1969-70

CALIFORNIA MARITIME ACADEMY

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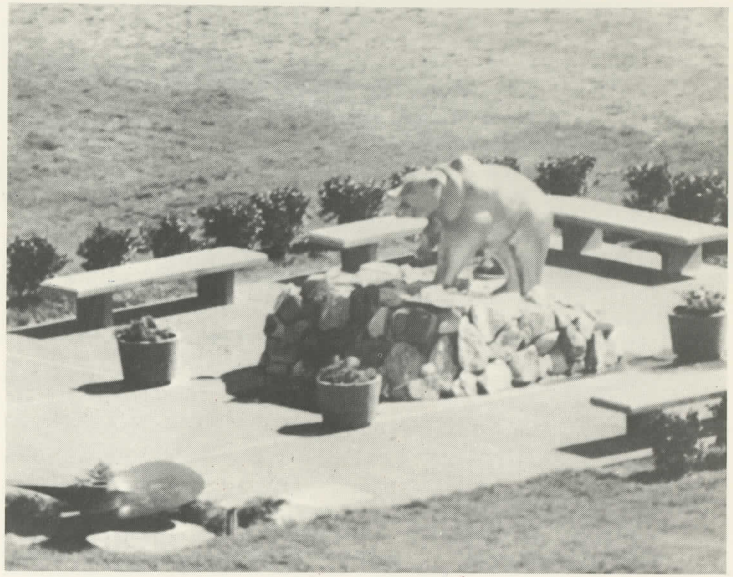
TRADITION

General Catalog

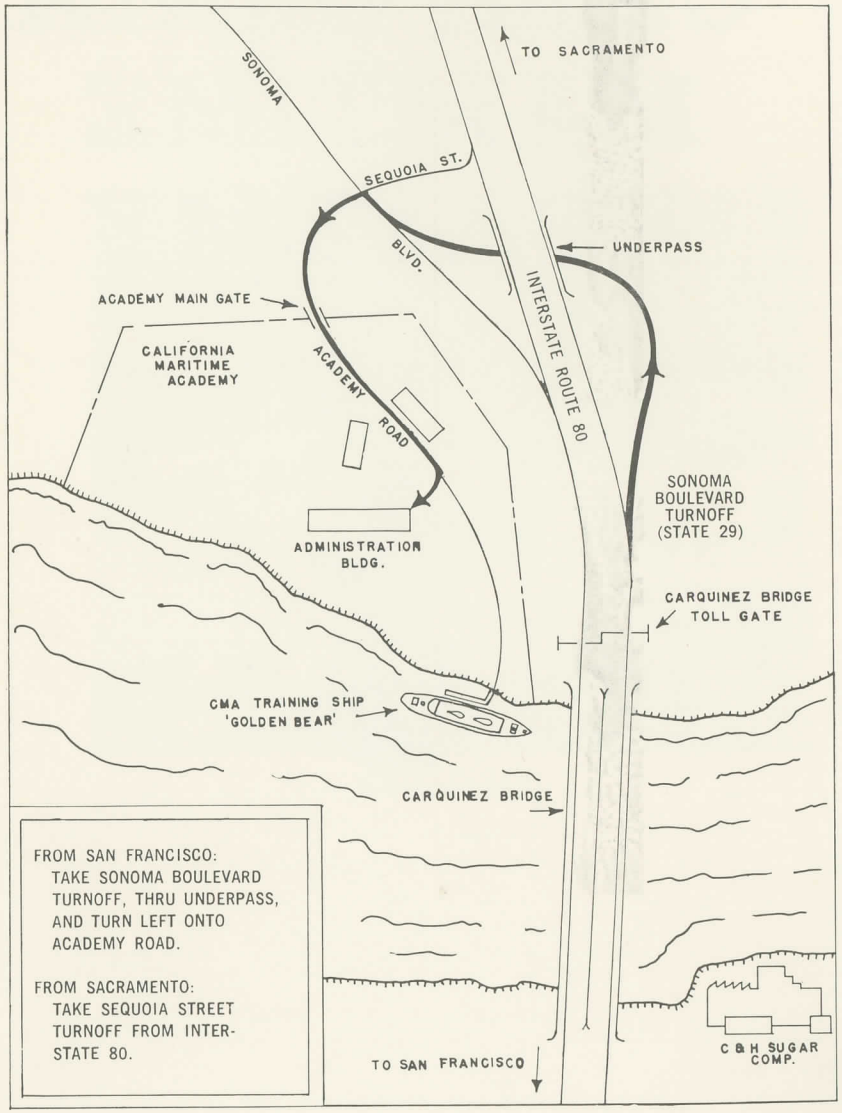
1969–70



Golden Bear Park

CALIFORNIA MARITIME ACADEMY

VALLEJO, CALIFORNIA



Aerial View of the California Maritime Academy Campus and Training Ship "GOLDEN BEAR"

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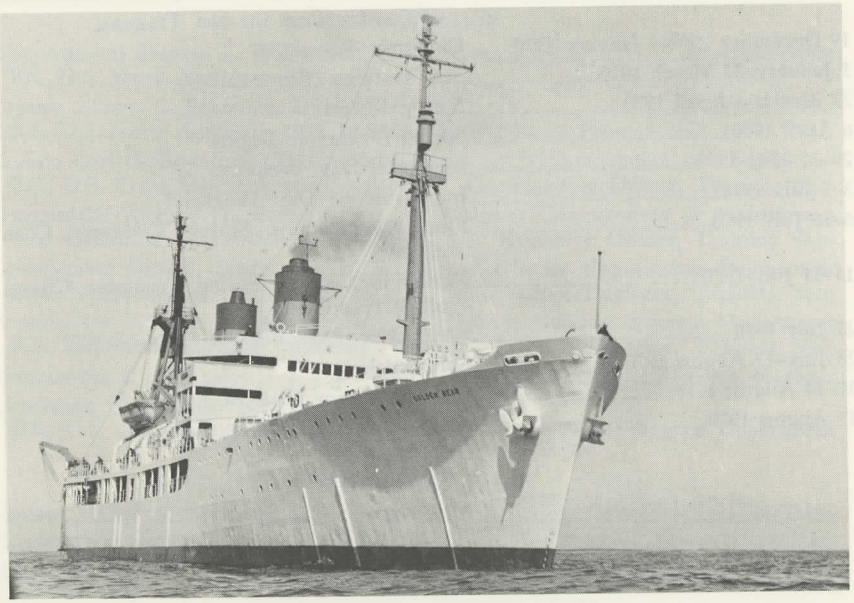
FOREWORD

The young man planning a career of service in the Merchant Marine can scarcely make a better selection of institution for his professional education and training than the California Maritime Academy. In three 11-month school years, rather than the usual four 9-month years, he earns a state-approved bachelor of science degree and the professional qualifications of a beginning ship's officer. Trained and licensed as a third mate or third assistant engineer, he is prepared for employment aboard American Flag commercial ships.

Although we live in an "air age," the place of ocean shipping is secure. Even the largest of cargo planes can carry but a fraction of the tonnage of a cargo ship and many cargoes are of such a nature as to make air transportation entirely impractical. Seventy percent of the earth's surface is water and as world population grows the volume of trade will also grow.



The Training Ship "GOLDEN BEAR"

CALIFORNIA MARITIME ACADEMY

ACADEMIC CALENDAR, 1969–70

Fall Trimester	18 August–12 December 1969
Sea Training Trimester	5 January–27 March 1970
Spring Trimester	6 April–24 July 1970

11–15 August 1969	Orientation Program for Class of 1972
18 August 1969	Fall Trimester Begins
1 September 1969	Labor Day Holiday
9 September 1969	Admission Day Holiday
11 November 1969	Veterans' Day Holiday
25–30 November 1969	Thanksgiving Recess
8–12 December 1969	Final Examinations, Fall Trimester
15–19 December 1969	Dockside Steaming Training and Preparation of *Golden Bear* for Sea Training
19 December 1969–5 January 1970	Christmas Recess
5 January–27 March 1970	Sea Training Trimester
27 March–6 April 1970	Spring Recess
6 April 1970	Spring Trimester Begins
29–31 May 1970	Memorial Day Weekend
3–5 July 1970	Independence Day Weekend
6–10 July 1970	Final Examinations, Spring Trimester, Class of 1970
15–21 July 1970	Final Examinations, Spring Trimester, Classes of 1971 and 1972
25 July 1970	Graduation Exercises for Class of 1970
25 July–17 August 1970	Summer Recess
10–14 August 1970	Orientation for Class of 1973
17 August 1970	Academic Year 1970–71 Begins

CALIFORNIA MARITIME ACADEMY

CALIFORNIA STATE DEPARTMENT OF EDUCATION

EXECUTIVE OFFICERS

DR. MAX RAFFERTY
State Superintendent of Public Instruction and Director of Education

DR. EVERETT T. CALVERT
Deputy Superintendent of Public Instruction and Chief,
Division of Departmental Administration

BOARD OF GOVERNORS

Dr. Max Rafferty	Executive Member, Ex Officio
Mr. Ernest N. Kettenhofen	Chairman
Rear Admiral Leslie E. Gehres, USN (Ret.)	Vice Chairman
Mr. Rodney M. Elden	Member
Mr. William H. McPherson	Member

ADMINISTRATION

Rear Admiral Francis T. Williamson, USN (Ret.) B.S., U.S. Naval Academy, 1931	Superintendent
Captain Harry A. Seymour, USN (Ret.) B.S., U.S. Naval Academy, 1939, M.S.E.E., University of Pennsylvania, 1949	Academic Dean
Captain Carl G. Bowman, USCG (Ret.) B.S., U.S. Coast Guard Academy, 1929	Commandant of Midshipmen Commanding Officer, Training Ship
Commander Richard D. Heron B.S., California Maritime Academy, 1938	Assistant Commandant of Midshipmen Executive Officer, Training Ship
Commander Otto J. Bruhn B.A., University of California, 1947	Head, Marine Engineering Department Chief Engineer, Training Ship
Commander William H. Aguilar B.S., California Maritime Academy, 1934	Head, Nautical Science Department Navigator, Training Ship
Commander E. E. Keeley	Business Manager
Lieutenant Commander Richard G. Clark, USN B.S., U.S. Naval Academy, 1953	Head, Naval Science Department

INSTRUCTIONAL STAFF

Captain Harry A. Seymour, USN (Ret.)	Academic Dean
Charles Wm. Barber	Administrative Assistant
Martin S. Hanson	Academic Assistant

NAUTICAL SCIENCE DEPARTMENT

Commander William H. Aguilar, B.S., California Maritime Academy, 1934. Master's license unlimited; USNR, (Ret.); Master Mariner.

Lieutenant Commander Lyle Taylor, B.S., California Maritime Academy, 1951. Chief mate, steam and motor vessels, any ocean, unlimited.

Lieutenant M. H. K. Aschemeyer, B.S., California Maritime Academy, 1963. Master, steam and motor vessels, any ocean, unlimited.

Lieutenant Robert Craig, B.S., California Maritime Academy, 1949. Second mate, steam and motor vessels, any ocean, unlimited.

Lieutenant Fred B. Newton, Jr., Lieutenant Commander USN (Ret.), Miami University, Oxford, Ohio. Master, steam and motor vessels, any ocean, unlimited.

Lieutenant Philo Wood, Commander USN (Ret.), A.B., University of California. Master, steam and motor vessels, any ocean, unlimited.

MARINE ENGINEERING DEPARTMENT

Commander Otto J. Bruhn, B.S., U.S. Merchant Marine Academy, 1944; B.A. University of California, 1947. Chief engineer, steam vessels, unlimited horsepower.

Lieutenant Commander Arthur S. Behm, Jr., B.S., California Maritime Academy, 1942—Lieutenant USNR. Chief engineer, steam vessels, unlimited horsepower.

Lieutenant Thomas J. Beland, B.A., University of California. Second assistant engineer, steam vessels, unlimited horsepower.

Lieutenant Samuel W. Branin, B.A., San Jose State College, 1964. Lieutenant Commander USCG (Ret.). Chief engineer, steam vessels, unlimited horsepower.

Lieutenant Frank L. LaBombard, CHMACH-W-4 USNR. First assistant engineer, steam vessels, unlimited horsepower.

Lieutenant Howard A. Thor, A.B., M.A., Ph.D., University of California. First assistant engineer, steam, and third assistant engineer, motor vessels, horsepower unlimited. U.S. Merchant Marine Academy, 1944.

Lieutenant Norman M. Nilsen, B.S., Massachusetts Maritime Academy, 1960. Third assistant engineer, steam and motor vessels.

NAVAL SCIENCE DEPARTMENT

Lieutenant Commander Richard G. Clark, USN
Lieutenant David E. Rogers, USN
Lieutenant Roger N. Thornton, USN
Charles L. Holmes, GMGC, USN
Frederick E. Watson, MMCS, USN
Virginia L. Umphries, Administrative Assistant

GENERAL EDUCATION DEPARTMENT

Mr. Charles W. Barber, A.B., M.S., University of Southern California
Mr. Louis E. Kiger, A.B., M.A., Rutgers University
Mr. Martin S. Hanson, A.B., Occidental College; M.A., Purdue University

MEDICAL DEPARTMENT

Donovan C. Lenhart, Medical Service Corps, USAF (Ret.)

PHYSICAL EDUCATION DEPARTMENT

Mr. James J. Vitti, B.S., M.S., University of Oregon

LIBRARY

Mr. R. James Quackenbush, A.B., A.M.L.S., University of Michigan

HISTORY

The California Maritime Academy was originally established in 1929 as the California Nautical School by act of the State Legislature and is a unit of the State Department of Education on the state college level.

Federal authority and encouragement for state nautical schools derive from an Act of Congress passed in 1874. While it is distinctly an educational agency of the State of California, the United States Maritime Administration has a strong interest in and extends considerable assistance to the Academy.

The United States Maritime Administration interest stems directly from a mandate of the Congress, expressed in the Merchant Marine Act of 1936, which directs the maintenance of an adequate Merchant Marine to support American domestic and foreign commerce and to meet the requirements for national defense. The act provides that the Merchant Marine be "manned with a trained and efficient citizen personnel."

MISSION

The mission of the Academy, as stated in the State Education Code, is "to give instruction in the science and practice of navigation, seamanship, steam, diesel, and electrical engineering to male students who have the good moral character, education, and physical fitness required by the board of governors of the school."

The student enters the Academy with the maritime profession as his definite and primary objective. The entire course, both academic and practical, is designed to prepare him for this objective. Elective subjects are provided for midshipmen of the first class. In addition to purely academic or practical instruction, the general experience acquired by the students living together on the base and aboard ship provides invaluable training for their future careers.

The students also receive instruction in naval science under the auspices of the Navy Department. The mission of the Department of Naval Science is to participate in the education and training which is afforded by the California Maritime Academy to the extent of teaching naval science courses in order that vessels manned by Merchant Marine Officers may operate efficiently with the Navy in time of war.

LOCATION

The California Maritime Academy is located on the north shore of the Carquinez Strait, just south of the City of Vallejo. It is about a forty minute drive on U.S. Interstate Highway 80 from San Francisco. Main buslines stop a few minutes walk from the entrance to the Academy grounds. The Naval Shipyard at Mare Island is in the immediate vicinity and is available for observation of drydocking, heavy shop practice, ship repair procedures, and electronic developments. Oceangoing steamers from all parts of the world pass through the Carquinez Strait en route to and from Sacramento and San Joaquin River ports.

FACILITIES

The Academy is situated on a 67-acre campus adjacent to the Carquinez Strait. A deep water pier provides berthing space for the training ship *Golden Bear* and encloses a boat basin for power, sailing and rowing boats.

A modern three-story brick residence hall, with a commanding view of the Strait, was completed in late 1958 and provides living and study accommodations for the midshipmen.

The Academy library is located on the first deck of the residence hall. The library integrates and extends the educational program of the Academy. It provides an excellent reference, bibliographical, documentary and circulating collection of books and other materials.

Mayo Hall houses a well-equipped gymnasium, Olympic-sized natatorium, weight lifting and isometric facilities.

Classrooms are located in a two-story modern building and contiguous to the classrooms is a small assembly hall.

The dining hall is a permanent building adjacent to the midshipmen morning formation area. Service is cafeteria style and a balanced diet is provided by dietary experts.

The Seamanship Building is located adjacent to the boat basin and provides facilities for instruction in manila and wire splicing, canvas work, boat overhaul and the reeving of blocks and tackles.

An engineering building, Dwyer Hall, completed in 1961, provides excellent office space for the Marine Engineering Department and classroom and laboratory facilities for instruction in chemistry, physics, electricity, electronics, diesel engines, and machine shop. A welding and burning shop are also provided.

Tennis, archery and handball courts and an athletic field provide ample outdoor recreational facilities.

The Administration Building, completed in 1958, provides offices for the Superintendent, Academic Dean, Commandant of Midshipmen, Business Manager, Nautical Science and Naval Science departments.

The Federal Maritime Administration has provided the Academy with a modern 7,040-ton, twin-screw, turbo-electric drive, 16-knot vessel for the purpose of conducting the annual sea training period of approximately two and one-half months. The training ship *Golden Bear* is operated entirely by the midshipmen under the supervision of the Academy's licensed officer-instructors. The *Golden Bear* provides a modern training vessel for the actual performance of deck and engineering skills at sea. The ship is fitted with classrooms, a machine shop and the most modern equipment, including steam and diesel powered auxiliaries as well as turbo-electric propulsion. Reading and recreation rooms provide the necessary facilities for off-duty activities.

GENERAL INFORMATION

ADMINISTRATION

Responsibility for immediate management and operation of the Academy is vested by state law in the Superintendent who is appointed by and responsible to the Board of Governors. The Superintendent is a retired naval officer with long experience at sea. His appointment is approved by the Federal Maritime Administration, the Navy Department, and the California State Department of Education.

INSTRUCTORS

The instructors are also the officers of the training ship *Golden Bear*, insuring sound continuity and relationship between studies during academic trimesters and practical experience on the annual training cruise. Every member of the faculty has a creditable record of service in the Merchant Marine, Coast Guard or in the Navy, and most have experience in both. The Navy Department assigns three officers and several chief petty officers as instructors in naval science.

MIDSHIPMAN CORPS

For purposes of organizational management and to develop a high spirit of morale and a sense of discipline, the student body is organized as a corps of midshipmen.

A military routine is followed. Midshipmen are required to be provided with and wear uniforms, similar in design to those worn at the U.S. Naval Academy. A schedule for classes, drills, meals, study hours, physical training, reveille, and taps is prescribed. Military etiquette is observed as a matter of gentlemanly courtesy between associates.

ACADEMY OBJECTIVES

While the major emphasis is placed upon preparing midshipmen to perform the duties required in connection with operating and maintaining a ship, the qualities of leadership, responsibility, ethical character and gentlemanly conduct are also stressed.

ACADEMIC STANDARDS

The California Maritime Academy is recognized by the United States Office of Education and listed in the Directory of Higher Education as a degree granting professional school on the collegiate level.

The program of studies is fully prescribed and there are electives for midshipmen of the first class only. Midshipmen must obtain passing grades in every course to remain in good standing. Similarly, they must achieve satisfactory grade point averages. Students failing to meet requirements will be required to appear before the Academic Board for determination of their continuance in the Academy. Midshipmen are expected to perform to the best of their abilities at all times and academic failure, inaptitude and continuous disciplinary infractions may effect the midshipman's dismissal by the Board of Governors at any time.

ATTENDANCE

Regular attendance in classes is considered a scholastic requirement. Only in cases of emergencies is absence from class excusable.

CONDUCT

Midshipmen are required to adhere to a high standard of discipline. Infractions of prescribed rules and regulations are punishable by the assignment of demerits. These demerits determine the conduct grade the individual receives. Those who have a failing conduct grade may be dropped from the Academy or may be denied re-enrollment for the succeeding academic year. Anyone so dropped or denied re-enrollment may be readmitted only after representation to and with the authority of the Board of Governors.

Midshipmen may be placed on conduct restriction, resulting in loss of liberty, for failure to maintain a satisfactory record. An accumulation of a designated number of demerits may also result in conduct restriction. When a midshipman receives a failing conduct grade, his parents or guardian will be notified.

Midshipmen may be dismissed from the Academy by the Board of Governors at any time for a serious disciplinary infraction or may be dropped for academic failure or inaptitude. A remission of fees cannot be made when dismissed or dropped from the Academy for any of these reasons.

It should be noted here that a midshipman who is placed on probation for failure to meet the Academy's conduct requirements may lose the Federal subsistence allowance for any period up to six months. In such case the midshipman must pay the lost allowance to the Academy himself.

LIBERTY

Except when assigned to base duty watches, midshipmen are normally granted liberty on weekends and holidays. Liberty may also be granted under special circumstances when requested by parents or guardians. Absence from scheduled classes impairs the individual's academic progress and special requests for such absences should therefore be held to a minimum.

UNIFORMS

The Academy uniforms are worn at all times aboard the training ship and ashore during the cruise period. They are also worn during the academy trimesters at the Academy. Under certain circumstances, and as approved by the Superintendent, the privilege of wearing civilian clothes may be granted during authorized liberty and leave periods.

UNIFORM FUND

Midshipmen will be required to maintain a minimum of $50 to their account in the Academy Uniform Fund.

AUTOMOBILES

Licensed and insured private automobiles may be kept on the Academy grounds.

FEDERAL ASSISTANCE

Because of its historic interest in the development of an adequate Merchant Marine and the preparation of licensed officers therefor, the federal government has provided assistance to maritime academies in various forms. The training ship *Golden Bear* has been loaned to the State of California through the Department of Commerce and its agent the Maritime Administration. The annual overhaul of this ship is paid from federal funds. In addition, an outright grant of $75,000 per annum is paid to the state from this same source. An allowance of $500 per annum per eligible student is also currently paid to the Academy by the federal government to assist in defraying the cost of uniforms, textbooks and subsistence, of which, currently $100 is allotted for uniforms and textbooks. This goes to the student in installments of $25 per quarter. The federal government's contribution each year amounts to some $300,000.

SELECTIVE SERVICE

Students at the Academy are considered for deferment under the general provisions of Selective Service regulations in the same manner as students attending other colleges or universities with the exception that their class standing has no significance. This means that as long as a student is enrolled at the Academy he is considered eligible for deferment.

MILITARY SERVICE

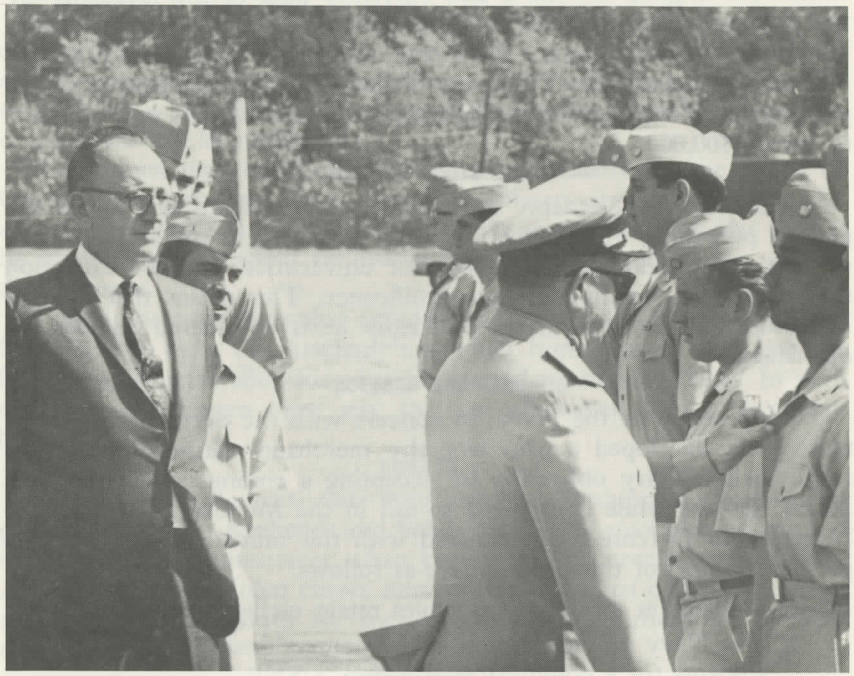
The Secretary of the Navy, in concert with the Secretary of Commerce, has developed a plan whereby merchant marine officers may fulfill their military obligation by accepting a commission in the U.S. Naval Reserve while continuing to sail in the Merchant Marine. The Secretary of Defense has concurred with this mutual agreement. The pertinent points of this program are as follows:

1. Students at maritime academies retain civilian status.
2. The Navy provides naval science courses designed to qualify the students for a commission as ensign, USNR.
3. At the time the student enters the academy he must agree in writing to apply for a commission as ensign, USNR, at the appropriate time before graduation and to accept such a commission if offered.
4. Upon acceptance of the commission, the officer must sail on his license at least eight months per year for a period of three years in order to retain his commission. Weekly drills and active duty for training periods are waived as long as this sailing status is maintained. Should the officer be employed ashore, he must participate in these drills and training periods for the remainder of his obligation or relinquish his commission.

5. The Navy does not consider the Merchant Marine academies as a source of Naval Reserve officers for active duty and will not normally call graduates of these institutions to active duty.

EDUCATIONAL LOANS

In the second and third years of attendance, there are financial assistance programs available to worthy and qualified students under which funds may be borrowed to meet educational costs. Repayment is deferred until after graduation, permitting the student to complete his education and return the cost thereof after employment is obtained. For further information regarding these funding programs contact the Business Manager, California Maritime Academy.



Inspection

ADMISSIONS

QUALIFICATIONS

CITIZENSHIP

All candidates are required to be male citizens of the United States. The California Maritime Academy observes scrupulously the requirements of Title VI of the Civil Rights Act of 1964.

Section 601 of this title is quoted as follows: "No person in the United States shall, on the ground of race, color, creed, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance."

Eligibility is without restriction as to race, color, creed or national origin.

AGE

A candidate must be not less than 17 years of age and must not have passed his 22nd birthday at the time of entry into the academy.

MARRIAGE

No person who is married, or who has been married, shall be admitted as a midshipman to the Maritime Academy. Midshipmen shall not marry, and any midshipman who becomes married or who is found to be married or to have been married in the past shall be recommended for dismissal.

MORAL CHARACTER

Candidates must be of good moral character. Any candidate whose character is incompatible with academy standards may be rejected. No candidate who has been dismissed for misconduct, or who is permitted to resign in lieu of dismissal, shall be reappointed or allowed to reenter the California Maritime Academy. In this regard midshipmen are only dismissed for offenses involving moral turpitude or for serious infractions of discipline.

SCHOLASTIC REQUIREMENTS

Graduation from secondary school (or its equivalent), with a secondary school certificate acceptable to the academic board in terms of subject matter and level of achievement, is a requirement for admission to the Maritime Academy. In addition, candidates must qualify scholastically by entrance examination. This examination is composed of specified College Entrance Examination Board tests selected from among those administered in November (SAT only is given this month), December, January and March of the school year preceding admission. These tests are:

Scholastic Aptitude Test—Verbal
Scholastic Aptitude Test—Mathematics
Achievement Test in English Composition
Achievement Test in Mathematics, Level I (Standard) or Level II (Intensive)

Each candidate must ensure submission of detailed records of all of his completed high school, preparatory school, and college work. When submitted in advance of the completion of current work, the transcript should clearly indicate subjects or courses being pursued at the time the transcript is being submitted. It is extremely important to each candidate that records be supplied promptly and that previous school records include academic grades, class standing or estimated class standing for the final year. To ensure timely evaluation of the candidate's qualifications, these academic records should be received by 15 April of the year of desired admission to the Maritime Academy.

An acceptable secondary school certificate is one from an accredited secondary school, or its equivalent, showing at least 15 units of credit. Candidates should, insofar as is practicable, include as many as possible of the following studies in their secondary school programs:

a. Three years of mathematics
b. Three years of English
c. One year of chemistry
d. One year of physics

It should be noted that normally only the November, December, January or March administrations of the College Entrance Examination Board tests taken during the school year preceding admission may be used to establish scholastic qualification. The May administration will, however, be considered subject to the availability of remaining spaces for completing the makeup of the incoming class. Complete information concerning the tests, the dates, and the locations of testing centers may be obtained from high school counselors or principals, or by writing to the College Entrance Examination Board, Box 1025, Berkeley, California 94701, or Box 592, Princeton, New Jersey 08540. The California Maritime Academy Code Number for the College Board is 4035.

PHYSICAL REQUIREMENTS

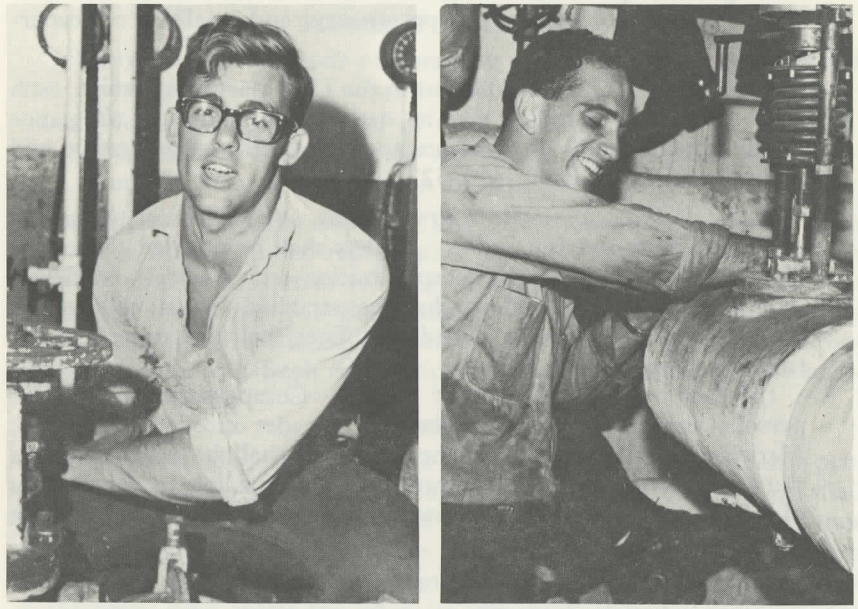
Candidates for admission must be mentally and physically sound. It is desirable that they meet the U.S. Coast Guard physical standards for officer candidates, and it is mandatory that they meet the physical requirements for licensed officers in the U.S. Merchant Marine. Applicable U.S. Coast Guard regulations are stated, in part, as follows:

(a) Epilepsy, insanity, senility, acute venereal disease or neurosyphilis, badly impaired hearing, or other defect that would render the applicant incompetent to perform the ordinary duties of an officer at sea are causes for certification as incompetent.

(b) For an original license as master, mate or pilot, the applicant must have, either with or without glasses, at least 20/20 vision in one eye and at least 20/40 in the other. The applicant who wears glasses, however, must also be able to pass a test without glasses of at least 20/40 in one eye and at least 20/70 in the other. The color sense will be tested by means of the "Stillings" test, but any applicants who fail this test will be eligible if they can pass the "Williams" lantern test.

(c) Applicants for original engineers' license shall be examined only as to their ability to distinguish the colors red, blue, green and yellow. The current criterion for determining color perception in this category is the "Williams" lantern test.

(d) For original license as engineer the applicant must have, either with or without glasses, at least 20/30 vision in one eye and at least 20/50 in the other. The applicant who wears glasses, however, must also be able to pass a test without glasses of at least 20/50 in one eye and at least 20/70 in the other.



Engineering Practical Experience Is Important

MARITIME ADMINISTRATION REGULATIONS

Maritime Administration regulations pertaining to admission are essentially as follows:

Entrance Requirements. A candidate for admission to a State Maritime Academy (other than a foreign national admitted in accordance with State regulations) must:

(1) Be a male citizen of the United States.
(2) Agree in writing to apply, at an appropriate time before graduation, for a commission as Ensign in the U. S. Naval Reserve and to accept such a commission if offered.
(3) Meet the physical standards specified by the U. S. Coast Guard for original licensing as a merchant marine officer.

(4) Be not less than 17 years of age and not have reached his 22nd birthday in the year appointed to the Academy. (The Maritime Administration has interpreted this requirement to mean that a candidate must not have reached his 22nd birthday at the time of admission.)
(5) Not be married at the time of admission to the Academy or married while enrolled in the Academy.
(6) Possess a secondary school education or equivalent, satisfactory for admission as an undergraduate, to colleges or universities under control of the State in which the Academy is located.
(7) Meet requirements established by the Academy in regard to such criteria as the individual's secondary school grades, rank in graduating class, aptitude, and achievement as measured by an objective examination, character, personality, and qualities of leadership.

Enrollment. Upon enrollment in the U.S. Maritime Service, each cadet shall be required to take an oath or affirmation of allegiance to the United States of America and execute a nonsubversive and no-strike affidavit, Form MA-527.

Medical Attention and Injury Claims. (a) Medical Attention and Hospitalization for Cadets. Cadets shall be entitled to receive U.S. Public Health Service hospitalization and medical and dental attention. A medical officer shall be attached or on call to the school. During the cruise, a medical officer shall be assigned to the training vessel.

(b) Compensation Claims of Cadets. Compensation claims for personal injuries or death sustained by a cadet enrolled in the U.S. Maritime Service in performance of duty shall be forwarded via the supervisor to the administrator for transmission to the Bureau of Employees' Compensation; necessary forms to be furnished by the supervisor.

Subsistence Payments. The administration, subject to the provisions of Article 3, agrees to make payments, at a rate not in excess of $600 per academic year per student, to the school for the account of the student with respect to each student attending the school. The school agrees that the payments provided for in this Article 2 shall be used by the student to assist in defraying the cost of uniforms, textbooks, and subsistence for such student. It is further agreed that the payments provided for in this Article 2 shall commence to accrue on the day such student begins his first term of work at the school and that such payments shall be paid to the school in such installments as the administration shall prescribe while such student is in attendance and until the completion of his course of instruction, but in no event for more than the normal period required, by the school, to complete the prescribed course for any one student.

APPLICATION AND APPOINTMENT

HOW TO APPLY

Every person seeking admission to the California Maritime Academy shall, by 1 March of the year in which admission is desired, submit an application indicating his candidacy. Applications received later than this date will, however, be considered subject to the availability of space in completing the makeup of the incoming class. Forms for this purpose may be obtained by addressing requests to:

Director of Admissions
California Maritime Academy
P.O. Box 1392
Vallejo, California 94590

SOURCES OF NOMINATION

There are two methods of obtaining nomination as a candidate for admission:

a. Nomination by Member of the Legislature
b. Nomination by submitting application for admission and entering the general competition for appointment

Nominations by Members of the Legislature are made as follows: In odd years each member representing an odd-numbered senatorial or assembly district designates as many persons as he desires from his own district as candidates for the academy; in even years each member representing an even-numbered senatorial or assembly district so designates his candidates. Such nominations should be received by the academy by 1 March.

APPOINTMENT

From each slate of nominees by a Member of the Legislature, the person making the highest multiple score in the entrance competition shall be the appointee from the district if he also meets the physical and other entrance requirements; if he does not meet such requirements, then the appointee shall be the first alternate in order of merit in the entrance competition who meets the physical and other entrance requirements.

Each year the Governor has the right to five appointments at large, such appointments to be entirely within his discretion and to be made from any source whatsoever, so long as such appointees meet the physical and other entrance requirements.

To fill the entering class quota, after allowing for the appointments made in accordance with the provisions set forth above, appointments will be made in order of merit from among all qualified nominees, regardless of source.

REFUNDS

TUITION

Section 26156, Education Code, provides that refunds of a portion of tuition may be made to a student withdrawing from the school for causes beyond his control. Voluntary resignation, misconduct or academic failure are considered causes within the control of the student and no refunds can be made.

FEES

SCHEDULE OF PAYMENTS

	First year			Second year			Third year		
		At beginning			At beginning			At beginning	
	At entrance	2d trimester	3d trimester	At entrance	2d trimester	3d trimester	At entrance	2d trimester	3d trimester
Clothing and books	$700	****	****	$100	****	****	***$90	****	****
Tuition	*250	*$250	*250	*250	*$250	*$250	*250	*$250	*$250
Student activities	20	------	------	20	------	------	20	------	------
Insurance	**10	------	------	**10	------	------	**10	------	------
Total	$980	$250	$250	$380	$250	$250	$370	$250	$250

TOTAL ANNUAL FEES

	First year	Second year	Third year	Total
In-state students	$1,480	$880	$870	$3,230
Out-of-state students	$1,780	$1,180	$1,170	$4,130

NOTES:

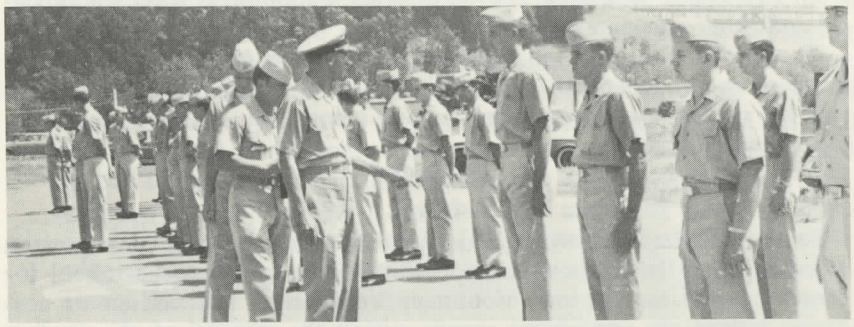
* Tuition fee for out-of-state students is $350 per trimester (tuition fee includes room and board). Those students not qualifying for U.S. Maritime Administration assistance will be required to pay a sum of $399 per year in addition to other fees, as reimbursement to the academy for loss of the subsistence allowance included under provisions of Maritime Administration General Order 87. This fee may be paid in equal installments of $133 per trimester. Fee schedule is subject to change. For latest information, contact the Dean, California Maritime Academy.

Regarding Maritime Administration subsistence, the ruling is that a student or his parent (or parents) may *not* receive assistance from more than one federal agency, such as Veterans Administration assistance.

** Insurance charge is for group policy covering loss of life or limb. Listed cost is approximate.

*** Estimated. Actual amount dependent upon individual's requirements.

**** Such amounts as may be necessary to maintain a minimum balance of $50.



In Ranks

CLOTHING AND BOOKS FUND

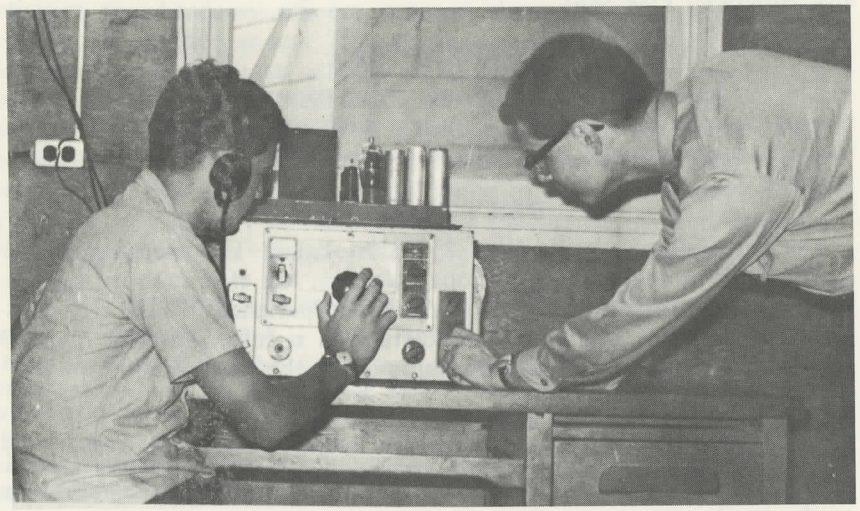
This deposit ($700) is the property of the student which the Academy holds in trust for the purpose of providing necessary uniforms, clothing and textbooks. Any unexpended balance to the credit of the student will be refunded when he ceases to be a student.

STUDENT ACTIVITIES AND INSURANCE FUND

This deposit ($30) is to provide for insurance and other items considered essential for the midshipmen for which no state funds are available. If a student withdraws from the Academy during the first trimester, two-thirds ($20) of this deposit is refunded; during the second trimester, one-third; and during the third trimester, no refund.

TRANSFER STUDENTS

Transfer students as such are permitted to enroll at the Academy. However, because of the uniqueness of the academic program, no units or course work from another college are accepted. Everyone must follow the course sequence as shown on pages 32–33 of this catalog.



Hobby and Relaxation Time

INSTRUCTIONAL PROGRAM

SESSIONS

The California Maritime Academy provides an intensive three-year program of education on the college level. The academy is in session every month of the year and this produces an instruction time approximating four years of instruction in regular sessions or three regular sessions and three summer sessions in most colleges.

DEGREES

The bachelor of science degree in nautical science or the bachelor of science degree in marine engineering is conferred upon midshipmen successfully completing the academy program of instruction and the U.S. Coast Guard license examination.

LICENSES

Midshipmen meeting the physical and educational requirements of the U.S. Coast Guard examination are licensed as third mates or third-assistant engineers and are qualified in these capacities to serve aboard any American Flag ship.

SCHOOL YEAR

The academic year is divided into three trimesters. The shore based trimesters are approximately 17 weeks each and the sea training trimester is approximately 13 weeks in length. A brief recess follows each trimester.

DAILY PROGRAM

The instructional day is from 8 a.m. to 4 p.m. The morning classes are devoted to required professional subjects; the afternoon classes are organized to provide practical operational experience in essential shipboard procedures. The course of instruction is fully prescribed; there are elective subjects only for midshipmen of the first class.

GRADING SYSTEM

The letter grading system with corresponding grade points is used to indicate the caliber of the student's work. The scholastic significance of the grades are:

Letter scale		*Grade points*
A	Outstanding	4
B	Excellent	3
C	Average	2
D	Minimum passing grade	1
F	Failed	0
W	Withdrew	0
WF	Withdrew under failing conditions	0

In certain courses, grades must of necessity be assigned on a pass or fail basis. The designation P or F is used in such cases.

REPORTS OF ACADEMIC PROGRESS

A permanent record card is maintained for each midshipman. At the conclusion of each trimester a grade report will be mailed to the parents or guardian of the midshipman.

The progress of each student is evaluated approximately every five or six weeks. In the event of failing grades in any subject or deficiency in conduct, the parents or guardian of the student will be notified.

The academic standing of each midshipman is determined by his grade point average and is made a part of the midshipman's permanent record card.

SEA TRAINING

In each of their three years at the Academy, midshipmen participate in a sea training trimester. On the first cruise they do the actual work of ordinary seamen, oilers and wipers. On the second cruise they perform duties of intermediate responsibility. On the third and final cruise they perform the duties they will carry out as junior watch officers on deck and in the engine room. In general, the forenoons at sea are devoted to the ship's work and the afternoons to instruction. In these activities, the Academy officers integrate the instruction given ashore with actual practice at sea. The ship has two engine rooms and first class engineer midshipmen actually stand an independent watch in each engine room with a licensed watch officer keeping an overall eye on both as safety officer. The first class deck midshipmen likewise perform the duties of a third mate under the supervision of a faculty safety watch officer. First class deck midshipmen each do a full day's work as navigator and each in turn performs the actual navigation duties with his positions the official ones in the log and on charts.

SEA TRAINING—DEPARTMENT OF NAUTICAL SCIENCE

THIRD CLASS CRUISE

Practical Work. Under the direction of upper classmen and the ship's officers, perform the actual basic duties of the deck department. Chipping, painting, overhauling cargo gear, boats, and other deck equipment.

Seamanship. Boat drills; launching and recovering lifeboats; use of firefighting and emergency gear; use of deck equipment; emergency procedures; watch standing; beginning rules of the road.

SECOND CLASS CRUISE

Navigation. Sextant adjustments and altitude measurements; observation for lines of position using the sun; meridian altitudes of the sun; azimuths of sun for compass error; practical compass adjustment; practical application of piloting and the sailings; correction of charts and publications; bridge duties.

Seamanship. Boat drills under oars, sail and power; lifeboat equipment; launching and recovering small boats; performance of coxswain duties; mooring; docking and undocking; rigging of breeches buoy; use of Lyle gun; canvas work; operation of ships' cargo gear; watch standing as quartermaster, patrolman, and signalman.

Communications. International signals; drill for speed and accuracy; watch standing as junior signalman.

FIRST CLASS CRUISE

Navigation. The navigator's work at sea and in port; practical celestial navigation, piloting and electronic navigation; analysis of running fixes and estimated positions; chart and publication correction; tide and current tables; lifeboat navigation; responsibilities of the navigator. Deck midshipmen are required to obtain at least one celestial fix every day the ship is at sea. In addition thereto, they are relieved of all other duties for one-third of the time at sea for intensive navigation study. During this period, each man independently does a full day's work, and in turn, each supplies the official position entered in the log and reported by the ship for the day he is navigator.

Seamanship. Boat drills; operation of ship's cargo gear; planning and supervision of maintenance programs; review of safety on the supervisory level; functions of ship's officers within the deck department, together with the functions of other departments within the ship; engineering knowledge required of deck officers; ship handling; supervision of damage control parties; review of rules of the road; stand deck watches in rotation.

Communications. Review of blinker and international signals; drill for speed and accuracy; watch standing as signalman.

SEA TRAINING—DEPARTMENT OF MARINE ENGINEERING

THIRD CLASS CRUISE

Engineering. Introduction to the basic elements of ship's operations; ship organization and methods of maintaining a seaworthy vessel; basic steam cycle and major equipment of the steam power plant; one line diagrams of all basic cycles necessary to operate the ship; engine room watch standing with progressive responsibility assumed by the student during cruise.

SECOND CLASS CRUISE

Engineering. Detailed study of all engine room equipment; operation manuals, manufacturers' instruction books; maintenance methods; watch standing as oiler, watertender, electrician and evaporator operator.

FIRST CLASS CRUISE

Engineering. Detailed study of basic equipment with emphasis on boiler and turbine operation; watch standing as watch engineer and junior watch engineer.

DEPARTMENTS

Prior to admission, the student selects either the deck or engineering course and follows the program so selected throughout the three years of his enrollment. Available facilities may sometimes limit the number who select a particular course.

The Department of Nautical Science (deck) courses provide a knowledge of navigation, ship handling, design and operation which fits the graduate for the duties of a deck officer.

The Department of Marine Engineering courses prepare the graduate to perform the duties of an engineer officer afloat.

The Department of Naval Science provides training and instruction for all students in essential naval subjects to provide a source from which qualified officers may be obtained for the Naval Reserve.

SPECIAL SCHOOLS AND CERTIFICATIONS

Incorporated into the instructional program are a series of special schools and U.S. Coast Guard examinations designed to provide the midshipmen with training and certification in special fields. Among these are:

Third Class Year	U.S. Navy Firefighting and Damage Control School.
	U.S. Coast Guard Lifeboatman Certification.
First Class Year	Nuclear, Biological and Chemical Defense School.
	U.S. Coast Guard Able Seaman Certification.
	U.S. Coast Guard Radar Observer Certification.
	Damage Control School.
	Communications Certification.

FIELD TRIPS

The knowledge and principles studied in professional courses are strengthened and made more meaningful when observed in their natural setting. Therefore, field trips to shipping terminals, cargo vessels, ship repair yards, industrial laboratories, meteorology stations, etc., form a regular part of the instructional program.

EDUCATIONAL LECTURES

From time to time the midshipmen are addressed by a person who has attained prominence in some phase of the shipping or allied industries, or in some branch of the federal government concerned with shipping. These educational lectures are designed to supplement the information presented to the midshipmen through the curriculum and to provide additional instruction in related fields.

AWARDS AND HONORS

It is expected that every midshipman will perform to the best of his ability and maintain an academic record that will be of credit to himself and the academy. The "Dean's List" is published each trimester to honor those students who have earned a 3.0 grade point average (B average).

The highest ranking midshipman in the deck and engineering courses are designated as honor graduates. They are awarded prizes in recognition of their outstanding performance in the academic and leadership fields.

In addition, other prizes are awarded for outstanding merit in specific aspects of the academic program.

The Propeller Club of the United States awards membership in the honor society of Pi Sigma Phi to those students who meet the scholastic standards established for admission to this society.

FACULTY ADVISORS

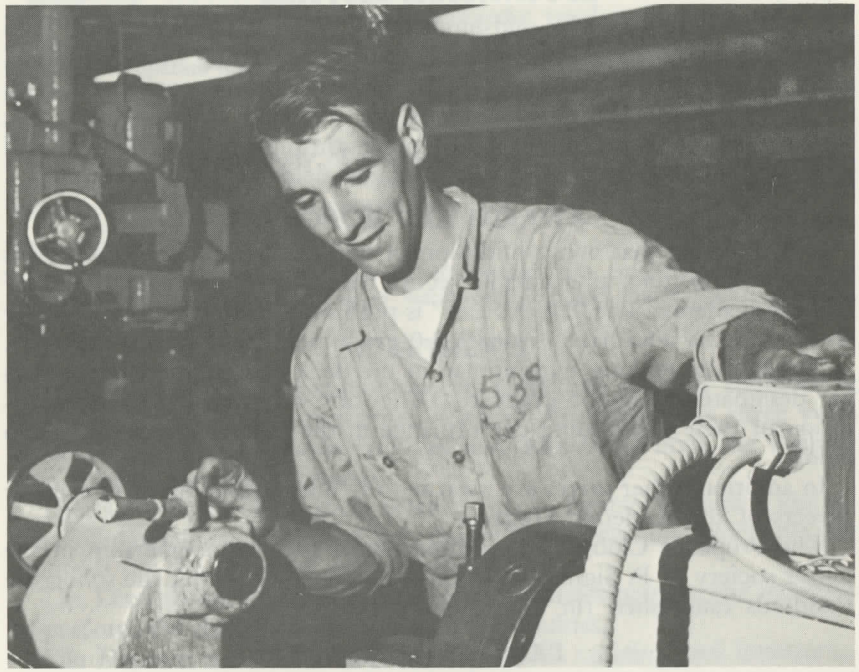
In order to provide a positive point of contact for each midshipman, a system of faculty advisors has been established. These advisors meet with their assigned midshipmen individually or in groups in order to work out personal problems. This provides the midshipmen an opportunity to obtain advice and counsel with assurance that the matters discussed will be held in strictest confidence.

TYPICAL DAILY ROUTINE

MONDAY THROUGH FRIDAY

The following is an example of the schedule normally followed at the Academy. Circumstances arise from time to time which necessitate deviation from this routine.

0600—Reveille.
0620–0715—Clean up living quarters, prepare for breakfast and classes.
0715—Breakfast.
0800—Formation for colors.
0805–0900—First period class.
0905–1000—Second period class.
1005–1100—Third period class.
1105–1200—Fourth period class.
1205–1310—Noon meal.
1315–1405—Sixth period class.
1410–1500—Seventh period class.
1505–1555—Eighth period class.
1600–1800—Recreation, intramural and varsity sports.
1800—Evening meal.
1900—Evening study.
2150—Recall from study.
2300—Taps.



Engineers Learn How to Operate Machinery

STUDENT ORGANIZATIONS AND ACTIVITIES

ATHLETICS

An extensive program of intramural sports is carried on at the academy. Interdivision competition in tennis, basketball, softball, swimming, volleyball, bowling, water polo, flag football, and golf is scheduled throughout the year.

In addition, academy teams are entered in such varsity sports as basketball, and water polo where competition is available in the local area.

The athletic program, as an adjunct to the physical education feature of the curriculum, is considered of vital importance and all Midshipmen are encouraged to participate in one or more sports.

STUDENT COUNCIL

A student council, composed of the elected officers of each of the three classes, meets with the Commandant of Midshipmen and other administrative officers to discuss applicable items of student interest.

STUDENT PUBLICATIONS

The Academy has three student publications. The *Binnacle* is the student newspaper. The *Hawsepipe* is the Academy annual which is prepared and issued by the senior class. The *Sea Horse* is an annual publication designed specifically to acquaint incoming midshipmen with the facilities, activities and traditions of the Academy. A member of the faculty serves as advisor to provide general guidance and continuity to the publications.

SOCIAL ACTIVITIES

There are three scheduled dances each year, each one sponsored and managed by a specific class. In addition, groups of midshipmen are encouraged to arrange social functions at the Academy on weekends.

PROPELLER CLUB

The Propeller Club of the United States is a national organization interested in promoting public knowledge of the American Merchant Marine as a vital factor in our national economy and the national defense.

Student ports of this club are chartered in various colleges and universities to promote interest and student activity in matters pertaining to the maritime industry.

In 1938 the Propeller Club of the United States inaugurated the Pi Sigma Phi award for Propeller Club students ports. The objectives of this award are to encourage scholastic achievement in the field of shipping and transportation and to give to students with distinguished records in such studies recognition similar to that accorded in other fields of study, such as engineering, chemistry, law, medicine, etc. Members of the Academy Propeller Club may qualify for this award.

SAILING CLUB

The Sailing Club of the California Maritime Academy is composed of midshipmen of the academy who are interested in practicing the art of handling and racing boats under sail.

CALVIN CLUB

Protestant students may associate themselves with the Calvin Club. Spiritual direction is provided by the Presbyterian Church and lay guidance is provided by a faculty adviser. A wide variety of subjects suggested by the students is discussed and special functions are arranged outside the academy. Meetings are held every Wednesday evening.

CANTERBURY CLUB

Protestant students may affiliate themselves with the Canterbury Club. Spiritual direction is provided by the Episcopal Church and lay guidance is provided by a faculty adviser. A wide variety of subjects suggested by the students are discussed and special functions are arranged outside the academy. Meetings are held on alternate Wednesdays.

NEWMAN CLUB

This campus organization for Catholic students functions under the spiritual direction of a priest assigned by the local pastor and the guidance of a faculty adviser. Meetings are held on Monday evenings. The Academy Newman Club is affiliated with the national Newman Club Federation.

CAMERA CLUB

The California Maritime Academy Camera Club is an organization composed of students who have a mutual interest in the art of photography. The club has the use of darkrooms aboard the training ship, well equipped to handle all phases of photographic processing.

GUN CLUB

The Gun Club is organized to provide an activity for those midshipmen interested in the use of firearms and competitive matches in this field. In 1962, the Gun Club won the Western Intercollegiate Pistol Championship.

RADIO CLUB

The Radio Club welcomes all who are interested in radio. Licensed members will be able to operate the club's KWM-1 transceiver while on cruise. The club's call letters, WB61WB, are most frequently heard on 20 meters, single sideband.

DESCRIPTION OF COURSES

NUMBERING AND CLASSIFICATION

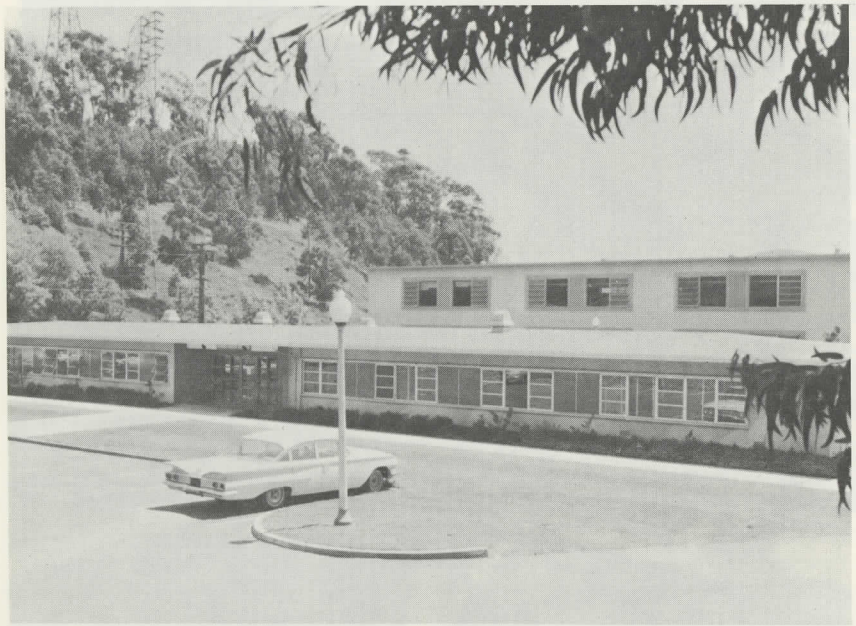
Courses of the first year have numbers beginning with one (1), those of the second year with two (2), and those of the third year with three (3). Fall trimester courses end with odd numbers and spring trimester courses end with even numbers. The three sea training trimesters are designated by the numbers one (1), two (2) and three (3).

Courses in the Department of Nautical Science are classified as deck courses and are indicated by the prefix "D." Courses in the Department of Marine Engineering are classified as engineering courses and bear the prefix "E." General courses required of all midshipmen are prefixed "G." Naval science courses have the prefix "NS."

CREDIT VALUE

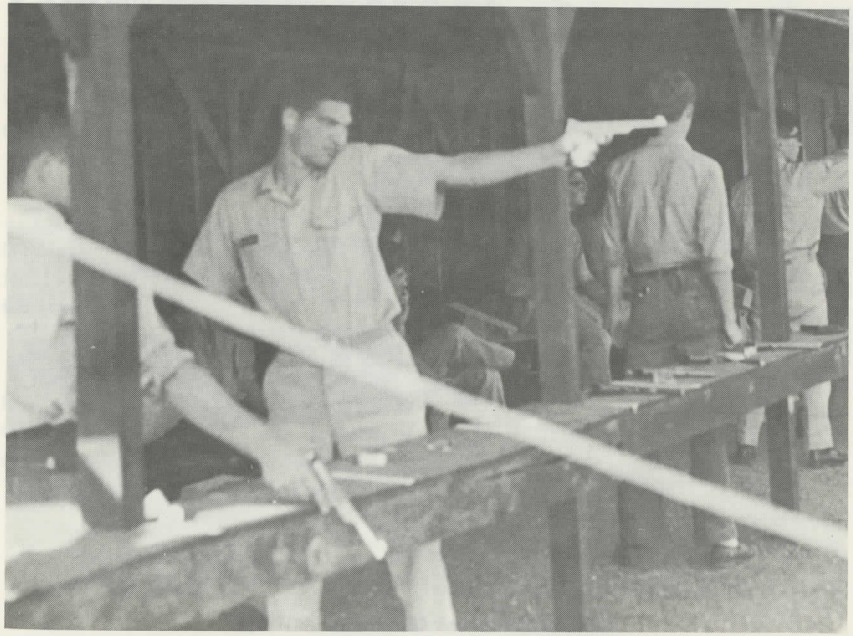
Course credits are allocated on the basis of the standard college semester unit which is defined as that obtained in a class of 50 minutes duration meeting one period a week for 18 weeks or a class of 60 minutes duration meeting for 15 weeks.

At the California Maritime Academy, one unit of credit consists of one hour of the midshipman's time each week in lecture or recitation during one trimester (17 weeks) or a longer time in laboratory and/or operational training. An additional ten (10) units is awarded each midshipman for successfully completing the work of each training cruise.



Administration and Classroom Buildings

Vigorous Physical Activities Are Important



Our Intercollegiate Pistol Team in Action

MIDSHIPMAN ORIENTATION

Midshipman orientation takes place during the first or second week of August each year only for the entering class, who are called third classmen.

Its purpose is to provide an understanding of California Maritime Academy life, to assist members of the incoming class toward making a transition to a new way of life, which will include an intensive study program, discipline, and attitudes toward watch standing, inspections, and for an introduction into maritime service needs and preparation.

Another function is for the issuance of uniforms, instructional materials, and a period when the new midshipman can gain an insight into the important aspects of making decisions for himself, taking instruction, and learning how to react to instructions from superiors. He also attends a variety of class sessions relevant to viewing films on Merchant Marine work, Academy routine, conferences with the Academic Dean and Superintendent, and a session devoted to a midshipman's military obligation.

The orientation program is under the supervision of the Commandant of Midshipmen with the assistance of midshipmen of the second and first classes.

Hazing and harassment positively are not tolerated.

The Deck Men at Work

CALIFORNIA MARITIME ACADEMY CURRICULUM

NAUTICAL SCIENCE DEPARTMENT

FIRST YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
G-101.	English	3	G-102.	English	3
G-103.	U.S. Government	2	G-104.	U.S. Government	2
D-105.	College Algebra	3	D-106.	Trigonometry	3
D-111.	Seamanship	3	D-108.	Navigation	3
NS-101.	Principles of Naval Organization and Management	3	D-110.	Engineering Graphics	1
			D-112.	Rules of the Road	2
			NS-102.	American Military Affairs	3
D-115.	Marlinspike Seamanship	1	D-116.	Marlinspike Seamanship	1
D-117.	Boats	1	D-118.	Boats	1
D-125.	Ship's Operations	2	D-126.	Ship's Operations	2
D-129.	Physical Education	½	D-130.	Physical Education	½
		18½			21½

SECOND YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
D-201.	Navigation	4	D-202.	Navigation	3
D-203.	Spherical Trigonometry and Introductory Calculus	3	D-204.	Calculus I	3
			D-206.	Physics II (Electricity)	3
			D-208.	Maritime Economics	2
D-205.	Physics I (Mechanics)	3	D-210.	Ship Stability	3
D-207.	Ship Construction	3	D-212.	Rules of the Road	2
NS-201.	Introduction to Naval Ships Systems	3	NS-204.	Navigation and Naval Operations II	3
D-215.	Applied Seamanship	1	D-216.	Applied Seamanship	1
D-223.	Communications	1	D-222.	Instruments and Navigational Aids	1
D-225.	Ship's Operations	2	D-226.	Ship's Operations	2
D-229.	Physical Education	½	D-230.	Physical Education	½
		20½			23½

THIRD YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
D-301.	Navigation	3	D-302.	Navigation	3
D-303.	Meteorology	3	D-304.	Maritime Law	3
D-305.	Radar	1	D-306.	Marine Rules and Regulations	3
D-307.	Ship's Medical Practice	1			
D-309.	Cargo I	3	D-308.	License Seminar	2
D-311.	Seamanship	3	D-310.	Cargo II	3
NS-301.	Naval Weapons System I	3	D-312.	Rules of the Road	3
			NS-302.	Naval Weapons Systems II	3
D-315.	Applied Seamanship	1	D-326.	Ship's Operations	1
D-323.	Communications	1			
D-325.	Ship's Operations	2			21
		21			

CALIFORNIA MARITIME ACADEMY CURRICULUM

MARINE ENGINEERING DEPARTMENT

FIRST YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
G-101.	English	3	G-102.	English	3
G-103.	U.S. Government	2	E-106.	College Math II	3
E-105.	College Mathematics I	3	E-108.	Chemistry II	3
E-107.	Chemistry I	3	E-110.	Physics I	3
E-109.	Engineering Graphics	1	E-112.	Steam Engineering II	2
E-111.	Steam Engineering I	3	NS-102.	American Military Affairs	3
E-113.	Maritime Economics	1	E-116.	Boats	¾
NS-101.	Principles of Naval Organization and Management	3	E-118.	Machine Shop (Lab)	1½
			E-120.	Marine Machinery Laboratory I	3
E-115.	Boats	1			
G-129.	Physical Education	½	G-130.	Physical Education	½
		20½			22¾

SECOND YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
E-201.	Steam Engineering III	2	E-202.	Steam Engineering IV	2
E-203.	D.C. Electrical Engineer.	3	E-204.	A.C. Electrical Engineer.	3
E-205.	Physics II	3	E-208.	Machine Shop Theory	1
E-209.	Calculus I	3	E-210.	Calculus II and Applications	3
NS-203.	Navigation and Naval Operations I	3	E-212.	Thermodynamics	3
E-217.	Machine Shop (Lab)	1½	NS-204.	Navigation and Naval Operations II	3
E-221.	Refrigeration and Air Conditioning	2	E-216.	D.C. Electrical Lab	1½
E-223.	Marine Machinery Lab II	3	E-218.	Marine Machinery Lab III	1½
E-229.	Physical Education	½	E-220.	Arc and Gas Welding	1½
		21	E-230.	Physical Education	½
					20

THIRD YEAR

Fall Trimester			Spring Trimester		
Subject		*Units*	*Subject*		*Units*
E-301.	Steam Engineering V	5	E-302.	Steam Engineering VI	3
E 303.	Diesel Engineering I	3	E-304.	Diesel Engineering II	3
E-305.	Engineering Materials	3	E-306.	Ship Construction and Damage Control	3
*E-307.	Automation Principles	2			
E-309.	U.S. Government	2	E-308.	*Electronics	2
G-311.	Ship's Medical Practice	1	E-310.	*Nuclear Power	2
NS-301.	Naval Weapons Systems I	3	E-312.	Engineering Administration	1
E-315.	Diesel Laboratory	1½	E-314.	Labor Relations	1
E-317.	A.C. Electrical Lab	1½	NS-302.	Naval Weapons Systems II	3
E-319.	Marine Machinery Lab IV	1½	E-316.	Diesel Laboratory	1½
			E-318.	License Seminar	2
		†21½	E-320.	Marine Machinery Lab V	1½
					†19

* Elective
† Excluding Electives

DECK COURSES REQUIRED FOR MIDSHIPMEN IN THE NAUTICAL SCIENCE DEPARTMENT

D-105. College Algebra (3) Lt. Newton

The course begins with sets and functions with emphasis on definitions and understanding to use these concepts throughout the mathematics courses. It continues with a short review of elementary algebra, takes up the usual college algebra topics of linear functions, quadratics, determinants, equations of higher degree, permutations, combinations, the binominal theorem and mathematical induction, exponential functions and logarithms.

D-106. Trigonometry (3) Mr. Hanson

The course considers trigonometric functions of angles, lines, double angles, logarithms, the laws of sines and cosines with applications to navigation. The course concludes with units on coordinate geometry, complex numbers, and vectors.

D-108. Navigation (3) Lt. Newton

Fundamental navigational topics including basic definitions, rudimentary knowledge of the instruments used by the navigator, charts, piloting and dead reckoning.

D-110. Engineering Graphics (1–1) Lt. Beland

The fundamentals of mechanical drawing and lettering directed to the objective of enabling the deck officer to produce working drawings of shipboard devices and equipment. Instruction and practice is given in making orthographic projections, isometric drawings, single stroke Gothic lettering, dimensional and scale drawings.

D-111. Seamanship (3) Lt. Aschemeyer

The study of basic seamanship, including sea terms, nomenclature, small boats, merchant ship characteristics, deck fittings, rigging, equipment, appliances, lifesaving devices, and emergency procedures.

D-112. Rules of the Road (2) Lt. Aschemeyer

Initial study of the International Rules of the Road, including their origin, purpose, history, technical provisions, and application.

D-115–116. Marlinspike Seamanship (1–1) Lt. Aschemeyer

Instruction in practical use of cordage, knotting, splicing, whipping, reeving tackles, sewing, rigging stages, bosn's chairs, shear legs, splicing wire rope, and sewing canvas.

D-117–118. Boats (1–1) Lt. Craig

Instruction in rowing, handling boats under oars and sail, launching and recovery of lifeboats, lifeboat nomenclature and equipment. This course prepares the midshipman for the U.S. Coast Guard Lifeboatman's Certificate.

D-125–126. Ship's Operations (3–3) LCdr Taylor

Instruction in ship maintenance including the selection and application of preservatives, chipping and painting, and assigned work in the interior, exterior and navigational divisions of the training ship.

D-129–130. Physical Education (½–½) Mr. Vitti

Survival swimming, calisthenics, game sports and general physical conditioning directed toward maintaining the midshipman in vigorous physical condition.

D-201–202. Navigation (4–3) Cdr. Aguilar

The basic concepts of celestial navigation and nautical astronomy stressing definitions and mathematical solutions of the astronomical triangle; the theory of plotting and advancing a completed line of position.

D-203. Spherical Trigonometry and Introductory Calculus (3) Mr. Hanson

The course begins with theorems from spherical geometry, solution of spherical triangles by Napier's method, derives laws of sines, cosines, tangents, and haversines. It applies these methods to solve problems in great circle sailing and to the solution of all navigational problems by mathematics as distinguished from tabular solutions. The last third of the course begins the study of limits and differentiation of polynomials and trigonometric functions leading to the work in course 204.

D-204. Calculus I (3) Mr. Hanson

The course continues the study of differentiation with applications to rates, maxima and minima, followed by elementary integration as the limit of a sum, and applications to areas, volumes, and curved lines. The course concludes with the use of numerical methods, Simpson's rule, and introduction to the use of computers in solving integrations and polynomial approximation of data.

D-205. Physics I (Mechanics) (3) Mr. Barber

The composition and resolution of forces and velocities, statics, moments of force, rectilinear motion, rotational motion, work energy power, friction, simple machines, elasticity, fluids at rest and fluids in motion.

D-206. Physics II (Electricity) (3) Mr. Barber

Heat, electricity and magnetism; direct and alternating circuits and machines; sound, light and atomic theory.

D-207. Ship Construction (3) Lt. Wood

This course covers the history of ship building, wooden ship construction, steel ship construction, boat building including fiberglass construction and the construction of lifeboats.

D-208. Maritime Economics (2) LCdr. Taylor

The purpose of this course is to provide the student with an understanding of the history and objectives of the labor movement in the United States, trade union government, structure and objectives of management, collective bargaining and the issues involved, the nature and development of public controls, unions in the maritime industry and maritime labor contracts.

D-210. Ship Stability (3) Lt. Wood

This course covers the theory of stability for small and large angles of inclination, principles of buoyancy and trim and methods of calculation such as Simpson's rules. Practical problems covering calculations of stability, trim, and free board are covered.

D-212. Rules of the Road (2) Lt. Aschemeyer

Comparative study of International and Inland Rules of the Road, marine collision law, case histories, and legal interpretations.

D-215–216. Applied Seamanship (1–1) Lt. Wood

A course of practical instruction covering the operation of all deck and auxiliary machinery such as anchors, winches, capstans, cargo gear; qualification in the use of power boats.

D-222. Instruments and Navigational Aids (1) Cdr. Aguilar

The nomenclature, operation, use and recognition of navigational instruments and aids such as the compass, sextant, radio direction finder, fathometer, gyroscope, loran, chronometer, buoy types and classes.

D-223. Communications (1) Lt. Newton

Signaling by international code flags and flashing light; use of International Code Book H.O. 87.

D-225–226. Ship's Operations (3–3) LCdr. Taylor

A course of practical instruction aboard the training ship covering the operation of all deck and auxiliary machinery such as anchors, winches, capstans, and boat davits; advanced marlinspike seamanship; advanced material maintenance including damage control features; qualification in use of power boats.

D-229–230. Physical Education (½–½) Mr. Vitti

Physical conditioning through calisthenics, game sports, and individual sports activities.

D-301–302. Navigation (3–3) Cdr. Aguilar

Modern tabular methods for solution of the astronomical triangle, advanced plotting, great circle sailing, electronic navigation.

D-303. Meteorology (3) LCdr. Taylor

Meteorology for the mariner covering basic principles of weather, weather observations and reports, preparation of weather maps, study of air masses, winds and currents, weather prediction and weather problems at sea.

D-304. Maritime Law (3) Lt. Craig

The rights, obligations and responsibilities of seamen, master, and pilots as prescribed by the laws and regulations of the United States; maintenance of essential ship's papers, records and reports.

D-305. Radar (1) Lt. Wood

The theory and practical operation of shipboard radar and radar plotting.

D-306. Marine Rules and Regulations (3) Lt. Wood

This course covers the USCG Rules and Regulations for passenger vessels, cargo ships, tankers, and the various uninspected types. It also includes regulations covering officers and seaman of the merchant service, licensing and certificating, and investigations or similar legal proceedings.

D-307. Ship's Medical Practice (1) Mr. Lenhart

The practical application of the principles of first aid and the use of ship's medicine chest at sea; anatomy, shock, unconsciousness, bleeding, wounds, bandaging, artificial respiration, bones, poisoning, fractures, moving the injured, exposure; diagnosis and treatment of ailments, radio aid.

D-308. License Seminar (2) LCdr. Taylor

Lectures and discussions in preparation for mates and master's license examinations before the Merchant Marine Examiners, U.S. Coast Guard.

D-309. Cargo I (3) Lt. Wood

This course covers all aspects of cargo handling aboard dry-cargo vessels. It includes study of the various types of cargo gear and cargo handling equipment, stowage of various commodities, ship owner organizations, cargo plans and ship loading, and the mathematics used in the above operations.

D-310. Cargo II (3) Lt. Wood

This course is a continuation of Cargo I. It covers tankers, bulk carriers, container ships and other special types. It includes rules and regulations pertaining to special cargoes, and the handling of refrigerated cargoes. A portion of this course is devoted to automation as it applies to deck officers.

D-311. Seamanship (3) LCdr. Taylor

This course is designed to complete the student's background knowledge of seamanship and covers those matters aboard ship which are primarily the duties and responsibilities of the master and chief officer. The course covers the factors and forces involved in ship handling under all conditions in port and at sea from maneuver in tropical horizons to ice navigation. A portion of the course is devoted to engineering knowledge required of deck officers and special attention is given to the study of sea disaster with the objective of learning lessons from them.

D-312. Rules of the Road (3) Lt. Newton

Intensive study of the International, Inland and Pilot Rules of the Road, including certain court interpretations.

D-315. Applied Seamanship (1) Lt. Newton

Theory and practice in advanced seamanship including procedures for securing ship for sea, lifeboat survival, rigging of emergency steering gear, damage control, pyrotechnics, breeches buoy and rescue techniques.

D-323. Communications (1) Cdr. Heron

Instruction and practice in communications by means of Morse code sent by flashing light and international code flags. Drill for speed; knowledge and use of storm signals, quarantine signals, pilot signals, wreck signals; thorough knowledge and use of International Signal Book; preparation for U.S. Coast Guard documentation in communications.

D-325–326. Ship's Operations (3–3) LCdr. Taylor

A course of practical instruction aboard the training ship *Golden Bear* covering all phases of the deck department. Includes the supervision of groups of men in deck department maintenance; the planning of maintenance programs; the operation of auxiliary deck machinery; the practical aspects of navigational instruments and equipment; a review of safety on the supervisory level; and a study of the functions of the officers within the deck department together with the functions of other departments within the ship.

ENGINEERING COURSES REQUIRED FOR MIDSHIPMEN IN THE MARINE ENGINEERING DEPARTMENT

E-105. College Mathematics I (3) Mr. Hanson

The course begins with sets and functions with emphasis on definitions and understanding to use these concepts throughout the mathematics courses. It continues with a short review of algebra, topics in college algebra, and analysis of functions. The term is concluded with a study of rates, limits and continuity preparatory to study differentiation. (2 yrs. H.S. mathematics, with grade of C or better, is presumed.)

D-106. College Mathematics II (3) Mr. Hanson

The course begins with sequences, finite differences, introduction to areas under the curve, an intuitive presentation. It continues with probability and applications, trigonometric functions, graphing, the derivative, anti-derivatives and definite integral. It concludes with a unit of curves and conics in a coordinate system, preparatory to a serious course in the calculus.

E-107. Chemistry I (3) Mr. Barber

Introduction to chemical theory; structure of matter; valence; chemical change; oxidation-reduction; equilibrium; solutions; ionization reactions in solutions, weak electrolytes.

E-108. Chemistry II (3) Mr. Barber

This course covers material of special interest to marine engineers. It includes an intensive study of boiler water analysis and conditioning; testing and utilization of fuels and lubricants, elements of combustion, electro chemistry, corrosion control, and atomic theory.

E-109. Engineering Graphics (1) Lt. Beland

A general course in engineering drawing meeting the needs of the engineering curriculum. Material covered includes lettering, applied geometry, use of instruments, orthographic projection, free hand and isometric sketching, isometric and oblique drawing, sections, thread and fasteners, dimensioning, pipings, drawings, and blueprint reading. Practical projects applying to the marine field are encouraged for advanced students.

E-110. Physics I (3) Mr. Barber

Mechanics; properties of matter; heat; electricity and magnetism.

E-111. Steam Engineering I (3) Cdr. Bruhn

A systematic study of the basic systems and elements of the training vessel's engineering plant. Subject matter is directed to aid the student's understanding of the function of the marine power plant and preparing him for his first sea-training trimester.

E-112. Steam Engineering II (2) Lt. Branin

A progressive and continuing course covering all the components of the marine steam power plant. Course includes studies on steam generators and evaporators; steam propulsion engines; auxiliary machinery; piping systems; U.S. Coast Guard regulations pertinent to the steam power plant. The steam engineering courses are supplemented by practical projects conducted in the marine machinery laboratory periods aboard the training ship in inspection, maintenance, and repair and by three sea-training trimesters.

E-113. Maritime Economic History (1) Lt. Thor

This course introduces the student to a history of the maritime industry and offers background material necessary for an understanding of today's collective bargaining relationship and related economic topics.

E-115–116. Boats (1–¾) Lt. Craig

Instruction in rowing, handling boats under oars and sail, launching and recovery of lifeboats, lifeboat nomenclature and equipment. This course prepares the midshipman for U.S. Coast Guard Lifeboatman's Certificate.

E-118. Machine Shop Lab (1½) Lt. LaBombard

A laboratory course in the machine shop applying the theory learned in machine shop theory. The student will gain a knowledge of and skill in the principles and operation of hand tools and power machines. Individual projects ranging from turning a simple diameter to computing and machining helical gearing are performed.

E-120. Marine Machinery Laboratory I (3) Ship's Engineering Staff

A series of practical laboratories in which the student becomes directly involved in the inspection, maintenance and repair of the marine machinery systems aboard the training ship. Beginning in the third class year, and continuing through the first class year, the student is assigned projects on an increasingly responsible scale in the preventative maintenance program necessary to ready the ship for annual sea training voyages.

By rotating assigned projects the student obtains practical experience in evaluating problems and remedies connected with steam generators and pressure vessels, piping systems, turbine and reciprocating machinery, pumps, electrical equipment, diesel engines, machine shop repairs, welding repairs and many other items of shipboard equipment.

E-208. Machine Shop Theory (1) Lt. LaBombard

Nomenclature and proper use of hand tools used in bench work; use and care and all precision measuring instruments; detailed instruction dealing with engine lathes and milling machines; construction procedures and methods used to accomplish operations with these machines; the computations involved in machine operations; the derivation of formulas used. Development of helical, spur, worm and bevel gearing.

E-129–130. Physical Education (½–½) Mr. Vitti

Survival swimming, calisthenics, game sports and general physical conditioning directed toward maintaining the midshipman in vigorous physical condition.

E-201–202. Steam Engineering III–IV (2–2) Lt. LaBombard

A continuing study in greater depth of marine power plants and related machinery.

E-203–204. D-C and A-C Electrical Engineering (3–3) Lt. Thor

The fundamentals of electrical circuits and machines giving priority to the design, operation and maintenance of equipment in the marine field; basic concepts of electricity and magnetism, direct current circuits and machines; alternating current circuits, machines and control systems; and marine electrical propulsion.

E-205. Physics II (3) Mr. Barber

This course provides the student with studies in sound, light, atomic physics, and nuclear physics.

E-209. Calculus I (3) Lt. Nilsen

Begins with analysis of trigonometric functions, identities, functions of double angles, derivatives and integrals of trigonometric functions, logarithmic and exponential functions. The course concludes with a unit on coordinate geometry and one on complex numbers and vectors.

E-210. Calculus II and Applications (3) Lt. Nilsen

Begins with review of elementary differentiation and integration, integration by parts, and advanced integration, implicit differentiation, with applications to rates, volumes, surfaces, centroids, work and forces. The course concludes with an introduction to differential equations.

E-212. Thermodynamics (3) Lt. Nilsen

Basic laws of energy and thermodynamics and their application to heat-power machinery applied on shipboard; heat-power plants, principles of thermodynamic steam and steam calorimetry, steam generators and boilers, feed water heating, reciprocating steam engines, steam engine power and economy, steam and gas turbines, steam condensing equipment, internal combustion engines.

E-216. D-C Electrical Laboratory (1½) Lt. Thor

A laboratory course designed to provide the engineering student with an operating knowledge of DC electrical principles and operations.

E-217. Machine Shop Lab (1½) Lt. LaBombard

Continuation of E-117.

E-218. Marine Machinery Lab III (1½) Ship's Engineering Staff

Continuation of E-217.

E-220. Arc and Gas Welding (1½) Mr. Autem

A laboratory course providing experience in welding, brazing and burning techniques sufficient to permit effecting emergency repairs.

E-221. Refrigeration and Air Conditioning (2) LCdr. Behm

Review of direct and indirect refrigeration cycles. Basic refrigeration principles and equipment. Basic air conditioning, comfort, and air drying for prevention of cargo damage.

E-223. Marine Machinery Lab II (3) Ship's Engineering Staff

E-229–230. Physical Education (½–½) Mr. Vitti

Physical conditioning through calisthenics, game sports, swimming and water safety.

E-301–302. Steam Engineering V–VI (5–3) Lt. Branin

Advanced study of the elements of a ship's engineering plant.

E-303–304. Diesel Engineering I–II (3–3) LCdr. Behm

The development, design, construction and operating procedures of marine diesel engines and auxiliary machinery and systems employed in the modern marine diesel power plant.

E-305. Engineering Materials (3) Lt. LaBombard

The materials commonly used in a marine engineering plant; their occurrence in nature; the reduction of ore; the production and refining of metal; the structure and alloying of materials; properties and control of properties of metals; casting and mechanical working of metals; the mechanism of corrosion and its prevention; petroleum products and plastics; welding and its application.

E-306. Ship Construction and Damage Control (3) Lt. Beland

An introduction to ship's structure; compartmentation of ships; hull piping systems; the principles of buoyancy and stability; inclining experiments; coefficients and rules of mensuration.

*** E-307. Automation Principles (2) Lt. Nilsen**

An introductory course including two-position, proportional, integral, derivative, and compilation control modes; the application of these control modes to pneumatic, hydraulic, and electrical systems; elements of control; system analysis; and a brief survey of some shipboard systems.

*** E-308. Electronics (2) Lt. Thor**

A course covering the fundamentals and basic concepts of vacuum tubes; gas tubes; semi-conductors; power suppliers; rectifiers; amplifiers, oscillators and their applications.

*** E-310. Nuclear Power (2) Lt. Nilsen**

The course is designed to give the student a fundamental grasp of the physics, design, materials, economics and operation of nuclear power plants. Such subjects as atomic structure, charge, mass, radius, nuclear moments, ionization, alpha, beta, gamma rays and decays, nuclear fission, chain reaction and its control, reactor systems and auxiliaries, reactor loop components and power cycle studies are covered.

E-311. Ship's Medical Practice (1) Mr. Lenhart

The practical application of the principles of first aid and the use of the ship's medicine chest at sea; anatomy, shock, unconsciousness, bleeding, wounds, bandaging, artificial respiration, bones, poisoning, fractures, moving the injured, exposure; diagnosis and treatment of ailments; radio aid.

* Elective for first class only.

E-312. Engineering Administration (1) Cdr. Bruhn

An outline and discussion of typical merchant ship engineering organization, emphasizing duties and responsibilities of personnel; the Office of the Port Engineer, the functions of the American Bureau of Shipping and the U.S. Coast Guard.

E-314. Labor Relations (1) Lt. Thor

The current collective bargaining relationships of the maritime industry are emphasized. Legislation, subsidies, contracts, personnel relations and technological development are examined.

E-315. Diesel Laboratory (1½) Lt. Nilsen

Provides the engineering student operational experience with a marine diesel propulsion plant. It also familiarizes the student in engine analysis, maintenance schedules and prevention of casualties by utilizing data obtained during engine operation.

E-316. Advanced Diseel Laboratory (1½) Lt. Nilsen

A laboratory designed to acquaint the student with the various analyses methods performed on lubricating and fuel oils to determine engine operating criteria. The course also covers analysis in refrigeration and pneumatic systems oriented toward automation principles.

E-317. A-C Electrical Laboratory (1½) Lt. Thor

A laboratory course designed to provide the engineering student with an operating knowledge of AC electrical principles and operations.

E-318. License Seminar (2) Cdr. Bruhn and Staff

Lectures and discussion in preparation for the engineers' license examination before the Merchant Marine Examiners, U.S. Coast Guard.

E-319. Marine Machinery Lab IV (1½) Ship's Engineering Staff

Continuation of E-217.

E-320. Marine Machinery Lab V (1½) Ship's Engineering Staff

GENERAL COURSES REQUIRED FOR ALL MIDSHIPMEN

G-101–102. English (3–3) Mr. Kiger

A college level course providing study and practice in the expression of ideas and factual materials; principles of material and effective style with particular attention to sentence structure, paragraphing and vocabulary development; drill in mature expository writing, research papers and reports; practice in delivery of effective oral reports. Selected pieces of literature are studied for content and style, and impact on human development.

G-103–104. United States Government (2–2) Lt. Craig

This course is designed meet the state requirements for a college level study of the federal, state and local government. A review and analysis of post and current socio-political events is expected to help students become better thinking and voting citizens.

G-309. United States Government (2) Lt. Craig

This course is the same as G-104, but taken by Engineer midshipmen during the Fall Trimester of First Class Year instead of during the Spring Trimester of Third Class Year.

NAVAL SCIENCE COURSES REQUIRED FOR ALL MIDSHIPMEN

NS-101. Principles of Naval Organization and Management (3) Lt. Thornton, Chief Holmes

An introduction to the structure and principles of Naval Organization and Management. Naval Organization and Management practices and the concepts that lie behind them are examined within the context of American social and industrial organization and practice. The course includes coverage of lines of command and control; organization for logistics, service and support; functions and services of major components of the Navy and Marine Corps; and shipboard organization.

NS-102. American Military Affairs (3) Chief Holmes, Chief Watson

An introductory survey of American Military Affairs in the United States from the American Revolution to the present. The course describes the transformation from limited eighteenth century wars to total wars of this century and the brushfire wars of the last two decades.

NS-201. Introduction to Naval Ships Systems (3) Chief Watson

An introduction to the types, structure, and purpose of naval vessels. Buoyancy, equilibrium, stability, and the effects of flooding to the design characteristics of naval vessels, the relation of the basic principles of a ship's propulsion system to all of the ship's systems, and the interrelationships and interdependency of all of a ship's systems to the successful mission of the ship are examined.

NS-203. Navigation and Naval Operations I (3) Lt. Rogers

A comprehensive study of the theory, principles and procedures of shipboard navigation. The course includes spherical trigonometry, mathematical analysis, spherical triangulation, sights, sextants, publications and report logs. Rules of the Road, lights, signals, and navigational aids are also studied.

NS-204. Navigation and Naval Operations II (3) Lt. Thornton, Lt. Rogers

Satellite and inertial navigation systems are studied. Tactical formations and dispositions, relative motion, the maneuvering board, and tactical plots are analyzed for force effectiveness and unity.

NS-301. Naval Weapons Systems I (3) Chief Holmes

The concepts of weapons systems and the systems approach are explored. The techniques of linear analysis of ballistics and weapons are introduced. The dynamics of the basic components of weapons control systems are investigated. The course provides the basic knowledge for the further development in the understanding of the basic principles that underlie all modern naval weapons systems.

NS-302. Naval Weapons Systems II (3) Chief Holmes

A study of the principles of selected phases of the weapons control problems, including propulsion systems, trajectories, flight paths and damage criteria. Design and testing of weapons components including warheads, fuses, guidance and control are reviewed. Procedures for evaluating weapons system effectiveness and kill probability are analyzed.

NS-300. Seminar Staff

During the senior year a seminar in the concepts, principles, and practices of Naval Leadership is conducted every other Friday afternoon.

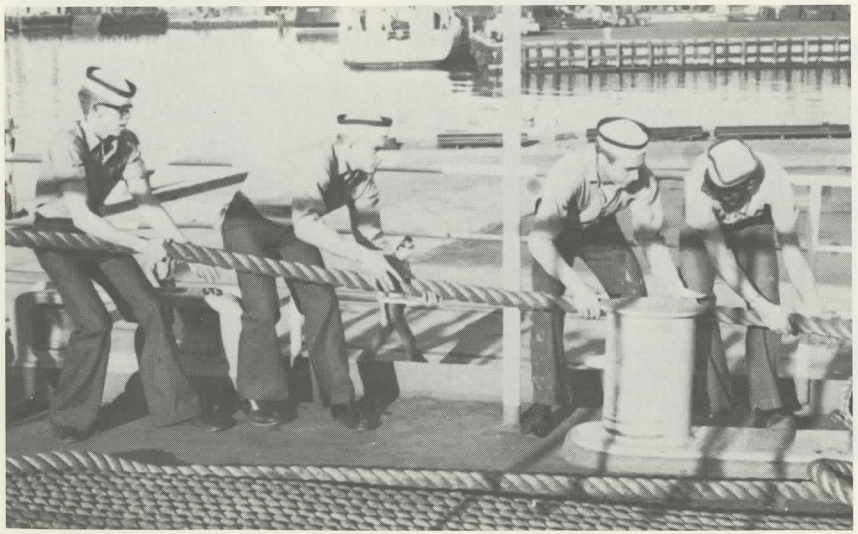
PORTS VISITED BY TRAINING SHIP "GOLDEN BEAR" 1947–1969

UNITED STATES AND POSSESSIONS

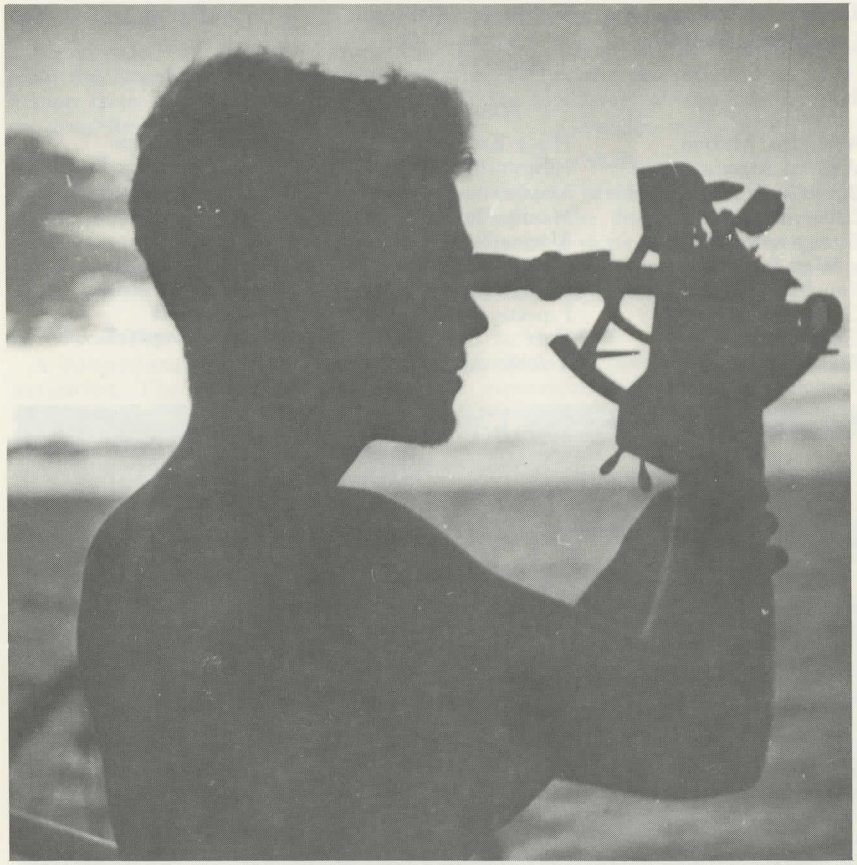
Alameda, California
Balboa, Canal Zone
Cristobal, Canal Zone
Hilo, Hawaii
Honolulu, Hawaii
Houston, Texas
Lahaina, Hawaii
Long Beach, California
Monterey, California
New Orleans, Louisiana
Oakland, California
Pago Pago, Samoa
Port Hueneme, California
Portland, Oregon
Sacramento, California
St. Thomas, Virgin Islands
San Diego, California
San Francisco, California
San Pedro, California
Santa Barbara, California
Seattle, Washington
Stockton, California
Wilmington, California

FOREIGN PORTS

Acapulco, Mexico
Algiers, Algeria
Buena Ventura, Colombia
Callao, Peru
Curaçao, Netherlands West Indies
Funchal, Madeira
Galápagos Islands
Genoa, Italy
Gibraltar
Hong Kong
Kingston, Jamaica
Magdalena Bay, Mexico
Manila, Philippine Islands
Manzanillo, Mexico
Marseilles, France
Naples, Italy
Papeete, Tahiti
Port of Spain, Trinidad
Yokohama, Japan
Piraeus, Greece
Rio de Janeiro, Brazil
San José, Guatemala
Suva, Fiji Islands
Tokyo, Japan
Valparaiso, Chile
Vancouver, British Columbia
Vera Cruz, Mexico



Deck Men in Line Handling



Sextant Practice at Sea

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