

Department of Marine Transportation

The department administers the Marine Transportation program which includes the nautical science and business components of the Deck License curriculum for midshipmen. It is also responsible for the Logistics and Intermodal Transportation curricula being offered through the Maritime Logistics & Security Program. The department offers courses in the disciplines of Nautical Science, Maritime Business, Maritime Security, and Logistics and Intermodal Transportation.

Courses are given in the core curriculum to provide midshipmen with nautical science and management skills, as well as knowledge of the transportation processes necessary for successful careers in the maritime industry. The core includes courses in navigation, seamanship, marine safety, dry and liquid cargo operations, integrated navigation systems, meteorology, management, law, economics, transportation, logistics, and intermodal and port operations.

In addition, the department offers advanced elective courses in relevant areas. These courses can be grouped to give midshipmen a more in-depth exposure to a particular subject area. Students interested in concentrating their electives are advised to contact faculty advisors for specific information and advice.

The department's administrative and faculty offices, classrooms and most of its laboratories are located in Bowditch Hall. These include interactive integrated navigation and maritime communications simulators; tanker, container, and port loading simulators; and navigation laboratories. The simulators offer

numerous ship models and geographic areas complete with visual presentations. Students interact with up to 50 contacts and maneuver through simulated land databases utilizing fully integrated bridge electronics and Electronic Chart Display Information Systems (ECDIS). All labs have the same fully integrated navigation simulation software package installed. Each lab is designed to run any combination of interacting ownships, depending on the exercise design. The system provides a realistic display of all weather conditions, various atmospheric phenomena, and time of day, visibility and illumination effects, reflection, and glare on the water. Tides and currents can also be adjusted, as needed, and programmed to change during the simulation with buoys generating current feathers. In addition to the overall condition parameters, environmental zones can also be set-up to create such conditions as fog banks, local wind, current effects, and local wave effects.

A seamanship laboratory in Samuels Hall is maintained and operated by departmental faculty for instruction in splicing rope and traditional marlinspike seamanship. The department also provides hands-on training in ship operations utilizing the vessels and dockside facilities of the Waterfront Training & Operations Department.

An important component of deck officer training is achieved through the use of a Full Mission Visual Bridge Ship-handling Simulator (VBSS), located in the Computer Aided Operations Research Facility (CAORF) in Samuels Hall. VBSS provides the bridge watch team with a visual representation of various harbors as seen from the bridge of a vessel, including landmasses,

navigational aids, traffic ships and miscellaneous buildings and structures. Realistic radar images, fathometer readings, and audio cues (depicting ship sounds, buoy sounds, and environmental and weather-related sounds) aid in completing the scene. The system is capable of introducing malfunctions and or failures to any of the equipment including the engine and steering systems. The system realistically presents the total marine scene and is primarily used

for the training of Bridge Resource principals. It is also used to support other ship handling and navigation courses offered at the Academy.

DEPARTMENT HEAD**CAPT George Edenfield, USMS, (2003)⁴**

(Marine Transportation)

B.S., U.S. Merchant Marine Academy

M.A., American Military University

License: Master of Steam and Motor

Vessels of Any Gross Tons, Oceans

(STCW95); Tankerman PIC; Medical PIC; Fast

Rescue Boat: GMDSS Operator/Maintainer

ASSISTANT DEPARTMENT HEADS**CAPT Jon S. Helmick, USMS (1995)⁴**

(Logistics and Transportation)

Director, Logistics and Intermodal

Program

B.A., University of Miami

Ph.D., University of Miami

License: Master of Steam, Motor,

Auxiliary Sail, and Sail Vessels of Any Gross

Tons, Oceans

CAPT Timothy D. Tisch, USMS (2002)⁴

(Marine Transportation)

Assistant Department Head-Nautical Sciences

B.S., SUNY Maritime College

M.S., U.S. Naval Postgraduate School

Ph.D., U.S. Naval Postgraduate School

License: Master of Steam or Motor

Vessels of Any Gross Tons, Oceans

(STCW95); GMDSS Operator

PROFESSORS**CAPT Fiaz H. Arain, USMS (1991)⁴**

(Marine Transportation)

B.S., University of Wales, Cardiff

M.B.A. (Finance), University of

Bridgeport

M.S., Ph.D. (Transportation Planning

and Engineering), NYU-Polytechnic University

License: Master of Steam and Motor
Vessels of Any Gross Tons, Oceans
(STCW95)

Michael B. Cohn (1978)

(Economics)

B.A., Yeshiva

M.A., Ph.D., New York University

CAPT Brian J. Hall, USMS (1997)

(Marine Transportation)

B.S., U.S. Merchant Marine Academy

M.S., SUNY Maritime College

License: Master Steam or Motor Vessels Any

Gross Tons, Oceans (STCW95); Tankerman

PIC; Medical PIC; Fast Rescue Boat.

Military: Captain U.S. Navy (RC)

CAPT Douglas A. Hard, USMS (1966)^{1,2,4}

(Marine Transportation)

B.S., U.S. Merchant Marine Academy

M.B.A., Pennsylvania (Wharton)

M.S., Polytechnic Institute of New York

License: Master of Steam or Motor

Vessels of Any Gross Tons, Oceans,

Military: Captain, USNR

CDR Stephen C. Hempstead, USMS (2004)

(Marine Transportation)
B.A., M.A., University of Rhode Island
B.S., Massachusetts Maritime Academy
License: Master of Steam or Motor
Vessels of Any Gross Tons, Oceans
(STCW95); GMDSS Operator; Tankerman PIC
(DL)

Gary A. Lombardo (2002)

(Maritime Business)
B.S., New Hampshire College
M.S., University of Southern California
Ph.D., University of Oregon

CAPT David B. Moskoff, USMS (2001)⁴

(Marine Transportation)
B.S., SUNY Maritime College
MIT Masters of Information Technology,
American Intercontinental University
License: Master of Steam and Motor
Vessels of Any Gross Tons, Oceans
(STCW95); GMDSS Operator

CAPT Cynthia L. Robson, USMS (1996)⁴

(Marine Transportation)
B.S., Texas A&M (Texas Maritime
Academy)
M.A., University of Houston (Clear
Lake)
License: Master of Steam or Motor
Vessels of Any Gross Tons, Oceans;
Limited Master Ocean, Sail or Auxiliary
Sail Vessels

CDR Paul J. Zerafa, USMS (1986)

(Marine Transportation)
B.S., SUNY Maritime College
M.S., New York Institute of Technology
M.S., Long Island University

License: Master of Steam or Motor
Vessels of Any Gross Tons, Oceans
(STCW95); GMDSS Operator and Maintainer

ASSOCIATE PROFESSORS

Chang Q. Guan (2002)

(Logistics and Transportation)
Diploma, Jimei Institute of Navigation,
Fujian, P.R. China
B.S., SUNY Maritime College
M.S., SUNY Maritime College
Ph.D., New Jersey Institute of Technology
License: Third Mate, Unlimited
(People's Republic of China)

CAPT John H. Hagedorn (1996)^{2,4}

(Marine Transportation)
B.S., SUNY Maritime College
License: Master of Steam or Motor Vessels of
any Gross Tons, Oceans (STCW95)

CDR Daniel M. Hunt, USMS (1990)²

(Marine Transportation)
B.S. Nautical Science, USMMA
M.A. Teachers College, Columbia University
License: Chief Mate of Steam or Motor
Vessels of Any Gross Tons, Oceans
(STCW95); GMDSS Operator

CDR Ronald F. Jablonski (1983)

(Marine Transportation)
B.S. SUNY Maritime College
M.S. SUNY Maritime College
Second Mate of Steam or Motor Vessels of
Any Gross Tons, Oceans (STCW95)

CDR John F. Ryan, USMS (2005)

(Marine Transportation)
B.S., SUNY Maritime College
M.S., SUNY Maritime College
License: Master of Steam or Motor Vessels of
Any Gross Tons, Oceans (STCW95); First
Class Pilot; USCG DE for TOAR

CAPT Ann Sanborn, USMS (1993)^{2,4}

(Marine Transportation)
B.S., Texas A&M (Texas Maritime
Academy)
J.D., University of Houston
License: Master of Steam or Motor
Vessels of Any Gross Tons, Oceans
(STCW95)
Member of the Bar - State of Texas

ASSISTANT PROFESSORS

Paul Barchitta (2011)

(Maritime Business)
New York University
Post-Graduate Advanced Certificate, Business
Education, 2003;
St. John's University M.B.A., Marketing, 1996;
St. John's University B.S., Finance, 1987

MAJ Lance Brenneke, USAF (2012)

(Logistics and Transportation)
B.S., U.S. Air Force Academy
U.S. Air Force Air & Space Basic Course
U.S. Air Force Squadron Officer School

CDR Kelly Curtin, USMS (2010)

(Marine Transportation)
B.S., University of Southern California
M.S. SUNY Maritime College

License: Master Steam or Motor Vessels of Any Gross Tons, Oceans (STCW95); GMDSS Operator Tankerman PIC (DL)
Military: Lieutenant, USNR

CDR Preston C. De Jean, USMS (2011)

B.S., University of Louisiana at Lafayette
J.D., Southern University Law Center
LL.M. Tax, Golden Gate University – San Francisco
Member of the Bar: State of Louisiana
Military: Lieutenant Colonel, Logistician, USAR (Ret.)

David Gilmartin (2011)

(Maritime Business)
JD Duquesne Law School,
MBA Baruch College,
B.S., Marine Transportation USMMA

CDR Kevin Hasson, USMS (2011)

(Marine Transportation)
B.S., U.S. Merchant Marine Academy
License: Master Steam or Motor Vessels of Any Gross Tons, Oceans (STCW95); GMDSS Operator, Fast Rescue Boat, ECDIS, Medical PIC
Military: Lieutenant, USNR

CDR William J. Lindman, USMS (2010)

(Marine Transportation)
B.S. Marine Transportation, SUNY Maritime College
M.S. Transportation Management, SUNY Maritime College
License: Master of Steam or Motor Vessels of not more than 1600 gross tons, Oceans (STCW95); Chief Mate of Steam or Motor Vessels of Any Gross Tons, Oceans

(STCW95); Designated Duty Engineer (Motor) not more than 4000 horsepower (STCW95); GMDSS Operator

CDR John L. Lutz, USMS (2005)

(Marine Transportation)
B.S., U.S. Merchant Marine Academy
License: Master of Steam or Motor Vessels of Any Gross Tons, Oceans (STCW95); GMDSS Operator

CDR Emil A. Muccin, USMS (2010)

(Marine Transportation)
B.S., U.S. Merchant Marine Academy
M.B.A. Pace University
Licenses: First Class Pilots License-Great Lakes; Master-1600 GT of Steam or Motor Vessels Oceans; Second Mate of Steam or Motor Vessels of Any Gross Tons, Oceans (STCW95); ASQ Certified Quality Engineer; ASQ Certified Quality Auditor ASQ Certified Six Sigma Green Belt.

CAPT Michael C. Murphy, USMS, (2011)⁴

(Marine Transportation)
B.S., U.S. Merchant Marine Academy
License: Master of Steam and Motor Vessels of Any Gross Tons, Oceans (STCW95); GMDSS Operator/Maintainer; Medical Care Provider; ECDIS

CAPT Scott Nicholas, USMS, (2012)⁴

(Marine Transportation)
BS, Marine Transportation, SUNY Maritime College;
License: Master of Steam & Motor Vessels Unlimited, Any Gross Tons Upon Oceans; Vessel Security Officer; Ship Handling at Management Level; Tankerman DL-PIC; Medical Person in Charge; ECDIS

CAPT Jamie J. Rock, USMS (2012)⁴

(Marine Transportation)
B.S., SUNY Maritime College
M.S., International Transportation Management, SUNY Maritime College
Certificate: Supply Chain Logistics
License: Master of Steam and Motor Vessels of Any Gross Tons, Oceans (STCW95)

CAPT Charles B. Rogan, USMS, (2012)⁴

(Marine Transportation)
B.S., U.S. Merchant Marine Academy
License: Master of Steam and Motor Vessels of Any Gross Tons, Oceans (STCW95); : First Class Pilots License-Delaware Bay and River and Puerto Yabucoa, Puerto Rico; VSO; GMDSS Operator; Ship Handling & Pilot Training; Hazwoper; Medical Care PIC

CDR Peter A. Schneider, USMS (2011)

(Maritime Business)
B.S., MIT
M.B.A., Baruch
Ph.D. Business, CUNY

CAPT Sean P. Tortora, USMS (2011)⁴

(Marine Transportation)
B.S., SUNY Maritime College
License: Master of Steam and Motor Vessels of Any Gross Tons, Oceans (STCW95); Master Towing Vessels, Upon Oceans; Fast Rescue Boat; Medical Care PIC; GMDSS; VSO; Tankerman PIC-DL; USCG TOAR; USCG DE for TOAR; DP Basic Induction

PROFESSORS EMERITI

CAPT Raymond Eisenberg, USMS (Ret.)

(Marine Transportation: 1941-1946)
Diploma, Pennsylvania Sate Nautical School
License: Master of Steam and Motor Vessels,
any Gross Tons, Oceans.

CAPT Robert J. Meurn, USMS (Ret.)^{1,2,4}

(Marine Transportation: 1978-2003)
B.S., U.S. Merchant Marine Academy
M.A., George Washington University
License: Master of Steam or Motor Vessels of
Any Gross Tons, Oceans.
Military: Captain, USNR (Ret.)

CAPT George Sandberg, USMS (Ret.)⁴

(Marine Transportation: 1990-2011)
M.S. Applied Science, SUNY Stonybrook
B.S. Meteorology and Oceanography, SUNY
Maritime College
License: Master of Steam or Motor Vessels of
Any Gross Tons, Oceans.

Note: Sea Year courses (with DS prefix) appear at the end of this course listing.

KP100 Maritime Professional Studies Credits: 4

This course will present descriptive material covering the basic elements of nautical science and marine engineering. Topics covered in the nautical science portion of the course will include the economic role of the merchant marine, ship types, shipboard terms, dimensions and personnel organization, ship construction nomenclature, mooring with lines, mooring with ground tackle, and practical labs in knots, splices and hitches for the bosun chair and stage. Topics covered in the marine engineering portion of

the course will include main propulsion shafting and bearing, types of propellers, energy conversion, heat transfer, components and cycle of steam plant, gas turbines, cycles of internal combustion engines, components of diesel propulsion, comparison of propulsion plants, and components of hydraulic steering gear. Engineering practical labs will cover the use basic hand tools and pipe fitting.

3 class hours a week
2 laboratory hours a week

BUSN100 Maritime Security Awareness Credits: 0

This course is intended to provide the knowledge required to enable midshipmen to enhance vessel

security in accordance with the requirements of Chapter XI-2 of SOLAS 74 as amended, the ISPS Code, and Section A-VI/6 of the STCW Code, as amended. This course is required of all Midshipmen prior to their First Sea Year period and is offered during the Third Term of the Fourth class year for B-split sea year training assignees and First Term of Third Class year for A-split assignees. Delivery of the course material is accomplished through online training via a USCG/MARAD-approved course. This course is offered on a pass/fail basis only.
1 laboratory hour a week

BUSN110 The Business of Transportation Credits: 3

This is an introductory course that is intended to provide an overview of the transportation business, with emphasis on maritime shipping. Topics include the significance of marine transportation, government agencies, tramp shipping, liner service, the passenger cruise business, vessel management, cargo documentation, terminal operations, ship husbandry, bunkering procedures, the functioning of the various segments of a shipping company operation, and current issues facing the industry.

Prerequisite: NAUT 101
3 class hours a week

BUSN210 Principles of Economics Credits: 3

This course is intended to cover the scope and method of economics. Topics covered include: allocative mechanisms and economic systems; supply and demand analysis; pricing and resource allocation under various market conditions; cost curve analysis; national income accounting; theory of income determination; fiscal policy; money and banking; and monetary policy.
3 class hours a week

BUSN230 Principles of Management Credits: 3

A comprehensive course designed to explore the world of a manager with emphasis on the principles and practices of management. This course focuses on the managerial functions of leading, planning, controlling, staffing, directing, and motivating individuals and workgroups. The objective is to enhance midshipman knowledge and thinking about the workings of organizations and the relevance of management concepts in preparation for successful careers.

3 class hours a week

BUSN300 Fundamentals of Business Law Credits: 3

This is a comprehensive course designed to provide a foundation in the theories and aspects of law and their application in the business and international community. It explores the origin and enactment of laws; business and social trends with

focus on specific laws impacting the transportation and maritime industry; and roles of the various branches of government and agencies in regulating and enforcing laws in a business environment.

**Prerequisites: BUSN110
3 class hours a week**

BUSN 310 Accounting and Finance Credits: 3

This course is designed to introduce significant financial accounting topics including financial reports (balance sheets, income statements and cash flow statements), inventory, depreciation, and ration analysis as well as corporate finance topics including time value of money, capital budgeting and financial planning.

**Prerequisite: Third Class standing
3 class hours a week**

BUSN410 Marketing Credits: 2.5

This course examines the role of marketing from the perspective of a marketing manager who needs knowledge of customer/consumer behavior in order to develop, evaluate, and implement effective strategies intended to influence those behaviors to achieve the firm's objective. Among the topics covered are: market research and analysis, consumer behavior, marketing strategies, distribution, and pricing. Special emphasis will be given to

marketing services of transportation companies. A weekly lab session provides practical exercises.

**2 class hours a week
1 laboratory hours a week**

BUSN420 Maritime Economic Credits: 3

This is an introductory course in shipping market economics. Major topics include: principles of maritime trade, seaborne trade and transport systems, shipping market organizations, the shipping cycle, supply and demand, freight rate mechanisms, dry bulk shipping, tanker shipping, container shipping, risk management, shipping company economics, ship financing, ship building, and scrapping, and the economic impact of regulations.

**Prerequisites: BUSN110, BUSN210 and BUSN310
3 class hours a week**

BUSN 430 Admiralty and International Law of the Sea Credits: 2

The course builds on the foundation of business law presented in course BUSN 300. The basic principles of maritime law, which are significant for mariners and future leaders in the shore side marine transportation industry, are studied in greater depth. Topics include: maritime torts and contracts, rights of harbor workers and seamen, wrongful death, carriage of goods by sea, services and products, and salvage.

The second component of the course explores the field of International law of the Sea.

**Prerequisite: BUSN300
2 class hours a week**

BUSN440 International Business Credits: 3

This is a required course for all deck majors. This course examines the fundamental concepts of international business. Topics include doing business in different national economic, political and cultural milieus, the role of inter-governmental organizations, and management issues associated with an international business enterprise.

**Prerequisites:
First Class Standing,
BUSN110, BUSN210,
BUSN230, BUSN310, and
BUSN410
3 class hours a week**

DB110 Principles of Logistics and Transportation Credits: 3

This course examines the fundamentals of the transportation system and the complex environment in which it operates. The elements of the supply chain and the principles of logistics will be explored. The economic, operating, and service characteristics of individual modes will be surveyed. Cost factors, demand, pricing, and regulations of transportation services will be

examined. The goal of the course is to provide students with a solid understanding of the principal elements of logistics and transportation systems and a grasp of important terminology, with emphasis on the role of each mode of transportation in intermodalism and integrated logistics systems.

DB210 Economics **Credits: 3**

Scope and method of economics; allocative mechanisms and economic systems; supply and demand analysis; pricing and resource allocation under various market conditions; cost curve analysis; national income accounting; theory of income determination; fiscal policy; money and banking; monetary policy

DB230 Management **Credits: 3**

A comprehensive course designed to explore the world of a manager with emphasis on the principles and practices of management. This course focuses on the managerial functions of planning, controlling, staffing, directing and motivating individuals and work-groups. The objective is to enhance midshipmen knowledge and thinking about the workings of organizations and the relevance of management concepts as they embark on their professional careers.

DB240 Marketing **Credits: 3**

This course examines the role of marketing from the perspective of a marketing manager who needs knowledge of customer/consumer behavior to develop, evaluate and implement effective strategies intended to influence those behaviors to achieve the firm's objective. Among the topics covered are: market research and analysis, consumer behavior, marketing strategies, distribution, and pricing. Special emphasis will be given to marketing services of transportation companies.

DB300 Fundamentals of Business and Maritime Law **Credits: 3**

An introduction to the American legal system and business law and an analysis of the public policy behind the law. A presentation fundamental concepts of law to give the students an understanding of the role and importance of maritime law in shipping and transportation. Topics include: nature and sources of the law, jurisdiction, constitutional law, administrative law, torts, contracts, rights of seamen cargo, collision, salvage and maritime pollution.

3 Class hours a week

DB310 Finance and Accounting **Credits: 3**

The principles of accounting essential to the development of a good accounting information system

will be studied. The methods of collecting financial information and their processing to produce the financial statements necessary for good management control will be developed. The journal, the ledger, trial balance, adjustments, depreciation, statement preparation and analysis will be covered. Budgeting and cost controls are developed. This course will familiarize students with concepts and terminology of business finance: DCF, NPV, IRR, break-even analysis, capital budgeting, and cost of capital will be introduced. Microcomputer software and business oriented simulation will be used.

DB410 International Business and Ocean Shipping **Credits: 3**

A comprehensive course covering the international environmental forces and their influence on all of the functional areas of the international firm - marketing, finance, management and operations - with special emphasis on the international ocean shipping firm and its central role in international trade and global logistics. This survey course is designed to help mid-shipmen develop an increased awareness and understanding of international business and global business issues, as well as their impact on international ocean shipping firms.

DB498 Maritime Economics **Credits: 3**

An analysis of the Economics of the Maritime Industry. The course covers the various sectors of the industry: Dry Bulk, Liquid Bulk and General Cargo. Costs of providing shipping services and the demand for these services are studied. This leads to an analysis of the pricing of ships and shipping services. The regulatory framework of the industry is also considered. For disadvantages of intermodalism, awareness of the intermodal services, terminals, equipment, and information systems currently in operation and under development, and understanding of how individual modes and intermediaries interact in intermodal systems, and a grasp of the key challenges faced by commercial and military intermodal transportation managers and knowledge of some of the strategies that can be employed in dealing with these concerns.

DL200 Integrated Logistics Management **Credits: 3**

This course examines the theory and practice of logistics management in the modern business environment, with attention to parallels between business and military logistics. Key objectives of the course are to provide midshipmen with an in-depth understanding of the operation of key elements in logistics systems, comprehension of the

interrelationships among individual components of supply chains, awareness of the structure and purpose of logistics information systems, knowledge of how the logistics function interfaces with other business functions, and a grasp of the principal tools and techniques used in the analysis of logistics systems. Emphasis is on system optimization for the purpose of achieving competitive advantage, cost reduction, and customer satisfaction.

DL300 Intermodal Transportation Systems

Credits: 3

This course explores the important concepts and operational specifics of commercial and military intermodal transportation, primarily as they pertain to the movement of freight. It is designed to provide students with an appreciation of the development and characteristics of the present inter-modal transportation system, comprehension of the advantages and disadvantages of intermodalism, awareness of the intermodal services, terminals, equipment, and information systems currently in operation and under development, and understanding of how individual modes and intermediaries interact in intermodal systems, and a grasp of the key challenges faced by commercial and military intermodal transportation managers and

knowledge of some of the strategies that can be employed in dealing with these concerns.

DL340 Management of Transportation Enterprises **Credits: 3**

Building on the foundation laid in earlier logistics and intermodal transportation major courses, this elective will examine the challenges inherent in managing today's businesses operating both modally and in intermodal service. The course will focus on the regulatory, financial, economic, and global environments impacting such businesses. Particular attention will be paid to intermodal issues where appropriate. The course will be conducted under the case analysis method, and will be augmented by speakers from transport management, financial institutions, and relevant government agencies. Because the case method will be used, class participation provides a significant part of the final grade, and class preparation will be closely monitored. This course fulfills the elective requirement for Logistics and Inter-modal Transportation majors.

Elective

Prerequisite: DB110
3 Class hours a week

DL350 Introduction To Railroad Operations

Credits: 3

This course is designed to introduce the student to the operational aspects of that segment of the nation's infrastructure that moves passengers and freight over steel rails. Sufficient detail is provided to ensure an understanding of the physical plant, operational capabilities and limitations, the maritime interface, comparative advantages and limitations of rail transportation, and its niche in inter-modal transportation.

Elective

Prerequisite: DB110
3 Class hours a week

DL400 Intermodal Port and Terminal Operations

Credits: 3

A detailed analysis of the economic, legal, and practical dimensions of intermodal terminal operations. Subjects covered include gate operations, yard management, cargo-handling equipment, terminal information systems, maintenance and repair, documentation, port administration, and labor-management relations. Challenges related to productivity, infrastructure constraints, increasing vessel size, and new technologies are addressed. Emphasis is on the central role of intermodal ports and marine transportation in achieving the goal of "seamless" transportation.

DL420 Global Supply Chain

Management

Credits: 3

Designed to provide students with an understanding of the unique functional, legal, cultural, and strategic issues that characterize international freight logistics. Topics addressed include global sourcing, international inventory management, system optimization, global transportation options, international terms of sale and documentation, global information management, international logistics strategies, and organizing the firm to achieve effective global logistics management. The development of managerial decision-making skill in the global context is facilitated through the use of case studies and computer simulation exercises.

DL425 Maritime Security

Credits: 3

An elective course designed to provide midshipmen with an understanding of current issues related to maritime, port, and intermodal transportation security and the opportunity to apply their maritime and intermodal expertise to current problems in maritime security. Topics include vessel security, facility security, terrorism, Weapons of Mass Destruction, cargo theft, port and terminal facility security, contraband smuggling, organized crime, piracy, and related subjects. Emphasis is placed on counter terrorism in the maritime and intermodal

environment. The primary focus of the seminar is a research project that will engage midshipmen in formulating strategies and approaches to address a current “real-world” security problem.

DL440 Introduction to Air Transportation Credits: 3

This course will examine the background, operations and future of the commercial domestic and international air transport industry and U.S. military aviation. Through the perspective of shippers, passengers, carriers, facilitators, airports, and government, the course surveys the services provided, equipment used, airports, cost and rate structures, documentation, government policies and regulations, independent and alliance business arrangements, insurance, routing techniques and optimization, analysis of operations and competitive alternatives, and plans for the future. The course will also provide a better understanding of the growing importance that the communication of information has on purchasing and operating commercial and military air transportation services.

Elective

***Prerequisite:* DB110**

3 Class hours a week

DL450 Logistics and Intermodal Seminar

Credits: 3

A capstone course structured to integrate the lessons learned in prior course work, internships, and the sea year experience. Through case studies and applied research projects dealing with current challenges provided by industry, government, and military organizations, the seminar provides midshipmen with the opportunity to apply their knowledge and skills in solving “real-world” problems in logistics management intermodal transportation, and port operations. Midshipmen regularly interact with, and make presentations to, officers of organizations providing issues and problems.

DL460 Defense Transportation Systems Credits: 3

This course explores the important concepts and operational specifics of the Defense Transportation System (DTS), primarily as they pertain to the deployment of forces “from fort to fox-hole.” It is designed to provide students with an appreciation of the characteristics of the present transportation system, challenges faced by the DTS, and an awareness of the services, terminals, equipment, and information systems currently in operation. The course will also discuss the logistical support provided to the tactical operations of a brigade task force.

Elective

***Prerequisite:* DB110**

3 Class hours a week

DM300 Information and Technology Management Credits: 3

This course provides midshipmen with broad knowledge of information systems and relevant issues faced by managers and administrators in organizations. The course focuses on information technology—computer hardware, software, networks/telecommunications, and protocols and procedures, as a tool to solve business problems. The student will explore the principles and practices of managing and developing information systems and technology in an enterprise and assess their impacts on management, organizations and society. This course is required for all Marine Transportation majors and may be taken as an elective by other midshipmen. Class size limited to 30 students.

3 Class hours a week

DM320 Human Resources Management Credits: 3

A comprehensive course designed to assist future ship’s officers with the basic tools in dealing with the “people” issues. Topics include organization and administration of the human resource function, selection and placement, performance appraisal, fringe benefits, wage and salary administration, and major personnel issues in today’s maritime milieu.

DM340 Admiralty and International Law Credits: 3

An in-depth study of U.S. admiralty law and the public international law of the sea. Major decisions and the principles upon which they are based will be examined in relevant contexts. Admiralty topics include: liens, personal injury, collision, carriage of cargo salvage, general average, and pollution. International law topics include: sources of law, jurisdiction, territorial sea, contiguous zone, continental shelf, exclusive economic zone, high seas and the deep seabed. U.S. oceans policy will be discussed under each of these topics.

3 Class hours a week

DM390 Entrepreneurship and Management of Start-Ups Credits: 3

This course explores the factors that transform an idea into a serious business opportunity of choice. It covers significant aspects of a new business start-up and/or a small privately-held firm; incorporates researching the background; development; implementation of ideas; and producing a business plan for the venture that will facilitate the future practice of entrepreneurship in the maritime industry. It lays the groundwork for networking with alumni practitioners and enhances a simulated entrepreneurial

experience.

DM400 Marine Insurance
Credits: 3

This course will familiarize the student with the fundamentals of marine insurance, the ocean marine hull and cargo policies, third party liability insurance (P and I insurance), the categories of marine losses, and general average and salvage adjustments. This course is required for all Marine Transportation majors and may be taken as an elective by students who have completed the pre-requisites. Class size limited to 30 students.

DM410 Chartering and Brokerage
Credits: 3

This course will provide a basic understanding of how charter parties are constructed, how chartering decisions are made, how vessels characteristics and voyages are analyzed, the functions of brokers and agents and vessel sales and purchases. This course is required for all Marine Transportation majors and may be taken as an elective by Logistics and Intermodal and Marine Operations and Technology majors. Class size limited to 30 students.

3 class hours a week

DN100 Safety of Life at Sea
Credits: 2

Students successfully completing this course will be able to take

charge of the preparation, embarkation and launching of survival craft. They will be able to manage a boat under oars or motor, and take charge of an inflatable life raft. Students will know the correct use of all survival equipment and what action to take to preserve the lives of those in their charge. An official test to obtain U.S. Coast Guard certification will also be given.

1 class hour a week
2 laboratory hours a week

DN110 Basic Firefighting & Safety
Credits: 2

This course provides the student with the knowledge and experience to handle shipboard fires by initially developing fire prevention, extinguishment, suppression, and techniques. Subsequently, the student will be made aware of fire and its behavior. Students will be shown how to use fire prevention, extinguishment, and suppression equipment properly and effectively in dealing with fires and hostile environments. Students will be instructed in the safe use of respirators and on the subject of fit testing of respirators. This is an STCW 95 course required as part of USCG licensing. All competencies must be successfully completed.

2 class hours a week
One 8-hour lab field exercise at a fire training facility

DN120 Terrestrial Navigation
Credits: 3

This required course is designed to teach the student the technical and practical concepts of Terrestrial Navigation. Areas covered include terrestrial coordinates, nautical charts, navigation publications, piloting, navigation aids, compass corrections, the computation of tides and tidal currents. Practical chart work laboratories, simulator time, and a laboratory on the training vessel provide extensive practice. This course is required of all Deck Midshipmen and is offered in the Second Term of Fourth Class Year.

2 class hours a week
2 laboratory hours a week

DN121 Celestial Navigation
Credits: 4

Introduction to the study of celestial bodies, their locations and apparent motion relative to an observer on Earth, their ephemera elements of the celestial sphere, concepts and use of time including predictions of celestial phenomena. The course will encompass celestial theory derived from qualitative and quantitative analysis of the combined coordinate systems for reductions to celestial lines of position. Celestial observations will be used to determine compass error. Studies will also involve practical

application through use of the sextant, azimuth ring, alidade, and other standard shipboard equipment and publications.

3 class hours a week
2 laboratory hours a week

DN130 Introduction To Navigation Law

Credits: 1

This required course is an introductory study of the various statutes governing the operation of watercraft subject to U.S. jurisdiction. Emphasis is placed on the International Navigational Rules Act of 1977 (which implemented the 72COLREGS, the regulations resulting from the 1972 Convention on International Regulations for Preventing Collisions at Sea). An introduction to the Inland Navigational Rules Act of 1980 (which implemented the new unified Inland Rules of the Road presently applicable on the navigable water of the United States) will be provided. This course is required of all Deck Midshipmen and is offered the Third Term of Fourth Class Year for B-split sea year training assignees and First Term Third Class Year for A-split assignees.

1 class hour a week

DN140 Meteorology

Credits: 3

This course will cover the principles of modern meteorology as is applicable to the marine

environment. The course encompasses the following: the earth-atmosphere system; weather elements; atmospheric thermodynamics; wind systems; cyclones and anticyclones, air masses, fronts, and middle-latitude cyclones; violent local storms; tropical storms; the synoptic weather map; weather service for merchant shipping; weather forecasting; ocean waves; sea ice and ice accretion; weather map construction and analysis; optimum shiprouting utilizing the prevailing and projected weather conditions to advantage; weather routing to avoid adverse conditions; practice of practical shipboard reporting procedures.

3 class hours a week

DN210 Cargo Operations

Credits: 3

This course will cover the principles of materials handling and their applications to the movement of marine cargoes, safe cargo operations, certification of cargo gear, stresses on cargo gear, mathematical calculations of safe and efficient cargo stowage, and prevention of moisture damage due to cargo and ship sweat. In addition, this course will examine ship stability and trim and practical applications of these principles in the loading of vessels carrying

break-bulk, bulk, and container cargoes. A container loading project will be required to be completed involving computing of stowage, trim, KG, GM and LCG.

3 class hours a week

DN220 Electronic Navigation **Credits: 3**

The purpose of this course is to present information needed by the deck officer or member of the bridge team to use and understand various land-based and space-based electronic navigation systems including global positioning system (GPS), electronic chart display and information system (ECDIS), radar navigation, automatic radar plotting aids (ARPA), automatic information systems (AIS), gyro compasses, autopilot operations, depth sounders, speed indicators, and integration of bridge systems. Fundamental collision avoidance in compliance with The Rules of the Road, use of radar transfer plotting, and typical USCG test questions in electronic navigation are also covered.

Prerequisite: **DN120**

2 class hours a week

2 laboratory hours a week

DN230 Seamanship and Shiphandling **Credits: 3**

This course presents concepts and practices of seamanship, shiphandling and maneuvering, conventional and new propulsion

and steering systems, interaction between vessels, and constraining channels, use of tugs, mooring and anchoring and port arrival/departure. Studies also include ground tackle and maneuvering with anchors, towing, ice seamanship, heavy weather, right whale collision avoidance, emergencies and special situations. A part task or full mission bridge simulator will be used in laboratories to allow the midshipmen to apply practical shiphandling skills. A practical seamanship review will be accomplished in the rope locker and will run concurrently with an assistant instructor.

2 class hours a week

2 laboratory hours a week

DN240 Tanker Operations **Credits: 3**

This course is a combination of classroom lectures and practical demonstrations using laboratory equipment, such as the liquid cargo/ballast-handling simulator. This course is designed to satisfy the cargo training requirement set forth in Qualifications for Tankerman and for Persons in Charge of Transfers of Dangerous Liquids and Liquefied Gases. 46 C.F.R. § 13.209 and to meet the requirements for specialized training of personnel serving on oil and chemical tankers as specified in the International Convention on Standards of Training, Certification and

Watchkeeping for Seafarers, 1978, (STCW) and the 1995 amendments of STCW. In addition, this course reflects the most current regulatory requirements affecting the tanker industry as well as safe industry practice found in various fleet manuals, trade publications and manufacturers' manuals. Successful completion of this course is a prerequisite to assignment aboard an oil/chemical tanker during the second sailing period of sea year as well as satisfying one element of the federal regulation leading to an endorsement on the Merchant Mariners Credential (MMC) as a Tankerman, Person-in-Charge PIC (DL).

3 class hours a week

DN241 Advanced Tanker Operations Credits: 3

An in-depth study of inert gas systems, crude oil washing operations and related safety topics that impact the role of a deck and engineering officer on a modern tanker. This course is designed to satisfy both international (IMO) and domestic (ISCG/shipping company/union) requirements for specialized training of individuals in the areas of crude oil washing and inert gas systems. Certificates will be issued upon successful completion of the course.

Elective

Prerequisite: [DN240](#)
3 class hours a week

DN300 Fast Rescue Boat Credits: 1.5

This course aims to provide the training for candidates to launch and take charge of a fast rescue boat, in accordance with Section A-V1/2 of the STCW Code. This course is offered as an elective to both deck and engine midshipmen. On meeting the minimum standard of competence in fast rescue boats, a midshipman will be competent to handle and take charge of such boats during or after launch in adverse weather and sea conditions. They will also be able to operate a fast rescue boat engine. Midshipmen will know the correct use of all locating devices, including communication and signaling

equipment between the rescue boat and a helicopter and the ship; and how to carry out search patterns.

Elective

Prerequisites: [DN100](#)
1 class hour a week.
1 laboratory hour a week.

DN410 Advanced Firefighting Credits: 2

This course will cover the organizing and training of fire parties and controlling fire-fighting operations aboard ships. The course will address the fire detection and firefighting equipment aboard ships and the investigation of incidences concerning fires.

Prerequisite: [DN110](#)
1 class hour a week
1 laboratory hour a week
one 8-hour laboratory field exercise at a fire training facility

DN420 Advanced Navigation Credits: 3

This navigation course expands upon previous navigation courses stressing an in depth understanding of advanced concepts of navigation. Topics include the theory, and applications of various chart projections, sailings, magnetism and the earth's magnetic field, magnetic compass adjustments, leeway, voyage length and arrival times, and the theory of tides and tidal currents.

3 class hours a week

DN421 Navigation Law (Rules of the Road) Credits: 2

This required course is an in-depth study of the various statutes governing the operation of watercraft subject to U.S. jurisdiction. Particular emphasis is placed on both the International Navigational Rules Act of 1977 (which implemented the 72COLREGS, the regulations resulting from the 1972 Convention on International Regulations for Preventing Collisions at Sea) and the Inland Navigational Rules Act of 1980 (which implemented the new unified Inland Rules of the Road presently applicable on the navigable water of the United States). Also discussed are the underlying legal concepts and constitutional issues associated with both international and domestic navigation law as pertains to the American mariner. This course is required of all Deck Midshipmen and is offered in the First and Second Terms of First Class Year.

2 class hours a week

DN430 Maritime Communications Credits: 4

This course is designed to satisfy the requirements necessary to earn the STCW-95 endorsement as a Global Maritime Distress and Safety System Operator. It covers all of the material delineated in the U.S. Coast Guard approved model course in GMDSS. A midshipman who

successfully completes this course will be able to operate the radio communications equipment required on board GMDSS-compliant vessels. Non-GMDSS communications systems (signal flags and Morse Code by flashing light) will also be addressed.

Prerequisite: [DN220](#)
3 class hours a week
2 laboratory hours a week

DN435 Coastal and Inland Vessel Management Credits: 3

This course introduces the maritime student to the nature and operations of companies that operate vessels within the littoral zone of the United States and the environment in which they operate. This includes tug and towing companies, barge companies and passenger vessel operators, port authorities, government and non-government agencies, trade associations, labor organizations and other groups that control and influence this significant segment of the maritime industry. Present day industry issues and concerns will be discussed. This course will also look at equivalent working environments in other parts of the world.

3 class hours a week

DN450 Tankship Liquefied Gases Credits: 3

The purpose of this course is to meet the training requirements for Liquid Gas Vessel Person in Charge. This 40 hour course

provides individuals with a thorough working knowledge of liquid gas tankship operations and enables them to conduct safe, pollution free cargo operations. The emphasis of the course is placed on safety and operational aspects of cargo operations in accordance with accepted industry practice and legal requirements. This course covers the mandatory minimum training requirements of a Liquefied Gas Tanker Training Program as listed in Section A-V/1 paragraphs 22 – 34 in the STCW '95 Code and 46CFR Part 13 Table 13.121(F).

Elective

Prerequisites: [DN110](#), [MC100](#), and [DN240](#)

3 class hours a week

[DN455](#) ECDIS Credits: 3

The purpose of this required course is to meet the training requirements for the operational use of electronic chart display and information systems (ECDIS). This course provides students with the knowledge, skill and understanding of ECDIS and electronic charts to the thorough extent needed to safely navigate vessels whose primary means of navigation is ECDIS. The course emphasizes both the application and learning of ECDIS in a variety of underway contexts. Successful completion satisfies present STCW training requirements and permits a USCG

course certificate to be awarded upon graduation.

Prerequisites: [DN120](#), [DN220](#), and [DS322](#)

2 class hours a week

2 laboratory hours a week

[DN460](#) Bridge Watchstanding Credits: 2

This course is intended for Midshipmen at the U.S. Merchant Marine Academy who are preparing themselves for licensing as watchkeeping deck officers. It is intended to be a 52-hour capstone course taken after completion of all other courses in the curriculum related to watchkeeping duties and the midshipman has completed all of the required at-sea training. The course will be taught by appropriately qualified and certified instructors and will allow for the practice and demonstration of watchkeeping skills. This course will challenge the student's decision-making abilities, passage planning skills, and bridge team management techniques. The course is taught at USMMA to midshipmen in the deck license programs. It is scheduled as a one-term or semester course. In order to meet the 52 hour course requirement, the course must provide the students with a minimum of 13 hours of lecture and pre-briefing, 26 hours of simulated experience and 13 hours of debriefing. This course is adapted from the model course developed by

the Maritime Academy Simulator Committee (MASC) with the aid of the U.S. Coast Guard and Maritime Administration.

1 class hour a week

2 laboratory hours a week

[DN470](#) License Seminar Credits: 2

This required course provides an intensive review in the topics and problems covered on the U.S. Coast Guard Second and Third Mate Exam, by means of review, problem solving and examination. Topics that will be reviewed and examined include seamanship, cargo handling and stowage, meteorology/oceanography, navigation theory, ship construction terminology and navigation law. Types of navigation problems that will be review include computing and plotting lines of position (visual bearings, radar, meridian transit, Polaris, sun lines and star lines), sailings (parallel, mid-latitude, Mercator, and great circle), computing time of meridian transit and sunrise/set, tide and tidal current calculations, and determination of compass error by terrestrial and celestial means (bearings, azimuth, amplitude, Polaris). This course is required of all First Class Deck Midshipmen prior to the United States Coast Guard License Exam and is offered in the Third Terms of First Class Year.

3 laboratory hours a week

[DN480](#) Tankerman Engineer Credits: 3

An in-depth. study of the transport of bulk liquid cargoes by tank-ship. The course topics include: vessel design/construction, oil/chemical cargo characteristics, cargo systems, ballasting/deballasting, tank cleaning, gas freeing/enclosed space entry, inert gas systems, crude oil washing operations, oil pollution regulations and control and tanker safety. Successful completion of this course meets the USCG requirements for training of individuals pursuing an endorsement as "Tankerman Engineer." Additionally, this course incorporates the material required under STCW 78/95 for specialized training of individuals serving on tank-ships carrying dangerous oil and chemical cargoes. The material presented reflects current regulation and accepted industry practice which is presented through a combination of classroom lectures and practical demonstrations

Elective

3 class hours a week

[DN485](#) Piloting Credits: 3

The purpose of this course is to prepare the students for the USCG First Class Pilot Exam for Chart number 12366-Tallman Island to Execution Rocks. Students will prepare for the exam by studying the Inland Navigation Rules, Tides and

Currents, New York Traffic Service(VTS) Regulations, Coast Pilot Descriptions of the area, and by drawing Chart 12366 from memory. In addition to classroom instruction, students will make several trips through the area aboard Academy training vessels.

Elective

Prerequisites: [DN120](#), [DN230](#), and [DN425](#)

2 class hours a week

2 laboratory hours a week

[NAUT101](#) Introduction to Nautical Science

Credits: 3

This course has two objectives: students successfully completing this course will be introduced to the basic knowledge and skills of nautical science that are required of all officers in the merchant marine; and to provide for formal instruction and assessment in many of the common and deck-specific competency requirements for IMK Able Seafarer (Deck) Knowledge, Understanding, and Proficiency requirements. Topics covered in nautical science include the economic role of the merchant marine, merchant ship types, shipboard terms, dimensions, personnel organization, nomenclature of ships, mooring with lines, mooring with ground tackle and practical labs in knots, splices, hitches for the bosun chair and stage, and crane operations.

2 class hours a week

2 laboratory hours a week

[NAUT110](#) Basic firefighting and Safety

Credits: 2

This course provides the student with the knowledge and experience to respond to shipboard fires and emergencies. The student will be instructed in the behavior of fire, fire prevention and suppression techniques, and associated extinguishment systems found aboard various types of vessels including container ships, break bulk, oil tanker, chemical tanker, LNG, R-RO and passenger vessels. Students will be shown how to use fire prevention and suppression equipment properly and effectively in dealing with fires and hostile environments. Students will also be instructed in the safe use of respirators, the subject of fit testing of respirators, and the use of the SCBA in firefighting. This course is designed to give the student the necessary skills to minimize the risk of fire and maintain state of readiness for combating shipboard fires. This course also includes a one day training exercise at an US Coast Guard approved Shipboard Fire Training Facility. This course is required of the International convention on Standards of Training, Certification and Watchkeeping for Seafarers and includes the 2010 Amendments. All

competencies must be successfully completed. Additionally, successful completion of this course is a requirement for graduation.

[NAUT120](#) Terrestrial Navigation 1

Credits: 3

This course is designed to teach the student the technical and practical concepts of Terrestrial Navigation. Areas covered include terrestrial coordinates, nautical charts, navigation publications, piloting, navigation aids, compass corrections, and the use of sailing to determine rhumb line course and distances. Practical chart work laboratories and a laboratory on an Academy training vessel provide extensive practice. This course is required of all Deck Midshipmen and is offered in the Second Term of Fourth Class Year.

2 class hours a week

2 laboratory hours a week

[NAUT125](#) Terrestrial Navigation 2

Credits: 3

This course builds upon the material covered in Terrestrial Navigation 1. Topics include a more in-depth analysis of the earth's magnetic field, the ship's magnetic field, magnetic compass adjustment and the sailings. Propeller slip, ocean voyage planning, tide current theory, current sailings and major ocean circulation are also introduced. This course contains a STCW Knowledge, Understanding

and Proficiency (KUP) concerning the knowledge of the principles of magnetic compasses and is required of all Deck Midshipmen. It is offered in the Third Term of Fourth Class Year.

Prerequisites: [NAUT120](#)

3 class hours a week

[NAUT140](#) Maritime Communications **Credits: 4**

This 4-credit course is designed to satisfy the requirements needed to qualify for an STCW endorsement as a Global Maritime Distress and Safety System Radio Operator. Current regulations allow a graduating midshipman who passes the course to qualify for a waiver from having to pass a separate FCC GMDSS Radio Operator license exam. After successful course completion, a midshipman will be able to competently operate the radio communications equipment required onboard GMDSS-compliant vessels. Non-GMDSS communications systems (signal flags and Morse code by flashing light) will also be addressed in this course.

Co-requisites: [NAUT120](#)

3 class hours a week

2 laboratory hours a week

[NAUT160](#) Ship Construction and Stability **Credits 3**

This course will introduce the midshipman to merchant ship construction, structure, and

terminology. It will examine merchant ship stability and trim and the practical application of these principles. The midshipman will learn the topics related to ship construction and stability while cultivating the accuracy and professional attitude necessary to successfully perform the duties of a licensed deck officer.

Prerequisites: [NAUT101](#)
3 class hours a week

[NAUT210](#) Integrated Navigation 1

Credits: 4

This course integrates theoretical and practical applications of radar and ARPA within the context of safe visual underway navigation. In particular, midshipmen will learn to adapt system displays to various conditions, understand and apply sensor inputs to radar, analyze digital and graphic information on radar & ARPA, perform radar transfer plotting, acquire and access contact information, and practice contact management using trail maneuver functions and AIS information. Midshipmen will also master the basics of electronic navigation and vessel maneuvering, as well as steering and autopilot control, following helm orders, and responding to operational alarms. Radar & ARPA competencies from STCW, as amended, are satisfied by this course. Successful completion of IN1 and Radar Certification in

the senior year permits a Radar Observer certificate and an ARPA certificate to be awarded upon graduation. Successful completion of this course is required for assignment to sea.

Prerequisites: [NAUT120](#) and [NAUT130](#)

Co-requisites: [NAUT125](#) and [NAUT140](#)

3 class hours a week

2 laboratory hours a week

[NAUT215](#) Integrated

Navigation 2 Credits: 4

This course integrates theoretical and practical applications of electronic chart display and information systems (ECDIS) within the contexts of safe visual underway navigation. Midshipmen will learn to adapt system displays to various conditions, analyze digital and graphic chart information, understand and apply sensor inputs, and access contact information using AIS and ARPA. Midshipmen will master additional aspects of electronic navigation, including radar navigation, echo sounder, compass and steering systems, and also vessel maneuvering, responses to MOB, watchkeeping principles and application of COLREGS. Ship positioning and autopilot control competencies from STCW are satisfied by this course. Successful completion of this course satisfies STCW training requirements for the

operational use of ECDIS, as amended, and permits a USCG certificate to be awarded upon graduation. Successful completion is required for assignment to the sea second term.

Prerequisites: [NAUT210](#)

3 class hours a week

2 laboratory hours a week

[NAUT220](#) Liquid Cargo

Operations Credits: 3

This course is designed to satisfy the cargo familiarization training requirement set forth in Qualifications for Tankerman Assistant and for Persons in Charge of Transfer of Dangerous Liquids, 46 C.F.R. § 13.209 and to meet the requirements for specialized basic training of personnel serving on oil, chemical, and liquefied gas tankers as specified in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, (STCW) and the 2010 amendments of STCW. In addition, this course reflects the most current regulatory requirements affecting the tanker industry as well as safe industry practice found in various fleet manuals, trade publications and manufacturers' manuals. This course uses a combination of classroom lectures and practical demonstrations using laboratory equipment, such as the liquid cargo/ballast-handling simulator. Successful completion of this course

is a prerequisite to assignment aboard an oil/chemical/liquefied gas tanker. At the conclusion of NAUT220 Liquid Cargo Operations, Midshipmen will be eligible for the United States Coast Guard national endorsement on the Merchant Mariners Credential (MMC) as a Tankerman-Assist (DL), with no further training or service. Completion of this course along with the required sea time and onboard cargo transfer operations during the sea year will satisfy the requirements of the federal regulations leading to the United States Coast Guard national endorsements on the Merchant Mariners Credential (MMC) as a Tankerman, Person-in-Charge PIC (DL).

2 class hours a week

2 laboratory hours a week

[NAUT225](#) Celestial Navigation

Credits: 4

This required course offers an introduction to the study of celestial bodies, their locations and apparent motion relative to an observer on Earth, their ephemera elements of the celestial sphere, concepts and use of time including predications of celestial phenomena. The course will encompass celestial theory derived from qualitative and quantitative analysis of the combined coordinate systems for reductions to celestial lines of positions. Celestial observations will

be used to determine compass error. Studies will also involve practical application through use of the sextant, azimuth ring, alidade and other standard shipboard equipment and publications. This course is required of all Deck Midshipmen and is offered in the Second Term of Third Class Year for B-split sea year training assignees and First Term of Second Class Year for A-split sea year training assignees.

3 class hours a week

2 laboratory hours a week

NAUT230 Navigation Law
Credits: 2

This required course is an in-depth study of the various statutes governing the operation of watercraft subject to U.S. jurisdiction. Particular emphasis is placed on both the International Navigational Rules Act of 1977 (which implemented the 72COLREGS, the regulations resulting from the 1972 Convention on International Regulations for Preventing Collisions at Sea) and the Inland Navigational Rules Act of 1980 (which implemented the new unified Inland Rules of the Road presently applicable on the navigable water of the United States). Also discussed are the underlying legal concepts and constitutional issues associated with both international and domestic navigation law as pertains to the American mariner. This course is

required of all Deck Midshipmen and is offered in the Third Term of Third Class Year for A-split sea year training assignees and the Second term of Second Class Year for B-split sea year training assignees.

Prerequisites: NAUT130
2 class hours a week

NAUT240 Meteorology
Credits: 3

This required course will cover the principles of modern meteorology as is applicable to the marine environment and global transportation and logistics. The course encompasses the following: the earth-atmosphere system; weather elements; atmospheric thermodynamics; wind systems; cyclone and anticyclones, air masses, fronts, and middle-latitude cyclones; violent local storms; tropical storms; the synoptic weather map; weather service for merchant shipping; weather forecasting; ocean waves; sea ice and ice accretion; weather map construction and analysis; optimum ship routing utilizing the prevailing and projected weather conditions to advantage; weather routing to avoid adverse conditions; practice of practical shipboard reporting procedures. As transportation systems ashore and at sea are weather sensitive, this course will also provide a fundamental understanding of atmospheric

phenomena having impact on the overall logistic process. This includes topics such as tornadoes, supercells, precipitation, humidity and temperature patterns that are important in the management of global transportation and logistical systems both ashore and at sea. This course is required of all Deck Midshipmen and is offered in the Second Term of Third Class Year for B-split sea year training assignees and the First term of Second Class for A-split sea year training assignees.

3 class hours a week

NAUT250 Dry Cargo
Operations Credits: 3

This required course will cover the principles of materials handling and their applications to the movement of marine cargoes. Topics will include safe cargo operations, certification of cargo gear, stresses on cargo gear, and mathematical calculations of safe and efficient cargo stowage and prevention of moisture damage due to cargo and ship sweat. In addition this course will examine ship stability and trim and practical applications of these principles in the loading of vessels carrying break-bulk, bulk and container cargoes. A container loading project will be required to be completed involving computing of stowage, trim, KG, GM and LCG. This course is required of all Deck Midshipmen and is offered in

the Second Term of Third Class Year for B-split sea year training assignees and the First Term of Second Class Year for A-split sea year training assignees.

Prerequisites: NAUT160
3 class hours a week

NAUT310 Integrated
Navigation 3

Credits: 4

This required course applies skills formally developed and assessed in the first two levels of Integrated Navigation, and adds several more advanced skills, especially pertaining to ship handling and thruster control. This course applies a high degree of problem solving, detection of ambiguous or conflicting information, risk assessment, decision making and determination of solo watchstanding limitations in a variety of demanding conditions and situations. Situational awareness now encompasses dynamics of watchstanding. Human factors and cognitive processes of solo watchstanding are applied to case studies and exercise analysis. Following in-depth simulation-based practice, the desired training outcome is for each student to satisfy the assessment criteria of a final underway scenario of interacting ownships in which the safety of navigation is maintained amidst subtle yet critical ambiguities between the visual scene and

instrument data, where it is reasonable nonetheless to maintain a solo bridge watch, and where there is the possibility of an emergency response prior to augmentation of the bridge watch. This course is required of all Midshipmen and is offered during the First Term of the First Class year for A-split sea year training assignees and Third Term of Second Class year for B-split assignees.

Prerequisites: [NAUT215](#)

3 class hours a week

2 laboratory hours a week

[NAUT330](#)The Maritime Regulatory Environment

Credits: 2

This required course will cover knowledge and practical understanding of the multitude of international and domestic conventions, laws, regulations, policies, and best practices affecting the transportation of persons and cargo by sea. As required by the STCW, 1978< as amended by the 2010 Manila Amendments, the OICNW must have a "working knowledge of and be able to monitor compliance" with various international and domestic conventions, codes, laws, and regulations. This knowledge is essential for the deck officer in a highly regulated environment. Topics will include safety of life at sea, the law of the sea, the marine environment, Watchkeeping,

liability and compensation, and the Maritime Labor Convention. This course is required of all Deck Midshipmen and is offered in the Third Term of Second Class Year for B-split sea year training assignees and the First Term of First Class Year for A-split sea year training assignees.

2 class hours a week

[NAUT400](#) License Seminar

Credits: 0

This required course provides an intensive review in the topics and problems covered on the U.S. Coast Guard Second and Third Mate Exam, by means of review, problem solving and examination. Topics that will be reviewed and examined include seamanship, cargo handling and stowage, meteorology/oceanography, navigation theory, ship construction terminology and navigation law. Types of navigation problems that will be review include computing and plotting lines of position (visual bearings, radar, meridian transit, Polaris, sun lines and star lines), sailings (parallel, mid-latitude, Mercator, and great circle), computing time of meridian transit and sunrise/set, tide and tidal current calculations, and determination of compass error by terrestrial and celestial means (bearings, azimuth, amplitude, Polaris). This course is required of all First Class deck Midshipmen prior to the United

States Coast Guard License Exam and is offered in the Second Term of First Class Year.

Prerequisites: **Nautical Science Curriculum**

3 mandatory laboratory hours a week

[NAUT420](#) Advanced firefighting

Credits: 1.5

This course will cover the organizing and training of fire parties and controlling fire-fighting operations aboard ships including tank vessels. The course will address the fire detection and firefighting equipment aboard ships and the investigation of incidences concerning fires. The course is designed to prepare the student to serve as On Scene Leader at a shipboard fire. This is an STCW course required as part of USCG Licensing and includes the 2010 STCW Manila Amendments. All competencies must be successfully completed. This course also includes a 1 day training exercise at an approved US Coast Guard Shipboard Fire Training Facility.

Prerequisite: [NAUT 110](#)

1 class hour a week

1 laboratory hour a week

[NAUT440](#) Flashing Light and Radar Observer Certification

Credits: 0

This 0-credit course is designed to satisfy the STCW requirements to

receive Morse Code by flashing light and to fulfill the STCW testing required for RADAR observer and ARPA certification. This course is required of all midshipmen and is offered during the First Term of the First Class year for B-split sea year training assignees and Second Term of First Class year for A-split assignees.

Prerequisites: [NAUT310](#)

2 laboratory hours a week

[NAUT460](#) Bridge Resource Management

Credits: 2

This course is required for all deck Midshipmen and is taken after completion of all other courses in the curriculum related to watch keeping duties and the midshipman has completed all of the required at-sea navigation training. The course will allow for the practice, demonstration and assessment of watch keeping skills and will challenge the student's decision making abilities, passage planning skills, and bridge team management techniques.

The course is taught utilizing full mission bridge simulation technology and consists of lecture, pre-briefs, and simulated shipboard underway laboratory hours with comprehensive debriefs. It is in compliance with the 2010 Manila Amendments to the STCW Code. It is USCG-approved for Midshipmen to earn 30 days sea service. The

course is taught in a 52-hour format consisting of 13 lecture hours and a total of 39 laboratory hours, incorporating laboratory passage planning time of 1 hour per week prior to each simulation scenario.

This course is required of all Midshipmen and is offered during the First Term of the First Class year for B-split sea year training assignees and Second Term of First Class year for A-split assignees.

Prerequisites: [NAUT125](#), [NAUT140](#), [NAUT230](#), [NAUT240](#) [BUSN230](#), [NAUT310](#)

1 class hour a week

2 laboratory hours a week

[NAUT610](#) Advanced Liquefied Gas

Credits: 4

This course is designed to meet the advanced level training for liquefied gas tanker cargo operations. The included training is required of any and all persons with immediate responsibility for loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations aboard a liquid gas cargo carrier. Along with satisfying the cargo training requirement set forth in qualifications for Tankerman Person-In-Charge of Transfers of Liquid Gas, 46 C.F.R. 13.209, the course will also meet the requirements for specialized training as specified in the International

Convention on Standards of Training, Certification and Watchkeeping for Seafarers, (STCW) and the 2010 amendments of STCW, Regulation V/1-2, Section A-V/1-2, Table A-V/1-2-2.

Prerequisites: [CHEM100](#), [NAUT220](#), [NAUT110](#) or [Second Sailing Aboard a Tanker](#)
4 class hours a week

[NAUT611](#) Liquid Cargo Systems

Credits: 3

This Course is designed to prepare the student to safely and efficiently operate an inert gas system and conduct a crude oil washing operation on a modern tanker. This is accomplished by covering the necessary theoretical and practical details of inert gas system operation, crude oil washing operations and related tanker safety issues. The Subject matter presented in the course reflects current regulatory requirements as well as industry best-practices involving the use of these systems. This course adheres to the IMO recommendations for training of personnel in the subject areas. The use and practice of liquid cargo loading software will also be instructed upon, and demonstrated. The topics are covered through a combination of classroom lectures, practical demonstrations, field trips and/or simulated operations.

Prerequisites: [NAUT220](#) and [First Sailing Aboard a Tanker](#)
3 class hours a week

[NAUT612](#) Advanced Oil and Chemical Liquid Cargo

Credits: 3

This course is designed to meet the advanced level training for oil and chemical tanker cargo operations. The included training is required of any and all persons with immediate responsibility for Loading, discharging, care in transit, handling of cargo, tank cleaning or other cargo-related operations aboard a liquid cargo carrier in international service. The course meets the requirements for specialized training as specified in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, (STCW) and the 2010 amendments of STCW, Regulation V/1-1, Section A-V/1-1, Table A-V/1-1-2, and Table A-V/1-1-3. Successful completion of this course and required sea service and operations, will lead to an international endorsement for advanced training of oil and chemical tanker cargo operations.

Prerequisites: [NAUT 220](#), or [Second Sailing Aboard a Tanker](#)

3 class hours a week

[NAUT613](#) Incident Command System-Oil Spill Response Management

Credits 3

This thirty nine hour course is an introductory examination of the many issues surrounding marine oil

spills and the response measures that can be implemented. Emphasis will be placed on practical guidance and management. An in-depth look at the National Incident Management System and how it applies to the marine industry will be followed by a scientific description of petroleum products and their behavior in the marine environment, the effects of oil on various organisms, ecosystems, and uses will be studied. Next, the containment, recovery, and cleanup of oil spills will be analyzed in details, as will pre and post-spill planning and management efforts. Finally, the important State, domestic, and international laws and regulations, and their effect on the oil industry will be examined. Field trips, guest lectures, and a training session on an oil simulator will be important components of the course.

3 class hours a week

[MLOG200](#) Integrated Logistics Management

Credits: 3

This course examines the theory and practice of logistics management in the modern business environment, with attention to parallels between business and military logistics. Key objectives of the course are to provide midshipmen with an in-depth understanding of the operation of key elements in logistics systems, comprehension of the interrelationships among individual components of supply chains,

awareness of the structure and purpose of logistic information systems, knowledge of how the logistics function interfaces with other business functions, and a grasp of the principal tools and techniques used in the analysis of logistic systems. Emphasis is on system optimization for the purpose of achieving competitive advantage, cost reduction, and customer satisfaction.

Prerequisite: [BUSN110](#)
3 class hours a week

[MLOG310](#) Vessel Security Officer/Company Security Officer **Credits: 3**

This course is intended to provide the knowledge required for personnel who are assigned responsibilities as Vessel Security Officer(VSO) or Company Security(CSO) to perform their duties in accordance with the requirements of the Maritime Transportation Security Act of 2002, Chapter XI-2 of SOLAS 74 as amended, the IMP ISPS Code, and U.S. Coast Guard regulations contained in 33 CFR Chapter I Subchapter H. This course aim is also to meet the mandatory minimum requirements for knowledge, understanding and proficiency in Table A-VI/5 of the STCW Code and the training requirements in 33 CFR Part 104.

[MLOG400](#) Port and Terminal Operations

Credits: 3

A detailed analysis of the economic, legal, and practical dimensions of marine terminal operations. Subjects covered include gate operations, yard management, cargo-handling equipment, terminal information systems, maintenance and repair, documentation, port administration, facility security, and labor-management relations. Challenges related to productivity, infrastructure constraints, increasing vessel size, and new technologies are addressed. Emphasis is on the central role of intermodal ports and marine transportation in achieving the goal of “seamless” transportation.

[MLOG425](#) Maritime Security **Credits: 3**

This course is designed to provide midshipmen with an understanding of current issues related to maritime, port, and intermodal transportation security and the opportunity to apply their maritime and intermodal expertise to current problems in maritime security. Topics include vessel security, facility security, terrorism, Weapons of Mass Destruction, cargo theft, port and terminal facility security, contraband smuggling, organized crime, piracy, and related subjects. Emphasis is placed on counter terrorism in the maritime and

intermodal environment. The primary focus of the seminar is a research project that will engage midshipmen in formulating strategies and approaches to address a current “real-world” security problem.

[MLOG430](#) Chartering and Brokerage **Credits: 3**

This Course will provide a basic understanding of how charter parties are constructed, how chartering decisions are made, how vessel characteristics and voyages are analyzed, the functions of brokers and agents and vessel sales and purchases. This course is required for all senior Marine Transportation majors. This course may be taken as an elective by any student in their junior or senior year.

[MLOG450](#) Capstone Project Seminar **Credits: 3**

A capstone course structured to integrate the lessons learned in prior course work, internships, and the sea year experience. Through case studies and applied research projects dealing with current challenges provided by industry, government, and military organizations, the seminar provides midshipmen with the opportunity to apply their knowledge and skills in solving “real-world” problems in logistics management, maritime security, and port operations. Midshipmen regularly interact with, and make

presentations to, officers of organizations providing issues and problems.

[SEA YEAR](#)

[DS210](#) Deck Operations for Engineers **Credits: 1**

The objective of this sea project is for the engine midshipman to acquire the knowledge and practices of deck seamanship, firefighting, and SOLAS operations necessary to successfully perform the duties of a ship’s licensed engineer. Using the ship as a laboratory, this portion of the Sea Project will require the engine midshipman to observe various deck operations and thus enhance his understand how the Deck and engine departments cooperate in order to fulfill the mission of the ship.

[DS220](#) Navigation 1 **Credits: 2**

The objective of this sea project is for the midshipman to acquire the navigational skills and practices necessary to successfully perform the duties of a ship’s licensed deck officer. This is to be achieved by the shipboard practice of computations learned from in-residence courses in celestial and terrestrial navigation, and writing in-depth descriptions of navigational publications that will prepare the midshipman for capstone navigation courses in first class year. This sea project will be

completed by all deck-officer endorsement candidate midshipmen.

Prerequisite: [DN120](#) and [DN121](#)

[DS221](#) Navigation Law 1
Credits: 1

The objective of this sea project is for the midshipman to acquire the knowledge and practices of Navigation Law necessary to successfully perform the duties of a ship's licensed deck officer. Using the ship as a laboratory, this portion of the Sea Project will build upon the midshipman's knowledge of gained from in-residence course work. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS230](#) Cargo Operations 1
Credits: 1

Using the ship as a laboratory, the objective of this sea project is for the midshipman to acquire the knowledge of safe and efficient stowage and handling of cargo necessary to successfully perform the duties of a ship's licensed deck officer. This sea project will be completed by deck-officer endorsement candidate midshipmen.

[DS240](#) Seamanship
Credits: 1

The objective of this sea project is for the midshipman to acquire the knowledge and practices of seamanship necessary to

successfully perform the duties of a ship's licensed deck officer. Using the ship as a laboratory, this portion of the Sea Project will build upon the midshipman's knowledge of seamanship terminology, practices and procedures gained from in-residence course work. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS241](#) Ship Structure and Terminology
Credits: 1

The objective of this sea project is for the midshipman to acquire the knowledge of merchant ship structure, dimensions and terminology necessary to successfully perform the duties of a ship's licensed deck officer. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS320](#) Navigation 2
Credits: 3

The objective of this sea project is for the midshipman to acquire the navigational skills and practices necessary to successfully perform the duties of a ship's licensed deck officer. This is to be achieved by the shipboard practice of computations learned from in-residence courses in celestial and terrestrial navigation, and writing in-depth descriptions of navigational publications that will prepare the midshipman for capstone navigation courses in first

class year. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

Prerequisite: [DN120](#) and [DN121](#)

[DS321](#) Navigation Law 2
Credits: 2

The objective of this sea project is for the midshipman to acquire the knowledge and practices of Navigation Law necessary to successfully perform the duties of a ship's licensed deck officer. The project concentrates on examining the major differences between the International and Inland Navigation Rules. The project will build upon the knowledge gained from in-residence course work and the first sailing period. It will prepare the midshipman for the Navigation Law Class offered in first class year. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS322](#) Electronic Navigation
Credits: 2

The objective of this sea project is for the midshipman to acquire the knowledge and skills concerning electronic navigation and communications necessary to successfully perform the duties of a ship's licensed deck officer. This will be accomplished by researching and then completing extensive written responses to questions concerning shipboard electronic

systems used for communication. For electronic navigation systems, after a period of research and practice, the midshipman will demonstrate proficiencies according to detailed checklists included in the project. These responses will build upon knowledge and skills gained from in-residence courses, and will prepare midshipmen for navigation courses in the First Class year. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS330](#) Cargo 2
Credits: 2

Using the ship as a laboratory, the objective of this sea project is for the midshipman to acquire the knowledge of safe and efficient stowage and handling of cargo necessary to successfully perform the duties of a ship's licensed deck officer. This project will build upon the knowledge gained in DN210 Cargo Operations and first sailing period. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

[DS340](#) Seamanship 2
Credits: 1.5

The objective of this sea project is for the midshipman to acquire the knowledge and practices of seamanship necessary to successfully perform the duties of a ship's licensed deck officer. In addition to basic seamanship subjects, advanced topics such as

ship handling and the use of tugs are incorporated into this project. The sea project will build upon knowledge gained from DN230 Seamanship/Shiphandling as well as material from the first sailing period. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

DS341 Ship's Structure and Stability **Credits: 1.5**

The objective of this sea project is for the midshipman to acquire the knowledge of merchant ship structure, dimensions, terminology and stability necessary to successfully perform the duties of a ship's licensed deck officer. This project will build upon the knowledge gained from in-residence course work and the first sailing period. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

DS390 Maritime Business **Credits: 1**

This course is taken by midshipmen of all majors during the second sailing period. It is designed to both introduce the midshipman to the business side of the maritime operations and to provide an understanding of the total transportation network which ocean shipping is a part of. Midshipmen are required to research information and practices aboard their ship to answer questions concerning these

topics.

NPRJ210 Cargo Operations 1 **Credits: 1**

Using the ship as a laboratory, the objective of this sea project is for the midshipman to acquire the knowledge of safe and efficient stowage and handling of cargo necessary to successfully perform the duties of a ship's licensed deck officer. This sea project will be completed by deck-officer endorsement candidate midshipmen.

Prerequisites: [NAUT160](#), [NAUT220](#)

NPRJ215 Integrated Navigation Systems 1 **Credits: 1**

The Purpose of this first sailing period sea project is to serve as a guide for acquiring an in-depth knowledge of the electronic navigation equipment and its integration with the navigational procedures encountered aboard the midshipman's assigned vessels. The project emphasizes practical use of the equipment and reinforces the knowledge and skills acquired during the in-residence Integrated Navigation 1 course. The combination of the in-residence course and this sea project provides a strong foundation for the midshipman to effectively assist vessel's watchstanding officers, and as preparation for further training at

the Academy. This course is required of all Midshipmen and is offered during First Term of the First Class year for B-split sea year assignees and Second Term of First Class year for A-split assignees.

Prerequisites: [NAUT120](#), [NAUT125](#) and [NAUT210](#)

NPRJ220 Seamanship 1 **Credits: 1**

The objective of this sea project is for the midshipman to acquire the knowledge and practices of seamanship necessary to successfully perform the duties of a ship's licensed deck officer. Using the ship as a laboratory, this portion of the Sea Project will build upon the midshipman's knowledge of seamanship terminology, practices and procedures gained from in-residence course work. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

Prerequisites: [NAUT101](#), [NAUT110](#) and [WTRF100](#)

NPRJ225 Ship Structure and Stability 1 **Credits: 1**

Using the ship as a laboratory, this portion of the Sea Project curriculum will build upon the midshipman's knowledge of ship structure, nomenclature, use of the ship's hydrostatic table and the determination of transverse stability gained from in-residence course work. This sea project will be

completed by all deck-officer endorsement candidate midshipmen.
Prerequisites: [NAUT160](#)

NPRJ230 Navigation 1 **Credits: 1**

The objective of this sea project is for the midshipman to acquire the navigational skills and techniques required to properly perform the duties of a licensed deck officer. This is to be achieved by the shipboard practice and computations learned from in-residence courses in terrestrial navigation and composing essays on STCW watchkeeping principles and commonly utilized navigation publications. These training activities will prepare the midshipman for 2nd sailing and the capstone navigation classes in First Class Year and ultimately the USCG Third Mate's Exam.

Prerequisites: [NAUT120](#) and [NAUT125](#)

NPRJ235 Navigation Law 1 **Credits: 1**

The objective of this sea year project is for the midshipman to acquire the knowledge and practices of seamanship necessary to successfully perform the duties of a ship's licensed deck officer. Using the ship as a laboratory, this portion of the Sea Project will build upon the midshipman's knowledge of seamanship terminology, practices and procedures gained from in-residence course work.

**NPRJ240 Maritime
Communication Sea Project
Credits: 1**

The purpose of this first sailing period sea project is to serve as a guide for acquiring an in-depth knowledge of the electronic communications equipment found aboard modern commercial vessels. The project emphasizes practical use of the equipment and reinforces the knowledge and skills acquired during the in-residence maritime communications course. The combination of the in-residence course and this sea project provides a strong foundation for the midshipman to work effectively as a GMDSS radio operator.

Prerequisites: NAUT140

**NPRJ245 Deck Operations
Credits: 1**

The objective of this sea project is for the engine midshipman to acquire the knowledge and practices of deck seamanship, firefighting and SOLAS operations necessary to successfully perform the duties of a ship's licensed engineer. Using the ship as a laboratory, this portion of the Sea Project will require the engine midshipman to observe various deck operations, and thus enhance his understanding how the Deck and Engine departments cooperate in order to fulfill the mission of the ship.

NPRJ310 Cargo Operations 2

Credits: 2

Using the ship as a laboratory, the objective of this sea project is for the midshipman to acquire the knowledge of safe and efficient stowage and handling of cargo necessary to successfully perform the duties of a ship's licensed deck officer. This project will build upon the knowledge gained in NAUT160 Ship Construction and Stability, NAUT220 Liquid Cargo Operations, NAUT250 Dry Cargo Operations and First Sailing Period. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

Prerequisites: NAUT160, NAUT220, NAUT250 and NPRJ210

**NPRJ315 Integrated
Navigation System 2
Credits: 1**

The purpose of this second sailing period sea project is to serve as a guide for acquiring a in-depth knowledge of the electronic navigation equipment and its integration with the navigational procedures encountered aboard the midshipman's assigned vessel. The project emphasizes practical use of the equipment and reinforces the knowledge and skills acquired during the in-residence Integrated Navigation 2 course. The combination of the in-residence course and this sea project provides a strong foundation for the

midshipman to effectively assist the vessel's watchstanding officers, and as preparation for further training at the Academy. This course is required of all Midshipmen and is offered during the First Term of the First Class year for B-split sea year training assignees and Second Term of First Class year for A-split assignees.

Prerequisites: NAUT215 and NPRJ215

**NPRJ320 Seamanship 2
Credits: 1.5**

The objective of this sea course is for the midshipman to acquire the knowledge and practices of seamanship necessary to successfully perform the duties of ship's licensed deck officer. In addition to basic seamanship subjects, advanced topics such as ship handling and contingency management are incorporated into this project. The sea project part of this course will build upon knowledge gained from NAUT101 Introduction to Nautical Science as well as material from the first sailing period. All deck-officer endorsement candidate midshipmen will complete this sea project. The course culminates with an oral exam upon return from sea.

Prerequisites: NPRJ220

NPRJ325 Ship Structure and

Stability 2 Credits: 1.5

Using the ship as a laboratory, this portion of the Sea Project curriculum will build upon the midshipman's knowledge of ship structure, nomenclature, use of the ship hydrostatic table and the determination of transverse and longitudinal stability gained from in-residence course work as well as during the first sailing. This sea project will be completed by all deck-officer endorsement candidate midshipmen.

**Prerequisites: NPRJ225
NPRJ330 Navigation II**

Credits: 2

To acquire the navigational skills and techniques required to properly perform the duties of a licensed deck officer. This is to be achieved by the shipboard practice and computations learned from in-residence courses in celestial and terrestrial navigation and meteorology as well as creating voyage plans and composing essays on STCW watchkeeping principles and commonly utilized navigation publications. These exercises will help prepare the midshipman for capstone navigation classes in First Class Year and the USCG Third Mate Exam taken at the end of First Class Year.

Prerequisites: NPRJ230 and NAUT225

NPRJ335 Navigation Law 2
Credits: 2

The objective of this sea project is for the midshipman to acquire the knowledge and practices of Navigation Law necessary to successfully perform the duties of a ship's licensed deck officer. The project concentrates on examining the major differences between the International and Inland Navigation Rules. The project will build upon the knowledge gained from in-residence course work and the first sailing period. It will prepare the midshipman for the Navigation Law Class offered in first class year. This sea project will be completed by all deck-officer endorsement candidate midshipmen

NPRJ340 Maritime Business
Credits: 1

This course is taken by midshipmen of all majors during the Second Sailing. It is designed to both introduce the midshipman to the business side of maritime operations and to provide an understanding of the total transportation network which ocean shipping is a part of. Midshipmen are required to research information and practices aboard their ship to answer questions concerning this topic.

WTRF100 Safety Of Life At Sea
Credits: 2

Students successfully completing this course will be able to take

charge of the preparation, embarking and launching of survival craft. They will be able to manage a boat under oars or motor, and take charge of an inflatable life raft. Students will know the correct use of all survival equipment and the action to take to preserve the lives of those in their charge. An official test to obtain U.S. Coast Guard certification will be given. Students will also learn about the impact of shipping on the environment, relevant pollution prevention legislation, and procedures and equipment to be used to mitigate pollution incidents.

1 class hour a week

2 laboratory hours a week