CALIFORNIA MARITIME ACADEMY

HONOR DUTY

TRADITION

General Catalogue

1960

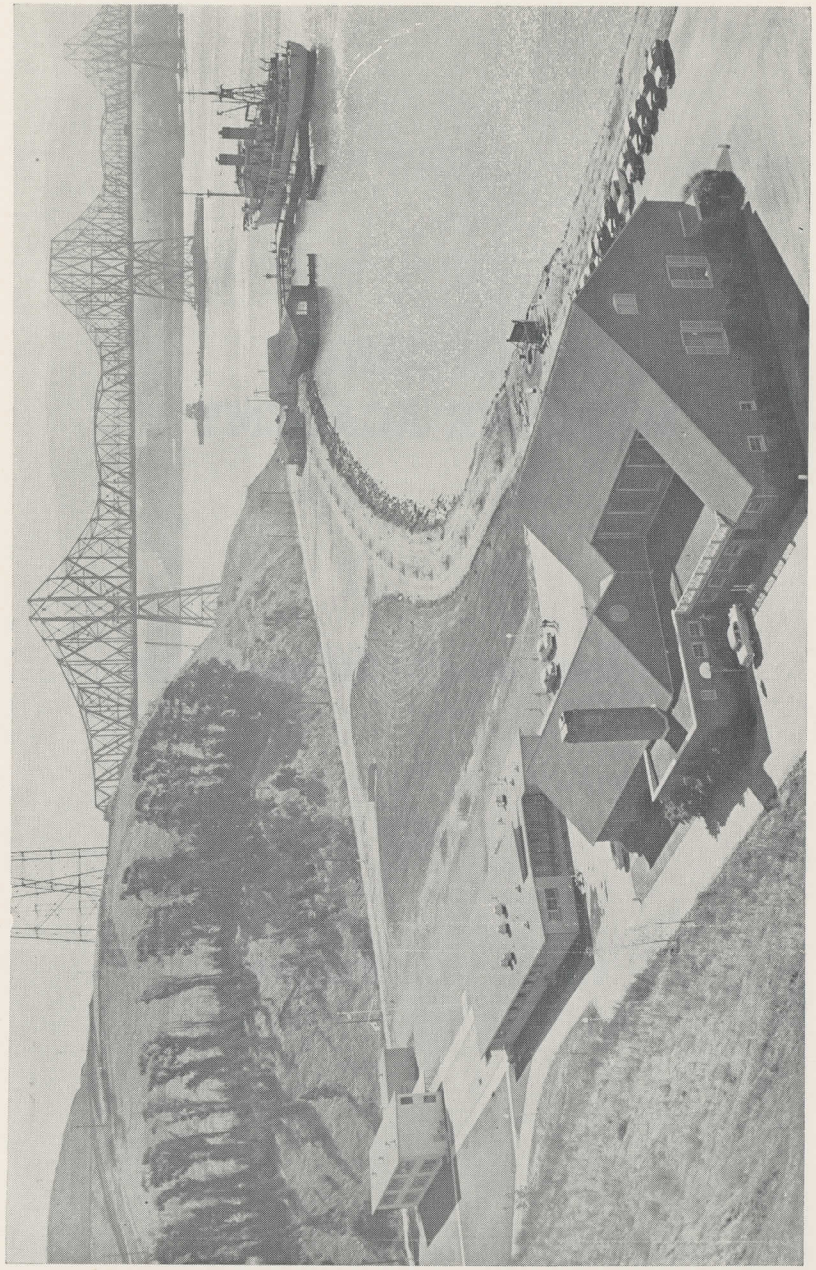
VALLEJO, CALIFORNIA

CALIFORNIA
MARITIME ACADEMY

General Catalogue

1960

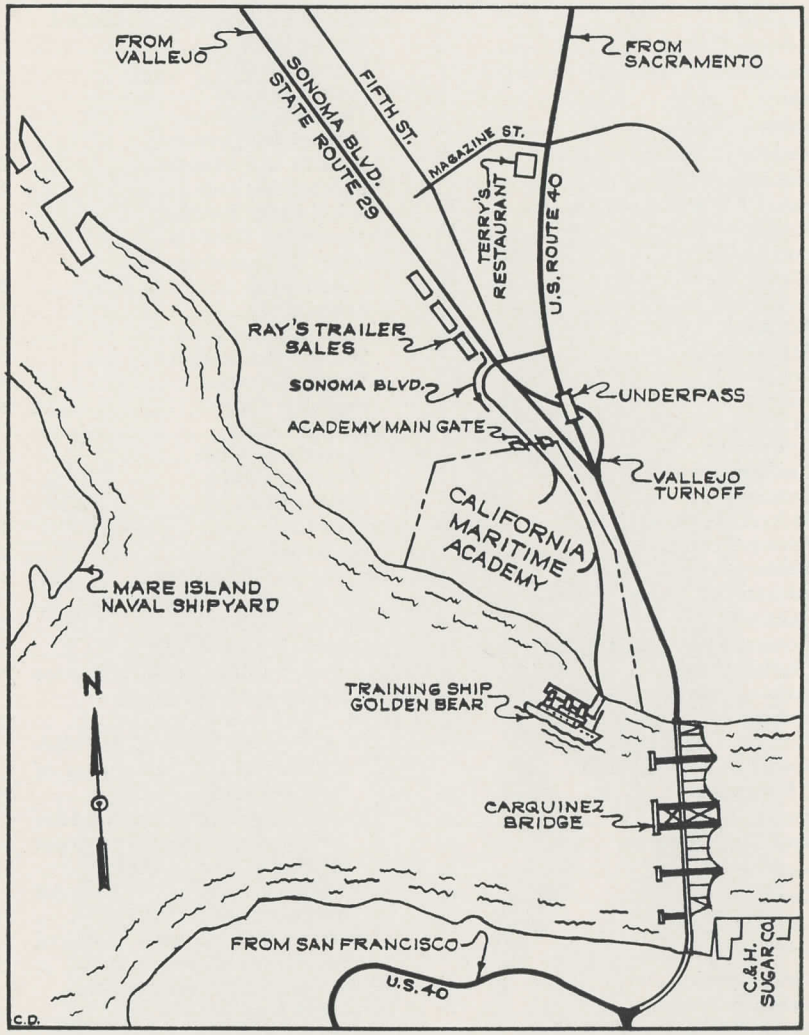
VALLEJO, CALIFORNIA



AERIAL VIEW OF THE ACADEMY GROUNDS

TABLE OF CONTENTS

2—7457



APPROACHES TO CALIFORNIA MARITIME ACADEMY

FOREWORD

The California Maritime Academy is one of five Merchant Marine academies in the United States. Maine, Massachusetts, New York and the United States Merchant Marine academies are all located on the Atlantic seaboard. From this, the value and importance of the California Maritime Academy to the Pacific Coast states is easily recognized.

It is the mission of the California Maritime Academy to prepare young men for a career at sea as licensed officers aboard United States Flag merchant ships.

Since 1950 the dollar value of Pacific states import-export trade has more than doubled. The economic value of this multibillion dollar commerce to the prosperity of the 18.4 million people living on the Pacific Coast is tremendous.

Future prospects for the American Merchant Marine are very bright. Seventy percent of the earth's surface is water and as world population grows the volume of trade will also grow. A research report released July 1, 1959, by the American Merchant Marine Institute shows that all major maritime countries now have more tonnage in service than existed in their 1939 fleets. Since 1939, the world's fleet of freight ships has increased 50 percent and the world's tanker fleet has tripled. In November, 1958, a construction program to update the American Merchant Marine was begun. In this program, 290 new ships will be built including the *NS Savannah* which will be the first atomic powered merchant vessel in the world.

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. In terms of dollars and cents, ships offer the most economical method of transporting cargo. For example, on July 1, 1959, a measurement ton of 40 cubic feet shipped from San Francisco to Tokyo cost $21.20 aboard a cargo ship. The cost by air transport is $4,059. Because air freight is 193 times more expensive, it is reasonable to believe that cargo ships will continue to be the principal carriers of heavy cargoes.

The California Maritime Academy takes pride in the fact that one of its graduates is among the officers chosen by the Federal Maritime Administration to receive intensive training to prepare them for possible assignment on the *NS Savannah*. Young men successfully completing their training at the California Maritime Academy have extremely fascinating and highly profitable careers before them.

CALIFORNIA MARITIME ACADEMY

TENTATIVE ACADEMIC CALENDAR, 1959-1960

Fall Trimester:	August 10-December 22, 1959
Sea Training Trimester:	January 4-March 18, 1960
Spring Trimester:	March 28-July 22, 1960

July 27-Aug. 7	Orientation for class of 1962.
Aug. 10	Fall trimester begins.
Sept. 7-9	Labor Day and Admission Day holidays.
Sept. 14-25	Gyroscope School for class of 1961-D.
Nov. 11	Veterans' Day holiday.
Nov. 16-20	Radar School for class of 1961-D.
Nov. 26-27	Thanksgiving holiday.
Dec. 7-11	Final trimester examinations.
Dec. 15-17	Atomic, Biological and Chemical Warfare School for class of 1960-D.
Dec. 14-22	Dockside steaming training and preparation of *Golden Bear* for sea training.
Dec. 23-Jan. 3	Winter recess.
Jan. 4	Sea training trimester begins.
Jan. 4-15	Gyroscope School for class of 1961-E.
Jan. 11-15	Cargo School for class of 1961-D.
Jan. 13-14	Firefighting and Damage Control School for class of 1962-D-E.
Jan. 18-22	Loran School for class of 1961-D.
Mar. 18	End of sea training trimester.
Mar. 21-25	Spring recess.
Mar. 28	Spring trimester begins.
May 30	Memorial Day holiday.
July 4	Independence Day holiday.
July 14-20	Final trimester examinations.
July 22	End of spring trimester.
July 23-Aug. 14	Summer recess.
Aug. 1-12	Orientation for class of 1963.
Aug. 19	Graduation exercises.

CALIFORNIA MARITIME ACADEMY

CALIFORNIA STATE DEPARTMENT OF EDUCATION

EXECUTIVE OFFICERS

Roy E. Simpson
State Superintendent of Public Instruction and
Director of Education

J. Burton Vasche
Associate Superintendent of Public Instruction and Chief,
Division of State Colleges and Teacher Education

BOARD OF GOVERNORS

Dr. Roy E. Simpson ..... Executive Member, Ex Officio
Mr. Hugh Gallagher, San Francisco ..... Chairman
Mr. Ralph D. Sweeney, Los Angeles ..... Vice Chairman
Dr. J. Burton Vasche, Sacramento ..... Member
Mr. Ellis R. Randall, Vallejo ..... Member
Commander John B. Cooke, USN (Ret.) ..... Member

ADMINISTRATIVE STAFF

Captain Henry E. Richter, USN (Ret.) ..... Superintendent
B.S., U. S. Naval Academy

Dr. Clyde L. Ogden ..... Dean of Instruction
A.B., M.A., Ed.D., University of California

Captain Edward A. Turpin, Head of Department of Nautical Science
Master Training Ship *Golden Bear*

Commander Richard D. Heron, CMA, 1938 ..... Commandant of Midshipmen
Chief Officer Training Ship *Golden Bear*

Commander Frank Flanner, CMA, 1935 ..... Head of Department of Engineering
Chief Engineer Training Ship *Golden Bear*

Commander E. E. Keeley ..... Business Manager

Lieutenant Commander Daniel Morgan, USNR
Head of Department of Naval Science

INSTRUCTIONAL STAFF

Dr. Clyde L. Ogden—Dean of Instruction—B.A., M.A., Ed.D., University of California

DECK DEPARTMENT

CAPT. Edward A. Turpin, M.M. Federal license: master, steam and motor vessels, ocean, unlimited.

CDR Richard D. Heron, B.S., CMA, 1938–LCDR USNR. Federal license: chief mate, steam and motor vessels, ocean, unlimited.

LCDR William H. Aguilar, B.S., CMA, 1934. Federal license: master, steam and motor vessels, ocean, unlimited.

LCDR Lyle Taylor, B.S., CMA, 1951. Federal license: third mate, steam and motor vessels, ocean, unlimited.

LT. Robert Craig, B.S., CMA, 1949. Federal license: third mate, steam and motor vessels, ocean, unlimited.

LT. Fred B. Newton, Jr., LCDR (Ret.), Miami University, Oxford, Ohio.

LT. Rudolph T. Sommer, U. S. Merchant Marine Academy.

LT. Carl W. Stites, U. S. Maritime Administration School, Alameda, California, 1943. Federal license: second mate, steam and motor vessels, ocean, unlimited.

ENGINEERING DEPARTMENT

CDR Frank Flanner, CMA, 1935–CDR USNR. Federal license, chief engineer, steam vessels, ocean, unlimited.

LT. COMDR. Charles B. Dunham, CMA, 1945–LT USNR. Federal license: first assistant engineer, steam vessels, ocean, unlimited. Third assistant engineer, motor vessels, ocean, unlimited.

LT. Arthur S. Behm, Jr., B.S., CMA, 1942–LT USNR. Federal license: second assistant engineer, steam vessels, ocean, unlimited.

LT. Thomas J. Beland, B.A., University of California. Federal license: second assistant engineer, steam vessels, ocean, unlimited.

LT. Otto J. Bruhn, B.A., University of California. Federal license: first assistant engineer, steam vessels, ocean, unlimited. Third assistant engineer, motor vessels.

LT. Frank L. LaBombard, SMACH USNR. Federal license: second assistant engineer, steam vessels, ocean, unlimited.

LT. Donald L. Lipman, B.S., CMA, 1951–LTJG USNR. Federal license: third assistant engineer, steam and motor vessels, ocean, unlimited.

NAVAL SCIENCE DEPARTMENT

Daniel Morgan, LCDR USN
Irl J. George, LTJG USNR
Norman E. Haack, LTJG USNR
Wayne E. Stamper, GMC, USN
Charles E. Edgar, GMC, USN
Frederick W. Sargent, FTI USN
Jerry K. Wion, YNI, USN

MEDICAL DEPARTMENT

Charles H. Pritchett, LT, Medical Service Corps, USN (Ret.)

PHYSICAL EDUCATION

LT. James L. Thwing, LT USNR, B.S., A.B., University of Washington

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 derives 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 pupils 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. No elective subjects are provided. 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 program thus provides both maritime and naval training which equips the graduate with both merchant and naval experience, a most valuable asset in time of national emergency.

LOCATION

The California Maritime Academy is located on the north shore of Carquinez Straits, just south of the City of Vallejo. It is about one hour's drive on U. S. Highway 40 from San Francisco. Main bus lines stop a few minutes walk from the entrance to the Academy grounds. The Mare Island Naval Shipyard is in the immediate vicinity and is available for observation of dry-docking, heavy shop practice, ship repair procedures, and electronic developments. Oceangoing steamers and naval vessels from all parts of the world pass through Carquinez Straits 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 Straits. 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 straits, 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 and Olympic-sized natatorium.

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.

Temporary structures currently house the Machine Shop, Electrical Laboratory and Diesel Laboratory. Working drawings for a permanent Engineering Building are now in progress and the building is expected to be completed by 1961.

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

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

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 three 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 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 no electives. Midshipmen must obtain passing grades in every course to remain in good standing. Students earning incomplete or failing grades in any course 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 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.

LIBERTY

Except when assigned to base duty watches, midshipmen are normally granted liberty on weekends and holidays. Liberty may also be granted at any time 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.

RESTRICTION

Midshipmen may be placed on academic or conduct restrictions, resulting in loss of liberty, for failure to maintain a satisfactory record in either category. Midshipmen earning less than a "D" grade in any subject will be placed on academic restriction until such time as their work is certified to be satisfactory by the instructor. Academic restriction is not a punishment but an opportunity for the student to have additional study time in which to improve his scholastic standing. An accumulation of a designated number of demerits may also result in conduct restrictions. When a midshipman receives a failing grade, either academic or conduct, his parents or guardian will be notified.

UNIFORMS

The wearing of civilian clothing on leave or liberty, except while on the annual training cruise, is optional. Civilian clothing may be kept in midshipman quarters but may not be taken on the training cruise.

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, which includes an allowance for out-of-state students. An allowance of $600 per annum is also paid to the Academy by the Federal Government to assist in defraying the cost of uniforms, textbooks and subsistence, of which, currently, $200 is allotted for uniforms and textbooks. The Federal Government's contribution each year amounts to approximately $200,000.

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 has approved a plan developed in concert with the Secretary of Commerce for students who entered in the fall of 1956 and for future students who will attend the Merchant Marine academies. The Secretary of Defense has fully concurred with this mutual agreement. Pertinent points of the program thus established are as follows:

1. The Navy will perform the screening and physical examinations of students who enter Merchant Marine academies.
2. Students will retain civilian status.
3. The Director of Selective Service has provided for the deferment of these students.
4. The Navy will continue to offer naval science courses.
5. After graduation, those who obtain enployment at sea in the Merchant Marine and who so request shall be tendered Naval Reserve commissions, if eligible.
6. After graduation, those who through no fault of their own are unable to obtain employment at sea in the Merchant Marine and who volunteer for active Navy duty may be commissioned, if eligible, and placed on active duty if there is an actual need for their services.

EDUCATIONAL LOANS

There are a limited number of financial assistance programs available to worthy and qualified students under which funds may be borrowed to meet the necessary expenses of matriculation. Repayment is deferred until after graduation, permitting the student to complete his education and refund the cost thereof after employment is obtained. For further information regarding these funding programs, contact the Dean of Instruction.

ADMISSIONS

GENERAL INFORMATION

Admission requirements established by the Board of Governors are as follows:

> "The candidate for admission must be of good repute, must provide three letters of recommendation, preferably from school officials or employers, must be a citizen of the United States, must be unmarried, and have a high school education or its equivalent. Upon entry to the academy he must be not less than 17 years of age and not yet 23 years of age (27 years for veterans). Applicant must be of normal size and weight, sound and robust in body and free from physical defects. He must meet the physical standards prescribed for licensing in the Merchant Marine."

A recent state senate concurrent resolution provides for a system of of appointments to the academy on the basis of a statewide competitive examination. A specified number of qualified appointees will be designated according to senatorial and assembly districts, with an additional number to be designated by the Governor.

Information concerning admission may be obtained by contacting the Dean of Instruction, California Maritime Academy, Vallejo, California.

ELIGIBILITY

Any male citizen of the United States who meets the prescribed moral, scholastic, and physical requirements is eligible to enter the California Maritime Academy. He is not required to be a resident of the State of California in order to be admitted. Applicants are accepted from any part of the United States and its territories within the capacity limitations of the academy.

All students must be unmarried at time of admission. A student marrying prior to graduation will be considered as having resigned from the academy.

SCHOLASTIC REQUIREMENTS

Prior to admission (but not necessarily prior to taking the entrance or college board examinations) applicants must have graduated from a secondary school or have established evidence of equivalent education. Transcripts of secondary school records or evidence of equivalent education must be submitted to indicate satisfactory completion of courses of study which should include English, elementary and intermediate algebra, plane geometry, and physics or chemistry.

ENTRANCE EXAMINATIONS

All candidates for admission, except transfer students from another maritime academy, must take an entrance examination designed to demonstrate their ability to undertake college-level work. Two ways of

meeting this requirement are available: by taking an examination administered by the academy or by taking the College Entrance Examination Board's Scholastic Aptitude Test (SAT).

Entrance examinations are held at the academy at 9 a.m. on the first Saturday of each month January through May. Special examinations will also be given in other cities.

No previous application is necessary to take the academy entrance examination. All that is necessary is to appear at the place, date and time of examination. Application blanks and other necessary forms will be forwarded to the applicant when it has been determined that he has successfully passed the entrance examination.

The college board tests are held nationwide, including 56 places in California. The test dates for 1959-60 are 5 December, 1959, 9 January, 6 February, 12 March, and 21 May, 1960. The deadline for registration is three weeks before each testing date. It is recommended that out-of-state applicants for admission arrange to take the College Board SAT not later than March. Information regarding these tests may be obtained from school counselors or by writing to College Entrance Examination Board, P. O. Box 27896, Los Angeles 27, California, or P. O. Box 592, Princeton, New Jersey.

PHYSICAL REQUIREMENTS

Candidates for admission must be mentally and physically sound, well formed and of robust constitution.

While it is desirable that all students meet the U. S. Navy physical standards for officer candidates so that they may qualify for commissions in the U. S. Naval Reserve upon graduation, it is not necessary to do so to gain admission to the academy. It is, however, necessary that all students be able to pass the physical requirements for licensed officers in the U. S. Merchant Marine, as set forth below:

Physical requirements for license as deck and engineering officers as stated in "Rules and Regulations for Licensing and Certificating of Merchant Marine Personnel," CG 191, June 15, 1953, issued by the United States Coast Guard, Treasury Department:

10.02-5(3)(2). 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.

10.02-5(e)(3). 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.

10.02-5(e)(4). Applicants for original engineers' license shall be examined only as to their ability to distinguish the colors red, blue,

green and yellow. No applicant for original license as engineer shall be disqualified for failure to distinguish colors, if any of his required experience is served prior to the effective date of the regulations in this part. The current criterion for determining color perception in this category is the "Williams" lantern test.

10.02-5(e)(5). 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.

MARITIME ADMINISTRATION REGULATIONS

The following relevant excerpts from the Maritime Administration Regulations are quoted as follows:

"310.2. *Federal aid and finances.* (iii) Per capita costs for out-of-state students shall be paid by the Maritime Administration, and shall be computed annually by using the cost figures of the State Maritime Academies for the preceding fiscal year. To determine this cost the total average number of state cadets for the preceding fiscal year will be divided into the net operating cost of operating the academy for such fiscal year that was paid from funds supplied by the State Government. Vouchers, Standard Form 1034, covering per capita costs of such students will be submitted monthly, after the determination of the per capita costs, and shall be accompanied by a list of the cadets who have been nominated.

310.6. *Entrance standards.* (a) A candidate for admission to a State Maritime Academy or College must be a male citizen of the United States and qualify as a Merchant Marine student, as set forth in Department of the Navy, Bureau of Naval Personnel Recruiting Note 199-56, dated August 3, 1956, and after December 31, 1956, as incorporated in the Recruiting Service Manual. Such Merchant Marine student shall also agree in writing to apply, at an appropriate time, prior to graduation, for a commission as Ensign in the U. S. Naval Reserve and accept the commission if tendered. Students appointed to the State Maritime Academies or College who receive a Federal subsistence and uniform and textbook allowance, shall not be less than 17 years of age and they shall not have reached their 22nd birthday on the year appointed to the State Maritime Academy or College. The State may fix the age limits of students not receiving the subsistence, uniform and textbook allowance. However, the physical and other requirements in the case of these students shall not be less than required by the U. S. Coast Guard for licensing as a Merchant Marine Officer.

310.7 *Enrollment.* To be eligible, a candidate who has qualified under the provisions of Section 310.6 for the uniform, textbook and subsistence allowance will be enrolled in the United States Maritime Service. Upon enrollment, he shall be required to take an oath or affirmation of allegiance to the United States of America, and submit to fingerprinting and a copy of form MA-2016 shall be furnished to the Administrator.

310.8. *Uniforms, textbooks and subsistence.* (a) Each Cadet who has been admitted to a State Maritime Academy or State Maritime College, who has qualified as a Merchant Marine Student as set forth in Section 310.6 or has been granted a waiver by the Maritime Administrator and has been enrolled in the U. S. Maritime Service, may upon recommendation to the Administrator, by the Superintendent of the Academy or President of the College, be granted a uniform, textbook and subsistence allowance at the rate provided therefor in the applicable appropriation act for each fiscal year, payable monthly. The subsistence allowance will be paid directly to the Cadet concerned or, if approval is granted by the Administrator, to the State Maritime Academy or College upon presentation of a statement, containing the names of the Cadets for whom subsistence has been furnished during that month and such other information as may be required by the Administrator. The uniform and textbook allowances will be paid either directly to the Cadet concerned or, with the approval of the Administrator, to the State Maritime Academy or College upon certification by the Superintendent or President thereof, respectively, that such allowances will be credited to the account of each Cadet. No Cadet will be granted a uniform, textbook, or subsistence allowance for any time during which he is absent without leave for a condition not in line of duty.

310.10. *Medical attention and injury claims.* (a) Compensation claims of Cadets. Compensation claims for personal injuries or death sustained by a Cadet enrolled in the Maritime Service in performance of duty shall be forwarded to the Administrator for transmission to the Bureau of Employees' Compensation."

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	$425	------	------	‡$65	------	------	‡$65	------	------
Tuition	*135	*135	*135	*135	*135	*135	*135	*135	*135
Student activities	15	------	------	15	------	------	15	------	------
Insurance	†10	------	------	†10	------	------	†10	------	------
Total	$585	$135	$135	$225	$135	$135	$225	$135	$135

TOTAL ANNUAL FEES

	First year	Second year	Third year	Total
In-state students	$855	$495	$495	$1,845
Out-of-state students	$1,125	$765	$765	$2,655

NOTES: * Tuition fee for out-of-state students is $225 per trimester (tuition fee includes room and board). Those students receiving G. I. or War Orphan benefits will be required to pay a sum of $240 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 22. This fee may be paid in equal installments of $80 per trimester. Fee schedule is subject to change. For latest information, contact the Dean of Instruction.

† Insurance charge is for group policy covering loss of life or limb. Listed cost is approximate. Actual cost 1956-57 was $10.40.

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

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 officers 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 18 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 no elective subjects.

GRADING SYSTEM

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

Letter scale		*Approximate percent*	*Quality points*
A	Excellent	92–100	4
B	Above average	83– 91	3
C	Average	74– 82	2
D	Minimum passing grade	65– 73	1
F	Failed	0– 64	0
W	Withdrew	----	0

The grade of W will be given if the withdrawal is official and takes place within the first five weeks of a trimester. After five weeks an F will be given except in mitigating circumstances such as sickness. The validity of such circumstances will be decided by the Dean.

REPORTS OF ACADEMIC PROGRESS

A permanent record card is maintained for each Midshipman. At the conclusion of each trimester a thermofax copy of the record card 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 (letter grade quality points divided by units of work taken) 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. A part of the cruise consists of an annual shipyard overhaul which affords the Midshipman a firsthand experience in readying a ship for sea through thorough inspection, repair and replacement procedures. From time of departure until return to the academy, the Midshipmen operate their own ship under the supervision of their officer-instructors. The sea training trimester is not an observation cruise but a learn-by-doing performance experience under all types of sea conditions. During the sea training trimester the Midshipmen learn at firsthand the duties and responsibilities of the Merchant Marine officer and put into practice the theoretical knowledge learned in the classrooms ashore. They are thus fully qualified to assume the responsibilities of ships' officers.

SEA TRAINING—DEPARTMENT OF NAUTICAL SCIENCE

SEA TERM I

Navigation. Preliminary definitions; position; direction and distance on the earth; instruments for measuring direction; compass error, variation and deviation; instruments for measuring speed, distance and depth; plotting positions, courses and distances; elementary chartwork; bridge duties.

Seamanship. Boat drills; launching and recovering lifeboats; use of fire-fighting and emergency gear; use of deck equipment; emergency procedures; ship maintenance; watch standing; international rules of the road 1-17.

Communications. Transmitting and receiving blinker and semaphore signals; drill for speed and accuracy.

SEA TERM II

Navigation. Sextant adjustments and altitude measurements; observations 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; international rules of the road 18-25; watch standing.

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

SEA TERM III

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; grounding cases and responsibilities of the navigator; bridge duties.

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 1-32.

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

SEA TRAINING—DEPARTMENT OF MARINE ENGINEERING

SEA TERM I

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.

SEA TERM II

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

SEA TERM III

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

DEPARTMENTS

Upon 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 instruction in naval procedure and practices essential to qualification for application for a naval commission.

SPECIAL SCHOOLS

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

Third Class Year	U. S. Navy Firefighting and Damage Control School.
Second Class Year	Basic Cargo Handling School. Gyroscope, Loran and Radar School.
First Class Year	Atomic, Biological and Chemical Warfare School.

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 Midshipmen 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 ADVISERS

In order to provide a positive point of contact for each Midshipman, a system of faculty advisers has been established. These advisers 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.
1800—Evening meal.
1900—Call to evening study.
2130—Recall from study.
2200—Taps.

PERFORMANCE RECORDS

Highest academic record	George Detweiler, 1945-D	95.28
Highest conduct record	Charles R. Lampman, Jr., 1959-D	100.0
Highest Coast Guard License Examination		
Department of Nautical Science	Roger M. Huhnke, 1957-D	96.6
Department of Marine Engineering	Dennis H. Gerber, 1957-E	97.5
Highest Gyroscope School score (Score of 65 required for documentation)	John S. Going, III, 1960-D	96
	Edward D. McDevitt, 1959-E	96
Highest Loran School Score (Score of 65 required for Documentation)	Ralph E. Vincente, 1960-D	98
Highest Radar School scores		
Theory: (Score of 75 required for documentation)	Donald Moller, 1960-D	100
Plotting: (Score of 90 required for documentation)	Ward Pearce, Jr. 1960-D	100
	Garland V. Smith, 1960-D	100

STUDENT ORGANIZATIONS AND ACTIVITIES

ATHLETICS

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

In addition, academy teams are entered in such sports as softball, 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 at least monthly with the Superintendent to discuss student projects and problems.

STUDENT PUBLICATIONS

The academy has three student publications. The *Binnacle* is the student newspaper and is published monthly. 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 adviser 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 compete for this award annually.

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.

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 alternate Thursdays. 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.

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.

CALIFORNIA MARITIME ACADEMY CURRICULUM

DEPARTMENT OF NAUTICAL SCIENCE

First Year

Fall Trimester			*Spring Trimester*		
	Subject	*Units*		*Subject*	*Units*
G-101.	English	3	G-102.	English	2
G-103.	U. S. Government	2	G-104.	U. S. Government	2
D-105.	Basic Mathematics	5	D-106.	Trigonometry	4
G-107.	Marine Orientation	2	D-108.	Navigation	3
D-109.	Sketching	1	D-110.	Sketching	1
D-111.	Seamanship	3	D-112.	Rules of the Road	2
NS-113.	Naval Science	2	NS-114.	Naval Science	3
D-115.	Marlinspike Seamanship	2	D-116.	Marlinspike Seamanship	2
D-117.	Boats	2	D-118.	Boats	2
D-119.	Rules of the Road	½	D-120.	Emergency Procedures	½
D-121.	Bridge Duties	½	D-122.	Bridge Duties	½
D-123.	Blinker Signals	½	D-124.	Semaphore Signals	½
D-125.	Ship's Operations	½	D-126.	Ship's Operations	½
D-129.	Physical Education	½	D-128.	Ship's Work Detail	½
			D-130.	Physical Education	½
		24½			24

Second Year

Fall Trimester			*Spring Trimester*		
	Subject	*Units*		*Subject*	*Units*
D-201.	Navigation	3	D-202.	Navigation	3
D-203.	Cargo	3	D-204.	Cargo	3
D-205.	Spherical Trigonometry	4	D-206.	Physics	2
D-207.	Ship Construction and Damage Control	3	D-208.	Marine Rules and Regulations	3
D-209.	Ship Safety and Sanitation	2	D-210.	Engine Room Operations	2
D-211.	Seamanship	2	D-212.	Rules of the Road	2
NS-213.	Naval Science	3	NS-214.	Naval Science	3
D-215.	Auxiliary Deck Gear	1	D-216.	Cargo Gear	1
D-217.	Power Boats	1	D-218.	A.B. Preparation	2
D-219.	Rules of the Road	½	D-220.	Instruments and Navigational Aids	1
D-221.	Bridge Duties	½			
D-223.	International Signals	½	D-222.	Bridge Duties	½
D-225.	Ship's Operations	½	D-224.	Communications	½
D-229.	Physical Education	½	D-226.	Ship's Operations	½
			D-230.	Physical Education	½
		24½			24

Third Year

Fall Trimester			*Spring Trimester*		
	Subject	*Units*		*Subject*	*Units*
D-301.	Navigation	3	D-302.	Navigation	3
D-305.	Marine Rules and Regulations	3	D-304.	Maritime Economics	3
			D-306.	Meteorology	3
D-307.	Maritime Law and Ship's Business	4	D-308.	License Seminar	3
			D-312.	Pilot and Inland Rules	3
D-309.	Ship's Medical Practice	1	NS-314.	Naval Science	2
D-311.	Seamanship	3	D-322.	Bridge Duties	½
NS-313.	Naval Science	3	D-324.	Communications	½
D-321.	Bridge Duties	½	D-326.	Ship's Operations	5
D-323.	Communications	½			
D-325.	Ship's Operations	5			23
		23			

DEPARTMENT OF MARINE ENGINEERING

First Year

Fall Trimester			*Spring Trimester*		
	Subject	*Units*		*Subject*	*Units*
G-101.	English	3	G-103.	English	2
G-103.	U. S. Government	2	G-104.	U. S. Government	2
E-105.	Basic Mathematics	5	E-106.	Engineering Mathematics	5
G-107.	Marine Orientation	2	E-108.	Marine Boilers	2
E-109.	Engineering Drawing	2	E-110.	Engineering Drawing	2
E-111.	Machine Shop Theory	2	NS-114.	Naval Science	3
NS-113.	Naval Science	2	E-116.	Machine Shop	2
E-115.	Machine Shop	2	E-118.	Boats	2
E-117.	Boats	2	E-120.	Marine Boilers and Pipings and Fittings	2
E-119.	Engine Room Indoctrination	2	D-130.	Physical Education	½
E-129.	Physical Education	½			
		24½			22½

SECOND YEAR

Fall Trimester			*Spring Trimester*		
	Subject	*Units*		*Subject*	*Units*
E-201.	Physics	3	E-202.	Nuclear Power	2
E-203.	Electrical Engineering	4	E-204.	Electrical Engineering	4
E-205.	Auxiliary Machinery	2	E-206.	Auxiliary Machinery	2
E-207.	Engineering Chemistry	2	E-208.	Engineering Materials	3
E-209.	Advanced Mathematics	3	E-210.	Reciprocating Engines	3
NS-213.	Naval Science	3	NS-214.	Naval Science	3
E-215.	DC Electrical Operations	2	E-216.	AC Electrical Operations	2
E-217.	Welding and Burning	2	E-218.	Ship's Operations	4
E-219.	Operational Training in Auxiliary Machinery	2	E-230.	Physical Education	½
E-229.	Physical Education	½			23½
		23½			

THIRD YEAR

E-301.	Marine Steam Turbines	2	E-302.	Marine Steam Turbines	2
E-303.	Diesel Engineering	3	E-304.	Diesel Engineering	3
E-305.	Thermodynamics	3	E-306.	General Rules and Regulations	5
E-307.	Advanced Boilers	2	E-308.	License Seminar	2
E-309.	Ship Construction and Damage Control	3	E-310.	Refrigeration and Air Conditioning	2
E-311.	Ship's Medical Practice	1	E-312.	Engineering Administration	1
NS-313.	Naval Science	3	NS-314.	Naval Science	2
E-315.	Diesel Operations	2	E-316.	Refrigeration Operations	2
E-317.	Ship's Operations	4	E-318.	Ship's Operations	4
		23			23

DECK COURSES REQUIRED FOR MIDSHIPMEN IN THE DEPARTMENT OF NAUTICAL SCIENCE

D-105. Basic Mathematics (5)

Intensive drill in fundamental mathematical operations from arithmetic through algebra with emphasis on rapid and accurate performance of calculations. Instruction in basic operations with the slide rule is included.

D-106. Trigonometry (4)

Numerical and practical aspects of trigonometry, stressing concepts and operations fundamental to the science of navigation.

D-108. Navigation (3)

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

D-111. Seamanship (3)

Instruction in life boats, davits, lifeboat equipment, emergency drills, sea terms and ship nomenclature.

D-112. Rules of the Road (2)

The study of the origin, application and interpretation of Rules 1-17 of the International Rules of the Road. Included in the course is the requirement for verbatim memorization of rules 1-17.

D-115-116. Marlinspike Seamanship (2-2)

Instruction in ground tackle, knotting and splicing, blocks and tackles, manila and wire rope, canvas, and ship's rigging.

D-117-118. Boats (2-2)

Instruction in pulling, sail, and power boats; the launching and recovery of life boats; boat handling and landings. This course prepares the Midshipman to qualify for the U. S. Coast Guard Lifeboatman's certificate.

D-119-120. Emergency Procedures (½-½)

A practical application of fundamental equipment and techniques in firefighting, life saving, and rescue operations.

D-121-122. Bridge Duties (½-½)

An orientation to required bridge duties including steering orders, hand and machine soundings, log book entries, flag etiquette and procedures and uses of the log line.

D-123. Blinker and Semaphore Signals (½-½)

Transmission and receiving of blinker and semaphore signals; drill for speed and accuracy in signal communication.

D-125-126. Ship's Operations (½-½)

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)

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

D-201-202. Navigation (3)

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-203-204. Cargo (3-3)

The handling, stowage and safeguarding of cargo aboard ship and the duties of ship's officers in connection therewith.

D-205. Spherical Trigonometry (4)

Spherical Trigonometry stressing concepts and operations fundamental to the science of navigation with particular emphasis upon great circle sailing.

D-206. Seamanship (2)

Merchant vessel types and classifications, reeving of blocks and tackles, mechanical advantage, stress, safety limits of boom equipment, working loads, preservation and care of ropes, use of deck machinery, mooring, docking and undocking, port routine and problems of fuel conservation.

D-207. Ship Construction and Damage Control (3)

A course covering the ship's structure, materials and methods of construction; classification and measurements; principles of buoyancy and stability; hull piping systems, inclining experiments, coefficients and rules of mensuration.

D-208. Marine Rules and Regulations (3)

The essentials of the stowage and carriage of bulk liquid cargo; USCG Rules and Regulations for tank vessels; rules to prevent collisions of vessels on inland waters.

D-209. Physics (2)

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-212. Rules of the Road (2)

Verbatim memorization of Rules 18-32 of the International Rules of the Road; the study of the origin, application and interpretation of International Rules; case studies.

D-215. Ship Safety and Sanitation (2)

Shipboard safety precautions, maritime laws providing for safety at sea, shipboard sanitation, quarantine regulations, responsibilities of ship officers for safety and sanitation and penalities assessed for infractions of regulations.

D-216. Auxiliary Deck Gear (2)

Mechanical principles involved in the operation and maintenance of ship's cargo gear; practice in the operation of ship's windlass, cargo booms and deck machinery.

D-217. Cargo Gear (2)

Operational limitations and safety factors involved in the working of heavy lift cargo gear and fore and aft cargo gear.

D-218. Ship Stowage (2)

The essential requirements and problems in the stowage and carriage of general and bulk (dry and liquid), refrigerated and special cargos; prevention of damage to cargo; measuring ship's cubic capacity; cargo stowage plans.

D-219. Rules of the Road (½)

Practicum in the interpretation and application of the International Rules of the Road; use of models and training films covering prevention of collision.

D-220. Marine Rules and Regulations (½)

Practicum in the application of the Code of Federal Regulations implementing the International Conventions for Safety of Life at Sea as they pertain to passenger, cargo and miscellaneous vessels.

D-221-222. Bridge Duties (½-½)

Care of navigational and signal equipment, compass, compensation adjustments, use of tide and current tables, calculation of sunrise and sunset, chart correction and sailing directions, firing of the Lyle gun, rigging of the breeches buoy, instruction in the duties of the junior officer of the watch.

D-223-224. International Signals (½)

International Code flags, storm signals and wreck signals, blinker and semaphore signaling and use of H.O.-87 Code Book.

D-225-226. Ship's Operations (½-½)

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 falls; advanced marlinspike seamanship; advanced material maintenance including damage control features; qualification in use of power boats.

D-228. General Shipboard Drills (½)

The duty and work of shipboard personnel in providing for safety at sea; lifeboat and fire fighting drills; safety precautions.

D-229-230. Physical Education (½-½)

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

D-301-302. Navigation (3-3)

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

D-303. Meteorology (3)

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. Marine Economics (2)

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-305. Marine Rules and Regulations (3)

The continuation of D-208 providing the student with an understanding of Federal Regulations applicable to passenger cargo, and miscellaneous vessels.

D-306. Seamanship (3)

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-307. Maritime Law and Ship's Business (4)

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

D-308. License Seminar (3)

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

D-309. Ship's Medical Practice (1)

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.

D-312. Pilot and Inland Rules (3)

Federal regulations relating to the navigation of vessels in inland waters; study of the application and interpretation of Inland Rules.

D-325-326. Ship's Operations (6-6)

A course of practical instruction aboard the training ship Golden Bear coving 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 DEPARTMENT OF MARINE ENGINEERING

E-105. Mathematics (5)

Intensive drill in fundamental mathematical operations from arithmetic through algebra with emphasis on rapid and accurate performance of calculations. Instruction in basic operations with the slide rule is included.

E-106. Engineering Mathematics (5)

A comprehensive presentation of advanced algebra, trigonometry, logarithms and graphic methods for the specialized engineering curriculum.

E-108. Marine Boilers (2)

A detailed coverage of the construction, types and operating principles associated with marine steam generating equipment.

E-109-110. Engineering Drawing (2-2)

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, threads and fasteners, dimensioning, pipings, drawings, and blueprint reading. Practical projects applying to the marine field are encouraged for advanced students.

E-111. Machine Shop Theory (2)

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.

E-115-116. Machine Shop (2-2)

A laboratory course in the machine shop applying the theory learned in E-111 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-117-118. Boats (2-2)

Instruction in pulling, sail, and power boats; the launching and recovery of lifeboats; boat handling and landings. This course prepares the midshipman to qualify for the U. S. Coast Guard lifeboatman's certificate.

E-119. Engine Room Indoctrination (2)

An indoctrination course acquainting the engineering student with the location, function and operation of the ship's main propulsion units, evaporators, auxiliary machinery, electrical system, ship's piping and compartmentation.

E-120. Marine Boilers and Piping and Fittings (2)

An operational course designed to equip the student with the knowledge and skill necessary to maintain the ship's boilers and piping in operable condition. Also covers packing and gasket materials, lubrication, gearing, bearings and bearing surfaces.

E-129-130. Physical Education (½-½)

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

E-201. Physics (3)

The mechanics, 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, fluids in motion.

E-202. Nuclear Power (2)

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 nuclear fission, chain reaction and its control, reactor systems and auxiliaries, reactor loop components and power cycle studies are covered. The necessary nuclear physics and chemistry to understand these subjects is included in the course.

E-203-204. Electrical Engineering (4-4)

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; marine electrical propulsion.

E-205-206. Auxiliary Machinery (2-2)

Deals with most auxiliary units attached to main propulsion plants and with units or systems which in themselves are single systems but, in the complete picture, are auxiliary to the main plant; piping systems, packing, valves, governors, insulation pumps, refrigeration systems, condensers, evaporators, compressed air systems and feed systems.

E-207. Engineering Chemistry (2)

Basic chemistry including atomic and molecular structure, Law of Guy-Lussac, Avogadro's Law, acids, bases, solids, chemical equations; feed water treatment including cause and prevention of scale corrosion, caustic embrittlement, foaming and priming and methods used in treating and testing water for alkalinity, salinity, hardness, phosphate, sulphate; fuels and combustion including chemistry of combustion, Orsat determination, combustion calculations.

E-208. Engineering Materials (3)

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-209. Advanced Mathematics (3)

The purpose of this course is to conclude the mathematical requirements for the student enrolled in the engineering curriculum. Topics of an advanced nature are introduced as their apparent need is evidenced by the continuing increase of the technical requirements of marine engineering. The terminal point at the present is an introduction to calculus following a treatment of the necessary prerequisite graphical methods and analytical trigonometry is completed from its introduction in the third class year together with certain advanced topics in algebra designed to develop general mathematical background.

E-210. Reciprocating Engines (3)

The design, construction, operation, care and repair of marine reciprocating engines for propulsion and auxiliary purposes.

E-215-216. DC-AC Electrical Operations

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

E-217. Welding and Burning (2)

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

E-218. Ship's Operations (4)

Operational experience in the maintenance, operation and repair of machinery and equipment for which the Department of Engineering is responsible aboard ship.

E-219. Operational Training in Auxiliary Machinery (2)

An extension of E-205-206 Auxiliary Machinery providing operating experience with the auxiliary units attached to the main propulsion plants; reciprocating systems, condensers, evaporators, compressed air systems and feed systems.

E-229-230. Physical Education (½-½)

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

E-301-302. Marine Steam Turbines (2-2)

The construction of marine steam turbines and their operating principles as applied to main propulsion and auxiliary use aboard ship.

E-303-304. Diesel Engineering (3-3)

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. Thermodynamics (3)

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-306. General Rules and Regulations (5)

United States Rules and Regulations governing construction, repair, operation, inspections and safety of all American Flag vessels.

E-307. Advanced Boilers (2)

An advanced study of the characteristics, construction and specifications of marine types of steam generators, feed water treatment and control, combustion and combustion control.

E-308. License Seminar (2)

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

E-309. Ship Construction and Damage Control (3)

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-310. Refrigeration and Air Conditioning (2)

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-311. Ship's Medical Practice (1)

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.

E-312. Engineering Administration (1)

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-315. Diesel Operations (2)

An operational laboratory designed to provide the engineering student with operational skill in the operation, maintenance and repair of diesel engines.

E-316. Refrigeration Operations (2)

An operational laboratory designed to provide the engineering student with operational skill in the operation, maintenance and repair of refrigeration and air-conditioning equipment.

E-317-318. Ship's Operations (4-4)

Instruction in theory and operational skills are brought to a climax in this course which is designed to provide the engineering student with operational experience of the type he will encounter when serving as a third assistant engineer aboard ship.

GENERAL COURSES REQUIRED FOR ALL MIDSHIPMEN

G-101-102. English (3-2)

A complete review of functional English including sentence structure, punctuation, spelling, and composition, the development of outlines and the presentation of oral reports is stressed.

G-103-104. United States Government (2-2)

This course is designed to meet the state requirements for a college level study of the Constitution, federal, state and local government.

G-107. Marine Orientation (2)

An introductory course designed to provide the Midshipmen with an understanding of the scope of work performed in the deck and engineering departments. Engineering students are acquainted with Deck Department routine including basic seamanship, navigation and rules of the road. Deck students receive basic instruction in the fundamentals of the operation of a marine powerplant, basic steam cycles, fuel oil systems, evaporators and auxiliary machinery.

NAVAL SCIENCE COURSES REQUIRED FOR ALL MIDSHIPMEN

NS-113-114. Naval Science (2-3)

Students at maritime academies enter upon this course with varied backgrounds of education and experience. Few of them know anything about the Navy. Many have never previously seen either a ship or an ocean. The intent of this course is to introduce the Navy to the student and develop within him an interest and enthusiasm which are prerequisites to the acquisition and retention of knowledge of the specific subjects which follow in the second and third year. The influence of sea power upon global history and an appreciation of the important role of sea power to the security of the United States is studied.

NS-213-214. Naval Science (3-3)

Basic principles of Naval weapons and their application to control of the seas, Naval Ordinance and Gunnery, fire control, radar, antisubmarine warfare, combat information center and Gunnery Administrative Procedures.

NS-313-314. Naval Science (3-2)

Naval operations covering maneuvering instructions, techniques and communication; naval administration preparing the prospective junior officer for integration into a ship's organization as a junior division officer; shipboard administrative procedures, military law and naval leadership.

PORTS VISITED BY TRAINING SHIP "GOLDEN BEAR" 1947-1959

UNITED STATES AND POSSESSIONS

Alameda, California
Balboa, Canal Zone
Cristobal, Canal Zone
Hilo, Hawaii
Honolulu, Hawaii
Houston, Texas
Lahaini, Hawaii
Long Beach, California
Monterey, California
New Orleans, Louisiana
Oakland, California
Pago Pago, Samoa
Portland, Oregon
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
Callao, Peru
Curaçao, Netherlands West Indies
Funchal, Madeira
Galápagos Islands
Genoa, Italy
Gibraltar
Kingston, Jamaica
Magdalena Bay, Mexico
Manzanillo, Mexico
Marseilles, France
Naples, Italy
Papeete, Tahiti
Piraeus, Greece
San José, Guatemala
Valparaíso, Chile
Vancouver, British Columbia
Vera Cruz, Mexico

ENTRANCE EXAMINATION SCHEDULE

Examinations will begin promptly at 9 a.m. The examination requires approximately 3½ hours. No prior application need be made to take the examination—just be present on time.

Date	*City*	*Examination Center*
January 9, 1960	Vallejo	California Maritime Academy
February 6, 1960	Vallejo	California Maritime Academy
March 5, 1960	Vallejo	California Maritime Academy
April 2, 1960	Vallejo	California Maritime Academy
April 9, 1960	Sacramento	Sacramento High School Library
April 9, 1960	San Bernardino	San Bernardino Junior College
April 11, 1960	Los Angeles	Los Angeles City College Rm. 102, Life Science Bldg.
April 11, 1960	Modesto	Modesto Junior College
April 12, 1960	Bakersfield	Bakersfield High School Rm. 110, Warren Hall
April 12, 1960	Long Beach	Polytechnic High School, Rm. 421
April 14, 1960	San Diego	Hoover High School, Rm. 421
April 16, 1960	Santa Barbara	Santa Barbara High School Library
April 23, 1960	Palo Alto	Palo Alto High School Library
April 30, 1960	Redding	Rm. 23, Shasta College, Redding
May 7, 1960	Vallejo	California Maritime Academy

o

printed in CALIFORNIA STATE PRINTING OFFICE

7457 11-59 3,500