an overload or excessive load for the semester;

- Authorization to take the course for transfer credit will be granted or denied at the discretion of the Dean of Undergraduate Studies with the advice and consent of the respective chairperson of the academic department in which the course is offered at the Academy;
- A grade of 'C' or better (2.0 or higher) must be obtained in the course for it to be deemed successfully completed. The grade received for the course transferred will not be included in calculating the student's CGPA and will not appear on the transcript;
- An official transcript showing completion of the course must be sent to the Registrar's office no later than six weeks after the course completion. Credit for the course will be awarded once the official transcript is received;
- No *Standards of Training, Certification and Watch-keeping* (STCW) course may be taken online;
- A student must be in academic good standing in accordance with MMA policy at the time of his or her request to take an online course.

## 5. VALOR Act

The Registrar or designee shall serve as the contact point for evalu-

ation of student military occupation, training, coursework, and experience. The Registrar will evaluate the prospective student's official transcripts, using the ACE Guide as a key reference for course descriptions and equivalencies.

Courses must carry the equivalent of three or more credits for transfer, and the students must have earned the equivalent of a "C" grade (75%) or better. Accepted coursework will appear on the student's transcript as transfer courses.

As per Academy policy, only the credits will transfer, not the grades. When necessary, the Registrar will consult with the appropriate department chairperson to determine transferability.

The Registrar will accept CLEP and/or DANTES exam scores based on Academy policy and the recommended guidelines of these programs.

STCW courses, whether knowledge- or practical-based, will not be replaced by military coursework, training, or experience.

## 6. Cooperative Education Credit for Military Service

With appropriate documentation, credit for one, six-credit cooperative education placement may be awarded to students who meet one of the following eligibility requirements for military service in the U.S. Armed Forces or State National Guard:

- at least one year of full-time, active duty within the preceding five years;

- at least one year of active reserve service within the preceding five years;
- at least 40 days of active service in a single calendar year while enrolled as a full-time student at the Academy;
- fulfillment of the calendar year active reserve commitment while a full-time student at the Academy.
- Note: Under the MARAD approved 310 Programs, sea service accrued as part of active or reserve military service cannot be substituted for or credited as sea service toward a USCG license.

## **7. STCW Compliance**

The international convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) is an international treaty that established minimum curriculum standards and performance measures for maritime training programs. Certain courses, as noted in the previous chapter, are designated as containing STCW knowledge or practical elements.

All students, regardless of major, must earn a grade of C- or better to pass any course containing STCW knowledge components and must successfully complete all practical demonstrations in any course containing STCW practical elements. Any STCW course serving as a prerequisite for another course must be passed with a grade of C- or better to satisfy the prerequisite.

In addition, students majoring in Marine Engineering or Marine Transportation must complete all U.S. Coast Guard required trainings and assessments for issuance of the appropriate U. S. Coast Guard merchant marine officer's license.

## **8. Academic Evaluation**

Faculty have several tools in addition to the semester grading to measure a student's progress towards successful completion of a course. A member of the faculty may opt to use the academic alert system and/or mid-term deficiencies as a means of informing a student that he or she is not performing at a level necessary to pass the course. When a faculty member uses either of these tools, the information is disseminated to the student and to his or her academic advisor.

## **9. Academic Deficiency, Mid-term**

A student found deficient at mid-term will be notified by the Registrar of his or her deficiency. The student's academic advisor will be notified by the Registrar at that time.

## 10. Course Failures

A student must receive a passing grade (D- or better), unless otherwise indicated in the course description, to receive credit for a course. A student who fails a course has two options:

1. Repeat the failed course on campus. The repeated course grade and credit hours (see “Forgiveness of One” policy) will be used in calculating the term grade point average of the term in which the course is repeated. The cumulative grade point average will include the repeated grade and credit hours only;
2. Repeat the failed course, or equivalent, at another accredited institution. A minimum grade of ‘C’ (2.00) will be required for the course to be deemed successfully completed. Transfer grades will not be used in calculating the CGPA (see “Transfer Credits” section).

## 11. “Forgiveness of One” Policy

This policy allows a student to replace a failing grade with a higher grade for the purpose of calculating the Cumulative Grade Point Average. If a student were to fail a course on multiple attempts, all but the first failure would be calculated in the student’s CGPA. Note: All grades will continue to be shown on the transcript.

## 12. Repeated Courses

A student may repeat a course previously passed (but never failed) once within one year of the original grade. The repeated course grade

and credit hours will be used in calculating the term grade point average of the term in which the course is repeated. The cumulative grade point average will be calculated using the higher of the two grades and credit hours.

## 13. Grade Appeal Process

The grade appeal policy is designed to resolve a student’s specific concerns with regard to a final course grade. If such a concern exists, the student is encouraged to initiate this process, mindful that no adverse consequences will result from making an informal or formal appeal.

If a student feels that a final course grade is inappropriate, the student must make an appointment with the faculty member to discuss the matter informally. The appointment must be requested within the first two weeks of the academic semester following the semester for which the grade was given. Every effort will be made to resolve the student’s concerns informally.

If the student’s concerns are not resolved through the informal appeal policy, the student may pursue the formal appeal process by meeting with the appropriate department chairperson. The burden of proof is on the student to show that a grade is inappropriate. The formal appeal must be initiated within two weeks after the conclusion of the informal process. The formal process commences when the student submits in writing a description of the basis for the grievance, including any corroborating materials, to the department chairperson. The department



chairperson will promptly notify the instructor of the formal appeal. Within two weeks of said notification, the instructor must provide the department chairperson a written response to the grade appeal. The department chairperson will then make an assessment as to the validity of the student's grievance and provide a written copy of any recommendations to both the instructor and the student.

Whatever the recommendation of the department chairperson, it remains the sole prerogative of the instructor to change the grade given.

Exceptions to the policy time limits of both the informal and formal appeal processes may be permitted if the Dean of Undergraduate Studies determines that clear and compelling extenuating circumstances have occurred.

#### **14. Class Attendance**

Policies relating to attending class are published in the syllabus for each course.

#### **15. Verification of Student Identity in Distance Education**

To ensure compliance with the provisions of the United States Federal Higher Education Opportunity Act, Public Law 110-315, concerning the verification of student identity in distance education, the Academy has established policy for the following:

- providing students with a secure login and password;
- proctored examinations;

- utilization of current technologies and practices effective in verifying student identification.

Detailed information on policy applicable to distance education is available on the MMA web site.

#### **16. Academic Honesty**

Massachusetts Maritime Academy expects all cadets and students to abide by its Honor Code, which states that "Cadets and students do not lie, cheat, or steal, nor do they tolerate these acts from others."

The Cadet Regimental Manual clearly outlines the various actions that may be considered cheating. These include plagiarism, misrepresentation, and unauthorized notes, among other things. (See Appendix A of the Cadet Regimental Manual.) Individual instructors may set the requirements for their courses as they wish, and students should make sure they understand these requirements.

Academic freedom has traditionally allowed instructors to address academic dishonesty in many ways, including (but not limited to) requiring the student to redo an assignment, assigning a grade of zero for the test or assignment, or failing the student for the course. When the situation warrants, the instructor may also refer the matter to the Honor Board, which may recommend suspension or dismissal from the Academy for violations of the Honor Code.

## C. Satisfactory Progress

A student is deemed to be making satisfactory progress toward a degree if the student maintains academic good standing and retains the same academic year designation for no more than three academic semesters.

Students who are not making satisfactory progress toward a degree will be reviewed by the Academic Review Board.

A student must complete all degree requirements, including license programs, within 10 years from the original date of enrollment. All courses, taken either at MMA or at another accredited institution, will have a 10-year time limitation except where Coast Guard regulations otherwise require. Exemptions to the 10-year limit may be considered on an individual basis when recommended by the Vice-President of Academic Affairs and President of the Massachusetts Maritime Academy. Factors that may result in a waiver might include time spent on humanitarian efforts or in military service.





## D. Academic Standing

The following minimum standards are established for fall and spring semester cumulative grade point averages (CGPA):

Year	Retention	
	FA CGPA	SP CGPA
1	1.0	1.5
2	1.5	1.8
3	2.0	2.0
4	2.0	2.0

Year	Good Standing	
	FA CGPA	SP CGPA
1	1.5	1.8
2	1.8	2.0
3	2.0	2.0
4	2.0	2.0

Note: Academic standards for the purposes of financial aid differ from those above. For more information, see the section titled “Financial Aid and Satisfactory Academic Progress” in the “Financial Information” chapter of this catalog.

### 1. Academic Review Board

The Academic Review Board reviews the academic status and potential of those students subject to dismissal from the Academy. The Board is empowered to recommend mitigation of a student’s academic dismissal to suspension or probation.

The Academic Review Board comprises the department chairpersons, the Registrar, and the Dean of Undergraduate Studies. The deliberations of the Academic Review

Board are conducted in accordance with procedural rules adopted on its motion. Recommendations are submitted to the Provost for consideration and final disposition.

Students who fail to meet the standards for retention may be dismissed from the Academy at the discretion of the Academic Review Board.

### 2. Academic Dismissal

Academic dismissal constitutes the removal of a student from the Academy because he or she was unable to achieve minimum academic standards.

Students who are academically dismissed from the Academy may not take courses through the Academy’s standard ‘day’ program or through its Division of Graduate and Continuing Education. An academically dismissed student may apply for readmission to the Academy only after having completed at least 12 credits, approved by Massachusetts Maritime Academy and taken at other accredited institutions of higher learning, achieving a minimum cumulative grade point average of 2.50 at those institutions.

Any student falling in one or more of the following categories will be subject to dismissal from the Academy:

1. having failed to meet the minimum standards established for retention;
2. having failed three or more courses in a single term;

3. having been unable to achieve academic good standing after being on probation for two consecutive semesters;
  4. having failed to advance to the next level of academic standing after three or more semesters.
1. re-take the course at MMA, as a non-matriculated student, and earn a passing grade (D- or better), or
  2. take a similar, pre-approved course at another accredited institution of higher learning and earn a grade of "C" or better.

### **3. Academic Suspension**

Academic suspension constitutes temporary removal from the college for academic deficiencies that must be rectified before readmission, as identified by the Academic Review Board. The conditions of suspension include a written notification to the student of the course(s) that must be successfully completed either at MMA, as a non-matriculated student, or at another accredited institution of higher learning before he or she can be considered for readmission to the Academy. The Dean of Undergraduate Studies will determine the grade and/or grade point average the student must achieve to be considered for readmission to MMA.

Suspension will automatically result when a student fails to complete SM-1111 Precalculus with Trigonometry by the end of the second semester at the Academy.

In order to be considered for readmission, subject to the approval of the Dean of Undergraduate Studies, a student who fails to complete SM-1111 Precalculus with Trigonometry by the end of the second academic semester may

A student who does not meet the condition of his or her suspension will be academically dismissed from the Academy. A student who satisfies the conditions of his or her suspension will be on academic probation for the following term.

### **4. Setback**

Academic setback may be granted by the Academic Review Board when it concludes that a student otherwise subject to academic dismissal may benefit by repeating

an academic semester at the Academy. A setback student will retake at least three courses for which he or she previously received grades of 'D+' or lower. Grades earned will replace the previous grades in the calculation of the CGPA. The student remains on academic probation during the setback semester and must bring his or her CGPA up to retention standards at the end of the semester or be dismissed from the Academy.

*Eligibility:* A student must have sophomore status or higher as defined by the Academic Standards to be eligible for academic setback, and a student is allowed only one setback while at the Academy.

**Restrictions:** A student on academic setback:

- must retake at least three courses;
- may not take more than one course not taken previously;
- may not take more than 13 academic credits;
- may not hold any regimental or shipboard leadership position;
- may not participate in Academy sponsored clubs, extracurricular activities, or varsity athletics.

## **5. Academic Probation**

Probationary status is a warning to a student that he or she is no longer in academic good standing and is in jeopardy of falling below those standards established for retention or graduation. It is the responsibility of the student to increase his or her academic efforts in order to regain academic good standing.

Probation will automatically result when

1. a student's CGPA falls below those numbers established for academic good standing;
2. a student is readmitted following academic suspension or dismissal.

A student will be removed from academic probation by

1. raising his or her CGPA to the level necessary to be in academic good standing;
2. repeating and obtaining a passing grade in a course necessary to be in compliance with graduation requirements.

A student cannot remain on academic probation for more than two consecutive semesters without being subject to dismissal from the Academy.

A student on academic probation may not take more than 13 academic credits, may not hold any regimental or shipboard leadership position, and may not participate in Academy sponsored clubs, extracurricular activities, or varsity athletics.

## **6. Dismissal from the Academy**

Any student dismissed from the Academy for conduct reasons will not be allowed to enroll in MMA courses, to include courses offered through the Division of Graduate and Continuing Education.

## E. Degree Program Eligibility

### Energy Systems Engineering Eligibility

Because quantitative reasoning is essential to successfully advance in the Energy Systems Engineering major, a student must be Calculus I ready in order to enroll in the major.

To remain in Energy Systems Engineering, a student must

- pass EN-1112 Engineering Systems and Safety with a grade of C- or better,
- pass SM-1212 Calculus I by the end of the second semester with a grade of C- or better,
- pass EN-2101 Engineering Statics on the first attempt with a grade of C- or better.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

Prior to receiving the diploma, an ESE student must sit for the FE examination (NCEES), a nationally recognized examination and the first step to becoming a professional engineer.

### Facilities Engineering Eligibility

To remain in Facilities Engineering, a student must

- pass EN-1112 Engineering Systems and Safety with a grade of C- or better,

- pass SM-1111 Precalculus with Trigonometry by the second attempt with a grade of C- or better,

pass SM-1212 Calculus I by the second attempt with a grade of C- or better,

- pass EN-2211 Mechanics by the third attempt.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

### Marine Engineering Eligibility

To remain in Marine Engineering, a student must

- pass MT-1111 Vessel Familiarization and Basic Safety Training with a grade of C- or better,
- pass EN-1112 Engineering Systems and Safety with a grade of C- or better,
- pass SM-1111 Precalculus with Trigonometry by the second attempt with a grade of C- or better,
- pass SM-1212 Calculus I by the second attempt with a grade of C- or better,
- pass EN-2211 Mechanics by the third attempt.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

## Marine Transportation Eligibility

To remain in Marine Transportation, a student must

- pass MT-1111 Vessel Familiarization and Basic Safety Training with a grade of C- or better,
- pass EN-1112 Engineering Systems and Safety with a grade of C- or better,
- pass MT-1221 Coastal Navigation by the second attempt with a grade of C- or better.

A student failing to meet any of these requirements may remain at the Academy by enrolling in a major for which he or she remains eligible.

## F. Degree Progress

### 1. Academic Year Designation

Students in a degree program have the academic year designation of freshman, sophomore, junior, or senior.

A *sophomore* has successfully completed at least one-fourth of the courses required for the degree program, including all but two required first-year courses.

A *junior* has successfully completed at least one-half of the courses required for the degree program, including all required first-year courses and all but two required second-year courses.

A *senior* has successfully completed at least three-quarters of the courses required for the degree program,

including all required first-year and second-year courses and all but two required third-year courses.

### 2. Class Designation

Members of the Regiment of Cadets are designated 1/C, 2/C, 3/C, and 4/C.

4/C status: Cadet Candidates receive recognition as 4/C cadets during the fall semester of their first year of enrollment.

4/C to 3/C status: Students who have successfully completed all but two freshman requirements and have a 1.8 cumulative grade point average.

3/C to 2/C status: Students who have successfully completed all freshman requirements, have successfully completed all but two sophomore requirements, and have a 2.0 cumulative grade point average.

2/C to 1/C status: Students who have successfully completed all freshman and sophomore requirements, have successfully completed all but two junior requirements, and have a 2.0 cumulative grade point average.

4/C to 3/C status (transfer students): Students who have completed one semester at MMA, completed the two-week orientation, completed Sea Term I or experiential learning, earned at least 48 credits (including transfer and MMA credits) prior to the start of spring semester (including English Composition, Pre-calculus with Trigonometry, and Chemistry I), and have a 1.8 cumulative grade point average.

Transfer students' class year designation is determined on an individual basis by the Vice President for Student Services or designee, based on the anticipated graduation date.

## G. Writing Program Eligibility & Standards

At the end of *English Composition* (HU-1111), students will take the Writing Proficiency Examination (WPE). All students must take and pass this examination in order to graduate. Students who do not pass

Or do not take the WPE are required to take Applied Writing (HU-6062)

**before** taking *Writing About Literature* (HU-1222), and must earn a C- or better in order to pass the course and satisfy the WPE requirement.

Transfer students, students with English Language AP credit, and students who have taken *English Composition* (or its equivalent) elsewhere are still required to take the WPE in their first semester.

Students will be contacted by the WPE Coordinator with details and

preparation materials in order to take the exam at the end of their first semester. Failure to take the exam will require students to enroll in HU-6062 *Applied Writing* before taking HU-1222 *Writing About Literature*.

## H. Awards and Honors

At the end of each academic term, full-time student grades are reviewed. For students with no incompletes or grades below C-, term grade point averages are calculated and academic proficiency is noted as follows:

<i>President's List</i>	3.6 or higher
<i>Dean's List</i>	3.3 to 3.59

A cadet who appears on the Dean's List or the President's List is entitled to wear the appropriate device on his or her uniform. All ribbons will be awarded by the Vice-President of Academic Affairs or designee at the appropriate time.

## I. Graduation Standards

### 1. Graduation Honors

Academic excellence for the baccalaureate program is recognized by awarding degrees summa cum laude (CGPA of 3.8 or higher), *magna cum laude* (CGPA of 3.6 to 3.79), and *cum laude* (CGPA of 3.3 to 3.59). The CGPA determined for honors is based on all college-level work attempted at Massachusetts Maritime Academy. Students who received three or more 'F' grades at MMA are not eligible for graduation honors.

Graduate students are recognized as having achieved *highest honors* (CGPA of 3.85 or higher) or high honors (CGPA of 3.7 to 3.849).

The commencement booklet is printed prior to grades being submitted for the last term. Therefore, the Office of the Registrar must print the honors designation that a student has earned up to but not including his or her final semester. The student's official degree transcript will reflect the appropriate honors designation.

## **2. Graduation**

To receive a Bachelor of Science degree, a student must

1. be recommended for the degree by the appropriate department in recognition of satisfactory completion of the minimum number of courses and credits as established in the degree curriculum;
2. maintain a cumulative grade point average of 2.0 as well as a grade point average of 2.0 in the major;
3. have not failed, without repeating successfully, any courses in the required curriculum (only failures in courses not required to complete the degree are allowed);
4. maintain prescribed standards of conduct and aptitude;

5. discharge all financial obligations to the Academy;
6. successfully complete applicable U.S. Coast Guard license examinations prior to the awarding of a degree in Marine Engineering or Marine Transportation, as required by the Maritime Administration (MARAD).

## **3. "Rule of Two"**

Students who are delinquent in no more than two credit-bearing requirements (course, sea term, co-op, or commercial shipping) may participate in the June commencement ceremony by showing proof of registration in their remaining requirements. Their degree will be issued after successful completion of outstanding requirement(s).

Under no circumstances will students delinquent in more than two credit-bearing requirements be allowed to participate in the commencement ceremony.

## **J. Residency Requirements**

Residency requirements for students earning their first baccalaureate degree at the Academy are as follows:

1. Students must complete at least 40 credit hours in residence at the Academy;
2. At least half of courses required in the major must be in residence;
3. At least half of all courses required in any minor or concentration must be in residence;

4. At least 30 of the last 40 credit hours earned must be in residence (i.e., “final year” requirement).

Residency requirements for students earning their second baccalaureate degree at the Academy are as follows:

1. Students must complete at least 40 credit hours in residence at the Academy;
2. At least half of courses required in the major must be in residence;
3. At least half of all courses required in any minor or concentration must be in residence.

Residence credit includes the following:

- fall and spring term courses offered for credit through the Academy (including online And hybrid courses);
- winter and summer intersession courses offered for credit through the Division of Graduate and continuing Education;
- foreign study credit earned through Academy-sponsored programs.

Residence credit does not include the following:

- transfer credit (including any foreign study credit through programs not sponsored by the Academy);
- international baccalaureate credit;

- course exemptions awarded for Advanced Placement (AP) coursework, ATP examinations, the College-Level Examination Program (CLEP), and the DSST Program.

Note that exceptions to the “final year” residency requirement may be granted at the discretion of the Dean of Undergraduate Studies. Exceptions, for instance, may be granted for active-duty service members, including Reservists and National Guardsmen. Students are still expected, however, to meet the minimum credit residency requirements for the degree.

For students who earned their first baccalaureate degree from the Academy and return for a second baccalaureate degree, cumulative credits and cumulative GPA will be continued from the prior degree, and the same transcript will be used.

## **K. Academic Assessment**

Massachusetts Maritime Academy is committed to maintaining academic excellence and continuously improving the quality of our academic programs.

Through assessment of core competencies and institutional student learning outcomes, the Academy assesses and monitors the effectiveness of instruction and learning to identify academic weaknesses and areas for improvement.



Faculty and students participate in a variety of individual and program assessments to meet these objectives.

Students are assessed in five Core Competencies, which represent essential skills and abilities that form the educational foundation for all other courses and allow for success beyond the Academy.

These competencies are introduced, reinforced by, or incorporated into many courses throughout the curriculum. All students who graduate from MMA should achieve competency in these areas. The five core competencies are as follows:

*Specialized Knowledge:* This competency reflects what students should be able to demonstrate with respect to their major or academic program;

*Broad and Integrative Learning:* This competency reflects basic knowledge and understanding related to humanities, social sciences, sciences, and mathematics. It also reflects students' ability to bridge different areas of learning;

*Intellectual Skills:* This competency reflects students' skills as related to communication, quantitative literacy, and higher-order thinking. It also includes technology and information literacy skills, creating a foundation for lifelong learning;

*Applied and Collaborative Learning:* This competency reflects what students can do with what they know. It reflects students' application of knowledge, skills, and abilities as demonstrated in classroom, workplace, and other settings;

*Civic and Global Learning:* This competency reflects the knowledge, skills, values, and abilities necessary for participation in civic and democratic life. It includes awareness, understanding, and appreciation of social and political values as well as respect for diversity and inclusion.

### **Learning Outcomes**

Consistent with its mission of providing each undergraduate student with educational experiences employing both conventional classroom instruction and practical, hands-on experience in state-of-the-art simulators, aboard a seagoing training vessel, aboard commercial ships, in shore-side laboratories, in the workplace, and during experiential learning, Massachusetts Maritime Academy has established institutional student learning outcomes that are derived from the Academy's core competencies and address expectations for the undergraduate experience within the majors, the general education program, and the co-curriculum. The institutional learning outcomes are as follows:

#### **Specialized Knowledge**

- Basic knowledge and understanding of the history, theories, scholarship, tools, technologies, methods, and/or specialized terms of a field of study;

### ***Broad and Integrative Learning***

- Basic knowledge and understanding of humanities, social sciences, sciences, and mathematics;
- Ability to explore concepts and questions that bridge different areas of learning;

### ***Intellectual Skills***

- Ability to write, read, speak, and listen effectively;
- Ability to critically and creatively comprehend and evaluate new information and ideas;
- Ability to use quantitative reasoning skills, applying basic concepts of mathematics and science;
- Capacity for lifelong learning, including the ability to utilize technology and information literacy;

### ***Applied and Collaborative Learning***

- Ability to work and achieve goals as a member of a team;
- Capacity for leadership, including the ability to make rational decisions while complying with a set of standards;
- Ability to perform and behave in a professional manner acceptable for career goals;
- Ability to make appropriate future decisions based on past and present conditions and circumstances;

### ***Civic and Global Learning***

- Basic knowledge, understanding, and appreciation of diverse social and political values;
- Capacity for ethical reasoning, including the ability to make decisions and act in a socially responsible manner;
- Ability to integrate knowledge and skills in civic and global contexts;
- Capacity for empathy, including an appreciation for diversity and inclusion;
- Capacity for civic action, including the ability to engage in service that benefits the public good.

### ***Methods of Assessment***

The Outcomes Assessment program relies on a number of different methods for measuring the effectiveness of the educational process, including the following:

*Departmental Self-Study:* About every five years, each academic department conducts a self-assessment using appropriate guidelines and develops an action plan based on the assessment results and recommendations from external reviewers. Self-studies assess curriculum, faculty, and available resources.

*Writing Assessment Program:* All incoming students will be required to participate in a writing assessment program, which includes a writing placement test to evaluate the writing skills of all incoming first-year students and a writing proficiency

examination (WPE) at the end of *English Composition* (HU-1111). All students must pass the WPE as part of the graduation requirement or, if they fail or do not take the WPE, must take HU-6062 *Applied Writing* and earn a C- or better in order to take *Writing About Literature* (HU-1222) .

*United States Coast Guard License Examination:* This is a standardized examination administered by the United States Coast Guard to the two maritime license majors. Marine Transportation students are examined in Rules of the Road, General Deck Questions, General Navigation Questions, Safety, and Navigational Problems. Marine Engineering students are examined in General Subjects, Electricity, Steam Plants, Motor Plants, Gas Turbine Plants, and Engineering Safety.

*Standards for Training, Certification and Watchkeeping for Seafarers (STCW) Quality Standards System:* The International Maritime Organization requires all training and assessment to be “continuously monitored through a quality standards system to ensure achievement of defined objectives.” Each student must meet qualifications in both academic coursework and practical training areas. Courses in Marine Transportation and Marine Engineering have been designed such that the defined standards are embedded throughout the curriculum and assessed through written and oral projects, examinations, and practical performance. All students

participating in STCW courses are held to the same standards, regardless of major.

*Fundamentals of Engineering (FE) Examination:* All Energy Systems Engineering students will be required to take the nationwide FE examination in the spring semester of their senior year. This computer-based examination format is overseen by the National Council of Examiners for Engineering and Surveying (NCEES).

*FEQE—Facilities Engineering Qualification Examination:* The FEQE is required of all Facilities Engineering majors in order to graduate. The examination was developed by the Engineering Department to serve as the primary assessment tool for the major and comprises two sections. Section One includes assessment of all major topics, and Section Two is based on technical writing skills.

*Marine Engineering Qualification Program:* All Marine Engineering students participate in the Engineering Qualification Program. The purpose of the program is to ensure that each student in the Marine Engineering Program attains an increasing level of shipboard engineering expertise each year while at the Academy, can operate the training ship machinery efficiently and safely, and can demonstrate a satisfactory level of basic engineering knowledge prior to graduation.

## VIII. STUDENT LIFE AND ACTIVITIES



### **Student Life**

Student Services provides a full range of activities and support services to assist each student in developing his or her full potential. Student Services Division personnel strive to maintain a cultural, social, and spiritual environment at the Academy that stimulates student growth according to the “whole-person” concept.

### **A. Standards of Conduct**

All students at the Academy are required to abide by the high standards of ethical behavior expected from professional officers. A student-administered honor code states simply that Massachusetts Maritime Academy cadets and students will not lie, cheat, or steal, nor do they tolerate these acts from others. Personal conduct, both on campus and off campus, is governed by the regulations and standards of the Regiment of Cadets. Hazing, or

any abuse of power, is a serious violation of state law and Academy regulations. It will not be tolerated.

### **B. Regiment of Cadets**

The Academy seeks young men and women with developing maturity, strong academic motivation, self-discipline, and leadership potential. Providing a direct, practical leadership experience, the Regiment of Cadets is central to a student’s college experience as he or she prepares to assume a responsible leadership role at sea or ashore.

Unless they volunteer for a military commissioning program, cadets do not have a military obligation at Massachusetts Maritime Academy, and there is none after graduation.

All residential students must belong to the Regiment of Cadets, a program designed to enhance the character and abilities of each student. In choosing and being

accepted by Massachusetts Maritime Academy, a student understands that he or she is enrolling in a unique and select college. The Academy provides a superb education and support structure for a cadet's growth, and standards of conduct are necessarily high. Cadets meet a demand for academic excellence and adhere to rules and regulations designed to develop accountability, responsibility, and self-discipline. The principles of honor, personal integrity, and loyalty have traditionally characterized the professional officer. The Academy's requirements, involving fortitude, honor, and integrity, are stringent in order to prepare the graduate for a successful professional career.

In addition to their pursuits in academic studies, cadets are trained as leaders. Within the Regiment, cadets practice leadership and management by supervising other cadets in a broad variety of activities, including the orientation of freshmen, room inspections, sea term planning, shipboard responsibilities, and competitive athletics. Cadets also apply professional knowledge and leadership while on annual sea terms on the USTS *Kennedy*, while at cooperative education placements, and while undergoing training on Academy small craft.

The professional staff of Academy officers assigned to the Commandant of Cadets guide cadets in their leadership training and professional growth.

Unless a cadet requests to change the recorded gender identification within the Colleague database, the cadet will be assigned berthing (dorm rooms) and will use the facilities associated with the gender identification on record. A cadet may request to change the recorded gender identification at any time by presenting a request to the Office of the Commandant (after admission) or to the Admissions Department (during the application process).

### **Uniforms**

Upon entering the Academy, all regimental students are required to purchase and maintain uniforms. Other clothing may be worn only as authorized by the Commandant of Cadets. Uniforms and equipment become the property of the student and may not be returned to the Academy.

### **Orientation Program**

Immediately upon arrival at the Academy in mid-August, all fourth-class cadets receive indoctrination to the cadet way of life through a two-week orientation program. This program prepares the student to enter the Regiment equipped with the basic knowledge and skills necessary for the Academy's regimental lifestyle. Emphasis is placed on military drill, physical fitness, familiarization with the training ship and equipment, instruction in cadet watch standing, wearing and stowage of uniforms and equipment, and mental conditioning to inculcate a sense of honor and duty towards academic studies and professional training.





The fast, disciplined pace of orientation is a significant transition for most cadets. The pressures involved in the program teach teamwork, discipline, and self-control, as well as time management skills and effective performance under stress. Cadets must be mentally and physically prepared to successfully complete the demanding regimen of orientation before they can enroll at the Academy.

## C. Residential vs. Commuter Status

The following guidelines regarding student status apply to all current and prospective students. They outline the requirements and circumstances under which a student may request commuter status.

### Regimental Commuter Student Status

To be considered for enrollment as a regimental commuter, a student must petition the Commandant of

Cadets in writing at least 30 days prior to the start of the semester and meet one of the following criteria:

- have successfully completed eight semesters in the Regiment,
- qualify as a non-traditional cadet by being married and/or having children, or
- qualify through military status, such as by being a combat veteran, a disabled veteran, or a veteran who has served on active duty for a period of at least two years and who has been discharged under honorable conditions, or
- have a documented medical reason approved through MMA Health Services, or
- have commuter status deemed prudent and necessary by the Commandant of Cadets.

Regimental commuters must comply with all rules and regulations as outlined in the Regimental Manual, including undergoing random drug testing selection, observing uniform and grooming standards, and participating in change of command, watchstanding, and mast hearings.

Note: When applying for regimental commuter status as outlined above, adverse factors relating to discipline or academic history could disqualify a cadet.

### **Non-Regimental Commuter Student Status**

In rare circumstances, an enrolled cadet may request to be re-designated as a non-regimental commuter.

Massachusetts Maritime Academy is not a commuter college. On rare occasions, a prospective student is allowed to apply for non-regimental commuter status or a matriculated student is allowed to apply to transfer from the Regiment of Cadets to non-regimental status, but only for the good of the Academy or for some unforeseen reason. Simply applying for non-regimental commuter status does not guarantee that the status will be granted.

Any student intending to complete a degree in a license-track program must remain in the Regiment of Cadets throughout that program.

Students with non-regimental status are not permitted to wear or graduate in the MMA uniform. Non-regimental students will not receive the Regimental Certificate.

Students wishing to leave the Regiment of Cadets shall not have any pending discipline issues, must have completed all extra-duty and/or restriction obligations, and must have fulfilled all other obligations (e.g., assigned watches, shipboard maintenance). Additionally, students applying for non-regimental commuter status must be in good academic standing.

To apply, current cadets must request the status change in writing at least 30 days prior to the start of the semester. Acceptance will be determined by a committee comprising the Vice President of Enrollment Management, Registrar, Assistant Commandant, and Chairperson of the applicable department.

A prospective student who intends to request non-regimental commuter status must do so at the time of application; major in any program except for Marine Engineering or Marine Transportation, and meet one of the criteria listed below:

- have a prior degree (associate's degree or higher) or a minimum of 60 transferable credits from an institution of higher education other than MMA, or
- be at least 24 years of age, or
- have prior military service (honorably discharged veteran), or
- be legally married and/or have dependent children, or
- have a documented and valid health-related reason, or
- have commuter status deemed prudent and necessary by the Commandant of Cadets.

### **Part-Time Student Status**

A student taking fewer than 12 credits in a semester will be designated a part-time student. A part-time student is not allowed to participate in varsity athletics and will be billed on a per-credit basis.

## **D. Leave and Liberty Policy**

Cadets receive liberty privileges proportional to their seniority, their position, and their responsibility in the regimental organization. Normally, cadets are granted liberty from Friday after classes until 1900 Sunday evening for fourth-class cadets and until 0700 Monday morning for upper-class cadets. Leave is granted for weekend military reserve duty.

Cadets are not entitled to liberty when they are

- (a) under disciplinary restriction, or
- (b) a member of a duty detail for watch standing or maintenance.

Duty requirements will normally occur at least once each week. Weekend duty obligations occur once every six weeks.

Requests for special liberty may be considered for

- (a) official Academy business,
- (b) medical or dental consultation or treatment, or
- (c) death or illness of an immediate member of the family.

## **E. Career & Professional Services**

The Department of Career and Professional Services engages with students from their freshman year to their senior year and beyond. The department provides career preparation services, cooperative education placement, and commercial shipping placement.

Career preparation provides students with the basic tools to begin the job search. The department hosts a series of workshops on such topics as résumé and cover letter writing, interviewing skills, networking, and social media. The department also offers panel discussions and mock interviews with professionals in the field.

All students enrolled at the Academy participate in a unique educational process that blends classroom instruction with hands-on learning. Termed “Learn-Do-Learn,” this pedagogical approach allows students to gain practical experience and on-the-job training in real-world settings. The confidence and knowledge developed during sea terms, cooperative education, and experiential learning opportunities contribute to the employment value of the Academy’s graduates.

The focus of senior year is the job search. The department invites employers to campus throughout the year for two career fairs, presentations, interviews, meetings, panels, and workshops in which



students get to meet and interact with professionals and alumni working in the field.

The Office of Career and Professional Services continues to assist students after graduation, offering an electronic job board accessible via the Academy's home page. Traditionally, graduates find that their cooperative education placement and commercial shipping experiences enhance their employment opportunities.

### **1. Cooperative Education**

The Academy's dynamic cooperative education programs function to enrich our students' practical educational experiences. Students in Facilities Engineering, Marine Science, Safety and Environmental Protection, Emergency Management, International Maritime Business, or Energy Systems Engineering are required to work and study within companies and organizations in fields corresponding to the majors. The cooperative education placements are designed to

- combine relevant work experience with academic studies while offering the best opportunities for personal and career development;
- develop a broader, more practical knowledge based on both academic and professional environments;
- improve confidence in career choices and aspirations;

- enrich both industry and the Academy education programs through an ongoing exchange of people and ideas, providing direct input from participating employers on the quality of student preparedness and curricula development;
- provide students with an opportunity to begin developing a network of professional contacts.

Cooperative education placements are available during Winter and Summer sessions. Employers provide outcome assessment on the students and the study programs. Eligibility standards exist for participation, and students complete a comprehensive project upon returning to school. Upon successful completion, students receive six credits for their cooperative education placement.

### **2. Commercial Shipping Program**

Massachusetts Maritime Academy cadets and graduates have earned the respect of the world's largest and most successful shipping companies. Our cadets who major in either Marine Transportation or Marine Engineering spend approximately two months during the junior year aboard merchant ships in locations throughout the world, working, studying, and applying newly acquired skills. These commercial shipping experiences provide confidence-building opportunities that classrooms or academic laboratories cannot duplicate. As an added benefit, these challenging assignments often lead to

gainful employment at graduation. Program participation is dependent upon proper academic performance and aptitude. Students should complete all commercial shipping prerequisite courses at least one full semester prior to a commercial shipping billet. Any student enrolled in any commercial shipping prerequisite courses the semester immediately prior to a billet, and who receives a mid-term deficiency in the prerequisite course(s) will be immediately removed from the upcoming commercial shipping billet. Students must complete comprehensive projects prepared by the appropriate academic department and receive credit for completion.

## **F. Mariner Credentialing Department**

The Mariner Credentialing Department implements policies established by the U.S. Coast Guard for Marine Transportation and Marine Engineering (license-track) students and ensures that students in both majors meet the established requirements. The department assists students with this process beginning in the freshman year with cadet credentialing and medical approval and continuing through the senior year with professional licensure. The department also provides professional training required of license-track students by the Standards for Training, Certification and Watchkeeping for Seafarers (STCW), including training in medical first aid, firefighting, survival craft, and rescue boats.

Policies relating to credentialing for the Marine Transportation and Marine Engineering programs can be accessed at the department's web page: [www.maritime.edu/mariner-credentialing](http://www.maritime.edu/mariner-credentialing).

## **G. Inclusive Excellence and International Programs**

The Office of Intercultural Engagement's mission is to provide faculty, staff, and students with opportunities to support and embrace the intersections of culture and identity to create a community that is inclusive to all populations at the Academy.

### ***Student Exchange and Experiential Learning***

In an era of globalization, education abroad significantly enhances the educational experience of participating students. The Academy currently offers several foreign exchange and experiential learning programs, varying in length from two weeks to a full semester. These programs provide students with opportunities for cultural immersion and the exchange of knowledge in a mutually beneficial spirit of cooperation.

Cadets who undertake academic coursework as part of an exchange program with a foreign university must follow proper procedures to ensure that the credits earned will transfer to the Academy.

## H. Athletics

Varsity athletics play a major role in cadet life at the Academy. With well over one-third of students participating in at least one inter-collegiate sport, the facilities on campus and the waters surrounding it are alive with activity on a daily basis.

As participants at an NCAA Division III member institution, student-athletes play for the true love of the sport, succeeding both in athletic competition and academic pursuits. Though the Academy does not award athletic scholarships for its 15 varsity programs, it does provide the best competition around as a proud member of the Massachusetts State Collegiate Athletic Conference (MASCAC), Little East Conference (LEC), New England Intercollegiate Sailing Association (NEISA), and New England Interscholastic Rowing Association (NEIRA).

The Academy takes great pride in its tradition of athletic success, which includes conference and regional championships, numerous All-America and Academic All-America citations, and accolades earned by cadets who have achieved all-around success as scholar-athletes.

MMA Athletics supports the mission of the Academy by providing all student-athletes with an equal opportunity to enhance and develop values that foster leadership, sportsmanship, inclusion, and teamwork.

The men's varsity athletic program comprises baseball, crew, cross country, football, lacrosse, and soccer, while the women's varsity athletic program comprises crew, cross country, lacrosse, soccer, softball, and volleyball. The Academy also sponsors two co-ed varsity programs in sailing and outdoor track and field.

In 2010, MMA completed construction of the Clean Harbors Athletic Center and Clean Harbors Stadium, a project that included new locker rooms, enhanced weight training facilities, and a cardiovascular center.

For more information on Bucca-  
neer Varsity Athletics, please visit [www.mmabucs.com](http://www.mmabucs.com).



## **I. Student Clubs, Organizations, and Activities**

Students at the Academy are offered a wide variety of extracurricular activities, listed below.

Many of the clubs on campus are organized by cadet special-interest groups and obtain their charters through the Student Government Association. There are over 50 active clubs. Some of the more popular clubs appear below.

### **Association of Student Engineers (ASE)**

The MMA ASE is affiliated with and sponsored by four professional organizations: the Association for Facilities Engineering (AFE); the American Society of Heating, Refrigerating, and Air-conditioning Engineers (ASHRAE); the Association of Energy Engineers (AEE); and the International Society for Pharmaceutical Engineering (ISPE). The ASE meets on a regular basis, coordinates guest speakers and facility tours, and introduces students to industry scholarship and networking opportunities.

### **Band and Chorus**

The Academy's Regimental Band and Chorus is its premier musical organization. It performs music at Academy events and participates in Academy formations and ceremonies, change of command, military retirement ceremonies, and funerals at the Massachusetts National Cemetery. It also supports the Academy's mission by providing music

for community events around the New England, Middle Atlantic, and Southeast Regions.

### **Boxing Club**

The boxing club trains at a local gym and attends local boxing events.

### **Business and Investment Club**

The business and investment club reviews current business trends and discusses the stock market.

### **Community Service**

All first-year and most upperclass cadets participate in local community services, such as blood drives, food pantries, Children of Military Families, the Department of Children and Families, Big Brother/Big Sister, coaching in local middle schools, and mentoring disadvantaged youths.

### **Crossfit Club**

The crossfit club trains at a local gym on a weekly basis.

### **Climbing Club**

Participates in climbing instruction and events at a local climbing course.

### **Drill Team**

The Academy's drill team is a precision drill platoon. Their primary mission is showcasing the discipline of Massachusetts Maritime Academy, both regionally and nationally, through solid routines displaying "discipline, knowledge, and leadership."

### **Golf Club**

The golf club meets on a weekly basis and plays golf at a local golf course.

### **Hockey Club**

Intercollegiate ACHA D3 Hockey. The club offers competitive options for players to compete against other college programs. The team plays a competitive 25-30 game schedule. Tryouts are required.

### **Honor Guard**

The Academy's Honor Guard is a precision drill team and marching unit that performs in many regional events and parades.

### **International Association of Emergency Managers**

The IAEM is involved in networking, résumé building, and attending emergency management conferences and events.

### **Intramurals**

The intramural program provides an opportunity for all students to compete in a wide variety of team and individual sports. Each company of the Regiment is represented by teams and individuals in inter-company competition. This competition culminates each spring with the awarding of the Commandant's Cup Intramural Championship Trophy to the company winning the most points in the annual competition. The variety of intramural sports offered each year may vary according to student interests, but it usually consists of the following: hockey, soccer (indoor and outdoor), road racing, bicycle racing and touring, weight lifting, swimming, softball, speedball, street hockey, basketball, and volleyball.

### **Investment Club**

This club offers cadets the opportunity to learn from investment professionals, discuss current trends and issues, and track markets. Under guidance of the faculty advisor, cadet teams gain valuable hands-on investing experience in analyzing securities. Using the resources of the Riccardi Cadet Investment Center, including access to Reuters' financial database and state-of-the-art trading wall with real-time stock tickers and information, cadet teams prepare portfolio recommendations that will be presented to an advisory board and used to invest a portion of the Academy's endowment.

### **Multicultural Club**

The multicultural club brings together people of all cultures by hosting and participating in numerous events throughout the year and conducting festivals that celebrate culture through food, drink, and music.

### **North American Marine Environmental Protection Association**

The NAMEPA is involved in networking and matters related to the industry.

### **Propeller Club, Port of MMA**

The Propeller Club is chartered by the national organization of the same name. Its purpose is to introduce cadets to the nature of the maritime industry.

**Rugby Club**

With an exciting intercollegiate schedule and international competition during training cruises, the Rugby Club enjoys popular support from the student body.

**Scuba Diving Club**

Each year over one-hundred students learn to scuba dive in the Academy pool and then practice their skills in the waters of the Caribbean or the Mediterranean during the sea terms.

**Semper Fi Society**

Established by cadets in the Marine Corps platoon leaders course.

**Society of Naval Architects and Marine Engineers**

SNAME is a group of cadets interested in advancing naval architecture and marine engineering by hosting working groups, guest speakers, and field trips.

**Student Government Association (SGA)**

All students belong to the SGA, which aims “to foster self-government among its members and promote student activities for the best interests of the cadets at the Academy.” The SGA officers include a President, Vice-President, Secretary, and Treasurer. Each of the four classes also elects a President, Vice-President, Secretary, and Treasurer, who organize specific class activities and serve jointly as a general assembly for the Association.

**Turning Tides Student Journal**

Offering an artistic flavor to the campus community, this student publication is organized by a student editorial board in consultation with faculty advisors from the Humanities Department.

**U.S. Coast Guard Auxiliary**

The USCG Auxiliary meets to discuss recent events involving the Coast Guard and provides auxiliary support to the USCG on an as-needed basis.

**Weekend Warriors**

A group of cadets who meet to discuss and program on- and off-campus weekend activities.

**Welding Club**

The welding club meets to discuss new technologies related to welding and completes welding projects.

**Wrestling Club**

Holds training and matches at a local gymnasium.

**Yoga Club**

The yoga club conducts multiple yoga sessions each morning at both beginning and advanced levels.

## **J. Health Services**

The Health Services medical clinic, located in Fourth Company, is a full-service health center that provides evaluation and treatment of illnesses and injuries, laboratory testing, office-based procedures, United States Coast Guard and “fit for duty” physical examinations, travel vaccinations and health education to all cadets. The clinical staff includes a board certified physician and two board certified nurse practitioners. Health Services is open Monday through Friday for appointments. Health Services also provides a full range of medical care on board the TS Kennedy during sea term. The cadet’s health insurance will be billed for services, but no co-payments or deductibles will be collected.

### **Counseling Services**

Our on-campus counselors are licensed mental health professionals who provide supportive interventions for a range of issues related to adjustment, development, and social and emotional wellness. Services provided are individual counseling, crisis assessment, prevention programming, community referrals, and consultation to staff and faculty regarding students of concern.

### **Confidentiality**

Professional standards of confidentiality are maintained by all staff members. By Federal and Massachusetts law, information cannot be disclosed, even to parents of cadets over the age of 18 years, without written permission from the student. Our Confidentiality Policy and

more information may be found on our web site at [www.maritime.edu/healthservices](http://www.maritime.edu/healthservices).

### **Care and Action for Students Team (CAST)**

The focus of Massachusetts Maritime Academy’s Care and Action for Students Team (CAST) is the care and concern for students who may be in distress. The team’s aim is to connect identified students with the resources and support needed to facilitate achievement of their personal and academic potential while at the Academy.

Members of the MMA community may refer students of concern to CAST by submitting an online referral or by contacting any member of the team.

### **Health Insurance**

Within the Commonwealth of Massachusetts, all students enrolled in institutions of higher education are required to participate in a health insurance program. The Academy sponsors an appropriate plan for those who do not have their own insurance. If a student is currently enrolled in an approved private or group insurance plan, the plan should be reviewed to ensure proper coverage. In some cases, the coverage ends when the individual reaches a certain age or does not apply when a student resides outside the home or abroad. Most insurance companies require annual verification of a student’s enrollment, which can be obtained from the Registrar.



## **K. Disability Resources**

Massachusetts Maritime Academy is committed to providing reasonable accommodations for students with documented disabilities. The ADA Coordinator works in collaboration with faculty and other campus departments to provide support for students with disabilities and to ensure equal access to all college programs. This coordination of efforts complies with the mandates of Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, and the ADA Amendments Act of 2009.

For questions or concerns about documentation, guidelines or the accommodations process, please call the ADA Coordinator at (508) 830-5350, or visit the Disability Resource link on our website.

## **L. Campus Police**

Although the Academy is located in a safe area less than two miles from the local police and fire stations, campus safety is a vital concern. The Official Guide to Campus Safety and Law Enforcement includes information concerning campus police and personal safety and provides advice regarding crime prevention strategies. It also details the law enforcement authority of campus police officers and includes pertinent

policies concerning the reporting of crimes that may occur on campus. Also contained in the report are crime statistics for the most recent three-year period and campus disciplinary procedures. Copies of this security information report may be requested from the Campus Public Safety Department or at the public safety web page.

## ***Parking Regulations***

Parking regulations are in effect 24 hours a day, seven days a week. All vehicles parked on campus or in an MMA off-campus parking lot must have a valid, properly displayed decal or a temporary parking pass issued by MMA Campus Police. All parking decals must be permanently affixed to the vehicle to which it is registered. Student parking permits are valid only from the start of fall semester until graduation.

Cadet vehicles are prohibited from parking in any staff parking area, with the exception of the Cape Cod Canal parking area outside those hours posted for staff only. Staff parking areas include the Beachmoor lot, along the Cape Cod Canal (Academy Drive during hours posted), 3rd Company Circle, the Harrington Lot, the ship's crew area, the side lot of Bresnahan Hall, Flanagan Parking lot (building side), and the Mess Deck lot.



### **First Class Cadet Officers (IV bars and up)**

First class cadet officers are permitted to park in the following areas:

Along the parade field across from Flanagan Hall, the gymnasium parking lot, the baseball field apron, Lot C on Academy Drive, the Kendall Rae lot on Perry Avenue, or the Mariners Inn (in designated areas).

### **First Class Cadets**

First class cadets are permitted to park in the following areas: the gymnasium parking lot, the baseball field apron, Lot C on Academy Drive, the Kendall Rae lot on Perry Avenue, or the Mariners Inn (in designated areas).

### **Second Class Cadets**

Second class cadets are permitted to park in the following areas: Lot C on Academy Drive or Kendall Rae on Perry Avenue.

### **Third Class Cadets**

Third class cadets are permitted to park in the following area: Kendall Rae on Perry Avenue.

### **Commuter Students**

Commuter students are permitted to park in the gymnasium parking lot.

## **Personal Property**

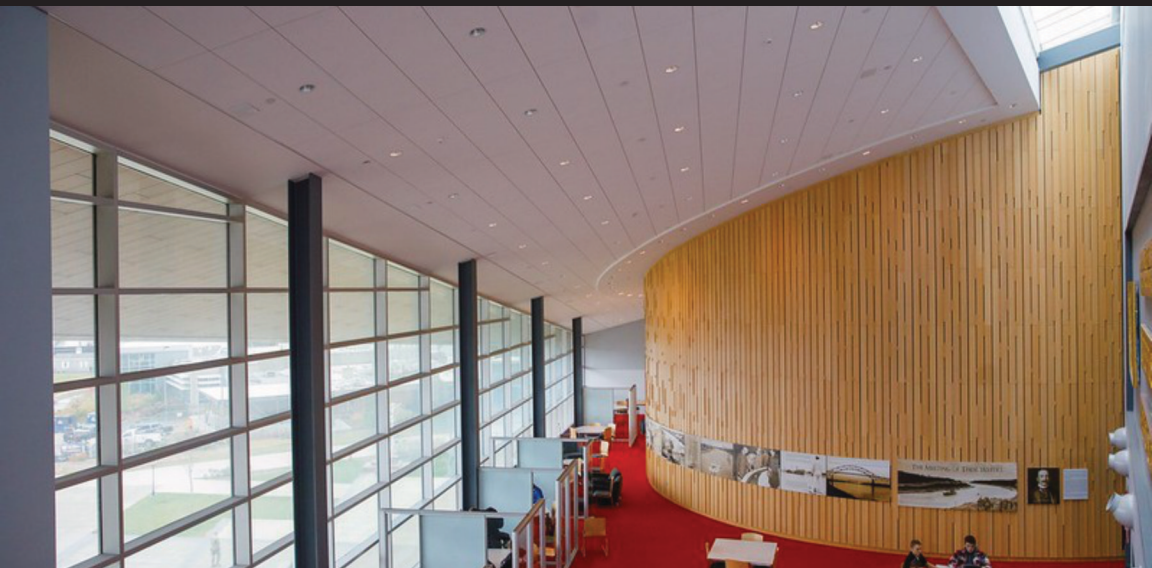
The Academy cannot assume responsibility for loss or damage to personal property through fire, theft, or other causes. Persons desiring such protection should purchase an appropriate insurance policy from a private vendor of their choice.

## **Automated Teller Machine**

There is one cash dispensing machine on campus, located in the dormitory complex.



# IX. TECHNOLOGY AND LIBRARY SERVICES



## A. Library Services

### Hours

The MMA Library, located in the ABS Information Commons, opens at 0730, Monday through Friday. Daily, weekend, and special hours of operation can be found on the Library web site at [www.maritime.edu/internal-students/library](http://www.maritime.edu/internal-students/library).

### Collections

The library maintains an outstanding collection of print and electronic books, journals, newspapers, media and online databases. Remote access to the digital collection is available 24x7 for students and faculty. The collection contains more than 504,000 volumes with access to thousands of full-text journal and newspaper subscriptions in print and online. The library is fully integrated within a library network, affording access to millions of volumes by courier and inter-library loan services. Materials required for

license examinations are loaned to students for the semester. Professional staff are available to assist with research using scholarly resources and the Academy Archives.

### Computing

Students can bring their personal laptops and use the wireless system or utilize computers located throughout the ABS building that are connected to the campus-wide network and Internet. Laptops and tablets are also available to students on a short-term loan basis from the Service Desk.

### Course Support

Faculty can request library support specific to their courses. Librarians are available for in-class research tutorials, creating web-based course guides, and embedding research guides directly into Blackboard courses. Faculty can also request that books or other research

materials be placed on reserve for their courses; these are available for short-term borrowing by students.

### **Service Desk**

The MMA Service Desk is located At the library's circulation counter. Students, faculty, and staff are welcome to ask for IT- and library-related assistance in person, by telephone at (508-830-5308), via e-mail ([servicedesk@maritime.edu](mailto:servicedesk@maritime.edu)), or via the online ticketing system ([helpdesk.maritime.edu](http://helpdesk.maritime.edu)). The Service Desk offers assistance with any technology-related issues, including user accounts, access to Academy systems, computer equipment, and peripherals.

## **B. Simulation Technology**

The Academy now maintains nine simulators that form an integral part of student education in Marine Transportation, Marine Engineering, and Emergency Management.

### **Ship Handling**

The Ship Handling Simulator is a state-of-the-art navigation and full-mission simulator with a 360-degree horizontal field of view, and is only one of nine such simulators in the world. It enables trainees to be fully immersed in the virtual environment, thus increasing training realism. The simulator can be fully integrated with the Tugboat and ENL simulators, and it is highly configurable. Instructors can manipulate everything from the number of ships in the channel and the weather to the time of day and the current.

### **Liquid Cargo Handling**

The Liquid Cargo Handling Simulator (LCHS) is designed to train and certify crew members of liquid cargo tankers, gas carriers, and terminals, and it is used to train other staff responsible for safe cargo handling and the operation of auxiliary equipment.

### **Electronic and Navigation**

The Electronic and Navigation Lab (ENL) is a computer-based navigation system compliant with International Maritime Organization (IMO) regulations and can be used as an alternative to paper nautical charts. The lab consists of eight student stations, each station being itself a stand-alone full mission simulator.

### **Engine Room Operations**

The Engine Room Operations Simulator provides our Marine Engineering students with basic to advanced training in engine room operations. The simulator provides three different ship models: a turbo-generated tanker, a medium speed diesel ferry, and a diesel electric passenger ship. Included in this simulator are teaching assessments to ensure that students meet the STCW requirements in engine room operations.

### **Gas Turbine Operations**

Used by the Marine Engineering students, the Gas Turbine Operations Simulator is built on a Navy propulsion model. This simulator focuses on operating routines, integrated checklists, and corrective actions when faults occur.



### **Global Maritime Distress and Safety System**

The Global Maritime Distress and Safety System Lab (GMDSS) includes all equipment required to carry out advanced exercises in all aspects of GMDSS/SAR training. The equipment is realistically emulated to simulate the various types of radio equipment most commonly used onboard ships.

### **Integrated Navigation**

The Integrated Navigation Lab (INL) uniquely combines radar information, navigational charts, ENC safety parameters, targets, user-maps, routes, and tools for decision support, which all ensure safer navigation.

### **Tugboat Operations**

The Tugboat Operations Simulator provides students with excellent tools for both ship assistant training tasks and professional training in tug and barge operations, including simulation training in mooring operations (ship-to-ship and ship-to-pier), anchoring operations, and tug operations in automatic and manual mode.

### **Emergency Management**

The Emergency Management Operations Training Center includes an Emergency Operations Center and Incident Command Post that can integrate and display both legacy and emergent technologies to simulate command and control in a realistic environment, facilitating development of tactical and strategic decision-making modeled after real-world scenarios.



## C. Infrastructure Technology

Infrastructure Technology (IT) provides network and computing infrastructure that allows faculty and students access to information and services that are important for academic success. The department provides wired and wireless network services,, along with desktop resources and applications, printing services, and cloud-based application suites. Working in conjunction with the MMA Service Desk, IT responds to technical issues and also works to identify new and improved technologies that would benefit the campus.

Students are required to bring their own computing devices to MMA. IT determines the minimum specifications for the student's personal device. These specifications can be found on the MMA web site.

There are many instructional technology resources available for students and faculty, including projection and sound systems, computers, document cameras, and DVD players. Online resources and cloud-based systems are available for learning management, training, and skills development. Tools and support for the development of online courses are also provided to the faculty.



# X. FACULTY AND STAFF

## Office of the President

**Dr. Francis X. McDonald (1994); RADM, USMS**

President; B.S., Massachusetts Maritime Academy; M.S., Rensselaer Polytechnic Institute; L.P.D., Northeastern University.

**Susan N. Cornet (2004)**

Staff Assistant; B.S., Salem State University.

## Human Resources

**Elizabeth C. Benway (1994)**

Dean of Human Resources, Title IX Coordinator; B.S., Massachusetts Maritime Academy; M.H.R.M., Emmanuel College.

**Pamela Lopez (2011)**

Administrative Assistant.

**Ann O'Connor (1992)**

Staff Associate, Payroll/Benefits.

**Paul A. Andersen (2013)**

Staff Assistant; Payroll/Benefits; B.S. Syracuse University.



# Academic Division

**Brigid M. Pavilonis (2019); CAPT, USCG (Ret.)**

Vice President of Academic Affairs; B.S., United States Coast Guard Academy; M.A., Tufts University; Ph.D., Tufts University.

**James McKenna (2020)**

Dean of Undergraduate Studies; B.S., Boston College; Ph.D., University of Rhode Island.

**S. Elaine Craghead (2007)**

Assistant Dean of Academic Resources; B.A., The College of William and Mary; M.A., George Mason University; Ph.D., University of Rhode Island.

**Marlene Clapp (2015)**

Director of Institutional Effectiveness; B.A., The College of William and Mary; M.U.A., Virginia Tech; Ph.D., Boston College.

**Danielle Bumpus (2008)**

Director/Registrar; A.S., Cape Cod Community College; B.S., Massachusetts Maritime Academy.

**Wendy Maynard (2017)**

Staff Assistant/Assistant Registrar; B.A., Smith College

**Pamela Cerrud-Ahern, (2018)**

Staff Assistant; A.S., Universidad Santa Maria la Antigua

**Karen Nahigian (2013)**

Staff Assistant; B.A., North Adams State College



# Academic Departments

## Emergency Management Department

### **Thomas F. Lennon (2010); CAPT, USCG (Ret.)**

Professor; Department Chairperson; B.S., Suffolk University; J.D., Suffolk University Law School.

### **Marina M. Brock (2018)**

Instructor; B.A., Simmons College; M.P.A./M.S., Suffolk University.

### **George Cadwalader (2014); LTCOL, USMC (Ret.)**

Associate Professor; B.A., University of Wisconsin; M.A., Naval War College; J.D., University of Wisconsin.

### **Samantha A. Coonan (2019)**

Instructor; B.S., United States Coast Guard Academy; M.A., Northeastern University.

### **Miguel (Mike) Gutierrez (2020)**

Assistant Professor; B.A.A.S, University of North Texas; M.P.A., University of North Texas; Ph.D, University of North Texas.

### **Samantha Montano (2020)**

Assistant Professor; B.S., Loyola University of New Orleans; M.S., North Dakota State University; Ph.D., North Dakota State University.

### **Daniel T. Murphy (2017); LCDR, USNR**

Assistant Professor; B.A., University of Massachusetts, Boston; M.A., Georgetown University; M.S., National Intelligence University; Ed.D., Northeastern University.

### **Mark Tallman (2020)**

Assistant Professor; B.A., Northern Illinois University; M.A., Illinois State University; Ph.D., University of Denver.

### **Edward J. Valla (2016); MAJ, USAR (Ret.)**

Assistant Professor; B.A., Bridgewater State University; M.A., University of Massachusetts; Ph.D., University of Connecticut.

### **Tara McEnroe-Kent (2002)**

Staff Assistant/Simulator Specialist; B.A., University of Massachusetts, Boston.



# Engineering Department

## **Carlos Montanez (2010); CDR, MMA**

Professor; Department Chairperson; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Chief Engineer, Steam, Motor and Gas Turbine, Unlimited Horsepower; Stationary License: Massachusetts First Class.

## **James A. Albani (2017); CAPT, USNR (Ret.)**

Assistant Professor; B.S., Massachusetts Maritime Academy; M.A., American Military University; Marine License: First Assistant Engineer, Steam and Gas Turbine, Unlimited Horsepower; Second Assistant Engineer, Motor, Unlimited Horsepower.

## **John Bausch III (2006); CDR, MMA**

Professor; B.S., State University of New York Maritime College; M.S., Ph.D., Massachusetts Institute of Technology; Marine License: Second Assistant Engineer, Steam and Motor, Unlimited Horsepower.

## **Robert J. Camp (2011)**

Associate Professor; B.S., Rochester Institute of Technology; M.S., University of New Hampshire; Ph.D., Northeastern University. License: Professional Engineer, Rhode Island.

## **Peter R. Carroll (2019)**

Assistant Professor; B.S., United States Coast Guard Academy; M.S., University of Illinois; M.B.A., University of Michigan, Ann Arbor; License: Professional Engineer, California, Maine.

## **Timothy DeMoranville (2021); LTJG, MMA**

Instructor; B.S., Massachusetts Maritime Academy; Marine License: Chief Engineer, Steam and Gas Turbine, any Horsepower; 3<sup>rd</sup> Assistant Engineer, Motor Vessels, any Horsepower.

## **Diane D. DiMassa (2003)**

Professor; B.S.M.E., M.S.M.E., M.Eng., Massachusetts Institute of Technology; Ph.D., Massachusetts Institute of Technology/Woods Hole Oceanographic Institution.

## **William Dunn (2007)**

Engineering Laboratory Technician—Welding; American Welding Society Certified Welder; Vertical and Overhead, Structural D1.1.

## **Matthew J. Frain (2009)**

Professor; B.S., M.S., Ph.D., University of Massachusetts Amherst; License: Professional Engineer, Massachusetts.

## **Roger E. Gill (2004); LT, MMA**

Associate Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Chief Engineer, Steam, Unlimited Horsepower; First Assistant Engineer, Motor and Gas Turbine, Unlimited Horsepower; Stationary License: Massachusetts Third Class.

**Alan A. Gillis (2001); CDR, MMA**

Professor; B.S., Massachusetts Maritime Academy; M.S., University of Massachusetts, Amherst; Marine License: Chief Engineer, Steam, Unlimited Horsepower; Third Assistant Engineer, Motor and Gas Turbine, Unlimited Horsepower.

**William E. Haynes (1981); CDR, MMA**

Professor; B.S., United States Merchant Marine Academy; M.S., Virginia Polytechnic Institute and State University; Marine License: Chief Engineer, Steam, Unlimited Horsepower; Third Assistant Engineer, Motor, Unlimited Horsepower.

**William L. Hibbard (2017); LT, MMA**

Assistant Professor; B.S., United States Merchant Marine Academy; M.S.F.M., Massachusetts Maritime Academy; Marine License: Chief Engineer, Motor, Unlimited Horsepower; Second Assistant Engineer, Gas Turbine, Unlimited Horsepower; Third Assistant Engineer, Steam, Unlimited Horsepower.

**Todd Hibbert (2007); CDR, MMA**

Professor; B.S., Massachusetts Maritime Academy; M.B.A., University of Massachusetts Dartmouth; Marine License: Chief Engineer, Steam, Motor and Gas Turbine, Unlimited Horsepower; Stationary License: Massachusetts Second Class.

**Olivia Humphrey (2011); LT, MMA**

Assistant Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Chief Engineer, Motor, Unlimited Horsepower; Second Assistant Engineer, Steam and Gas Turbine, Unlimited Horsepower.

**Larry L. Jones (2015); LT, MMA**

Engineering Laboratory Technician; MMCS, USN (Ret.); B. S., Roger Williams University.

**Farzam S. Maleki (2014)**

Associate Professor; B.S., Azad University; M.S., Amirkabir University; Ph.D., Clemson University. License: Professional Engineer, Massachusetts.

**Katherine M. McClellan (2009); LT, MMA**

Assistant Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; M.Ed., Plymouth State University; Marine License: Second Assistant Engineer, Steam, Unlimited Horsepower; Third Assistant Engineer, Motor and Gas Turbine, Unlimited Horsepower; Stationary License: Massachusetts Third Class.

**Jonathan McDonnell (2014); LCDR, USNR**

Associate Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: First Assistant Engineer, Steam and Gas Turbine, Unlimited Horsepower; Second Assistant Engineer, Motor, Unlimited Horsepower; Stationary License: Massachusetts Third Class; License: Professional Engineer, Massachusetts.

**Frank Murray (2005); CDR, USCG (Ret.)**

Professor; B.S., U.S. Coast Guard Academy; M.S., University of Michigan; Marine License: First Assistant Engineer, Motor and Gas Turbine, Unlimited Horsepower; License: Professional Engineer, Michigan.

**Gregory P. Russell (2016)**

Assistant Professor; B.S., Virginia Military Institute; M.S., Ph.D., University of Arizona.

**David Splaine (2012); LCDR, MMA**

Associate Professor; B.S., Massachusetts Maritime Academy; M.S., University of Massachusetts Lowell; Marine License: Chief Engineer, Motor and Gas Turbine, Unlimited Horsepower; First Assistant Engineer, Steam, Unlimited Horsepower.

**Gail M. Stephens (2013); LCDR, USNR (Ret.)**

Associate Professor; B.S., U.S. Naval Academy; M.S., Pennsylvania State University; License: Professional Engineer, Pennsylvania.

**Donald E. Trudeau (2015); LCDR, USNR (Ret.)**

Associate Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Chief Engineer Motor and Gas Turbine, Unlimited Horsepower.

**Mark Whalen (2017)**

Assistant Professor; B.S., University of Rhode Island; M.S., Massachusetts Institute of Technology; License: Professional Engineer, Massachusetts.

**Wei Yu (2017)**

Associate Professor; B.S., M.S., Hefei University of Technology; Ph.D., Florida State University.

## Humanities Department

**Nelson Ritschel (2001)**

Professor; Department Chairperson; B.S., Skidmore College; A.M., Ph.D., Brown University.

**Sarah Moon (2019)**

Assistant Professor; B.A., University of Puget Sound; M.F.A., Brandeis University; M.A., Ph.D., University of Connecticut.

**Jenna Morton-Aiken (2018)**

Assistant Professor; B.A., Goucher College; M.A. Brunel University; Ph.D., University of Rhode Island.

**Kathryn Mudgett (2006)**

Professor; B.A., Stonehill College; M.A., University of New Hampshire; J.D., University of Connecticut School of Law; Ph.D., Northeastern University.

**Caleb Pendygraft (2019)**

Assistant Professor; B.A., Northern Kentucky University; M.A., Ph.D., Miami University of Ohio.

**Anton L. Smith (2016)**

Associate Professor; B.A., University of Virginia; M.A., University of California, Los Angeles; Ph.D., University of Southern California.

## **International Maritime BusinessDepartment**

**Paul S. Szwed (2012); CAPT, USCG (Ret.)**

Professor; Department Chairperson; B.S., U.S. Coast Guard Academy; M.S., University of San Francisco; M.Eng., M.S., University of California, Berkeley; D.Sc., George Washington University.

**Ani Dasgupta (2004)**

Professor; B.S., St. Xavier's College; M.S., Indian Statistical Institute; Ph.D., Princeton University.

**Madhubani Ghosh (2000)**

Professor; B.A., M.A., Jadavpur University, Calcutta, India; Ph.D., Victoria University, Melbourne, Australia.

**Laurel R. Goulet (2018)**

Professor; B.A., Rhode Island College; M.B.A., University of Rhode Island; Ph.D., University of Connecticut.

**F. Portia Ndlovu (2014)**

Professor; Ph.D., University of Kwazulu-Natal; J.D., University of Natal.

**Ashok Pandey (2017)**

Associate Professor; M.S., Erasmus University; Ph.D., Memorial University; Master Mariner, India.

**Shu Tian (2010)**

Associate Professor; B.S., Shandong University; M.S., Sam Houston State University; M.S., Ph.D., University of New Orleans.

## **Marine Science, Safety and Environmental Protection Department**

**Francis J. Veale, Jr. (2007)**

Professor; Department Chairperson; B.S., Fordham University; M.S., Harvard University; J.D., Suffolk University School of Law.

**Heather Burton (2012)**

Associate Professor; B.A., Hamilton College; Ph.D., University of Rhode Island.

**Kevin P. Hefferan (2018)**

Associate Professor; B.S., New Jersey City University; M.A., Bryn Mawr College; Ph.D., Duke University.

**Krzysztof M. Jop (2001)**

Professor; M.A., Ph.D., Jagiellonian University, Poland.

**Kristin Osborne (2018)**

Assistant Professor; B.S., Massachusetts Maritime Academy; M.S., Ph.D., University of Massachusetts, Boston.

## Marine Transportation Department

**David B. Mackey (1992); CDR, MMA**

Department Chairperson; Professor; B.S., M.S., State University of New York Maritime College; Marine License: Master, Oceans Unlimited; First Class Pilotage, Southeast Alaska.

**John L. Belle (2011); CDR, MMA**

Professor; Department Chairperson; B.S., United States Merchant Marine Academy; J.D., Temple University School of Law; Marine License: Master, Oceans Unlimited.

**George A. Benway III (1992); LCDR, MMA**

Associate Professor; B.S., Massachusetts Maritime Academy; M.B.A., Western New England College; Marine License: Master, Oceans 1600 Gross Tons; Master, Ocean Sail 500 Gross Tons; Master of Towing Vessels; Second Mate, Oceans Unlimited.

**Timothy C. Brady, Jr. (1998); CDR, MMA**

Professor; B.S., Massachusetts Maritime Academy; M.A., Cambridge College; Marine License: Master, Oceans Unlimited; Dangerous Liquids; Liquefied Gas Cargoes.

**Kerry Chicoine (2012); LT, MMA**

Associate Professor; B.S., M.S.E.M., Massachusetts Maritime Academy; Marine License: Chief Mate, Oceans Unlimited; Master, Oceans 1600 Gross Tons.

**Patrick E. Cunningham (2014); LT, MMA**

Associate Professor; B.S., M.S.E.M., Massachusetts Maritime Academy; Marine License, Master, Oceans Unlimited.

**Kurt DeCicco (2007); LT, MMA**

Associate Professor; B.S., Massachusetts Maritime Academy; M.Ed., American International College; Marine License: Master, Oceans 1600 Gross Tons; Master of Towing Vessels; Second Mate, Oceans Unlimited; Tankerman, PIC; Medical, PIC.

**James J. Fitzpatrick (1997); CDR, MMA**

Professor; B.S., United States Merchant Marine Academy; M.B.A., Adelphi University; M.A., Ed.D., Columbia University; Marine License: Master, Oceans Unlimited.

**Linda Letourneau (2000); CDR, USNR**

Professor; B.S., Massachusetts Maritime Academy; M.Ed., Cambridge College; Marine License: Master, Oceans Unlimited; First Class Pilotage: Los Angeles/Long Beach, Prince William Sound, and Port Valdez; Tankerman/PIC.

**Albion C. Llewellyn (2017); LT, MMA**

Assistant Professor; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Second Mate, Oceans Unlimited; Dynamic Positioning Officer.

**Colleen McRae (2015); CDR, USNR**

Associate Professor; B.S., M.S., Massachusetts Maritime Academy; Marine License: Master, Oceans Unlimited. Tankerman, PIC.

## Science and Mathematics Department

**Lori-Ann Noble (2010)**

Professor; Department Chairperson; B.S., Providence College; Ph.D., Brandeis University.

**Raúl Aguilar (2004)**

Professor; Ph.D., University of Michigan; Licenciado en Física, Universidad de Buenos Aires and Instituto Balseiro Universidad Nacional de Cuyo.

**German Colón (2014)**

Associate Professor; B.S., University of Puerto Rico; Ph.D., University of Massachusetts, Amherst.

**Valeria D'Orazio (2017)**

Associate Professor; B.S., University of Roma Tre; M.S., Ph.D., University of Missouri, Columbia.

**Margaret M. French (2018)**

Instructor; B.A., Stonehill College; M.A., Bridgewater State University.

**Jaimie L. Gosselin (2020)**

Assistant Professor; B.A., Clark University; Ph.D. Brown University.

**Jason Hyatt (2006)**

Professor; B.S.E., University of Pennsylvania; M.S., University of California Berkeley; Ph.D., Massachusetts Institute of Technology.

**Raymond S. K. Lam (2013)**

Associate Professor; M.S., Ph.D., University of Bristol.

**Matthew B. Loomis (2004)**

Professor; B.S., M.S., Ph.D., University of New Hampshire.

**Robert J. Nanna (2019)**

Assistant Professor; B.M., University of Hartford; M.S., Ph.D., University of Massachusetts, Dartmouth.

**Laurie Norman (2011)**

Associate Professor; B.A., Bowdoin College; Ph.D., University of North Carolina, Chapel Hill.

**Rebecca A. Norton (2017)**

Assistant Professor; B.S., United States Naval Academy; M.M., University of Massachusetts, Lowell; M.S., Ph.D., University of Massachusetts, Dartmouth.

**Christopher J. O'Donnell (1993)**

Professor; B.S., Trinity College; M.S., Ph.D., University of Connecticut.

**Jessica Rego (2000)**

Associate Professor; B.S., Bridgewater State University; M.Ed., Lesley University; Ed.D Candidate, University of Massachusetts, Lowell.

**Frances Tishkevich (2005)**

Professor; B.S., Plymouth State University; M.A., Norwich University; Ed.D., California Coast University.

**Carla Troupe (2010)**

Laboratory Technician; B.S., Salve Regina University.

**Amanda M. Woods (1993)**

Professor; B.S., University of Vermont; M.S., Ph.D., University of Connecticut.

## **Social Science Department**

**Qi Chen (2000)**

Professor; Department Chairperson; B.A., Anqing University; M.A., Nanjing University and University of Michigan; Ph.D., University of Michigan.

**Christopher Hannan (2000)**

Professor; A.B., Harvard College; M.Phil., St. Andrews University; M.A., Ph.D., Boston College.

**Steven J. Baden (2017)**

Assistant Professor; B.A., Southeastern Massachusetts University; M.A., University of Connecticut; Ph.D., University of Iowa.

**John A. Dennehy (2017)**

Assistant Professor; B.A., Stonehill College; J.D., Suffolk University Law School; Ph.D., Boston College.

**Timothy (Ty) L. Dilliplane (2001); COL, USAR (Ret.)**

Associate Professor; B.A., University of Texas at El Paso; M.A., Brown University; Ph.D., Union Institute & University. Officer-in-Charge, MMA Army ROTC; Faculty Advisor, Co. D-12, National Society of Pershing Rifles.

**K. Raguraman A. Krishnasamy (2009)**

Professor; B.A., M.A., National University of Singapore; Ph.D., University of Washington, Seattle.

**Robert O'Leary (1975)**

Professor; B.S.F.S., Georgetown University; M.A., University of Massachusetts, Amherst; M.P.A., Harvard University; Ph.D., Tufts University.

**Jill A. Taft (2017)**

Assistant Professor; B.S., Massachusetts Maritime Academy; J.D., Roger Williams University School of Law; Marine License: Chief Mate, Oceans Unlimited; Master, Oceans 1600 Tons.

## Naval Science Department

**Matthew J. Campbell (2019); LT, USN**

Professor/OIC; B.S., Rensselaer Polytechnic Institute.

**Darrell T. Sands (2021); LT, USN**

Associate Professor/Assistant OIC; B.S., University of Tennessee Chattanooga

**Todd H. Franks (2021); CIV, USN, HR**

A.S., Community College of the Air Force

## Training Ship *Kennedy*

**Michael J. Campbell (2013); CAPT, MMA**

Master: TS Kennedy; B.S., Massachusetts Maritime Academy; Marine License: Master, Oceans Unlimited.

**Melissa A. Turner (2014); CDR, MMA**

Chief Mate; B.S., Massachusetts Maritime Academy; Marine License: Master, Oceans 1600 Tons; Chief Mate, Oceans Unlimited.



**Scott J. DePersis (2010); CDR, MMA**

Chief Engineer; B.S., Massachusetts Maritime Academy; Marine License: Chief Engineer, Steam and Gas Turbine, Unlimited Horsepower; Third Assistant Engineer, Motor, Unlimited Horsepower.

**Christian Teague (2018); LCDR, MMA**

First Assistant Engineer; B.S., U.S. Merchant Marine Academy; Marine License: Chief Engineer, Steam and Motor, Unlimited Horsepower.

**David J. Maccini (2006); LT, MMA**

Second Assistant Engineer; Marine License: Chief Engineer, Steam, less than 1600 tons; Second Assistant Engineer, Steam, Unlimited Horsepower.

**Leonard Martin (2018); LT, MMA**

Ship's Engineer; B.S., Massachusetts Maritime Academy; Marine License: First Assistant Engineer, Steam, Unlimited Horsepower; Second Assistant Engineer, Steam, Unlimited Horsepower.

**Nancy McGinn (2006)**

Administrative Assistant.

**Sherrie L. Ridley (1998)**

Maintainer.

**Thomas Tucker (2011)**

Bosun; Master's License: 100 Gross Tons Motor and Sail with Towing; AB Unlimited.

## **Sail Training Ship *Ernestina-Morrissey***

**Tiffany Krihwan (2021), CAPT, MMA**

Director/Master, *STS Ernestina-Morrissey*; Marine License: Master, Ocean 500 Gross Tons with Sail and Towing.



## Graduate Studies and Continuing Education

### **Dr. James J. McDonald (1992); CAPT, MMA**

Dean of Graduate Studies and Continuing Education; B.S., Massachusetts Maritime Academy; M.B.A., University of Chicago; Ed.D., University of Massachusetts Boston; Marine License: Chief Engineer, Steam and Motor, Unlimited Horsepower.

### **Anna V. Woringer (2011)**

Director of Graduate Studies; B.S., Rochester Institute of Technology.

## Center for Maritime and Professional Training

### **Michael R. Burns (2011); CDR, MMA**

Assistant Dean, Center for Maritime Training; B.S., M.S.E.M., Massachusetts Maritime Academy; Marine License: Master, Oceans Unlimited.

### **Hung Pham (2007); CDR, MMA**

Staff Associate; Acting Assistant Director, Center for Renewable and Responsible Energy; B.S., M.S.F.M., Massachusetts Maritime Academy; Marine License: Third Mate, Oceans Unlimited.

### **Jody Rose (2005)**

Administrative Assistant.

## Office of Career & Professional Services

### **Maryanne Richards (2009); CDR, MMA**

Director, Shore-side Career Services; B.A., Boston College; M.Ed., Northeastern University.

### **Kelly DeMello (2016); LT, MMA**

Assistant Director; B.S., M.S.F.M., Massachusetts Maritime Academy.

### **Sara Kazamias (2017); LT, MMA**

Assistant Director; B.S., Massachusetts Maritime Academy; M.B.A., University of New Hampshire; Marine License: Chief Mate, Oceans Unlimited.

### **Mary Mulgrew (1995)**

Administrative Assistant.

### **Nancy Vanasse (2019); LT, MMA**

Assistant Director; B.S., M.B.A., University of Massachusetts Dartmouth.

# Mariner Credentialing Department

## **Marie Huhnke (2004); CDR, MMA**

Director; STCW/Licensing Officer; B.S., United States Merchant Marine Academy; M.A., Wichita State University; Marine License: Second Mate, Oceans Unlimited.

## **Lisa J. Cervantes-Aguilar (2009)**

Administrative Assistant; B.A., Bridgewater State University.

## **Earl E. Mayhofer, Jr. (2006); LT, MMA**

STCW Compliance Officer; B.S., M.S.E.M., Massachusetts Maritime Academy; Marine License: Master, Oceans Unlimited.

## **Edward H. Vacha (2013); LT, MMA**

Laboratory Technician; B.S., Massachusetts Maritime Academy; Marine License: Master, Oceans 1600 Gross Tons; Second Mate, Oceans Unlimited.

## **Andrew T. Perron (2016); LT, MMA**

Laboratory Technician; B.S. Massachusetts Maritime Academy; Marine License: Master, Oceans 1600 Gross Tons; Second Mate, Oceans Unlimited.

## **Geoffrey F. White (2018); LT, MMA**

Laboratory Technician; B.S., Massachusetts Maritime Academy. Marine License: Master of Tow; Third Mate, Oceans Unlimited.



# Technology and Library Services

**Anne Marie Fallon (2013)**

Vice-President and Chief Information Officer; B.S., Boston College; M.S., University of Baltimore.

## Enterprise Systems

**Timothy Conlon-McCombe (2021)**

Director; B.A., B.S., M.S., Bridgewater State University.

**Marjorie Williams (1999)**

Assistant Director; A.S., Cape Cod Community College; B.S., University of Massachusetts, Dartmouth.

## Instructional and Support Services

**Christopher Chagnon (2012)**

Director; B.S., University of Vermont; M.S., University of Massachusetts, Boston.

**Stephen M. Craft (2016)**

Staff Assistant; B.S., State University of New York Maritime College; Marine License: Third Mate, Oceans Unlimited.

**Peter DeAngelis (2018)**

Service Desk Technician.

**Brian Murphy (1991)**

Staff Assistant; Marine License: Master, 100 Gross Tons, Near Coastal.

**Philip A. Rodriquez (2018)**

Technician.

**Colleen L. Roy (2006)**

Service Desk Technician; A.S., Cape Cod Community College.

**Lisa Swenson (2020)**

Staff Assistant; B.S., University of Massachusetts Dartmouth; Master's Certificate, University of Wisconsin Stout.

## Library Services

### **Susan S. Berteaux (2005)**

Director; B.A., State University of New York; M.Sc., M.L.S., Simmons College.

### **Carolyn Michaud (2010)**

Staff Assistant; B.A., State University of New York; J.D., University of New Hampshire; M.L.S., Simmons College.

### **Wesley Hanson (1997)**

Administrative Assistant.

## Infrastructure Technology

### **Robert MacGregor (1998)**

Director; B.S., Bridgewater State University; M.S.E.E., Northeastern University.

### **Marshall Redmond (2017)**

Staff Associate; B.A., Bridgewater State University.

### **Thomas D. Williams, Jr. (2017)**

Technician.



# Operations

**Allen G. Metcalfe, Jr. (2020); CAPT, MMA**

Vice-President of Operations; B.S., Massachusetts Maritime Academy;  
ServiceMaster GRAD Certification; ISSA CIMS Certification Expert.

**Kathleen Driscoll (2007)**

Staff Associate, Office of Safety and Sustainability; B.S., James  
Madison University.

**Colleen Ruggeri (2007)**

Staff Assistant; Notary Public; A.S., Northeastern University; B.S.,  
Northeastern University; M. Ed., Northeastern University; Certified  
Executive Secretary, Burdett School.

## Operations and Maintenance

**Brian Cherry (2021)**

Director of Operations and Maintenance; B.S., M.S., Massachusetts  
Maritime Academy; Massachusetts Certified Public Purchasing Officer.

**Denise McArdle (2013)**

Associate Director; B.S., Massachusetts Maritime Academy.

**Charles F. Rowe III (2006)**

Assistant Director of Operations and Maintenance; Chief Engineer; B.S.,  
M.S.F.M., Massachusetts Maritime Academy.

**Joshua Arruda (2011)**

Maintenance Foreman.

**David B. Benway (2012)**

Maintainer; A.A., Massasoit Community College.

**Victor Boutin (1989)**

Equipment Operator.

**Carol A. Broderick (1985)**

Building Maintenance Supervisor.

**David G. Craig (1994)**

Electrician.

**Trevor J. Cromack (2018)**

HVAC Refrigeration Mechanic.

**Amanda Dakin (2014)**

HVAC Refrigeration Mechanic; B.S., M.S., Massachusetts Maritime  
Academy.

**Karen Deckel (1997)**

Administrative Assistant.

**Ruth C. Dias (2017)**

Maintainer.

**Roland J. Dube (1989)**

Garage and Motor Pool Supervisor.

**Thomas R. Dube (2002)**

Maintainer.

**Brian C. Dunn (2020)**

Maintainer.

**Dianne J. Foley (2003)**

Maintainer.

**Deborah A. Foster (2015)**

Maintainer.

**Daniel S. Freitas (2012)**

Staff Assistant; License: Chef Engineer Wastewater Treatment.

**Donald R. Gilboy (1985)**

Maintainer.

**Mark Gonsalves (1998)**

Staff Associate.

**Harold C. Irving (2018)**

Maintainer.

**Wayne S. Jacobs (1998)**

Maintainer.

**Frederick B. Kershaw (2015)**

HVAC Refrigeration Mechanic.

**Thomas R. Mestieri (1996)**

Sewage Treatment Plant Operator.

**Matthew R. Miller (2014)**

Maintenance Equipment Operator.

**William H. Morrison III (2017)**

Sewage Treatment Plant Operator; Licensed Electrician; B.S., B.S.,  
Massachusetts Maritime Academy.

**Gregory Perry (1997)**

Staff Associate; B.S., Westfield State University; M.A., Cambridge College.

**Elie Savoie (1999)**

Locksmith.

**Brian K. Townley (1995)**

Maintainer.

**David G. Townsend (2007)**

Master Plumber; Journeyman Pipefitter.

**Gregory Vohnoutka (2010)**

Master Electrician.



## Camps and Conferences

### **Dana Ferris (2019)**

Acting Assistant Director; B.S., Massachusetts Maritime Academy.

## Marine Department

### **William Klimm (1998)**

Director; B.S., Massachusetts Maritime Academy; Marine License: Master, 1600 Gross Tons; Master of Towing Vessels; Third Mate, Oceans Unlimited; Pilotage: Cape Cod Canal, Boston and New York.

### **James Benedetto (2006)**

Mechanic; Marine License: Master, 100 Tons; GM Master Technician.

### **John Edwards (2007)**

Staff Assistant; B.A., University of Massachusetts; Marine License: Master, Near Coastal, 100 Gross Tons; Commercial Assistance Towing.

### **Kevin O'Sullivan (2016)**

Staff Assistant; Operator/Engineer, T.S. Ranger; B.S., Massachusetts Maritime Academy; Marine License: Master, Oceans 1600 Gross Tons; Master of Towing Vessels; Second Mate, Oceans Unlimited.





## External Affairs

### **Dr. Elizabeth Simmons (2002); CAPT, MMA**

Vice-President of External Affairs; B.S., M.S.F.M., Massachusetts Maritime Academy; L.P.D., Northeastern University.

## Advancement

### **Kelley J. Lessard (2007)**

Assistant Dean of Advancement; B.S., Boston University.

### **Michelle L. Badger (2012)**

Director; B.A., Sweet Briar College; M.S., M.P.A., Suffolk University.

### **Charles A. Richardson (2012)**

Assistant Director; B.A., Bates College.

### **Linda M. Noonan (2011)**

Staff Assistant; B.S., Boston College.

### **Susan Butler (2011)**

Administrative Assistant; A.S., Mass Bay Community College.

## Boat Donations

### **Ian MacLeod (2000)**

Director, Boat Donations; B.A., Curry College; M.B.A., University of Massachusetts, Dartmouth; U.S. Sailing Level II Instructor.

### **Meredith S. Randall (2010)**

Administrative Assistant.

## Enrollment Management, Equity, and Inclusion

### **Michael Ortiz (2019)**

Dean; Chief Diversity Officer; B.S., Springfield College; M.Ed., Northeastern University; CAGS, Johnson and Wales.

## Admissions

### **Joshua M. Tefft (2012); CDR, MMA**

Director; B.S., Massachusetts College of Liberal Arts; M.S., Charter Oak State College.

### **Katherine O. O'Brien (2012)**

Assistant Director of Admissions; B.S., Massachusetts Maritime Academy.

### **Joanne Robertson (2017)**

Assistant Director of Admissions; B.A., College of the Holy Cross; M.S., Quinnipiac University.

### **Dione E. Eaton (2010)**

Staff Assistant; B.S., University of Massachusetts, Dartmouth.

### **Kaitlin M. Hernandez (2018)**

Administrative Assistant; B.A., Bridgewater State University.

### **Albert Seitz (2021)**

Associate Director of Admissions; B.S., M.B.A., Johnson and Wales University.

## Office of Intercultural Engagement

### **Patrick Nobrega (2020)**

Director; B.A., Suffolk University; M.Ed. University of South Carolina.

### **Maria Cullen (1999)**

Administrative Assistant.

# Student Services

## **Shannon Finning (2021)**

Vice-President of Student Services; B.A., Bryant University; M.Ed., Bridgewater State University; Ph.D., Clemson University.

## **Katharine Jones (2014)**

Staff Assistant; B.A. Bucknell University.

## **Regiment of Cadets**

### **Stephen Kelleher (2001); CDR, MMA; LTCOL, USMCR (Ret.)**

Commandant of Cadets/Dean of Students; B.A., University of Massachusetts Boston.

### **Rory Deegan (2008); LT, MMA**

Assistant Director; B.A., Manhattan College; M.S., Suffolk University; M.A., Alvernia College.

### **Erin Medeiros (2019); LT, MMA**

Assistant Director; B.S., Massachusetts Maritime Academy.

### **Nehemiah Jordan (2012); LT, MMA**

Assistant Director; B.A., Eastern Nazarene College; M.B.A., Bridgewater State University.

### **Wayne Magee (2008); LT, MMA**

Assistant Director Band, Honor Guard and Drill Team; B.M., Youngstown State University; M.S., Northeastern University.

### **Cynthia M. Miller (2017); LCDR, MMA**

Assistant Director; B.S., M.E.A.H.E., Suffolk University.

### **John J. Muldoon (2016); LT, MMA**

Assistant Director; B.S., Massachusetts Maritime Academy.

### **Edgar Pinero (2011); LCDR, MMA**

Assistant Director; B.A., University of Puerto Rico.



## Health Services

### **Jeffrey Cukor, M.D., FACEP (2011)**

Academy Physician; Board Certified in Emergency Medicine, 1998; Massachusetts Full Physician License; B.S., Tufts University; M.D., University of Massachusetts Medical School.

### **Judith Kaechele (2012)**

Director, Health Services; Board Certified Family Nurse Practitioner; Doctor of Nursing Practice, Fairfield University; Master of Health Administration, Western Connecticut State University; BSN, University of Connecticut.

### **Kirk Spelman (2013)**

Board Certified Adult Nurse Practitioner; MSN, Northeastern University; ADN, University of New England; B.S., University of Colorado.

### **Jennifer Levesque (2014)**

Licensed Clinical Social Worker; Master's of Social Work, Rhode Island College; B.A. in Psychology, University of Rhode Island.

### **Sarah A. Casavan (2019)**

Administrative Assistant; B.A., Clark University.

## Athletic Department

### **Michael Kelley (2006); LCDR, MMA**

Director of Athletics; B.S., Massachusetts Maritime Academy.

### **Jeremy Cameron (2005)**

Assistant Director/Head Football Coach; B.A., Springfield College.

### **Mikayla Correia (2018)**

Assistant Director/Senior Woman Administrator; B.S., M.S., Massachusetts Maritime Academy.

### **Christopher Barry (2007)**

Staff Associate; Head Athletic Trainer, Strength and Conditioning; B.S., Salem State University.

### **Kevin Conrad (2013)**

Head Equipment Manager; Recreation Facilities Supervisor.

### **Joseph Malkin (2018)**

Staff Assistant; Sports Information Director; A.A., B.A., Dean College.

### **Colleen Nolan (2012)**

Staff Assistant; Athletic Trainer; B.S., Northeastern University; M.S., George Mason University.

### **Donna Wood (2020)**

Athletic Department Clerk.

## Campus Police

### **Christopher Slattery (2001)**

Chief of Police; Director of Public Safety. A.S., Suffolk University.

### **Marsha Arroyo (1995)**

Administrative Assistant.

### **Stephen Curran (2012)**

Campus Police Officer.

### **Darryl A. DeGrace (2019)**

Campus Police Officer; A.S., Bristol Community College.

### **Ian MacDonald (2000)**

Campus Police Officer.

### **Darren J. Martin (1990)**

Campus Police Officer.

### **Christopher D. Perry (2003)**

Campus Police Officer.

### **Pamela E. Wing (2001)**

Campus Police Officer.



# Finance

**Rose Marie Cass (1998)**

Vice-President, Finance; A.S., Cape Cod Community College; B.S., University of Massachusetts, Dartmouth; M.B.A., Suffolk University.

## Business Office

**Jeanne N. Deree (2001)**

Controller; B.S., Bryant College; M.B.A., University of Massachusetts, Amherst.

**Jake Trainor (2021)**

Staff Assistant; B.S., Framingham State University

**Samantha Basler (2021)**

Staff Assistant; B.A., Mount Ida College.

**Kerri Lynch (2020)**

Accountant.

## Student Financial Services

**Cathy Kedski (2009)**

Director; B.S., Bridgewater State University; M.Ed., Lesley University.

**Marissa Barros (1996)**

Staff Assistant; A.A., Bristol Community College.

**Mark Carignan (2004)**

Staff Assistant, Student Accounts; B.S., University of Massachusetts Dartmouth.

**Paula A. Curry (1995)**

Administrative Assistant; A.S., Fisher College; Certified Paralegal.

**Brienne Klaassen (2018)**

Staff Assistant; A.S., B.S., Castleton University.

## Purchasing and Procurement

**Paul Airozo (2012)**

Director, Purchasing; B.S., Southern Connecticut State University; B.S., Johnson and Wales University.

**Cheryl A. Healy (2005)**

Buyer.

# XI. GLOSSARY

## Glossary of Abbreviations and Acronyms

1/C	First-class cadet
2/C	Second-class cadet
3/C	Third-class cadet
4/C	Fourth-class cadet
ABS	American Bureau of Shipping
ACT	American College Test
ADA	Americans with Disabilities Act
ADM.	Admiral
APC	Academic Policies Committee
ARPA	Automatic Radar Plotting Aids
AUC	All University Committee
CAD	Computer-Aided Design
CAPT	Captain
CC	Curriculum Committee
CDR	Commander
CDRE	Commodore
CFR	Code of Federal Regulations
CGPA	Cumulative Grade Point Average
COLREGS	International Regulations for the Prevention of Collisions at Sea
CZM	Coastal Zone Management
DGCE	Division of Graduate and Continuing Education
ECDIS	Electronic Chart Display Information System
EM	Emergency Management
ESE	Energy Systems Engineering
DHE	Massachusetts Department of Higher Education
DRO	Disability Resource Office
ECAC	Eastern College Athletic Conference
FAFSA	Free Application for Federal Student Aid
FE	Facilities Engineering
FERPA	Family Educational Rights and Privacy Act
GEC	Graduate Education Council
GEHU	General Education Humanities
GESS	General Education Social Science
GESM	General Education Science and Mathematics
GMAT	Graduate Management Administration Test
GMDSS	Global Maritime Distress and Safety System
GPA	Grade Point Average
GRE	Graduate Record Examination

IELTS . . . . .	International English Language Testing System
IEP . . . . .	Individual Education Plan
IMB . . . . .	International Maritime Business
IMO . . . . .	International Maritime Organization
ISM . . . . .	International Ship Safety Management Code
LCDR . . . . .	Lieutenant Commander
LEED . . . . .	Leadership in Energy and Environmental Design
LT . . . . .	Lieutenant
LTJG . . . . .	Lieutenant Junior Grade
MAPS . . . . .	Maritime Academy Preparatory Seminar
MARAD . . . . .	United States Maritime Administration
MMA . . . . .	Massachusetts Maritime Academy
MMC . . . . .	Merchant Mariner's Credential
MSEM . . . . .	Master of Science in Emergency Management
MSMB . . . . .	Master of Science in Maritime Business Management
MSSEP . . . . .	Marine Science, Safety and Environmental Protection
MSFM . . . . .	Master of Science in Facilities Management
MT . . . . .	Marine Transportation
NCAA . . . . .	National Collegiate Athletic Association
NECHE . . . . .	New England Commission of Higher Education
OIE . . . . .	Office of Intercultural Engagement
OPA 90 . . . . .	Oil Pollution Act of 1990
PIC . . . . .	Person-in-Charge
POW . . . . .	Plan of the Week
RADM . . . . .	Rear Admiral
ROP . . . . .	Reserve Officer Program
ROTC . . . . .	Reserve Officer Training Corps
SAC . . . . .	Student Affairs Committee
SAT . . . . .	Scholastic Aptitude Test
SGA . . . . .	Student Government Association
SIP . . . . .	Student Incentive Program
SOLAS . . . . .	Safety of Life at Sea
STC . . . . .	Sea Term Council
STCW . . . . .	Standards of Training, Certification and Watchkeeping for Seafarers
SSO . . . . .	Strategic Sealift Officer
SSMP . . . . .	Strategic Sealift Midshipman Program
SSOP . . . . .	Strategic Sealift Officer Program
TOEFL . . . . .	Test of English as a Foreign Language
TWIC . . . . .	Transportation Worker Identification Credential
USCG . . . . .	United States Coast Guard
USMC . . . . .	United States Marine Corps
USN . . . . .	United States Navy
USNR . . . . .	United States Naval Reserve
USS . . . . .	United States Ship
USTS . . . . .	United States Training Ship
WPE . . . . .	Writing Proficiency Examination





## Academic Calendar AY 2020/2021

### 2020 Fall Term (73 ClassDays)

Tuesday	1 September	Faculty Academic Orientation
Wednesday	2 September	Commence Classes
Monday	7 September	Labor Day – No Classes
Wednesday	9 September	Last Day to Add Classes
Wednesday	23 September	Last Day to Drop Classes
Monday	12 October	Columbus Day - Holiday, No Classes
Tuesday	13 October	<b>Observe Monday Academic Schedule</b>
Monday	26 October	Mid-Term Deficiencies due to Registrar by EOD
Wednesday	11 November	Veterans' Day - Holiday, No Classes
Friday	13 November	Last Day to Withdraw from Classes
Tuesday	24 November	Commence Thanksgiving Break after Last Class
Monday	30 November	Resume Classes
Friday	11 December	End Academics (All Classes)
Monday	14 December	Begin Final Examinations (All Classes)
Thursday	17 December	Final Examinations End, End of Fall Term
Monday	21 December	Final Grades Due to Registrar's Office by EOD
Monday	28 December	Academic Board Meets – 0900

### 2021 Winter Sea Term (29 Sea Days)

Monday	4 January	Winter Sea Term Begins
Monday	18 January	Martin Luther King Jr Day
Friday	5 February	End Winter Sea Term

### 2021 DGCE Winter Term

Monday	4 January	Commence Winter Academic Session
Monday	18 January	Observe Martin Luther King Jr Day – No Classes
Friday	5 February	End Winter Term
Monday	8 February	Winter Grades Due to the Registrar's Office by 1200

### 2021 Spring Term (67 ClassDays)

Monday	8 February	Commence Classes
Monday	15 February	President's Day – No Classes
Tuesday	16 February	Last Day to Add Classes
Monday	1 March	Last Day to Drop Classes
Friday	19 March	Spring Pause – No Classes
Thursday	1 April	Mid-Term Deficiencies due to Registrar's Office by EOD
Monday	12 April	Last Day to Withdraw from a Course
	12-16 April	License Examinations - Suspend Academic Classes (Class of 2021 License Candidates only)
Monday	19 April	Patriots' Day Holiday - No Classes





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