2000-2001 Catalog

Texas A&M University at Galveston

Stephen Curley

TEXAS A&M UNIVERSITY AT GALVESTON
2000 - 2001 CATALOG NO. 123

Globe on cover: The original data points were spaced every 2 minutes of latitude and longitude; the image represent a reduced resolution of about 5 minutes while preserving all important physiographic features. Digital image by Peter W. Sloss, NOAA-NGDC.

ACADEMIC CALENDAR

Fall Semester 2000*

August 23 - 25	Wednesday - Friday. Terminal registration for new students only.
August 25	Friday. Last day to register for fall semester classes and pay fees.
August 28	Monday. First day of fall semester classes.
August 31	Thursday. Last day for dropping courses with no record.
September 1	Friday. Last day for adding new courses for the fall semester.
September 8	Friday. Last day to apply for all degrees to be awarded in December.
October 5	Thursday. Academic Convocation.
October 17	Tuesday. Mid-semester grades available.
November 3	Friday. Last day for all students to drop courses with no penalty (Q-drop). Last day to change Kinesiology 199 to S/U grade. Last day to officially withdraw from the University.
Nov. 8 - Dec. 4	Wednesday - Monday. Pre-registration for 2001 spring semester by classification.
November 18	Saturday. Bonfire in Galveston. 8 p.m.
November 21	Tuesday. Bonfire in College Station, 8 p.m.
November 23 - 24	Thursday - Friday. Thanksgiving holiday.
December 4	Monday. Redefined day; students attend their Friday classes. Dead day, classes meet but no major exams.
December 5	Tuesday. Last day of fall semester classes. Redefined day; students attend their Thursday classes. Dead day, classes meet but no major exams.
December 6 - 7	Wednesday - Thursday. Reading days, no classes.
December 8, 11-13	Friday, Monday - Wednesday. Fall semester final examinations for all students.
December 16	Saturday. Commencement and Commissioning, 9 a.m. 1894 Grand Opera House.
December 19	Tuesday. Final grades for all students available.
December 21 - 29	Thursday - Friday. Faculty and staff holiday.

Spring Semester 2001*

January 1	Monday. Faculty and Staff holiday.
January 11 - 12	Thursday - Friday. Terminal registration for new students only.
January 12	Friday. Last day to register for spring semester classes and pay fees.
January 15	Monday. Holiday - Martin Luther King, Jr. Day.
January 16	Tuesday. First day of spring semester classes.
January 19	Friday. Last day for dropping courses with no record.
January 22	Monday. Last day for adding new courses for the spring semester.
January 26	Friday. Last day to apply for all degrees to be awarded in May.
March 6	Tuesday. Mid-semester grades available.
March 12 - 16	Monday - Friday. Spring break.
March 15 - 16	Thursday - Friday. Faculty and staff holiday.
April 2	Monday. Last day for all students to drop courses with no penalty (Q-drop). Last day to change Kinesiology 199 to S/U grade. Last day to officially withdraw from the University.
April 9 - April 30	Monday - Monday. Pre-registration for the 2001 first term, second term, 10-week summer semester and fall semester by classification.
April 13	Friday. Reading day, no classes.
April 21	Saturday. Muster.

April 30	Monday. Dead day, classes meet but no major exams.
May 1	Tuesday. Last day of spring semester classes. Redefined day; students attend their Friday classes. Dead day, classes meet but no major exams.
May 2 -3	Wednesday - Thursday. Reading days, no classes.
May 4, 7 - 9	Friday, Monday - Wednesday. Spring semester final examinations for all students.
May 12	Saturday. Commencement and Commissioning, 9 a.m.
May 15	Tuesday. Final grades for all students available.

Summer Session 2001*

May 25	Friday. Open registration and drop/add for first term and 10-week semester by telephone and by terminal. Last day to register for first term and 10-week semester and pay fees.
May 28	Monday. First day of first term and 10-week semester classes.
May 30	Wednesday. Last day for dropping courses with no record for the first term and 10-week semester.
May 31	Thursday. Last day for adding new courses for the first term and the 10-week semester.
June 1	Friday. Last day to apply for degrees to be awarded in August for students completing degree requirements in the first term.
June 15	Friday. Last day for all students to drop courses with no penalty for the first term (Q-drop). Last day to change Kinesiology 199 to S/U grade. Last day to officially withdraw from the University for first term.
June 29	Friday. Last day of first term classes.
July 2	Monday. First term final examinations. No 10-week semester classes. Last day to register for the second term and pay fees.
July 3	Tuesday. First day of second term classes.
July 4	Wednesday. Holiday. Independence Day.
July 6	Friday. Last day to drop courses with no record for the second term.
July 9	Monday. Last day for adding new courses for the second term. Last day to apply for all degrees to be awarded in August for students completing degree requirements in the second term or 10-week semester.
July 17	Tuesday. Last day for all students to drop courses with no penalty for the 10-week semester (Q-drop). Last day to withdraw from the University for 10-week semester.
July 24	Tuesday. Last day for all students to drop courses with no penalty for the second term (Q-drop). Last day to change Kinesiology 199 to S/U grade. Last day to officially withdraw from the University for second term.
August 6	Monday. Last day of second term and 10-week semester classes.
August 7 - 8	Tuesday - Wednesday. Second term and 10-week semester finals for all students.
August 10	Friday. Grades for degree candidates available.
August 11	Saturday. Commencement and Commissioning, 9 a.m.
August 14	Tuesday. Final grades for second term and 10-week semester available.

*All dates are subject to change.

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* - Correct as of Spring 2000

Texas A&M University at Galveston

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* - Correct as of Spring 2000

INTRODUCTION

Texas A&M University at Galveston (TAMUG) is an ocean-oriented campus offering academic degrees, research, continuing education, and public service in marine science, engineering, business, and transportation. Because TAMUG is a branch campus of Texas A&M University in College Station, students receive their degrees from Texas A&M University. TAMUG includes the Texas State Maritime Academy, one of only six state maritime training academies in the United States and the only one located on the Gulf of Mexico. It is also the only training academy affiliated with a comprehensive research and teaching university.

TAMUG is located near the mouth of Galveston Bay with close access to the Gulf of Mexico. The University has facilities at three separate campus locations. Most instructional programs are taught at the 130-acre Mitchell Campus on Pelican Island (with housing for 600+ students). Research and classroom work are conducted at the three-acre Ft. Crockett Campus on Galveston Island, including an additional 15,200 sq. ft. of space leased from the National Marine Fisheries Services (which together provide approximately 90,000 sq. ft. for marine laboratory research). The 10-acre Offatts Bayou Campus houses the Center for Marine Training and Safety and student recreational facilities.

Academic Programs

TAMUG provides undergraduate academic instruction in marine and maritime-related degree programs in Ocean and Coastal Resources (pending Texas Higher Education Coordinating Board approval), Marine Biology, Marine Biology/Biomedical Sciences, Marine Sciences (Oceanography), Marine Engineering Technology, Marine Transportation, Marine Fisheries, Maritime Systems Engineering (ocean/civil), Maritime Administration (policy/business) and Maritime Studies. All students complete the core curriculum requirements set by TAMU to ensure a broad-based education. Cooperative graduate degree programs, at both the master and doctorate levels, are in place with the departments of Oceanography, Biology, and Wildlife and Fisheries Sciences at TAMU in College Station. The Texas State Maritime Academy is headquartered on the Galveston Campus.

Academic Facilities

Classrooms, laboratories, and meeting spaces are housed within 12 major buildings on the Mitchell Campus. There are three residence halls on campus, a physical education facility and the Mary Moody Northen Student Center with cafeteria services. The Jack K. Williams Library contains over 43,000 books, 35,000 bound volumes of journals and a collection of charts and maps. Public access computers in the Library guide the user to the holdings of the Williams Library, the Galveston Bay bibliography, and many other library catalogs and computerized databases. The training ship Texas Clipper II, in addition to being a floating campus during summer cruises, provides additional classroom, meeting, and training space during the school year. TAMUG has telecommunications systems established to communicate statewide within the Texas A&M University System universities and agencies. TAMUG has direct access to the TAMU computer network in College Station via remote job entry connect lines.

Research Programs

Over 35 TAMUG faculty actively participate in extramural research encompassing both the basic and applied aspects of fields such as marine environmental and conservation studies; and marine/maritime engineering, business, law, policy, and management. Research is focused largely in the areas of coastal and beach processes, marine life studies, bay and estuary ecosystems, the offshore/deepwater environments, and geochemical cycling in the marine/aquatic/atmospheric systems.

In addition to the approximately 70 M.S. and PH.D. students supported by the research projects of TAMUG faculty, there exist numerous opportunities for undergraduate students to participate in research projects throughout the academic year and summer months.

An average of 50 to 100 funded research projects are active at any one time. These projects bring an average of $2.7 million/year to the Galveston campus from agencies such as the National Science Foundation, the Office of Naval Research, NOAA, EPA, Sea Grant, the State of Texas, and a variety of private foundations and businesses. Most notable of these is the TAMUG-based Texas Institute of Oceanography, whose mission is to support Texas scientists conducting basic research in the marine sciences, and to provide the research and technological base for the development of marine-related businesses in Texas and around the Gulf of Mexico. Other research programs at TAMUG include the:

- Bioacoustical Research Program
- Center for Texas Beaches and Shores
- Center for Ports and Waterways
- Center for Marine Life Studies
- Laboratory for Oceanographic and Environmental Research
- Coastal Zone Laboratory
- Marine Mammal Research and Graduate Program
- Mathematical and Theoretical Chemistry Program
- Physiological Ecology Research Program
- Sea Turtle and Fisheries Ecology Research Program

In recent years, TAMUG has further strengthened its research program by developing agreements to foster collaboration between TAMUG researchers and scientists at federal and state research laboratories such as the Army Corps of Engineers, the National Marine Fisheries Service, and the Texas Transportation Institute.

Accreditation

Texas A&M University at Galveston is fully accredited by the Southern Association of Colleges and Schools. Maritime Systems Engineering is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.

Documents certifying accreditation may be viewed in the Office of the CEO.

Mission

Texas A&M University at Galveston is a special-purpose institution of higher education for undergraduate and graduate instruction in marine and maritime studies in science, engineering, and business and for research and public service related to the general field of marine resources. The institution is under the management and control of the Board of Regents of The Texas A&M University System, with degrees offered under the name and authority of Texas A&M University at College Station.

Compliance Policy

Within published requirements for admission, Texas A&M University at Galveston does not and will not discriminate in admission of students to study at TAMUG, enrollment in classes, housing or use of facilities in the academic program because of race, color, religion, sex, age, marital status, national origin, condition of handicap, veteran or disabled veteran status. TAMUG does not, and will not, discriminate against any employee or applicant for employment because of race, color, religion, sex, age, marital status, national origin, condition of handicap, veteran or disabled veteran status.

TAMUG embraces affirmative action practices to ensure that applicants are hired fairly, and that employees are treated during their employment without regard to race, color, religion, sex, age, marital status, national origin, condition of handicap, veteran or disabled veteran status. Such action includes, but is not limited to, employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation, and selection for employment training, including apprenticeship. Any questions or complaints relative to discrimination should be referred to the Human Resources Office.

Limited services and facilities are available to students with handicaps. Individuals should contact the Office of Student Affairs if they have special needs before they commit to enrollment.

Continuing Education Programs

The Center for Marine Training and Safety offers broad-based professional development to employees of coastal and offshore maritime industries.

The outreach programs of the university include: Seaborne Conservation Corps, a residential program for high school dropouts; Sea Camp, a marine biology summer camp for youths 10-16 years of age; and Elderhostel, a marine environment-oriented camp for senior citizens. The Oil Spill School and the Oil Spill Response Center both serve to provide protection from disasters. Marine safety programs, radar observer schools, workshops on beach ecology, and summer programs are regularly offered.

Computer Simulation systems for ship operations (bridge, engine room, radar, oil spill management and communications) provide realistic hands-on experiences for undergraduate and continuing education programs.

Public Service Programs

The Galveston Bay Information Center has developed a computer-searchable Galveston Bay bibliography which is linked with a local network including an interactive model of Galveston Bay circulation and Compass, an information system developed by NOAA. The Texas Agricultural Experiment Station (TAES) helps TAMUG serve the educational needs of the Galveston area agricultural community. The Texas Marine Mammal Stranding Network is linked statewide to aid in the recovery and study of stranded marine mammals. The Texas Transportation Institute regional office is established to link waterway components to the state's intermodal transportation research and it houses the Center for Ports and Waterways.

Summer School at Sea

Recent high school graduates who have never attended college other than concurrent enrollment programs before high school graduation may participate in the Summer School at Sea program conducted aboard the T/S Texas Clipper II during the annual summer training cruise. Students will visit exciting foreign ports while accumulating six hours of university credit. Usually, three college courses are offered and students enroll in two of the three. In addition to daily classes, students are also responsible for assisting the ship's crew in maintaining and operating the Texas Clipper II, assisting with galley duty and maintaining their quarters during the training cruise. Each port visit will average four days, and students have the opportunity for sightseeing, touring, shopping and recreation.

Students must be admitted to TAMUG or TAMU (College Station) before applying to attend Summer School at Sea. Since the courses offered are freshman courses, applicants must be between high school graduation and freshman year in college. Information about the program and the "Summer School at Sea Registration Form" are available from the Student Relations Office.

GENERAL INFORMATION

Students who complete the academic programs of Texas A&M University at Galveston are awarded the degree of Texas A&M University (College Station). Therefore, students enrolled in Texas A&M University at Galveston must adhere to the same basic academic requirements as students enrolled at Texas A&M University (College Station). Students are advised of these requirements and are encouraged to be familiar with the Texas A&M University at Galveston University Rules.

Students are required to complete the courses listed in a curriculum; however, the display of a curriculum does not necessarily indicate the length of time required to complete the degree requirements. Rather, this display is intended as a guide to indicate the preferred order for completion of degree requirements. Exceptions to certain requirements may be made by petition, through the Department Head to the Vice President or designee.

This catalog was prepared in advance of its effective date; therefore, some course descriptions may vary from actual course content due to advancements in the discipline, interests of individual professors or recent decisions to change the scope of a course. The catalog is not intended to be a contract, but simply an information bulletin and the University reserves the right to change any of the provisions. Some new courses and changes to existing courses are included in this catalog pending their approval by the Texas Higher Education Coordinating Board. A separate class schedule giving course offerings and other pertinent information is published each semester and is available on request from the Student Relations Office. Students should refer to the class schedule for the offerings in any given semester. For various administrative reasons, such as insufficient enrollment, some scheduled courses might not be offered in the announced semester.

Academic Year

The academic year of Texas A&M University at Galveston is divided into the fall and spring semesters and the summer session which consists of either two terms of five weeks each or one 10-week summer semester.

During the summer session, most departments offer courses which are selected to meet the needs of the regular university students.

University Core Curriculum

The University Core Curriculum at Texas A&M University assures that all undergraduate programs provide for breadth of understanding. The Core Curriculum emphasizes competence in the process of learning, the capacity to engage in rigorous and analytical inquiry, and the ability to communicate clearly and effectively. It supports the development of extensive knowledge about and appreciation for our cultural heritage, our social and moral responsibilities, and our interactions with the economies and cultures of the international community. The University Core Curriculum acts to enrich and broaden the University's tradition of providing thorough preparation in each student's academic major.

University Core Curriculum requirements are described in the sections that follow. These requirements must be met by every student pursuing a baccalaureate degree program at Texas A&M University, regardless of his or her major. Individual degree programs may require that specific courses from the general University list be used to satisfy University Core Curriculum requirements. Please check with individual program advisors for details (see notes 1, 2, 3 and 6).

Specific Requirements

1. Communication.

   Communication (6 hours) A course used to satisfy this requirement shall have as its primary focus the improvement of student expression in communication. This focus on student expression should be demonstrated both in course instruction and assessment. Acceptable forms of student expression may range from creative to technical. Acceptable courses may include those embedded in subject areas other than writing. This requirement must be satisfied by ENGL 104 (3 hours) and one of the following: ENGL 203, ENGL 210, ENGL 235, ENGL 236, ENGL 241, ENGL 301, SCOM 203, SCOM 205, and SCOM 243.

2. Mathematics.

   Mathematics (6 hours, at least 3 of which must be in mathematics). To be selected from any mathematics course except: MATH 102, MATH 103, MATH 150, MATH 365 and MATH 366. Also may select 3 hours from: PHIL 240, PHIL 341 and PHIL 342.

3. Natural Sciences.

   Natural Sciences (8 hours) Two or more natural sciences courses which deal with fundamental principles and in which critical evaluation and analysis of data and processes are required. A minimum of one course shall include a corresponding laboratory. Non-technical courses are specifically excluded.

   Four hours to be selected from: BIOL 113/123, BOTN 101, CHEM 101, CHEM 103/113, GEOL 101, PHYS 201, PHYS 218 and ZOOL 107.

   Remaining hours to be selected from courses listed and/or: AGRO 105, AGRO 301, AGRO 405, ANTH 225, BESC 201, BIOL 114/124, CHEM 102, CHEM 104/114, CHEM 106/116, CHEM 222/242, FRSC 204, GENE 301, GENE 310, GEOG 203/213, GEOL 106, GEOL 307, HORT 201/202, METR 201/202, METR 326, OCNG 251/252, PHYS 202, PHYS 208, PHYS 219, PHYS 306/307, RENR 205/215 and ZOOL 225.

4. Humanities.

   A. Humanities (3 hours) Courses used to satisfy this requirement shall address one of the following subject areas: history, philosophy, literature, the arts, culture or language (exclusive of courses devoted predominantly to acquiring language skills in a student's native language). Acceptable courses are: AGEC 316, ANTH 202, ANTH 205, ANTH 301, ANTH 302, ANTH 303, ANTH 306, ANTH 308, ANTH 313, ANTH 315, ANTH 317, ANTH 324, ANTH 350, ANTH 351, ARCH 349, ARCH 430, ARCH 434, ARCH 448, ARTS 149, ARTS 150, ARTS 350, ENDS 149, ENDS 150, ENDS 249, ENDS 329, ENGL 203, ENGL 211, ENGL 212, ENGL 221, ENGL 222, ENGL 227, ENGL 228, ENGL 231, ENGL 232, ENGL 235, ENGL 236, ENGL 251, ENGL 310, ENGL 313, ENGL 314, ENGL 315, ENGL 316, ENGL 317, ENGL 319, ENGL 321, ENGL 322, ENGL 323, ENGL 330, ENGL 334, ENGL 335, ENGL 336, ENGL 337, ENGL 338, ENGL 339, ENGL 340, ENGL 345, ENGL 346, ENGL 347, ENGL 348, ENGL 350, ENGL 351, ENGL 352, ENGL 353, ENGL 354, ENGL 355, ENGL 360, ENGL 361, ENGL 362, ENGL 365, ENGL 368, ENGL 374, ENGL 375, ENGL 376, ENGL 377, ENGL 378, ENGL 385, ENGL 390, ENGL 394, ENGL 396, ENGL 401, ENGL 412, ENGL 414, ENGL 431, ENGL 474, ENGL 481, ENGR 482, GEOG 202, GEOG 301, GEOG 305, GEOG 323,

HIST (any course), HORT 203, HUMA 211, HUMA 213, HUMA 303, HUMA 304, LAND 240, LAND 340, LBAR 203, LBAR 331, LING 307, LING 310, LING 451, MODL*, MUSC 200, MUSC 201, MUSC 311, MUSC 312, MUSC 315, MUSC 319, MUSC 321, MUSC 324, PHIL (any course except 240, 341, 342), RELS 211, RELS 213, RELS 303, RELS 304, RELS 317, RELS 360, RELS 368, SCOM 301, SCOM 327, SCOM 425, SCOM 430, THAR 101, THAR 155, THAR 280, THAR 281, THAR 380, WMST 200, WMST 333, WMST 368, WMST 374, WMST 412, WMST 461, WMST 473, WMST 474 and WMST 477.

* any course from the Department of Modern and Classical Languages, which includes CLAS, FREN, GERM, ITAL, JAPN, MODL, RUSS, SPAN -see note 5

B. Visual and Performing Arts (3 hours). Note: Students graduating from the Galveston campus may choose to complete 3 additional hours of the Humanities core in place of Visual and Performing Arts.

Acceptable courses are: ARCH 349, ARCH 430, ARCH 434, ARCH 448, ARTS 103, ARTS 111, ARTS 112, ARTS 149, ARTS 150, ARTS 305, ARTS 312, ARTS 350, CLAS 352, ENDS 101, ENDS 110, ENDS 115, ENDS 149, ENDS 150, ENDS 311, ENGL 212, ENGL 251, ENGL 317, ENGL 340, ENGL 351, ENGL 385, ENGL 412, FREN 414, HORT 203, KINE 199*, KINE 311, LAND 240, MUSC 200, MUSC 201, MUSC 202, MUSC 203, MUSC 311, MUSC 312, MUSC 315, MUSC 319, MUSC 321, MUSC 324, MODL 334, MODL 341, MODL 352, SCOM 430, SPAN 410, PHIL 330, PHIL 375, THAR 101, THAR 110, THAR 155, THAR 210, THAR 280, THAR 281, THAR 380, THAR 385 and THAR 407.

* any course which includes Laban Movement, Folk Dance, Tap Dance, Ballroom Dance, Modern Dance, Ballet and Jazz Dance)

5. Social and Behavioral Sciences.

A. Social and Behavioral Sciences (6 hours) Courses used to satisfy this requirement shall address one of the following subject areas: anthropology, economics, political science, geography, psychology, sociology or communication.

Acceptable courses are: AGEC 105, AGEC 350, AGEC 429, AGEC 430, AGEC 452, AGED 340, AGED 400, AGED 440, ANTH 201, ANTH 210, ANTH 225, ANTH 300, ANTH 311, ANTH 314, ANTH 403, ANTH 404, ANTH 410, ECON (any course), ENGL 209, ENGL 311, ENGR 400, EPSY 320, EPSY 321, GEOG 201, GEOG 204, GEOG 306, GEOG 311, GEOG 330, GEOG 401, GEOG 440, HORT 335, INST 322, JOUR 102, JOUR 301, JOUR 401, JOUR 440, KINE 304, KINE 319, LBAR 204, LING 209, LING 311, LING 402, MGMT 475, POLS (any course), PSYC (any course except 203, 204), RELS 403, SCOM 105, SCOM 315, SCOM 320, SCOM 325, SOCI (any course except 220, 420), VTPB 221, WMST 207, WMST 300, WMST 316, WMST 317, WMST 404, WMST 424, WMST 462 and ZOOL 225.

B. U.S. History and Political Science (12 hours, 6 hours of history and 6 hours of political science). POLS 206 and 207 and HIST 105 and 106 or other courses in American and Texas history, except that courses pertaining solely to Texas history may not comprise more than 3 hours.

6. Kinesiology.

Kinesiology requirements are to be fulfilled by completing KINE 199 Health and Fitness and any other three KINE 199 courses. These courses may be taken as graded courses or S/U. Transfer students with fewer than 4 hours KINE are required to take KINE 199 Health and Fitness.

Notes:

1. Individual degree programs may impose more restrictive requirements in any of these areas. Students should consult the Undergraduate Catalog and their academic advisors to ensure that they are satisfying all requirements of their majors.

2. No course shall be counted twice by the same student toward satisfaction of the University Core Curriculum requirements. For example, if a student elects to use ARCH 349 to satisfy the Visual and Performing Arts requirement, the student may not use the course to satisfy the Humanities requirement.

3. Courses numbered 484, 485, or 489 do not satisfy University Core Curriculum requirements.

4. No student may satisfy all 12 hours of University Core Curriculum requirements in the categories of Humanities, Visual and Performing Arts, and Social and Behavioral Sciences by courses having the same prefix.

5. If courses in MODL are used to fulfill the Humanities requirement, they must be in a different language than taken in high school or, if in the same language, at the 200-level or higher. For example, if the student took Spanish in high school, then the student may not use SPAN 101 or 102 in satisfying the Humanities requirement.

6. Students transferring course credit to satisfy the University Core Curriculum requirements should refer to the Texas Common Course Numbering System (see Appendix B) and the Transfer Course Credit Policies in this catalog.

Admission

Texas A&M University at Galveston has a strong institutional commitment to the principle of diversity in all areas. In that spirit, admission to the University and any of its sponsored programs is open to all qualified individuals. To be admitted, an applicant must meet the admission requirements in effect for the desired term of entry. Texas A&M University at Galveston reserves the right to defer the initial registration of newly admitted applicants if it appears their enrollment for a given semester will exceed the physical capabilities of the TAMUG campus and jeopardize the quality of education offered students to whom the University is already committed.

You can apply to TAMUG and all other Texas public universities using only one application. You can find this application "on the web" at www.applytexas.org (see instructions below). Acceptance by the Office of Admissions and Records does not constitute admission to the U.S. Maritime Service Corps of Cadets. See the section on admission to the U.S. Maritime Service Corps of Cadets for information.

When admission requirements have been satisfied, the Office of Admissions and Records will send the applicant a letter of acceptance. The Office of Student Relations will send an acceptance packet and a medical history and immunization form to the student. State law requires that all students enrolled in an institution of higher education present evidence of immunization against diphtheria, tetanus and, if under 19 years of age, poliomyelitis. Students entering or reentering Texas A&M University at Galveston must furnish proof of the required immunization by completing and returning the medical history and immunization form prior to the first day of classes.

Steps in Applying for Admission to Texas A&M University at Galveston

1. Application for admission: You can apply to TAMUG and all other Texas public universities using only one application. You can find this application "on the web" at www.applytexas.org. You can fill out the form and submit it electronically directly through the web. If this is impossible, please call us at 1-87-SEAAGGIE and we will send you a paper copy of the application. An application fee of $35 should be forwarded with the completed application to the Admissions and Records Office. We prefer that you submit your application electronically. Application decisions are made after all items listed below have been received.

   Freshman students must submit:
   1. Texas Common Application for Freshmen Parts I, II and Essay Topic C and your application fee.
   2. Your official high school transcript with class rank (directly from the institution).
   3. TASP (Texas Academic Skills Program) Scores. Students must provide TASP scores or proof of exemption prior to enrolling.
   4. SAT/ACT test scores submitted directly from the testing agency to TAMUG. The SAT code is 6835 and ACT Code is 6592.

   Transfer students must submit:
   1. Texas Common Application for Transfer/Transient/Readmission Parts I, II and Essay Topic C and your application fee.
   2. Your official transcripts (high school and all colleges).
   3. TASP (Texas Academic Skills Program) Scores. Students must provide TASP scores or proof of exemption prior to enrolling.

   Readmission, non-degree, or postbaccalaureate students must submit:
   1. Texas Common Application for Transfer/Transient/Readmission Parts I, II and Essay Topic B (Essay B is optional) and your application fee.
   2. All official college transcripts.

   International student
   1. Call 1-87-SEAAGGIE or email seaaggie.tamug.tamu.edu for an information packet.

2. Transcripts: Ask the High School Counselor or Registrar to forward an official transcript to the Office of Admissions and Records. This transcript must reflect grades complete through six semesters of high school work. The transcript should also reflect the rank in class and the list of courses which will be completed during the senior year. Transfer applicants and freshman applicants who have graduated from high school at the time of application should submit an official transcript that includes class rank and date of graduation. To be considered official, a transcript must bear an original signature of a school official and/or the school seal and be received directly from the institution. Fax copies are not official.

3. Testing: Arrange through the high school counselor to take the Scholastic Aptitude Test (SAT) or the American College Test (ACT). Designate the scores to be sent to TAMUG (Code 6835 for SAT and Code 6592 for ACT) by the testing agency. It is recommended that the tests be scheduled in the latter part of the junior year or early part of the senior year. The achievement tests are used for counseling and placement purposes and should be taken by January of the senior year. Scores should be sent directly from the testing agency.

Notification of Admission Status

Admissions decisions are made throughout the application period and announced as soon as possible. The decision may be to admit, deny or hold the application for additional review. Applicants may check the University world wide website (http://www.tamug.tamu.edu/future/index.html) for current information concerning their application.

Permanent Resident Card

An applicant who has permanent resident status in the United States is to include a copy of both sides of the permanent resident card with the application.

When to Apply

Although TAMUG does not have an application deadline, applicants who meet the admissions standards will be admitted until available seats are filled. All application credentials should preferably be received by March 1 for the fall term. International students must meet the deadlines specified in the International Admission section of this catalog (pg. 12).

Freshman Admission Criteria

When all credentials necessary to complete a freshman applicant's file are received during the admission application period, one of the following criteria will be used to determine who will be offered admission:

1. Top 10% applicants from Texas high schools: Applicants who are Texas residents and who are enrolled in recognized public or private high schools in Texas with a rank in the top 10% of their high school graduating class will be admitted.

2. Other applicants: Applicants not meeting the above requirements will have their complete application file reviewed to make an admission decision. Factors considered are:

- Applicant's transcript presents:
  - Four years of college preparatory English
  - Algebra, Geometry, Algebvra II and advanced math
  - At least three years of science with at least two courses in Biology I, Chemistry I or Physics I.
  - Two years of the same foreign language
- Credentials present a rank in class and test score that meets or exceeds one of the following combinations:

Rank in class	SAT I	ACT
1st Quarter	920	19
2nd Quarter	1,050	23
3rd and 4th Quarters	1,180	26

- Class standing, performance on the SAT I or ACT;
- Leadership or exceptional talent as shown in extracurricular activities, community service and/or work;
- Individual circumstances that may have influenced or would enhance understanding of the applicant's academic record or any other factors such as bilingual proficiency, exceptional work or family responsibilities the applicant wishes to present in the application;
- Association with Texas A&M University and/or Texas A&M University at Galveston;
- Family educational background and household income;
- Recommendations which validate or certify leadership, exceptional talent, or special circumstances. To assure consideration, recommedations should be submitted with the application.

Provisional Admission

All applicants should use the application questions and the essay topic to present as complete information as possible of their academic background and personal strengths and circumstances.

A limited number of applicants who do not have the college preparatory course work or strong academic credentials may be offered provisional admission that requires the successful completion of a summer enrichment program at TAMUG. This program requires attendance on campus at TAMUG. The provisional program is not available for Summer School at Sea students (See Summer School at Sea, pg.3).

Transfer Admission

A transfer student is deemed as one who has registered at another college or university. An applicant may not disregard the academic record of any previous education received at another institution, other than exceptions stipulated under the Texas Academic Fresh Start Program. Admission may be granted to undergraduate students who have begun their work at other colleges or universities and have also satisfied the requirements as set forth below.

- An applicant must be eligible to return to the institution from which the transfer is sought.
- Applicants seeking admission to the license-option curricula who have attended another maritime academy or college must provide a letter to the Superintendent of the Texas Maritime Training Program from the Superintendent of the other academy or college verifying that the student is eligible to return to that institution.
- Transfer applicants are required to submit an official high school transcript.

Applicants must also submit a formal application for admission as well as official transcripts of their record at each college or university previously attended as early as possible. This material should be sent to the Office of Admissions and Records, Texas A&M University at Galveston, P.O. Box 1675, Galveston, Texas 77553-1675. The applicant must have achieved an overall grade point ratio of 2.25 or better on the work attempted and must meet or surpass this same standard for each of the last two semesters of attendance, if in attendance two or more semesters. A 10-week summer session with a normal load of course work will be considered a full semester. To assist preparation for admission and enrollment at Texas A&M, the following foundation course pattern has been developed. Texas A&M course equivalencies to the Texas Common Course Numbering System (TCCNS) may be requested from the Admissions and Records Office.

The number of hours and the grades earned on transferable courses in the foundation are the primary criteria used to make transfer admissions decisions. Priority will be given to students with a minimum of 30 semester credit hours. However, applicants with a minimum of 18 semester credit hours will be considered.

Suggested Foundation Courses

	Hours	Chosen Degree Program
ENGL 104	3	
HIST 105 & 106	6	
POLS 206 & 207	6	
MATH 151	4	
BIOL 113,123, 114, & 124	8	MARB, MARF, MARA, or MARS majors
CHEM 101, 111, 102, & 112	8	MART, MASE, or MARE majors
Humanities Electives	6	Refer to your degree listing for options
Social Science Electives	6	Refer to your degree listing for options

On the basis of the credentials submitted, credit will be given for work completed satisfactorily at another properly accredited college or university as long as the work is equivalent in character and extent to similar work at Texas A&M University at Galveston or Texas A&M University. Credits given by transfer are provisional and may be canceled at any time if the student's work at the University is unsatisfactory. See the section entitled "Transfer of Credits" for additional information. Students will be classed by the number of credits transferred. Depending on the number of transferred credits used in the student's degree plan, a student could be classed as a senior but be a curriculum sophomore.

Transfer students should read carefully the section of this catalog entitled "Requirements for a Baccalaureate Degree," particularly the portion which explains residency requirements.

Transfer students should refer to the Appendix One: Texas Common Course Numbering System section for a reference concerning course credit (pg. 119-120).

Academic Fresh Start Policy

Applicants for admission or readmission to Texas A&M University at Galveston may choose to have academic course work that was completed at least 10 years prior to their term of application removed from consideration in the admission decision (Texas residents only). All other admission requirements apply. Should a Fresh Start applicant be admitted, he or she will forfeit all credit earned prior to 10 years from the term of admission.

Admitted Fresh Start applicants have "Academic Fresh Start" indicated on their official Texas A&M transcript, are required to satisfy TASP requirements and will follow the academic requirements of the Undergraduate Catalog of record for the term of admission.

Forfeited course work cannot be considered as prerequisites, but placement examinations are allowed for courses which were not considered for admission because of the Fresh Start Policy. Once admitted on Academic Fresh Start, the applicant or student cannot subsequently request that the Fresh Start policy restrictions be removed.

If an applicant has used the Academic Fresh Start Policy at a previous school, the Academic Fresh Start will remain in effect at Texas A&M upon transfer.

International Admission

If space is available, international students (non-U.S. citizens) with superior academic records will be considered for admission to Texas A&M University at Galveston through the International Admissions Office of Texas A&M University (College Station). For information about application deadlines, admissions criteria, expenses, and English language proficiency, international students should request an application from the Office of International Admissions, Texas A&M University, College Station, Texas 77843-0100, USA.

The deadlines for admission are February 1 for the fall semester and the summer session and September 1 for the spring semester.

International Admission Criteria

Official academic records (transcripts, marksheets, etc.) are required for all secondary and any university work completed. Records should include all courses taken in high school and every college or university the applicant has attended. Unofficial photocopies, fax copies and notarized copies of records, examination results or translations will not be accepted.

Official records require the original seal or signature of the registrar, principal, headmaster or director of student records. Official records should be mailed from the school directly to Texas A&M University, Office of Admissions and Records. Examination results should be sent directly from the examination agency. In addition to the original records in a language other than English, Texas A&M requires official translations in English. Translations sent directly from the institution attended or from a recognized translator will be accepted. For students enrolled in the United States, we will accept copies of official transcripts from other countries provided the copies are verified by the U.S. institution. Unofficial photocopies, fax copies, notarized copies of records, examination results or translations will not be accepted.

International applicants are normally expected to complete an educational program that would permit them to be considered for admission to a university in their home country. Examples would include the completion of grade 13, Form 6 or three A-level examinations following O-levels. A-level examination results should be received before the application deadline.

Admission Criteria for U.S. Based Credentials

The admission criteria for Freshman or Transfer International applicants with U.S. based credentials are consistent with the Freshman and Transfer applicants credentials presented earlier in this catalog.

Admission Criteria for Foreign Credentials

Admissions decisions for Freshman and Transfer applicants with foreign credentials are based on:

1. Academic Achievement

- International applicants are expected to complete an educational program that will permit them to be considered for admission to a university in their home country. Examples include the completion of Grade 13, Form 6 or 3A-level exams following O-levels. A-level exam results must be received by the application closing date.
- Successful applicants will rank near the top of their country's educational system (B average or better) and score well above average on national exams.
- Secondary school courses: Appropriate college preparatory course work is required.

2. Testing: Applicants whose native language is not English are required to submit
- TOEFL score of 550 or higher (computer-based score: 213) or
- SAT Verbal of 480 or ACT English of 19.

3. Individual Achievement and Recognition
- Leadership positions held
- Honors/awards received
- Major national, state or Texas A&M scholarships received.

Additional Requirements for International Admits

If admitted, international applicants must fulfill the following additional requirements before enrollment:

1. Declaration and Certification of Finances and Foreign Student Advisor's Report

A Financial Resource Statement is sent with a letter of acceptance. This form must be completed and returned to Texas A&M University before the Certificate of Eligibility (I-20 or IAP-66) is issued. The Foreign Student Advisor's Report is also mailed with the acceptance letter to all international applicants who are attending a school in the United States.

2. Advance Deposit

Because of monetary restrictions in some countries, a full year's expenses may be required as a deposit from some accepted applicants. When the student enrolls, the deposit is applied to the first semester expenses. The deposit is refunded to admitted applicants who do not attend Texas A&M.

3. English Verification/Certification

Texas A&M requires International undergraduate students to demonstrate the ability to speak, write and understand the English language. Undergraduate students may meet this requirement in one of four ways:

A. Official TOEFL score of 600 or higher (computer-based score: 250);
B. Have an official SAT Verbal of 480 (400 prior to April 1, 1995 testing), or ACT English of 19 and attended grades nine through twelve of U.S. secondary education and graduate from a U.S. high school;
C. Transfer from an accredited U.S. institution of higher education with at least 30 semester credit hours, including the equivalent to Texas A&M ENGL 104; or
D. Achieve English Language Proficiency Verification by taking the English Language Proficiency Examination (ELPE) prior to registration for the first semester at Texas A&M University. If remedial English classes are necessary, it will extend the time required to complete a degree.

Readmission of Students

Any former student who has resigned, been dropped from the rolls, or has not attended Texas A&M University at Galveston or Texas A&M University for at least one full semester must complete an Application for Readmission and submit it to the Office of Admissions and Records at Galveston as early as possible. If the student has attended any other institutions since last enrolled at Texas A&M University at Galveston or Texas A&M University, then transcripts from each institution attended should be submitted at the time of reapplication.

Decisions for readmission are based on the following: GPR on Texas A&M coursework; GPR on coursework since leaving Texas A&M; desired major; and information presented in the application.

Readmission to the University does not constitute readmission to the U.S. Maritime Service Corp of Cadets. Students returning to the University who wish to enter or reenter the Corps of Cadets as a license-option student must apply for admission to the Corps of Cadets through the Superintendent's Office.

Postbaccalaureate Undergraduate Criteria

Admission is limited and is intended for applicants who wish to apply for further study at the undergraduate level for:

- completing estaablished Texas A&M University requirements for teacher or other certification
- a second bachelor's degree
- a prescribed set of courses as preparation for application to graduate study or professional programs; i.e., medical school, veterinary school, law school or CPA exam.

Additional requirements to complete a Postbaccalaureate application:

- an official transcript indicating the receipt of a recognized baccalaureate degree
- a statement explaining why enrollment at Texas A&M University at Galveston is desirable.

Admission decisions for postbaccalaureate undergraduates consider:

- GPR on college course work
- completion of prerequisite course work
- information presented in the application.

Admission of Students Not Declaring a Major

Freshmen and transfer students who are not yet ready to choose a major field of study, or students who have decided to discontinue pursuit of a previously declared curriculum are temporarily assigned to the Department of General Academics. Advisors in the Department of General Academics help such students devise schedules that permit sampling of courses in several subjects to help them choose the most appropriate major field of study. At the same time, students satisfy common basic requirements in as many curricula as possible within the scope of their general interest.

Most students declare a major within one academic year after assignment to the department of General Academics. All students enrolled in General Academics must identify their major by the time they have completed 60 semester hours of courses.

A sample first semester course schedule for a General Academics freshman student follows:

ENGL 104 Composition and Rhetoric	3
HIST 105 History of the U.S. and/or	
POLS 206 American National Government	3-6
Mathematics*	3-4
Physical or Biological Science*	3-4
Elective*	3-4
MARS 101 Introduction to Marine Science*	1
KINE 199 Required Physical Activity	1
Total Hours	12-19 hours**

*To be selected in consultation with faculty advisor on the basis of the student's background, interests, and goals.

**The total number of credit hours may vary depending on the student's choice of courses after consulting with an advisor. Most first semester students are encouraged to take 12-15 hours.

Texas Academic Skills Program (TASP)

All students with no previous college credit entering public colleges and universities in Texas in fall 1989 or thereafter must demonstrate competency in reading, writing, and mathematics by passing standardized TASP examinations. Students with failing scores will be required to complete developmental work prior to being allowed to enroll in designated university courses. The hours for these courses will not count toward any degree program. New students reporting to the University without TASP scores must successfully complete the examinations during their chosen freshmen orientation conference. Texas residents are strongly encouraged to complete the TASP exam prior to coming to TAMUG. Failure to complete the examinations will preclude a student's eligibility to enroll until the test has been completed.

Once a student has accumulated 60 semester credit hours or the equivalent, the student cannot enroll in upper-division courses until all three sections of the test have been passed. Students who have accumulated fewer than 60 semester credit hours may enroll in upper-division courses upon the advice of their college even though they may not have passed the TASP tests. Note, any student who has earned a minimum of three academic credit hours from Texas A&M University at Galveston or three academic credit hours accepted as transfer credit at Texas A&M University at Galveston prior to September 1, 1989 will be exempted from the TASP requirements. Exemption may also be granted for exceptional scores on the TAAS, SAT, or ACT examination. Further information and registration booklets may be obtained from the TAMUG Counseling Office or your local high school counseling office.

Registration

Registration for the fall and spring semesters is accomplished at two times. In the preceding fall or spring semester, a preregistration period is held for currently enrolled students to register for the next semester.

During the week before classes begin for a particular semester, there is a delayed registration period for all those students who have not already registered. Summer school registration is the day before classes begin each summer term and the 10-week semester. Further information concerning registration may be obtained from the academic calendar published in this catalog or from the Office of Admissions and Records. Schedules of classes are available at the Office of Admissions and Records shortly before registration periods.

Academic Advising

Academic advising is coordinated and supervised by the department heads. Students majoring in curricula offered by the department can ordinarily obtain counseling concerning academic program planning and curriculum-related matters from department faculty members who serve as academic advisors. If there are special problems, the department head, the Dean for Academic Affairs or the Vice President may be consulted.

Within the degree programs, students may pursue individual career interests through selection of courses with the assistance of departmental advisors.

Credit by Examination

Students at TAMUG may earn course credits by demonstrating superior achievement on tests offered by several examination programs. Credit by examination is available both to freshmen who plan to enter the University and to students who are currently enrolled. TAMUG awards credit for scores on certain tests published by Advanced Placement Program (AP), the College Level Examination Program (CLEP), the College Board (CB) Achievement Tests, the DANTES program, and the International Baccalaureate Higher Level Examinations. TAMUG awards qualified students opportunities to earn credits by taking departmental challenge examinations prepared by the faculty. Information concerning credit by examination may be obtained from the Director of Counseling.

Entering freshmen may take examinations for credit during the new student orientation conferences. This must be scheduled with the Director of Counseling at least four weeks prior to orientation.

Change of Curriculum to Another Campus

Texas A&M University at Galveston students are eligible to change curriculum to the College Station campus only after completion of a minimum of two full-time semesters as a student in residence at the Galveston campus. For a change of curriculum to be approved, students must maintain a 2.5 GPA, must meet the conditions of their desired curriculum and space must be available in the desired major. Final approval is granted by the academic dean of the college that administers the desired curriculum.

Policies for the Transfer of Undergraduate Course Credit

Many colleges and universities in Texas have agreed to use the Texas Common Course Numbering System (TCCNS). Texas A&M University has identified equivalent courses.

The transfer of course credit will be determined by the Office of Admissions and Records on a course-by-course basis. Credit submitted for transfer must be on an official transcript received by the Office of Admissions and Records from the registrar of the institution where the credit was earned. Course content will be determined from the catalog description or the syllabus. The transfer of credit decision will be based on the following criteria. All criteria are to be considered together; for example, criterion 10 may be qualified by criterion 7.

Credit from Institutions Accredited by One of the Regional Accrediting Associations:

1. A course that is normally considered as part of a bachelor's degree program (not including the bachelor of technology or similar terminal degree) will be transferred. The following criteria, taken together, are used:

   a. The course is applicable to a bachelor's degree at TAMUG.
   b. The course is similar to those offered for degree credit by TAMUG.
   c. The course content is at or above the level of the beginning course in the subject matter offered by TAMUG.

2. A course that is intended for use in a vocational, technical, or occupational program will normally not transfer. In certain cases, credit for occupational skill courses will be considered. Transfer of this credit requires that the student major in engineering technology or license option curricula. Also, the department head and dean must approve the course for use in the student's degree program.

3. Credit for support courses such as math, science, and English intended specifically for use in an occupational program will not be transferred.

4. Credit for the course must be shown on the official transcript in semester hours or in units that are readily converted to semester hours.

5. A graduate level course will not be transferred for undergraduate credit unless approved for use in the student's undergraduate degree program by the student's major department and dean. This also applies for a course offered in a professional degree program such as nursing, law, or medicine.

6. Credit by examination awarded by the sending institution will be transferred providing the student received credit for a specific transferable course or courses at the institution, and the credit by exam is shown on an official transcript by course number.

7. A course similar to one offered by the Colleges of Agriculture and Life Sciences, Business Administration, Geosciences, Engineering or Texas A&M University at Galveston at the junior or senior level will be transferred by title only. Such courses may be used in the student's degree program only if approved by the department head and dean of the student's major field. Validation of such credit, either by examination or the completion of a higher-level course, may be required.

8. A field experience, internship, or student teaching course will be transferred by title only. Since an internship is considered to be the capstone of a professional curriculum, such credit will not be transferred from a two-year college.

9. Credit for cooperative education will not be transferred.

10. A course that is essentially equivalent to a Texas A&M University at Galveston course will be transferred as an equivalent course. An essentially equivalent course covers at least the same material, requires the same prerequisites and receives at least the same semester hour credit as the TAMUG course.

Two or more courses may be combined to form one or more equivalent courses. If there is any doubt about the equivalency of a course, the TAMUG or TAMU department offering the course subject matter will be asked to determine if the course is equivalent.

11. A student pursuing a bachelor's degree at Texas A&M at Galveston may transfer from two-year colleges a maximum number of hours not to exceed six more than the number required through the freshman and sophomore years of his or her chosen curriculum at TAMUG, generally 66 semester credits.

12. Grade Point Ratio (GPR) for any period shall be computed by dividing the total number of semester hours of transferable courses for which the student received grades into the total number of grade points earned in that period. Credit hours to which grades equivalent to Texas A&M grades of W, F, I or U are assigned shall be included; those having grades equivalent to Texas A&M grades of WP, Q, S, X and NG shall be excluded.

13. In any case where a decision cannot be made using the above criteria, the Office of Admissions and Records will determine the transfer of credit based on University policy, previous action of the University and prior experience.

Resolution of Transfer Disputes for Lower-Division Courses:

The transfer curricula shall be as prescribed by the current issue of the Coordinating Board's guide to transfer curricula and transfer of credit. The following procedures shall be followed by Texas Public Institutions of Higher Education in the resolution of transfer disputes involving lower division courses:

1. If an institution of higher education does not accept course credit earned by a student at another institution of higher education, the receiving institution shall give written notice to the student and to the sending institution that transfer of the course credit is denied. A receiving institution shall also provide written notice of the reasons for denying credit for a particular course or set of courses at the request of the sending institution.

2. A student who receives notice as specified in subsection 1 may dispute the denial of credit by contacting a designated official at either the sending or the receiving institution.

3. The two institutions and the student shall attempt to resolve the transfer of the course credit in accordance with the Board rules and guidelines.

4. If the transfer dispute is not resolved to the satisfaction of the student or the sending institution within 45 days after the date the student received written notice of denial, the institution that denied the course credit for transfer shall notify the Commissioner of its denial and the reasons for the denial. The Commissioner of Higher Education or the Commissioner's designee shall make the final determination about the dispute concerning the transfer of course credit and give written notice of the determination to the involved student and institutions.

Credit from Nonaccredited Schools:

Students who transfer to Texas A&M University at Galveston from an institution of higher education that is not accredited by one of the regional accrediting associations may validate the work taken at the institution by one of the following methods:

1. Successful completion of a comprehensive departmental examination or nationally standardized examination that is approved by the department.

2. Successful completion of a higher-level course in the same subject area when approved by the head of the department and the dean of the college.

3. Credit will be given to students transferring from nonaccredited public colleges in Texas for work completed with grades of C or better if they earn a grade point of 2.0 (C average) on the first 30 hours of residence work at this University.

Credit from Abroard

Transfer work from institutions following other than the United States educational system with instruction in English will be evaluated on an individual basis. A-level examinations will transfer. Baccalaureate II examinations will not transfer; however, these students may take placement and proficiency examinations to receive credit by examination. Credit will be given for work satisfactorily completed at international institutions offering programs recognized by Texa A&M. Official credentials submitted directly from the registrar's office and a listing of courses completed and grades awarded must accompany any request for transfer credit. Transfer work will be awarded by course title unless previous arrangements have been made using the Texas A&M University Study Abroard Transfer Credit Agreement Form. Courses must be equivalent in character and content to courses offered at Texas A&M.

No English composition courses will be transferred from institutions located in non-English speaking countries. American history and American political science (government) courses will not transfer from foreign institutions.

Courses taken at language training centers or institutes are generally not awarded transfer credit. A transcript from such an institution must be issued through the office of a Texas A&M recognized university, institute or language training center. Carefully check the credentials of all language centers and language institutes.

Correspondence Courses:

Students may apply up to 12 hours of correspondence credit earned through an accredited institution toward the requirements for an undergraduate degree, even though Texas A&M University at Galveston does not offer courses by correspondence.

Correspondence courses taken through the Defense Activity for Non-Traditional Education Support (DANTES) may be accepted and included in the 12 hours allowed. Students may apply a maximum total of 30 semester hours of approved extension class work and correspondence study toward a degree.

In order for a student in residence at Texas A&M University at Galveston to receive credit for correspondence work toward a bachelor's degree, he/she should:

1. Obtain advance written permission from the academic department head of his/her major.

2. Present appropriate evidence (official transcript) of having completed the course.

Credit for Military Service:

The University follows, with limitations, the recommendations of the American Council on Education as published in the Guide to the Evaluation of Educational Experiences in the Armed Forces in granting credit for military service schools. At a minimum, the following guidance applies:

Courses must be in the "baccalaureate/associate degree category" as defined by the ACE guide. This precludes acceptance of almost all of vocational, technical or certificate category courses, or military occupational specialities or job experience.

Students who have completed one year of active duty in the armed forces of the United States may be given academic credit for 4 semesters for basic ROTC and 4 semesters of Physical Activity (KINE 199). For consideration of credit for military service schools, the applicant may submit the following military records:

1. a certified original of the DD Form 295, or
2. a copy of the DD Form 214, or
3. course completion certificates.

Concurrent Enrollment at TAMUG and Other Colleges and Universities

A student enrolled at TAMUG who wishes to take a course or courses concurrently at another institution for degree credit at Texas A&M University at Galveston must receive the prior approval of the appropriate department head.

Academic Rules

A handbook entitled Texas A&M University at Galveston University Rules is prepared each year for the benefit of the student body. Because it is published at the beginning of the academic year, Texas A&M University at Galveston University Rules (including periodic revisions) is the governing document in case of conflict between this catalog and the Rules. It is the responsibility of each individual student to read this handbook carefully and to use it as a ready reference. Copies are available through most departments and the Office of Student Affairs.

Students applying for admission to Texas A&M University at Galveston are required to submit transcripts of previous academic work and in some cases, results of standardized tests. The submission of altered documents or the failure to furnish complete and accurate information on admission forms will be grounds for disciplinary action.

The buying, selling, creating, duplication, altering, giving or fraudulently obtaining the Texas A&M University diploma or other academic record is prohibited by state law. A person who violates this statute or who aids another person in violation is guilty of a misdemeanor and is subject to a fine and/or confinement if convicted.

The University has the right to rescind a previously granted degree if the University becomes aware of information indicating that the degree never should have been granted.

Students are required to take the courses listed in a curriculum; however, the display of a curriculum does not in any way indicate the length of time required to finish degree requirements. Rather, this display is intended as a guide to indicate the preferred order for completion of degree requirements. Exceptions to certain requirements may be petitioned through the department head to the Campus Dean.

Grading System

Since students attend a college or university to extend their education, grades are usually taken as an indication of the proficiency of their endeavors. The student's semester grade in a course shall be based upon performance and/or participation in class, exercises and tests, laboratory work and final examination as applicable to the course. The proportionate weight assigned to each of the factors shall be determined by the department administering the course.

The basis upon which the final grade will be determined shall be distributed in written form to the class during the first two weeks of a semester and during the first week of a summer term.

There are five passing grades at the undergraduate level, A, B ,C, D, and S, representing varying degrees of achievement; these letters carry grade points and significance as follows:

A	Excellent, 4 grade points per semester hour
B	Good, 3 grade points per semester hour
C	Satisfactory, 2 grade points per semester hour
D	Passing, 1 grade point per semester hour
F	Failing, no grade point (hours included in GPR)
I	Incomplete, no grade points (hours not included in GPR)
Q	Dropped course with no penalty
S	Satisfactory (C or above), hours not included in GPR
U	Unsatisfactory (D or F), no grade points (hours included in GPR)
X	No grade submitted (hours not included in GPR)
W	Withdrew, hours not included in GPR (effective Spring 96)
WP	Withdrew passing (A-D), hours not included in GPR (discontinued Spring 96)
WF	Withdrew failing (F), hours included in GPR (discontinued Spring 96)
NG	No grade. Course dropped, no penalty. Requires a dean's permission, hours not included in GPR.
F, WF, U	Failing grades, indicating work of unsatisfactory quality.

Incomplete

The temporary grade I (Incomplete) at the end of a semester or summer term indicates that the student has satisfactorily completed the course with the exception of a major quiz, final examination or other work. This grade is given only when the deficiency is due to authorized absence or other cause beyond the control of the student and when the work already done has been of quality acceptable for the satisfactory completion of the course. Incomplete work must be completed before the end of the next fall or spring semester in the University unless the student's dean grants an extension of time for good reason. If the incomplete work is not completed within this time or if the student registers for the same course again, the I will be changed to an F by the registrar, and the student must repeat the course to receive credit for it.

Drop/Add

A student may drop courses during the first five class days of a fall or spring semester and during the first three class days of a summer term or a 10-week summer term. A student may add courses during the first seven class days of a fall or spring semester and during the first four class days of a summer term or a 10-week summer term.

Refunds or supplemental billings will be made for courses dropped or added during these times. Notices of refunds due or amounts owed should be obtained by the student at the Fiscal Office.

Q-Drop

After the fifth class day of a fall or spring semester or the third class day of a summer term or 10-week summer term, with the approval of the department head of a student's major, a student may drop a course through the 50th class day of a fall or spring semester, the 14th class day of a summer term, or the 35th day of a 10-week summer term. The symbol Q shall be given to indicate a drop without penalty. A student who drops a course after the Q-drop deadline will receive a grade of F unless unusual circumstances exist as determined by his or her dean. Students are permitted three (3) Q-Drops during their academic careers. One credit hour courses will not be counted in the limit.

Satisfactory/Unsatisfactory

With the exception of KINE 199, undergraduate students classified as juniors or seniors with a minimum overall grade point ratio of 2.5, based on at least 30 hours of credit at Texas A&M University at Galveston, may be permitted to take a total of 12 credit hours of electives during their academic careers at Texas A&M University at Galveston on a satisfactory/unsatisfactory basis as a part of the hours required for their degrees. Only undirected electives and physical education courses may be taken on an S/U basis. Students wanting to take a course on satisfactory/unsatisfactory basis must register on this basis during the official registration period. Students registered for KINE 199 may change the grade type to satisfactory/unsatisfactory before the Q-drop date of that semester. Students shall not be permitted to change the basis on which their grades will be recorded on their official records.

The hours for which a student receives a grade of Satisfactory (C or above) shall not be included in the computation of the student's semester or cumulative grade point ratio; a grade of Unsatisfactory (D or F) shall be included in the computation of the student's grade point ratio at 0.0 grade points per credit hour. The hours taken on a satisfactory/unsatisfactory basis will not be included in the 15 hours required for the designation of Distinguished Student.

Students who transfer to Texas A&M University at Galveston must have earned at least 12 hours of credit at Texas A&M University at Galveston before taking a course on a satisfactory/unsatisfactory basis with exception of Physical Education courses.

A student must have the written approval of his or her academic advisor or department head in order to take a course on a satisfactory/unsatisfactory basis.

Colleges may refuse to accept work taken on a satisfactory/unsatisfactory basis for courses requiring a prior in-depth knowledge of the subject matter.

Withdrawal from the University

Students desiring to withdraw from the University before the q-drop date of a semester or summer term are required to complete the official withdrawal form. Assistance in obtaining such clearance is provided by the Admissions and Records Office. Students who withdraw during the first five days of fall or spring semester or the first three days of a summer term receive no record on their permanent record. After the fifth class day of fall or spring semester or the third class day of summer terms and prior to the Q-drop deadline, students who withdraw from the University receive grades of W. Students must request special consideration from the dean and validate extenuating circumstances to withdraw after the Q-drop d eadline.

Repetition of a Course to Improve Grade

Any undergraduate student who wishes to repeat a course must do so before he or she completes a more advanced course in the same subject. What constitutes a more advanced course will be determined by the head of the department offering the course.

Credit in a course failed may be obtained only by registering and repeating the course in class. The original grade will remain on the student's permanent record, and both grades will be used in computing the GPR. An F or U previously made is not removed once the course is passed. Credit for each repeated course may only be used once toward degree requirements.

A student repeating a course in which a grade of B or better has been earned will not receive grade points for the repeated course, unless the catalog states the course may be repeated for credit.

Semester Credit Hour

A lecture course which meets one hour per week or 15 hours per semester or summer term is assigned a value of one semester credit hour. Thus, a course worth three semester credit hours meets for three hours per week or 45 hours per semester or summer term. Credit hours for laboratory courses are determined to be some fraction of the number of hours spent in class, usually one third.

Only the record made in course work for which the student was registered in this institution or TAMU shall be used in determining grade point ratio. A student's grade point ratio for any given period is computed by dividing the total number of semester hours for which grades were received into the total number of grade points earned in that period. Grades of WF, U, and F are included, but grades of WP, S, Q, X, I, W, and NG are excluded.

Grade Reports

Preliminary Report: Preliminary reports of the student's current progress are available to students in the Admissions and Records Office near the middle of each semester. The preliminary report does not become a part of the student's permanent record.

Semester Report: An official report will be available to students at the close of each semester. Students should check the schedule booklet for instructions to access the Tele-grade system.

Scholastic Probation

Whenever a student's cumulative, semester, or major course record indicates that he or she is failing to make satisfactory progress, the student is considered scholastically deficient. The cause of the deficiency will be investigated by the Dean for Academic Affairs, and the student may be placed on scholastic probation for such terms as the dean shall designate, or the student may be required to withdraw from the University if the deficiency so warrants.

Scholastic probation is a conditional permission for a student to continue in the University after he or she has become scholastically deficient. This permission is granted by the Dean for Academic Affairs or the Vice President when an analysis of the deficiency indicates that a continuation is in the best interest of the student and the University. The Dean for Academic Affairs also reviews the records of all students on scholastic probation. Students should refer to the University Rules for specific information.

Distinguished Student and Dean's Honor Roll

A student who completes a semester schedule of at least 15 hours or a summer session schedule of at least 12 hours with no grade lower than C and with a grade point ratio of at least 3.25 for the semester or a summer session shall be designated as a Distinguished Student. A student who under the same circumstances, achieves a grade point ratio of 3.75 or higher will, in addition, be designated as a member of the Dean's Honor Roll. Official notifications of the designations are issued to the student by the Dean for Academic and Administrative Services.

Classification

A student is classified by the number of semester hours posted to the official transcript as follows:.

Freshman	0-29 semester hours
Sophomore	30-59 semester hours
Junior	60-94 semester hours
Senior	95+ semester hours

Full-time Student

A full-time undergraduate student is deemed as one who is registered for 12 or more semester hours during a fall or spring semester, 6 hours or more in a summer term, and 12 hours in a 10-week summer

semester. A license-option student registered for NAUT 200, 300, or 400 or MARE 200, 300, or 400 will be considered a full-time student.

Maximum Schedule

A student with an overall grade point ratio of 3.0 or better may register for a course load in excess of 19 hours in a fall or spring semester or six hours (seven if part is laboratory) in a summer term with the approval of his or her advisor. A student with an overall grade point ratio of less than 3.0 must obtain approval of the Dean for Academic Affairs before registering for a course load in excess of 19 hours in a fall or spring semester or six hours (seven if part is laboratory) in a summer term.

Transcripts

Individuals who have attended the University may obtain an official transcript of their completed work, provided they have no financial obligations to the University. A fee, which according to state law must be paid in advance, will be charged for each copy. Transcripts will not be prepared during the final examination period for students currently enrolled. Students and former students may request transcripts in writing at the Admissions and Records Office or contact the transcript office at TAMU. All transcripts are prepared at TAMU College Station for students at both campuses. No transcripts are issued at TAMUG. Transcript fees may be paid by check, money order or credit card. Cash will not be accepted.

Degree Information

Texas A&M University at Galveston reserves the right to modify the curricula or withdraw any courses therefrom when it appears appropriate to do so. The policies and procedures in this catalog are currently in effect; however, the University reserves the right to make changes or modifications for good cause. Texas A&M University has the right to rescind a previously granted degree if it becomes aware of information indicating that the degree never should have been granted.

Which catalog to follow: In meeting the requirements for a baccalaureate degree, a student is normally expected to complete the course and hour requirements as outlined in the catalog in effect at the time of his or her entrance. For the student who transfers to Texas A&M University at Galveston or who changes his or her degree objectives during his or her course of study, the degree requirements in the catalog specified by the Academic Department Head at the time the student makes the transfer or change will be applicable. The baccalaureate degree requirements for a graduating student who first enrolled more than seven years prior to the time of graduation will be established by his or her dean.

The following degrees are offered by the Texas A&M University for the satisfactory completion of resident study in the appropriate curriculum at Texas A&M University at Galveston:

- Bachelor of Science in Ocean and Coastal Resources (pending approval of the Texas Higher Education Coordinating Board)
- Bachelor of Science in Marine Biology
- Bachelor of Science in Marine Biology/Biomedical Sciences
- Bachelor of Science in Marine Engineering Technology
- Bachelor of Science in Marine Fisheries
- Bachelor of Science in Marine Sciences
- Bachelor of Science in Marine Transportation
- Bachelor of Science in Maritime Administration
- Bachelor of Science in Maritime Systems Engineering
- Bachelor of Arts in Maritime Studies

Requirements for a Baccalaureate Degree

The diploma of Texas A&M University, with the appropriate degree, will be granted to the student who has made formal application for the undergraduate degree and has satisfied the following requirements:

1. The student must complete, with at least a C average (2.00 GPR), one of the regular curricula of study leading to a degree.

2. A curriculum leading to a baccalaureate degree shall contain a minimum of 128 credit hours.

3. The total number of grade points earned at this institution in courses must be at least twice the number of hours which the student carried in courses at this institution. Marine Biology, Marine Biology with License Option, and Marine Fisheries majors must make a C or higher in BIOL 113, 114, 123, and 124 taken at TAMU, TAMUG or transferred and substituted for courses in the degree plan curriculum. Grades of F or WF shall be included, grades of WP and Q shall be excluded.

4. The total number of grade points earned at Texas A&M University at Galveston in courses in the major department must be at least twice the number of hours which were carried at the institution in the major department.

5. Grades made in courses elected in excess of a student's degree requirements shall be counted, but if failing, such courses need not be repeated.

6. The student must be formally recommended for graduation after consideration of his or her completed record.

7. The student must have settled all financial obligations to the University.

8. The student must satisfy core curriculum requirements.

9. All students graduating in the license-option programs must pass their respective Coast Guard examinations.

10. The student must have all grades on record in the Admissions and Records Office not later than 12 p.m. on the Thursday preceding commencement for the fall and spring semesters and 5 p.m. on the Thursday preceding commencement during the summer to receive his/her diploma at commencement.
    These requirements must be completed and all grades must be recorded in the Registrar's Office of Texas A&M University not later than 5 p.m. on Thursday preceding Commencement Day. This includes all grades pertaining to graduation with honors.

11. Students who have not cleared incomplete grades or filed official transcripts for transfer credit taken the last semester have until the fifth class day of the next term to complete these requirements. If this deadline is missed, the diploma will be destroyed and the student must reapply for graduation.

Residence Requirement for Baccalaureate Degree

A candidate for a baccalaureate degree at Texas A&M University at Galveston must successfully complete a minimum of 36 semester hours of 300- and/or 400-level course work in residence at Texas A&M University at Galveston or College Station to obtain the baccalaureate degree. A minimum of 12 of these semester hours must be in the major. Candidates for license-option curricula must complete the last two years of the minimum three-year training requirement at Texas A&M University at Galveston and participate

in the Corps of Cadets. Students enrolled in a license-option curriculum are required to participate in the Corps of Cadets every semester they are registered. Generally this will be eight regular semesters and three summer cruises.

To fulfill degree requirements for graduation that semester, transfer courses taken during a student's final semester must be completed and cited on an official transcript in the Admissions and Records Office by 12 p.m. Thursday preceding commencement. Students who have attended a public two-year institution in Texas may refer to the appropriate equivalency sheet for the Texas Common Course Numbers for transferability of courses.

Graduation Requirements in Computer Science and Foreign Language

Computer Usage - Because the computer is a necessary and useful tool, proficiency in its use is required to graduate from Texas A&M University. This requirement can be met by:

Completing one unit (one full year) of computer science course work in high school chosen from the following: Computer Mathematics I or II, Business Computer Applications I, Business Computer Programming I or Data Processing.

Demonstrating proficiency by an examination provided by the University's Office of Measurement and Research Services, or

Completing a computer usage course for college credit selected from the following:

AGEC 221; AGLS 201; ANSC 401; CPSC 110, 203, 206, 207; EDTC 345; HLTH 240, 430; INFO 209; KINE 240, 430; PHYS 401; RENR 201.

Foreign Language - To understand the major cultures of the world as expressed in art, philosophy, politics or economy, it is necessary to know and appreciate languages other than one's native language. Therefore, some proficiency in a foreign language is also required to graduate from Texas A&M University. This requirement can be met by:

Completing two units (two full years) of high school course work in the same foreign language.
Completing two semesters (one full year) of course work at the college level in the same foreign language, or
Demonstrating proficiency in a foreign language by examination.

Notes:

a. International students are not permitted to enroll in courses which satisfy foreign language requirement if those courses are taught in their native language.

b. Students who wish to demonstrate foreign language proficiency without taking acceptable high school or college courses may do so through the existing credit by examination process for the first two college courses in the foreign language. In cases where students wish to demonstrate proficiency in a language not taught at Texas A&M, the following procedures shall apply. The student shall request an examination from the Head of the Department of Modern and Classical Languages. This department will coordinate the administration of special examinations to demonstrate foreign language proficiency. This will include finding an appropriate examination to test the student's proficiency, informing the student how to arrange to take that examination and certifying the results to the student's advisor. All arrangements shall be made and fees paid by the student.

c. American Sign Language (ASL) may be used to fulfill the foreign language requirement unless otherwise specified by the student's college or department. Students may either transfer ASL credits or arrange to be tested at another institution. (Texas A&M does not offer courses in ASL.)

Requirement in Political Science (Government) and History

In order to meet the legal requirements for a baccalaureate degree, all students must have at least six credit hours in Political Science (Government) and at least six credit hours in American History as described in detail in the following paragraphs.

Political Science (Government): A student must have credit for six semester hours or its equivalent. Three of the six semester hours are to be Political Science 206 (American National Government) and three semester hours of Political Science 207 (State and Local Government with emphasis on that of Texas). This requirement may also be met, in whole or in part, by equivalent course work satisfactorily completed at another accredited college or university.

Three of the six semester hour requirements may be satisfied if the student meets the requirements to receive credit by examination on the basis of acceptable performance on an advance placement examination or a comprehensive examination.

American History: A student must have credit for six semester hours or its equivalent. Three of the six semester hours may be in Texas History and three semester hours in American History, or the entire six hours may be in American History. This requirement may also be met, in whole or in part, by equivalent course work satisfactorily completed at another accredited college or university.

No more than three hours of the six semester hour requirement may be satisfied on the basis of acceptable performance on an advanced placement examination or a comprehensive examination.

State law permits the substitution of 3 hours of history and 3 hours of political science for a student in the program of an approved senior ROTC unit. With the approval of the dean of the appropriate college, students successfully completing the required 12 hours of upper-level ROTC courses will be deemed to have completed the equivalent of a Political Science 206 or 207 plus History 105 or 106 (or another appropriate course) for a total of 6 hours.

Application for a Degree

Formal application for degrees must be submitted to the Admissions and Records Office, on forms provided for that purpose, in the first week of the semester or summer term in which the student expects to complete requirements for graduation. To obtain the necessary forms, the student must pay a diploma fee in the Fiscal Office and present the fee receipt to the Admissions and Records Office.

In order to be a candidate for a degree at the end of a semester or summer term, a student at the beginning of that semester or term must be registered for the courses necessary to complete the requirements of the curriculum.

Double Major

Students may elect to double major, that is, pursue two major fields of study, if both lead to the same baccalaureate degree. The student will receive one diploma with both majors listed on it. The two majors may be in the same or different Colleges within the University. The following requirements must be met:

1. The student must receive approval of the dean(s) of the college(s);

2. All University and college(s) requirements must be satisfied;

3. All required courses in each major must be completed; and satisfy whatever conditions are set by the department(s) in which the majors are offered.

Two Degrees

A candidate for a second baccalaureate degree must have completed all the essential work of the second curriculum not covered in the first. In all such cases the total semester hours required must be at least 30 semester hours additional to the greater number required for either degree. A student is required to obtain a letter from the department head of the second degree plan program stating the courses required for the second degree. The student will pay two diploma fees and receive two diplomas.

Graduation with Honors

Categories for honors shall be designated as follows:

1. Summa Cum Laude: A student may be graduated "Summa Cum Laude" with a grade point ratio of 3.900 or above.

2. Magna Cum Laude: A student may be graduated "Magna Cum Laude" with a grade point ratio of 3.700 through 3.899.

3. Cum Laude: A student may be graduated "Cum Laude" with a grade point ratio of 3.500 through 3.699.

To be eligible for graduation with honors, a student seeking a baccalaureate degree must enroll in and complete a minimum of 75 semester hours preceding graduation at this institution. Course credit received by examination is not included in this total. The grade point ratio of all college hours attempted, excluding transfer hours, must equal that required at Texas A&M University for the appropriate category of honors.

FINANCIAL INFORMATION

General Information

The expenses for each semester will vary according to the personal needs of the student and the course of study pursued. The tuition rate differs according to which of the three following categories a student qualifies: resident of Texas, nonresident of Texas, or pursuing a license-option curriculum.

The tuition and fee amounts provided in this catalog represent the most accurate figures available at the time of publication and are subject to change due to economic conditions, legislative requirements, or actions of the Texas A&M University System Board of Regents.

Payments

Students must meet all financial obligations to the University by their due dates to avoid late penalties. Failure to pay amounts owed may result in cancellation of the student's registration and their being barred from future enrollment and receiving official transcripts. State law requires that tuition and fees be paid prior to the first day of classes. Students may choose to pay fees in installments which is explained below.

Payments to the Fiscal Office may be in the form of cash, cashier's check, personal check, or money order payable to Texas A&M University at Galveston (or TAMUG). All checks and money orders are accepted subject to final payment. The Discover credit card is accepted for tuition/fee payments.

Notices of amounts owed should be obtained at the Fiscal Office. A bill will not be sent through the mail for students who register late or add courses at the beginning of the semester unless they are on the installment plan.

Installment Plan

Tuition, most fees, room, board, and parking may be paid in three installments with one-half payable prior to the first day of classes and the remainder payable in two equal payments during the fall or spring semester. A $15 service charge will be assessed each student who chooses to use the installment plan. Students who wish to pay fees in installments should contact the Fiscal Office (409) 740-4434.

Late Fees and Penalties

Late Payment Penalty. A $20 late fee will be assessed for each payment not received on or before its due date. If a student is removed from the rolls of the University or is withdrawn for failure to pay amounts owed the University, a $50 reinstatement fee will be assessed in addition to any other late fees or penalties already incurred and must be paid before the student can be reinstated. A balance remaining at the end of the semester will also cause a student to be dropped from the rolls of the University.

Late Registration Fees. Students who register (including payment of fees) on or after the first class day of the semester pay an additional $10 fee.

Student Financial Responsibility

Students are responsible for the balance in their accounts. Late payments and delinquent balances (tuition and fees, installments, student loans, returned checks) remaining at the end of the semester will cause a student to be blocked from registering for the next semester or from obtaining a transcript.

Tuition and Fees: Texas Residents

Texas residents, except those in license-option curricula, pay $40 per semester credit hour for tuition; however, the total of those charges shall not be less than $120 per semester or $60 per summer term. The fees listed below are for all Texas resident students except those in license-option curricula. These fees are based on a student registered for 15 credit hours during the regular school year and 6 credit hours during a term of the summer session:

	Fall Semester	Spring Semester	Summer Term* (5 weeks)
Tuition	$600.00	$600.00	$240.00
Student Services	118.80	118.80	59.40
Room (Double)	890.00	890.00	350.00
21 Meal Plan**	1,098.74	1,098.74	368.05
Room Deposit	250.00		
Identification Card	5.00	5.00	3.00
Computer Use Fee	120.00	120.00	48.00
General Property Deposit	10.00		
University Authorized Tuition	600.00	600.00	240.00
Health Center Fee	25.00	25.00	12.50
Library Use Fee	75.00	75.00	30.00
Student Center Complex Fee	12.50	12.50	6.25
Orientation Fee	50.00		
Total	$3,855.04	$3545.04	$1,357.20

*The fees for one summer session should be doubled if you enroll for both sessions for the same number of credit hours.
**Includes state and city tax of 8.25%.

Tuition and Fees: License Option Students

License-option students pay $50 per semester credit hour for tuition; however, the total of those charges shall not be less than $150 per semester or summer cruise. The following fees are based on 15 hours during the regular school year and 4 hours for summer cruise (excluding international students):

	Fall Semester	Spring Semester	Summer Cruise
Tuition	$750.00	$750.00	$200.00
Student Services	118.80	118.80	39.60
Room	890.00	890.00	700.00
21 Meal Plan*	1,098.74	1,098.74	811.88
Room Deposit	250.00		
General Property Deposit	10.00		
Identification Card	5.00	5.00	3.00
Computer Use Fee	120.00	120.00	32.00
Cruise Fee			800.00
University Authorized Tuition	600.00	600.00	160.00
Health Center Fee	25.00	25.00	25.00
Library Use Fee	75.00	75.00	20.00
Student Center Complex Fee	12.50	12.50	6.25
Total	$3,955.04	$3,695.04	$2797.73

*Includes state and city tax of 8.25%.

Students who are dismissed or withdraw from a license-option curriculum after the semester begins will have fees adjusted to the appropriate resident or nonresident rate retroactive to the beginning of the semester.

License-option students who are granted a leave of absence for the summer and who enroll in the onshore summer program at the Mitchell Campus instead of the summer training cruise will pay license-option fees as appropriate for that period. License-option students must complete all three cruises within four summers.

Under special circumstances, non-license option students may be granted permission to participate in the Corps of Cadets. Non-license option students in the Corps of Cadets are not eligible for the special license-option tuition and will pay normal resident or nonresident fees as applicable.

Tuition and Fees: Nonresident Students

Nonresident students, except those pursuing a license option curriculum, pay $255 per semester credit hour. The fees listed below are based on a student registered for 15 credit hours during the regular school year and 6 credit hours during a term of the summer session:

	Fall Semester	Spring Semester	Summer Term* (5 weeks)
Tuition	$3,825.00	$3,825.00	$1,530.00
Student Services	118.80	118.80	59.40
Room (Double)	890.00	890.00	350.00
21 Meal Plan**	1,098.74	1,098.74	368.05
Room Deposit	250.00		
Identification Card	5.00	5.00	3.00
Computer Use Fee	120.00	120.00	48.00
General Property Deposit	10.00		
University Authorized Tuition	600.00	600.00	240.00
Health Center Fee	25.00	25.00	12.50
Library Use Fee	75.00	75.00	30.00
Student Center Complex Fee	12.50	12.50	6.25
Orientation Fee	50.00		
Total	$7,080.04	$6,770.04	$2,647.20

*The fees for one summer session should be doubled if you enroll for both sessions for the same number of credit hours.
**Includes state and city tax of 8.25%.

Unpaid Check

If a check accepted by the Fiscal Office or bookstore is returned unpaid by the bank on which it is drawn, it is turned over to an outside collections agency. A penalty of $25 in the form of cash or money order will be assessed during collection procedures. If not redeemed, the student may be dropped from the rolls of the University. The student is eligible for reinstatement after payment of penalties that include a $50 reinstatement fee and redemption of the check.

Computer Use Fee

The computer use fee is charged at the rate of $8 per semester credit hour. This fee will be used to compensate for services provided by various microcomputer facilities on campus.

General Property Deposit

Every student, unless registered in-abstentia, must make a property deposit to protect the University from damage to or loss of University property. This deposit, less any outstanding charges, will be returned upon request to the student graduating or withdrawing from school. Deposits not requested within four years from date of last attendance will be forfeited into a student deposit scholarship account.

Health Center Fee

This fee is required of all students at the rate of $25 for each regular semester, $25 for the summer training cruise, and $12.50 per five-week summer term. This fee will finance health services provided by a local clinic and a physician and two medical assistants on the summer training cruise.

Housing and Meal Plans

All undergraduate students enrolled in more than nine credit hours are required to reside in campus housing if available and purchase a 15 or 21 meal plan. The limited exceptions to this requirement are detailed in the Housing section of this catalog. Any student living off campus at the beginning of the semester who adds enough hours to require living on campus must pay for room and board for the entire semester.

Residence Hall Room Fees

Housing Fall/Spring Double = $890	Housing Fall/Spring Single = $1,025
Each 5-week Summer Term = $350	Summer Cruise = $700

Meal Plan Fees

Students requesting to change meal plans during the semester will have 30 days from the first day of classes to make any change. Requests for changes to a meal plan after that time will not be permitted.

Fall and Spring
15 Meal Plan - 15 meals, Mon. - Sun., 3 meal/day limit, $950 + $78.38 tax = $1,028.38
21 Meal Plan - 21 meals, Mon. - Sun., no limit on meals per day, $1,015 + 83.74 tax = $1,098.74

Each 5-Week Summer Session
15 Meal Plan - 15 meals, Mon. - Sun., 3 meal/day limit, $310 + $25.58 tax = $335.58
21 Meal Plan - 21 meals, Mon. - Sun., no limit on meals per day, $340 + 28.05 tax = $368.05

Two optional meal plans are available for off-campus students.

Fall and Spring	
Any 5 meals per week	$425 + $35.06 tax = $460.06
Any 10 meals per week	$750 + $61.88 tax = $811.88

Summer (Optional meal plan)	
Any 5 meals	$95 + $7.84 tax = $102.84
Any 10 meals	$210 + $17.33 tax = $227.33

Identification Card

All students must have an identification card. This card is used in registration procedures, collection of fees, cashing of checks, for dining hall privileges, etc. During the fall and spring semesters, the identification card fee will be $5.00. Summer identification card fee is $3.00. Replacement cards will be issued upon payment of an $8.00 fee.

Library Use Access Fee

The library use fee is assessed at the rate of $5 per semester credit hour. Funds collected for this fee are devoted to enhancement of library holdings and services.

Orientation Conference Fee

The orientation conference fee is required of all new freshmen and transfer students enrolling in fall or spring semesters and selected summer terms at the rate of $50.00 per student. This fee supports the provision of advanced materials to accepted students, the conduct of professional orientations, and state-mandated diagnostic testing.

Room Deposit

A deposit of $250 is required to apply for a room in a residence hall. This fee will be retained as a deposit against damage or late cancellation, or to keep the application on active file. Upon withdrawal from TAMUG or graduation, any charges associated with damage to the dorms by the student may be withheld from the housing deposit. A reservation may be canceled and the deposit refunded upon written request prior to July 1 for the fall semester, December 15 for the spring semester, May 10 for the first summer session and June 20 for the second summer session. Any cancellation after the above dates will result in forfeiture of the deposit. A refund may be made in accordance with the TAMUG policy for a student graduating or withdrawing from school, upon request, after clearance by the Residential Services and the Student Affairs Offices. The balance of the refund due will be issued through the Fiscal Office after deducting all dorm damage charges owed by the student to the University. Seniority in campus housing and on the residence hall waiting list will be based upon the date of receipt of the room deposit; however, the deposit does not guarantee assignment to on-campus housing.

Student Center Complex Fee

The student center complex fee is required for all students at the rate of $12.50 per semester ($6.25 per five-week summer term or cruise). This fee will be used for the operation, maintenance, programming improvement, and purchase of equipment for the student center complex and for the acquisition or construction of additions to the complex.

Student Services Fee

The student service fee is required of all students at the rate of $9.90 per semester credit hour not to exceed $118.80 per semester or $59.40 per five-week summer term. Student services fees finance recreational activities, student government, student publications, student organizations, campus movies, intramural athletic programs, and social activities. The fee also provides counseling, graduate placement, financial aid, and multicultural services.

University Authorized Tuition

This fee of $40 per semester credit hour is assessed to compensate for occupancy, services, use and/or availability of all or any of the property, buildings, structures, activities, operations and other facilities of the campus.

Fees for other Services

Application Fee: Students who submit an application to the University pay a $35 fee.

Career Center Fee: This $35 fee is required of students in the semester they register for on-campus interviews to support full-time and internship placement services.

Cruise Fee: Students pursuing a license-option curriculum pay a $800 fee for each cruise attended. This fee is assessed to compensate for activities, services, and general operations of the Texas Clipper II.

Engineering Instructional Enhancement Fee: A student registering in certain engineering courses may be required to pay a $70 Engineering Equipment Access Fee. The fee will not exceed $70 per course or $210 per semester.

Field Trip Fees: A field trip fee ranging from $15 to $2,000 may be charged for courses that include field trips.

Graduation Fee: A non-refundable fee of $30 per degree sought is assessed the semester a student applies for graduation. This must be paid within the first 15 class days of the student's final semester. Late payment of the Graduation Fee will result in a $50 late charge.

International Student Service Fee: International students who are not sponsored are assessed a $20 fee each semester to defray administrative support costs.

Laboratory Fees: A laboratory fee ranging from $8 to $30 is charged for each laboratory course each semester.

Mail Service Fee: The university operates a mail service for students living on campus wishing to receive mail on campus. The fee is $20 per semester for each student and $20 per 10-week summer term.

Parking Permit: All students parking an automobile or motorcycle on the campus pay a fee of $60 for the academic year. A $30 summer parking fee, independent of the academic year fee, is assessed for the entire summer term.

PE Service Fee: All students taking Physical Education (kinesiology) courses are required to pay a $16 service fee for each Physical Education course.

Residence Hall Room Key Replacement Charge: Students who must replace their residence hall room keys will be charged a $10 fee.

Sailing Course Fee: This $110 fee is charged only to students registered in PE sailing courses to cover the costs of maintaining the boats, fuel for the instructor's boat, and safety equipment.

Scuba Tank Rental Fee: $110 will be charged to students enrolled in a scuba diving course who require the University to supply tanks for the course. This fee is used to maintain tanks, regulators, and compressors.

10-Week Summer Semester: Students may register for 10-week summer semester courses during the first summer term registration. They will be charged the minimum tuition of $120. All other mandatory and/or optional fees will be based on the number of hours taken.

Expenses

Textbooks and Supplies: The cost of textbooks and supplies will vary with the quality of items purchased and with the course of study pursued. Students can expect to pay an amount ranging from $650 to $800. These amounts are estimates for the combined fall and spring semesters. Expenses for the summer term should amount to approximately one-half of the above estimates.

Uniforms: License-option students must purchase uniforms with initial outfitting estimated at $1000.

Tickets to Texas A&M University home games may also be purchased at registration.

The University operates a bookstore which supplies textbooks, stationary, drawing instruments, toiletries and other supplies. All merchandise is sold at retail prices prevailing in the area. Major credit cards are accepted in the bookstore. For more information regarding the bookstore, please call (409) 740-4488.

Refunds and Adjustments

Withdrawal from the University

Once the University has accepted a fee payment, a student is considered officially enrolled. Stopping payment on a check for fees or allowing the check to be returned unpaid by the bank for any reason does not constitute official withdrawal. A $25.00 unpaid check fee will be applicable in this instance. Students wishing to withdraw should contact the Admissions and Records Office. Failure to follow procedures for withdrawing from the University may result in financial penalties and difficulty with future enrollment in the University.

Refunds of fees shall be made to students officially withdrawing according to the following schedule: Tuition, University Authorized Tuition, Computer Access Fee, Student Services Fee, Student Center Complex Fee, Health Center Fee, Equipment Access Fee, P.E. Service Fee, Laboratory Fee, Residence Hall Rent, and Meal Plans:

Fall or Spring Semester:

Prior to the first class day	100 percent
During the first five class days	80 percent
During the second five class days	70 percent
During the third five class days	50 percent
During the fourth five class days	25 percent
After the fourth five class days	None

Five-week Summer Term

Prior to the first class day	100 percent
During first, second, third class day	80 percent
During fourth, fifth, or sixth class day	50 percent
Seventh day of class and thereafter	None

Meal Plan Refunds

Meal fees are refundable in full prior to the first day of classes, after which time refunds will be made on a percentage basis according to the University's refund schedule. In case of a consecutive absence of 10 or more days due to illness of the student or member of his or her family or for some other unavoidable cause, a pro-rata refund will be made, computed on a daily basis.

Financial Aid Recipients Refunds

Students receiving financial aid may owe some portion of any refund back to the appropriate federal or state programs. Financial aid refunds are determined prior to the release of any funds to the student who has withdrawn.

Drop/Add Refunds

A student may drop courses during the first 4 class days of a fall or spring semester or 3 days of a summer semester. For Fall or Spring Semesters, students may also drop classes with special permission of the dean/department head between the 5th and 12th class days. Full refunds will be given for courses dropped during these periods. For a Summer semester, a Student may add classes during the first 4 days of a summer semester. All fees must be received in the Fiscal Office on the day the course is added. Students may drop classes during the 1st through 4th class day with full refunds. Refunds will not be issued for classes dropped after the 4th class day.

Remember, to be eligible for drop refunds, you must remain enrolled for the semester. Otherwise, please refer to the "Withdrawal Refund" section of this book. Refunds will not be issued for classes dropped after the 12th class day. As of the first day of the semester, students may not drop all of their classes through the drop/add process because that would constitute withdrawal from the University. Students must go through the official withdrawal process to drop all courses and withdraw from the University. To withdraw, contact the Admission and Records office.

A student may add courses during the first 5 days of a Fall or Summer semester. You must pay the additional tuition and fees immediately; otherwise your registration will be subject to cancellation.

Exemptions

Certain students in the following classifications are exempt from paying tuition and some of the required fees by action of the State of Texas and the Texas A&M University System Board of Regents. Specific eligibility requirements under these provisions can be obtained from the Fiscal Office.

Dependent children of disabled or killed-on-duty firemen are exempt from paying tuition and laboratory fees.

Blind and deaf students who are eligible for the rehabilitation services of the State Commission for the Blind and/or Division of Vocational Rehabilitation of the Texas Education Agency are exempt from tuition and laboratory fees.

Certain veterans (and dependents of veterans who died in active service), who are not eligible for federal educational benefits, who are Texas citizens and who were honorably discharged, may be exempt from paying tuition and laboratory fees. Orphans of members of the Texas National Guard and Texas Air National Guard killed since January 1, 1946, while on active duty either in the service of their State or the United States may also be eligible under this provision.

Officers, enlisted persons, selectees, or draftees of the Army, Army Reserve, Army National Guard, Air National Guard, Air Force, Air Force Reserve, Marine Corps, Marine Corps Reserve, Coast Guard, or Coast Guard Reserve of the United States, who are assigned to duty in Texas and their spouses and children, are entitled to pay the tuition fee required of Texas residents.

Teachers or professors employed at least one-half time on a regular monthly salary basis by institutions of higher education in Texas, and their spouses and children, are entitled to pay the tuition fee required of Texas residents.

Most non-resident students who are awarded competitive academic scholarships of at least $1,000 by the TAMUG Scholarship and Awards Committee for the academic year are entitled to pay Texas resident tuition for the academic year that the scholarship covers. Waivers are limited to 5% of the total number of students enrolled. The non-resident status is unchanged.

Students registered only in courses which have been designated as "off campus" will be charged tuition and fees based on their specific distance education courses category. Please check with the Fiscal Office for the required tuition and fees for each category.

Students registering concurrently at two Texas public institutions of higher education are subject to the following tuition procedure:

1. A student must register at the institution with the lower minimum tuition and pay the full tuition charge.

2. Generally, only the hourly rate is paid at the second institution. However, if the minimum amount is less at the first institution, then the student must pay the difference in the two minimums to the second institution, but not less than the hourly rate.

STUDENT SERVICES

The Office of Student Affairs coordinates the student life programs and activities of TAMUG. Information is available from this office concerning new student orientation, advanced placement testing, international students, counseling services, housing, financial aid, health services, student activities, graduate placement, and handicapped and multicultural services.

STUDENT FINANCIAL AID

The purpose of student financial aid at TAMUG is to assist students in meeting the reasonable costs of their education. Financial aid is available to eligible U.S. citizens and non-resident aliens who are enrolled in degree granting programs making satisfactory academic progress toward a baccalaureate degree.

Financial aid may include federal and state grants, scholarships, work opportunities, and student loans. Students submitting a complete application will be considered for all types of need-based assistance.

To apply for financial aid please submit the Free Application for Federal Student Aid (FAFSA). Use Title IV Code 003632, Texas A&M, College Station.

Transfer students must submit a Financial Aid Transcript from every school previously attended even if you did not receive financial aid.

If your application is selected for Verification, you will be asked to substantiate the information you reported on the FAFSA.

Costs of Attendance

TAMUG uses average costs of attendance in determining financial need. These costs include tuition and fees (30 hours per year FTE), room and board, books and supplies, personal expenses, and transportation. Additional costs may be added for childcare or disability-related expenses. There are three major categories of student budgets: Texas resident $10,160 (9 mo.), non-Texas resident $16,610 (9 mo.), and license-option students $13,310 (12 months and includes summer cruise).

General Priority

Priority Deadlines: The Federal Supplemental Educational Opportunity Grant (FSEOG) program requires financial aid applicants to be prioritized by Pell Grant eligibility and Expected Family Contribution (EFC) and awarded based, generally, on Pell eligibility and the lowest EFC. In order to fulfill this requirement, Texas A&M University at Galveston has the following FSEOG priority deadlines for the 1999-2000 academic year:

April 1, 2000	Fall 2000
October 1, 2000	Spring 2001
March 1, 2001	Summer 2001

If FSEOG funds remain after the initial awards are made, an additional deadline will be made to award the remaining funds. This deadline applies only to the FSEOG program. Students who do not meet the deadline are still eligible for other financial aid.

General Guidelines

The Financial Aid Office adheres to the following guidelines when awarding financial aid to students who complete their files after the beginning of a semester:

Students completing their 2000-2001 financial aid letter after:

- November 1, 2000 will only be packaged for spring 2001, (Cadets going on cruise will also be packaged for the summer 2001).
- April 1, 2001 will be packaged for the summer 2001.

These guidelines were developed so that the Financial Aid Office can establish fund balances in the aid programs for the following semester. All students should strive to complete their files before these dates.

Satisfactory Academic Progress Policy

The purpose of the TAMUG Satisfactory Academic Progress Policy for financial aid is to ensure that students benefiting from financial assistance make reasonable and consistent progress toward a baccalaureate degree. TAMUG'S policy is consistent with U.S. Department of Education and Texas Higher Education Coordinating Board guidelines. The policy measures both qualitative and quantitative progress and is the applicable minimum standard for all types of financial assistance awarded by TAMUG.

Satisfactory academic progress for financial aid is deemed as: the maintenance of a cumulative GPR of 2.0 or greater and the successful completion of at least 24 credit hours per academic year. A copy of the complete Satisfactory Academic Progress Policy is available in the Financial Aid Office.

Financial Aid Available:

Grant Programs: Grants are awarded based on financial need. Grants do not have to be repaid. TAMUG participates in these programs: Federal Pell Grant, Federal Supplemental Educational Opportunity Grant, State Student Incentive Grant, Texas Grant and Texas Public Education Grant.

Scholarships: Scholarships are generally based on academic achievement and leadership. The TAMUG Scholarship and Awards Committee evaluates applicants and makes awards in the spring for the following academic year. The committee uses the admission application for freshman awards. There is not a separate freshman scholarship application for TAMUG-awarded scholarships.

A limited number of non-resident students awarded a competitive TAMUG scholarship valued at $1,000 or more are eligible to pay resident tuition.

All students are encouraged to apply for scholarships offered in their hometowns or from national sources. Information regarding such sources is available from high school counselors and reference materials in public libraries.

Part-Time Student Employment: All students who are making satisfactory academic progress are eligible to work on campus without regard to financial need. The Human Resources Office coordinates both on- and off-campus employment.

Interested students may seek positions through the job listings posted with the Human Resources Office. Student employment is limited to 20 hours per week, there are no fringe benefits, and students must maintain a 2.0 GPR.

A limited number of Federal and Texas Work-Study awards are made each year through the Financial Aid Office. Students awarded from either source still must seek their positions through the regular student employment process.

Student Loan Programs: TAMUG participates in these loan programs: Federal Stafford Student Loan, Federal Unsubsidized Stafford Student Loan and Federal Parent Loan for Undergraduate Students. All loans require an application and a promissory note. Credit reviews may be performed on Federal PLUS loans. New borrowers are required to attend entrance loan counseling before receiving the first disbursement of any loan.

Students who have borrowed money through federal or state student loan programs are required to receive exit loan counseling when they graduate, withdraw, or drop below ½ time enrollment.

Disposition of Student Aid Funds: Students awarded grants or TAMUG scholarships will have funds credited to their accounts by the first day of class in the Fiscal Office. Outside scholarship awards must be sent to the Financial Aid Office indicating the recipient and made payable to TAMUG. These will be credited to the student's account. Student employees are paid biweekly.

Student loan and parent loan (PLUS) proceeds are available for EFT. EFT is a system of electronic fund transfer, which credits the loan funds to the student's account. This eliminates standing in line for loan checks. Otherwise, student loan checks are made payable to the student and are available in the Fiscal Office. Veteran's Benefits are paid directly to the student.

Enrollment is verified prior to the release of any financial aid. Fiscal refunds due to financial aid credits are made after the 12th class day.

Students must come to campus prepared to pay for deposits, books, supplies, sundries, and for Cadet uniforms (we suggest $500).

Emergency Tuition and Fee Loans are available through the Fiscal Office for students needing assistance with fee payments. The following is an excerpt from the Emergency Tuition Loan Application, which is available from the Fiscal Office:

The enabling provision of House Bill 1147; 69th legislature, 1985, requires that you show evidence of being financially unable to pay tuition and required fees in order to be considered for this emergency loan. My signature below indicates that I understand that the evidence required is the Student Aid Report (SAR) from the Free Application for Federal Student Aid. Also, this loan can only be approved for the difference between the amount of my first installment and one half (½) of the printed Expected Family Contribution (EFC) on my Student Aid Report (SAR). I further understand that if the loan is granted that I will repay the loan before the second installment due date and that the loan will bear interest at a rate of 5% per annum beginning the day the loan is credited.

Refund and Repayment Policy: Students who receive financial aid and withdraw, or are expelled from TAMUG, may owe a portion of any refund back to one or more financial aid programs. In accordance with federal law, refunds are made to financial aid programs first, then to students.

The term "refund" refers to a return of school charges (generally tuition, fees, room and board) made to a student due to their withdrawal. The Fiscal Office is responsible for calculating the gross amount of a refund using the policy published in the catalog. The Financial Aid Office reviews refunds to determine if, and in what amounts, funds should be returned to federal or state financial aid programs in accordance with applicable federal and state regulations.

Funds returned to financial aid programs will be credited based on the prioritized list below:

1. FFEL Loans (Stafford, SLS, PLUS)
2. Federal Perkins Loan
3. Federal Pell Grant
4. Federal SEOG
5. Other Title IV aid programs
6. State aid programs
7. Private scholarships
8. The student

A student may also owe a repayment to a financial aid program due to withdrawal from TAMUG. Repayments result from cash disbursement of financial aid that the student is not entitled to upon withdrawal.

Veterans Benefits: The Admissions and Records Office files claims for Veterans Benefits verifying a veteran's enrollment at TAMUG. Students are asked to submit the following documents to substantiate their claim: certified copy of their DD-214 showing an honorable discharge from service, a signed degree plan for their major indicating all of the courses necessary to receive that degree, VA form 22-1990 to establish eligibility or VA form 22-1995 to transfer their eligibility. Other documentation may be required. Enrollment is certified and claims are forwarded to the appropriate VA regional office. Adjudication may take four to six weeks; therefore, VA students should come to TAMUG ready to pay the initial costs of enrollment. Veterans are required to maintain a cumulative GPR of 2.0 or greater and successfully complete 24 credit hours per year to maintain eligibility. Students failing to meet the standard are placed on probation for one semester. Students who achieve a 2.5 GPR in the probationary semester and complete every class they start are eligible for a second probationary semester. A student who fails to meet the terms of their VA probation, or have not achieved a cumulative GPR of 2.0 after their second probationary semester, will be reported to the VA as making unsatisfactory progress.

Hazlewood Tuition Exemption: Texas residents who have fully exhausted all potential Veterans Benefits and are not eligible for any other federal or student grant benefits (including Pell, SEOG, and SSIG) should contact the Financial Aid Office to determine if they are eligible for a Hazlewood tuition exemption.

Inquiries regarding financial aid or veterans benefits may be addressed to the Financial Aid Office, Texas A&M University at Galveston, P.O. Box 1675, Galveston, TX 77553-1675. (409) 740-4500 or E-Mail: 4FINAID@TAMUG.TAMU.EDU

OFFICE OF CAREER PLANNING AND PLACEMENT

The Office of Career Planning and Placement provides career development and professional employment assistance to alumni and currently enrolled students. The Office provides individual and group career counseling; workshops on resume preparation, interviewing skills, and job search techniques; and a wide variety of vocational testing and interest assessments. TheOffice maintains a career resource room containing company and career information, as well as career development materials. Companies and organizations post job vacancy notices in the career resource room and visit the campus throughout the year to interview graduating students for full-time positions. Students and alumni may establish a credentials file and participate in the resume referral service. In addition, the Office hosts an annual Career Fair targeted to all students and alumni, providing an outstanding opportunity for career exploration and networking with prospective employers.

Students who wish to use the services provided by the Office of Career Planning and Placement should register with the office as early as their sophomore year and acquaint themselves with the available resources. Before participating in on-campus interviews, students are required to complete a credentials file. Appointments are required for individual counseling. All other services are available during regular office hours.

For further information contact the Office of Career Planning and Placement, TAMUG, P.O. Box 1675, Galveston, TX 77553-1675, or call (409) 740-4736.

OFFICE OF STUDENT COUNSELING

The Office of Student Counseling provides free and confidential counseling assistance to students. Counseling services are designed to help students improve personal, academic and professional skills related to academic success. The counseling staff help students meet these needs by providing short-term individual counseling sessions, seminars, workshops and small-group experiences. The following services and resources are available to TAMUG students: Individual counseling; academic skills training; career testing and counseling; community referrals; entrance exams, including TASP, LSAT, GRE, MCAT and GMAT; study abroad programs; tutor information; and drug/alcohol abuse prevention education.

In addition, the Counseling Office provides access to the Academic Resource Room, available to students seeking a quiet place to study. Computers, academic skill enhancement software, videos, academic counseling, tutor referrals and written information are available to students wanting academic assistance. Graduate school preparation software including LSAT, GRE and GMAT is also available.

Inquiries or appointments regarding counseling may be addressed to the Office of Student Counseling, P.O. Box 1675, Galveston, TX 77553-1675 or call 409-740-4587.

INTERNATIONAL STUDENT SERVICES

The Office of Student Counseling serves as the liaison with the International Student Services Office at Texas A&M University in College Station. Personal counseling, financial planning, liaison with embassies and consulates, legal referrals, academic referrals, immigration matters, orientation programs, and advisement to groups, are among the services offered.

For more information regarding International Student Services, contact the Office of Student Counseling, P.O. Box 1675, Galveston, TX 77553-1675 or call 409-740-4587.

DISABLED STUDENT SERVICES

The Office of Student Counseling provides services to students with documented disabilities. The office offers information on disabilities, campus services, and related resources. Persons with disabilities are encouraged to apply for services early and to request a meeting to discuss their individual needs prior to registration. Accommodations provided to students are based on individual need. Information regarding disabilities can be obtained through the Office of Student Counseling, P.O. Box 1675, Galveston, TX 77553-1675 or call 409-740-4587.

HEALTH SERVICES

Medical Clinic: Texas A&M University at Galveston contracts with local community clinics for health services for enrolled students. Terms of the contract may vary from year to year, but generally office visits to the doctor are free of charge. Medications, inoculations, x-rays, physicals, and other services provided at the clinic are available at the student's expense. Hospitalization and emergency room visits are full-charge at the student's expense. Educational pamphlets concerning HIV/AIDS are available to students from the Counseling Office.

Group Insurance: Since there are numerous health needs and costs which are not provided or paid for by the Campus Health Service, students are encouraged to purchase medical insurance. A group plan is available to all students in The Texas A&M University System. Applications for this program will be distributed during new student orientation and are available from the student counseling office. Students and parents should give careful consideration prior to dropping any current health insurance.

Summer Cruises: Each year the T/S Texas Clipper II is staffed with 3 licensed medical practitioners to operate an onboard dispensary. All services provided on board are free of charge. Should a student require hospitalization ashore or evacuation, the student will be responsible for all costs incurred because of such hospitalization or evacuation.

OFFICE OF HOUSING

Texas A&M University at Galveston has on-campus housing in modern student residence halls. Rooms are double occupancy and furnished with beds, desks, chairs, wardrobes or closets, and dressers. Students are expected to furnish pillows, blankets, shower curtains, linens, and cleaning supplies. With limited exceptions, all Texas A&M University at Galveston students are required to live in campus housing and participate in the board plan if campus housing is available. Approximately 50 percent of the undergraduate students are housed on campus, and returning students are given priority in granting permission to live off campus. Campus residents accepting housing in the fall semester are required to sign a nine-month contract and are not permitted to move off campus for the spring semester.

An application for campus housing, which is separate from the application for admission to the University, is available from the Office of Student Affairs. This application, along with the $250 required housing deposit, should be returned to the Texas A&M University at Galveston Fiscal Office. Rooms are assigned in accordance with the date on which the housing application and room deposit are received in the Fiscal Office.

Housing applications may be forwarded prior to acceptance to the University, but housing assignments will be contingent upon admission to the University. It is recommended that housing applications be submitted early. In the event that on-campus housing is not available, information concerning off-campus housing will be provided upon request.

Since license-option students are required to live on campus, students will be able to pursue a license option only if campus housing is available for them. A failure to receive campus housing does not preclude students from enrolling in the degree program of their choice but simply restricts participation in license-option programs until campus housing is available. License-option students are housed separately from non-license-option students. Questions concerning license-option housing should be directed to the Housing Office.

OFFICE OF STUDENT ACTIVITIES

A wide variety of student activities are coordinated through the Office of Student Activities in the Mary Moody Northen Student Center. The Northen Student Center contains dining facilities, a bookstore, counseling, student activities, and graduate placement offices and other facilities. Adjacent to the Northen Student Center are the P. E. facility, swimming pool, tennis courts, and other outdoor recreational facilities.

Clubs: Clubs on campus include the American Society of Mechanical Engineers, Sail Club, Caving Club, Dive Club, Propeller Club, Student Life Organization, Student Association of Maritime Administrators, Society of Naval Architects and Mechanical Engineers, the Drama Club, an environmental group, and many others.

Student Government: The student government of Texas A&M University at Galveston is the Student Senate. This Senate serves as a direct link to the administration regarding student life. Members are elected each year.

Student Publications: Students publish a newspaper, The Nautilus and a literary publication, Seaspray.

Athletics: The Recreational Sports Program provides each student with the opportunity to participate in regularly organized activities. Co-rec teams are organized in flag football, basketball, softball, and volleyball. Texas A&M University at Galveston also has softball, volleyball, soccer, and rugby teams which compete in local leagues. The Campus Sail Team and Rowing Club compete in intercollegiate competition.

MULTICULTURAL SERVICES

The Department of Multicultural Services works with other programs on campus to support the cultural, educational, social and personal development of all students attending TAMUG.

Departmental services include personal advising; a resource library including multicultural books, articles and video/audio tapes; and tutoring and mentoring services. Within Multicultural Services is the Academic Resource Room for use by students seeking a quiet place to study. Computers and skill enhancement software are also provided for incoming students wanting to review basic chemistry and calculus. Graduate school preparation software including LSAT, GRE and GMAT is available for upperclassmen.

Multicultural Services is also responsible for the International Culture Club (ICC) which is open to all persons seeking to gain valuable experience in promoting diversity through multicultural programming. For more information, call the Department of Multicultural Services at 409-740-4427.

HAZING

Anyone who participates in hazing is in violation of University rules as well as state law. Violators may be subject to University disciplinary action in addition to state criminal penalties. Hazing means any intentional, knowing, or reckless act occurring on or off the campus by one person, alone or acting with others, directed against a student that endangers the mental or physical health or safety of a student for the purpose of pledging, being initiated into, affiliating with, holding office in, or maintaining membership in any organization whose members are (or include) students at the University. A complete definition of hazing is available in the Student Services Office.

SUPPLEMENTAL INSTRUCTION

TAMUG promotes the learning/study-habits of its students by offering Supplemental Instruction (SI) in selected courses. Currently, these courses are at the freshman and sophomore level. The heart of SI is the SI Leader who is an undergraduate that has already successfully completed the course in which he/she provides SI Leadership (and, if possible, also had the same instructor originally). Each SI Leader attends all lectures of their course again, and takes notes again, just like the other students in the class. But in addition, each SI Leader conducts 2-3 one-hour SI sessions per week outside of class where they employ a variety of techniques for which they've been trained, to improve the students' learning and understanding of the material, and their study-habits. SI has been demonstrated to be better than tutoring. All students in a course with SI are encouraged to attend the SI sessions because national statistics show that regular attendance at SI sessions betters a student's performance by one letter grade.

CORPS OF CADETS

Students pursuing a University degree program leading to a U. S. Coast Guard license as a Merchant Marine Officer are required to join the U.S. Maritime Service Corps of Cadets. Participation in the Corps provides Cadets with leadership and management training appropriate to the needs of a Merchant Marine Officer. The Corps is organized as a military unit and is subject to special Cadet discipline and performance requirements. Cadets are required to stand watches on the training ship and have muster, training, uniforms, room inspection and similar requirements. Uniforms are worn each day during the academic year and during the summer training cruises. Cadets are required to complete first aid, CPR, fire-fighting and related professional certification requirements in addition to the academic curriculum.

International students are permitted to join the Corps of Cadets and follow a curriculum leading to a license as a Merchant Marine Officer. However, only American citizens can be licensed. The Coast Guard may administer a license examination to a foreign Cadet and report the results by letter. A foreign Cadet need not take and complete the license examination as a prerequisite to graduation. Questions about the Corps of Cadets should be directed to the Office of the Commandant at (409) 740-4588 or the Student Relations Office at (409) 740-4428.

Admission to a License-Option Curriculum

Students who meet the admission criteria established by the U. S. Maritime Administration and the University may participate in the Corps of Cadets and a license-option curriculum. Such participation is a privilege and not a right. Serious or excessive violation of Corps Rules may be considered as evidence for a lack of aptitude for the demanding responsibilities of a Merchant Marine Officer and warrant dismissal from the Corps of Cadets and a curriculum which prepares the students for a Merchant Marine Officer's license. Notification of acceptance to the University is not final approval for appointment to a license-option program or acceptance into the Corps of Cadets. The application form for acceptance into the Corps of Cadets is available from the Commandant's Office. Final review of a student's credentials cannot be completed until after enrollment and prospective cadets will not be sworn into the program until this review is completed. The initial enrollment of students in a license-option curriculum must be at the beginning of a fall or spring semester. Students may not enter the program after the 12th class day of the semester.

License-option students are subject to alcohol and drug screening for admission to and participation in the program.

Among the criteria evaluated are:

1. Age. The U.S. Maritime Administration restricts student incentive payments to USMS cadets who are at least 17 but who have not passed their 25th birthday on the first day of enrollment in a license-option curriculum. Special admission may be granted to students older than 25. Cadets selected for special admissions are not eligible for any of the student incentive payments offered. These cadets, however, will participate fully in every other aspect of the license-option program. They will be subject to the same requirements, privileges, considerations, and obligations as cadets meeting the federal age requirements.

2. Physical Requirements. Strict physical requirements are specified for licensing as a merchant marine officer. Prior to entering a license program, prior to certification for licensing, and at any other time deemed appropriate by the University, students are required to furnish verification from a physician that they meet the specified physical requirements. These are summarized as follows:

Deck Cadet -Minimum vision 20/200 in each eye correctable to 20/40 in each eye. Vision beyond these parameters requires a waiver. Pass a Coast Guard approved color vision test.

Engineer Cadet-Minimum vision of 20/200 in each eye correctable to 20/50 in each eye. Vision beyond these parameters requires a waiver. Distinguish between red, blue, green, and yellow.

All Cadets-Epilepsy, insanity, badly impaired hearing, and mind-altering drugs use are disqualifying conditions.

Specific details of the required physical examinations are contained in the Title 46 U.S. Code of Federal Regulations part 10. Waivers cannot be granted by the University.

3. Background Investigation. All applicants for admission to license-option curricula and enrollment in the Corps of Cadets are subject to a federal background investigation. Adverse information revealed by the investigation may result in denial of license by the U.S. Coast Guard. The University will not accept a candidate into a license-option curriculum nor allow continued participation in the program when conduct infractions preclude license qualification.

4. Citizenship. Only United States citizens are eligible for officers' licenses in the U.S. Merchant Marine.

5. Drug Screening. All license-option cadets must participate in a drug testing program. All entering cadets will be required to pay for and take a drug screen test prior to entering the Corps. Periodic random tests are required and any serious marine incident will require drug testing. These tests/screenings will be performed at an Approved DHHS Laboratory, in accordance with 46 CFR 16.340. A positive test during initial screening may result in the student not being accepted into the LO program. A positive test during a periodic or other screening may result in dismissal from the Corps of Cadets and LO programs.

Fiscal Requirements

The U.S. Coast Guard presently requires payment for all documents and tests that are required for license and graduation. Firefighting School must be completed prior to the cadet's first cruise and its costs are the cadet's responsibility. Cadets are required to have or have ordered, at their cost, all required Corps uniforms during orientation.

Examination Requirement as a Condition for Graduation

While not a University academic requirement, in accordance with federal regulations and the University's participation agreement with the U.S. Maritime Administration, students who enter the U.S. Merchant Marine Licensing program in the fall of 1991 and after, with the expected graduation date of spring/summer 1995, will be required to pass the examination administered by the Coast Guard for the issuance of a license as a condition of graduation from Texas A&M University. Any student who graduates in 1995 or in subsequent years, but who entered the maritime program before the fall of 1991, will not be affected.

Students who are found to be not physically qualified for Coast Guard licensing just prior to graduation may be exempt from the requirement.

U. S. Coast Guard License as a Merchant Marine Officer

To qualify at graduation for certification by the University and for eligibility to take the Coast Guard examinations for Third Mate or Third Assistant Engineer, students must complete all academic degree requirements and successfully complete three summer training cruises. Students must also meet physical qualifications at the time of graduation; and participate in the Corps of Cadets in a satisfactory manner every semester while enrolled in a license-option program which will normally require eight long semesters and three summers. Participation in the Corps of Cadets will include the requirement to successfully complete mandatory non-credit training courses such as firefighting, first aid, CPR, and radar certification. U.S. Coast Guard evaluation, examination, and issuance fees will be charged over and above fees specified in the University Catalog.

Students pursuing a license option will not be granted leaves of absence from the Corps of Cadets for any fall or spring semesters in which they are enrolled in the University prior to completion of eight fall and/or spring semesters in the Corps of Cadets and three summer training cruises. Students who are dropped from the Corps of Cadets for academic or disciplinary reasons, but are allowed to remain in the University, will normally be disenrolled from the license-option program and will not be reenrolled in a license-option program except under very special circumstances and after a careful review by the professional staff of the University. Under exceptional circumstances highly-qualified students may accelerate the program, but in no case will the program be completed in less than six long semesters and three summer cruises.

Student Incentive Payments

Freshmen students who enroll in a license-option program during their first semester may be eligible for Student Incentive Payments (SIP) of $750 per calendar quarter provided by the Maritime Administration to offset the costs of uniforms, textbooks and other requirements of Cadet life. Incentive payments are awarded to students based on competitive criteria that evaluate the student's potential for completing the degree program and license requirements and for a subsequent successful maritime career. If a SIP recipient is withdrawn from TAMUG, or found to be non-physically qualified, or found to not have an aptitude for naval service, the student will automatically be terminated from the SIP program and all payments will stop.

Enrollment in the SIP program requires the Cadet to accept an appointment as Midshipman, USNR and to agree to apply for and accept, if offered, a commission in the U.S. Naval Reserve, Merchant Marine Reserve (USNR/MMR). The Midshipman must meet the physical condition requirements for commissioning at the time of graduation.

THE U.S. NAVAL RESERVE, MERCHANT MARINE RESERVE (USNR/MMR) COMMISSION

The Department of Naval Science prepares eligible cadets for eventual commissioning in the United States Naval Reserve/Merchant Marine Reserve (USNR/MMR). Cadets under this program who pass a Navy physical examination become Navy Midshipmen. Upon completion of the Naval Science courses, graduation from TAMUG, and successful completion of the U.S. Coast Guard licensing exam, the Midshipman will be commissioned as a restricted line officer with a merchant marine designator and the rank of Ensign in the USNR/MMR. In addition, licensed graduates have the opportunity to obtain USNR/MMR commissions via the direct commissioning program. Applications may be initiated during the Cadet's final year prior to graduation.

Individuals commissioned in the USNR/MMR must fulfill these obligations:

- Maintain the commission for six years.
- Sail on their applicable license at sea for four months each consecutive two-year period for eight years.
- Complete two weeks of active-duty training in the Navy every year for six years.
- Keep the Merchant Marine Reserve Program Office informed of any changes to address, phone or e-mail.
- Maintain a current/valid USCG unlimited license.
- Maintain a current Naval 5-year physical.

- Submit an annual report to the administrator of the USNR/MMR Program.

Active-duty service may be requested by the Midshipman under this program. This program provides Merchant Marine Officers who are familiar with Naval procedures to the merchant marine industry. It also provides the individual USNR/MMR officers, when on active duty, the benefits and pay normally provided U.S. Navy officers.

THE U.S. COAST GUARD COMMISSION

The U.S. Coast Guard MARGRAD program offers licensed graduates the opportunity to apply for direct reserve commissions involving extended active duty in the U.S. Coast Guard. Applications may be initiated during a cadet's final year prior to graduation in accordance with U.S. Coast Guard directives.

The U.S. Coast Guard Maritime Academy Reserve Training Program (MARTP) program allows Cadets to enlist as a seaman (E-3) in the Coast Guard Reserve at the end of his or her freshman or sophomore year and receive reserve pay for the time spent in drill, Montgomery GI Bill tuition benefits, and eligibility for Maritime Administration Student Incentive Pay (MARAD SIP). For information about this program, contact TAMUG Commandant's Office at (409) 740-4588.

THE NAVAL RESERVE OFFICERS TRAINING CORPS (NROTC) PROGRAM

The Naval Reserve Officers Training Corps (NROTC) Program offers men and women an opportunity to qualify for a commission in the Navy while attending TAMUG. NROTC students are required to participate in the U.S. Maritime Service Corps of Cadets.

To become eligible for a commission, NROTC midshipmen must complete all requirements for a bachelor's degree as well as certain courses specified by the Navy. Scholarship students wear uniforms furnished by the Navy and participate in three 4-week summer training periods onboard Navy ships and aircraft.

Students join the NROTC program as National Four Year Scholarship winners or as non-subsidized college program students. Applications for the National Four Year Scholarships can be obtained through a Navy recruiting office prior to the submission deadline of January 15 of the year for which the student is applying. College program midshipmen are eligible to compete for three and one half year, three year and two year NROTC scholarships.

All NROTC scholarships pay for full tuition, books, fees and uniforms. All scholarship midshipmen and junior and senior level College Program midshipmen receive an allowance of $200 per month and are paid during summer training periods.

Upon graduation, qualified NROTC midshipmen are commissioned as Ensigns in the Unrestricted Line and receive a reserve commission. Scholarship midshipmen incur a minimum four-year active duty commitment and college program midshipmen incur a minimum three year active duty commitment.

The Naval Science staff advises and counsels midshipmen on academic, personal and naval career matters. Primary emphasis is placed on educational excellence to produce the highest quality Naval officers. Students wishing to discuss the NROTC program or any other officer commissioning program should contact the Naval Science Department at (409) 740-4594 or 740-4595 or 740-4597.

ACADEMIC CURRICULA

Curriculum in Marine Biology (MARB)

The Department of Marine Biology offers these four degree programs: Marine Biology (MARB), Marine Biology License Option (MARB/LO), Marine Biology/Biomedical Sciences (MARB/BIMS) and Marine Fisheries (MARF). These curricula are subject to the following rules and requirements:

The student shall have earned at least a grade of C in BIOL 113, 114, 123, and 124. Students may not advance to BIOL 114 and 124 until a grade or C or better is earned in 113 and 123.

Transfer students must have a minimum GPR of 2.25 or approval of the MARB Department Head to be admitted to the Department.

Transfer students with the required courses who meet the criteria listed above may be admitted directly into the MARB, MARB/LO, MARB/BIMS and MARF degree programs.

Preference for available seats in courses in the Department will be given to students who have been admitted to the degree program. If additional spaces are available, students from other departments for whom courses in the Department are on their program of study, and who meet the course prerequisites, may be enrolled.

It is the student's responsibility to satisfactorily complete prerequisite coursework before enrolling in more advanced courses.

The Marine Biology program provides an excellent education in the biological sciences through studies undertaken in a unique coastal environment. The curriculum offers broad training in general biology, while emphasizing the local flora and fauna in estuaries and the marine environment. Students receive hands-on field sampling experience as well as internship opportunities. A strong preparation in English, mathematics, and the sciences is recommended.

Five tracks are offered within the MARB curriculum. These are a Vertebrate Zoology track, a Coastal and Wetlands track, a Comprehensive Biology track, a Fisheries Biology track and an Aquatic Animal Health track. Students will declare a track at the end of their curriculum sophomore year (i.e., when all freshman and sophomore courses have been completed) and will then be assigned to an advisor whose teaching and research activities lie within that option. Students are required to choose three electives from courses within their track and to choose two electives from among the other options. The electives must be five actual classes (485 problems courses are excluded).

Students may choose to complete a minor in consultation with their academic advisor. All minors will require not less than 15 hours and not more than 18 hours in the discipline; at least six hours must be upper division courses in the discipline, and no more than six hours from the minor may be used to fulfill other requirements. Each student choosing to complete a minor must contact the department offering the minor to determine if specific courses are required.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
BIOL 113	Introductory Biology†	(3-0)	3
BIOL 123	Introductory Biology Lab†	(0-3)	1
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
HIST 105	History of the U.S.	(3-0)	3
MATH 151	Engineering Math	(3-0)	4
Elective chosen with advisor **			1
	Total Hours		16

Spring Semester		(Th-Pr)	Cr
BIOL 114	Introductory Biology†	(3-0)	3
BIOL 124	Introductory Biology Lab†	(0-3)	1
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST 106	History of the U.S.	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MATH 166	Topics in Contemporary Math‡	(3-0)	3
	Total Hours		18

SOPHOMORE YEAR

Fall Semester		(Th-Pr)	Cr
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab I	(0-3)	1
MARB 303	Biostatistics†§	(2-2)	3
MARB 315	Natural History of Vertebrates†§	(3-3)	4
PHYS 201	College Physics	(3-3)	4
POLS 206	American National Government	(3-0)	3
	Total Hours		18

Spring Semester		(Th-Pr)	Cr
CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
KINE 199	Required Physical Activity*	(0-2)	1
PHYS 202	College Physics	(3-3)	4
POLS 207	State and Local Government	(3-0)	3
Elective in Social Science			3
Elective in Earth Science §			3
	Total Hours		18

JUNIOR YEAR

Fall Semester		(Th-Pr)	Cr
ENGL 301	Technical Writing	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARB 408	Marine Botany†	(3-3)	4
MARB 435	Marine Invertebrate Zoology†	(3-3)	4
MARS 360	Biochemistry†	(3-0)	3
Elective-Track†			3
	Total Hours		18

Spring Semester		(Th-Pr)	Cr
MARB 301	Genetics†	(3-3)	4
MARB 310	Cell Biology†	(3-3)	4
Elective-Track†			3
Elective-Track†			4
Elective in Humanities			3
	Total Hours		18

SENIOR YEAR

Fall Semester		(Th-Pr)	Cr
MARB 420	Comparative Animal Physiology†	(3-3)	4
MARB 481	Seminar in Marine Biology†	(1-0)	1
Elective Track†			3
Elective			3
Elective in Social Science			3
Elective-Track†			3
	Total Hours		17

Spring Semester		(Th-Pr)	Cr
KINE 199	Required Physical Activity*	(0-2)	1
MARB 425	Marine Ecology†	(3-3)	4
MARB 450	Developmental Biology†	(3-3)	4
MARB 482	Seminar in Marine Biology†	(1-0)	1
Elective in Humanities			3
Elective			3
	Total Hours		16
	Total Curriculum Hours¤		**139**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives. Earth Science electives include any TAMU Geology course OCNG 251/252 or 401, or other approved course.

* - One of the four required KINE 199 activity classes is Health and Fitness.

** - Recommended freshman year elective is MARB 289.

† - Indicates required courses in the Marine Biology major. These courses will be used to compute the major GPR.

‡ - Other calculus, or logic elective may be substituted with approval.

§ - These classes may be taken in either sophomore year semester.

¤ - The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

ELECTIVE COURSES WITHIN OPTIONS:

Coastal and Wetlands Track:
- MARB 300 Scientific Methods
- MARB 430 Coastal Plant Ecology
- MARB 431 Wetlands Ecology
- MARB 432 GIS use in Coastal. Res.
- MARS 306 Strati.& Sedimen.
- MARS 340 Geochemistry
- OCNG 251-2 Intr.Oceanography

Aquatic Animal Health Track:
- MARB 335 Fish Physiology
- MARB 405 Mar. Parasitology
- MARB 426 Aq. Animal Nutrition
- MARB 437 Path. Marine Animals
- VTPB 409 Immunology
- VTPB 454 Ornam. Fish Mgmt.

Comprehensive Biology Tr.:
- MARB 325 Biopeleology
- MARB 330 Phys. Ecol.
- MARB 410 Animal Behavior
- MARB 412 Socio. of Repro.
- MARB 466 Evol. Biology
- MICR 351 Microbiology

Fisheries Biology Track:
- MARB 311 Ichthyology §
- MARB 312 Field Ichthyology
- MARB 320 Fisheries Tech.
- MARB 360 Mar. Conserv. Biol.
- MARB 423 Mariculture
- MARB 436 Non-vertebrate Fish.
- MARB 445 Mar. Fish. Mgmt.
- MARB 460 Fish. Pop. Dynamics

Vertebrate Zoology Tr.:
- MARB 311 Ichthyology §
- MARB 400 Biol. Mar. Mam.†
- MARB 401 Phys. Ecol. Mam.†
- MARB 402 Gen. Mam.†
- MARB 403 Cetacean Behav.†
- MARB 438 Coastal Ornithology

Other Track Electives:
- MARB 345 Intro. to Sci. Diving ‡
- MARB 350 Methods in Res Div. ‡
- MARB 484 Graduate Internship

§ - MARB 311 is cross listed in both the Vertebrate Zoology and Fisheries Biology tracks.

† - A maximum of two mammals courses can be taken to satisify the requirement of Vertebrate Zoology track.

‡ - Only one of the two MARB scientific diving courses (either 435 or 350) can be used as track electives.

Minors in Marine Biology or Marine Fisheries

To obtain a minor in Marine Biology, students must choose a minimum of 18 hours in the minor degree plan. These hours may not be used elsewhere in the major degree plan. To obtain a minor in:

Marine Biology, you must take: MARB 311, MARB 400, MARB 408, MARB 425, MARB 435 or an approved option sequence of courses

Marine Fisheries, you must take: MARB 311, MARB 312, MARB 445, MARB 423 plus one of the following: MARB/MF Directed Elective, ECON 203, MICR 351, Botany Elective

Curriculum in Marine Biology with a License Option

The Marine Biology License Option program allows the marine biology student to prepare for a career as an officer aboard a seagoing vessel by participating in the U.S. Maritime Service Corps of Cadets. The curriculum provides the basics of marine biology as well as courses leading toward licensing as a Third Mate of any gross tonnage upon oceans, steam, or motor vessels, in the U.S. Merchant Marine.

The Marine Biology License Option curriculum is an abbreviated version of the Marine Biology curriculum and is oriented toward field activities consistent with service aboard research vessels. Students who wish to attend a biologically-oriented graduate program, or are interested in the medical professions, are advised to take additional coursework in developmental biology, genetics, biochemistry, and physiology.

Cadets who enroll in and apply to graduate under one of the license option curricula must complete the appropriate license examination for Third Mate or Third Assistant Engineer in order to graduate from Texas A&M University. Certain USCG courses require a minimum grade of C (70%).

Freshman Year

Fall Semester		**(Th-Pr)**	**Cr**
BIOL 113	Introductory Biology†	(3-0)	3
BIOL 123	Introductory Biology Lab†	(0-3)	1
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
HIST 105	History of the US.	(3-0)	3
MATH 106	Plane and Spherical Trigonometry	(4-0)	4
NAUT 103	Maritime Orientation and Life Saving*	(3-0)	3
Elective chosen with advisor			1
	Total Hours		19

Spring Semester		**(Th-Pr)**	**Cr**
BIOL 114	Introductory Biology†	(3-0)	3
BIOL 124	Introductory Biology Lab†	(0-3)	1
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
KINE 199	Required Physical Activity‡	(0-2)	1
MATH 151	Engineering Math	(3-2)	4
NAUT 203	Seamanship I	(3-0)	3
NAUT 204	Terrestrial Navigation	(3-0)	3
	Total Hours		19

Summer Session-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 200	Basic Communications, Navigation and Seamanship*	4

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab	(0-3)	1
HIST 106	History of the U.S.	(3-0)	3
MARB 300	Scientific Methods†	(1-3)	2
NVSC 200	Merchant Marine Officer I	(3-0)	3
PHYS 201	College Physics	(3-3)	4
	Total Hours		16

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 199	Required Physical Activity‡	(0-2)	1
NAUT 301	Seamanship II	(2-3)	3
NAUT 303	Celestial Navigation	(3-0)	3
PHYS 202	College Physics	(3-3)	4
	Total Hours		18

Summer Session-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 300	Intermediate Communication, Navigation and Seamanship*	4

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity‡	(0-2)	1
MARB 315	Nat. History of Vertebrates†	(3-3)	4
MART 302	Marine Cargo Operations I*	(3-3)	4
NAUT 201	Naval Architecture I	(3-2)	4
POLS 206	American National Government	(3-0)	3
	Total Hours		16

Spring Semester		**(Th-Pr)**	**Cr**
MART 321	Maritime Law I	(2-0)	2
MART 406	Marine Cargo Operations II	(3-2)	4
METR 302	Weather Reports and Forecasting	(3-0)	3
NAUT 202	Naval Architecture II	(3-0)	3
NAUT 304	Electronic Navigation*	(2-2)	3
Elective in Humanities			3
	Total Hours		18

Shoreside Summer		**(Th-Pr)**	**Cr**
ECON 203	Principles of Economics	(3-0)	3
ENGL 301	Technical Writing	(3-0)	3
KINE 199	Required Physical Activity‡	(0-2)	1
Elective in Humanities			3
	Total Hours		10

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
MARB 303	Biostatistics†	(2-2)	3
MARB 310	Cell Biology†	(3-3)	4
MARB 311	Ichthyology †	(3-3)	4
NAUT 302	Seamanship III	(1-3)	2
NAUT 404	The Navigator	(2-3)	3
Elective in Social Science			3
	Total Hours		19

Spring Semester		**(Th-Pr)**	**Cr**
MARB 435	Invertebrate Zoology†	(3-3)	4
MARB 425	Marine Ecology†	(3-3)	4
OCNG 401	Introduction to Oceanography	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Elective in Computer Science			3
	Total Hours		17

Summer Session-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 400	Advanced Communications, Navigation and Seamanship*	4
	Total Curriculum Hours¤	**164**

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Biology License Option major. These courses will be used to compute the major GPR.

‡ - One of the four required KINE 199 activity classes is Health and Fitness.

* - Indicates license courses leading to a USCG license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Cadets will be required to repeat the course until they earn a grade of C (70%) or better.

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

Curriculum in Marine Biology/Biomedical Science

The Marine Biology/Biomedical Science double major provides an applied understanding of aquatic animal health and disease through hands-on exposure to marine organisms and their habitats. Students spend their first two years in Galveston obtaining a prerequisite background in the biological and chemical sciences and then transfer to College Station to study applied biology that is directed toward understanding health and disease. This program culminates in a rigorous study of marine biology at Galveston. The studies in Galveston emphasizes dynamic interactions between disease agents and aquatic organisms, especially bivalve, fisheries and marine mammal stocks. This prepares the graduate for careers in aquatic animal health, seafood technology and various marine-biology related disciplines, as well as advanced studies in veternary medicine, biological oceanography or related biological disciplines.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
MARB 101	Intro to Marine Biology	(1-0)	1
BIOL 113	Introductory Biology I	(3-0)	3
BIOL 123	Introductory Biology Lab I	(0-3)	1
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
MATH 151	Calculus	(3-3)	4
HIST 105	U.S. History I	(3-0)	3
KINE 199	Required Physical Activity	(0-2)	1
Elective Chosen with Advisor ‡			1
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
BIOL 114	Introductory Biology II	(3-0)	3
BIOL 124	Introductory Biology Lab II	(0-3)	1
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
MATH 166	Contemporary Topics	(3-0)	3
HIST 106	U.S. History II	(3-0)	3
ENGL 104	Composition and Rhetoric	(3-0)	3
	Total		17

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab I	(0-3)	1
PHYS 201	College Physics	(3-3)	4
MARB 315	Natural History of Vertebrates	(3-3)	4
SCOM 203	Public Speaking	(3-0)	3
	Total		15

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
KINE 199	Required Physical Activity*	(0-2)	1
MARB 303	Biostatistics	(3-0)	3
PHYS 202	College Physics	(3-3)	4
POLS 206	American National Government	(3-0)	3
	Total		15

Summer I at College Station		(Th-Pr)	Cr
Directed Elective (5/10 wk)		(3-3)	4
KINE 199	Required Physical Activity (5 wk)	(0-2)	1
SIMS Directed Elective (5 wk)		(3-3)	3
Visual and Performing Arts Elective		(3-0)	3
	Total		11

JUNIOR YEAR AT COLLEGE STATION		(Th-Pr)	Cr
First Semester			
BICH 410	Comprehensive Biochemistry I	(3-0)	3
ENGL 210	Technical Writing (301)	(3-0)	3
GENE 301	Genetics	(3-3)	4
Directed BUAD Elective**		(3-0)	3
KINE 199	Required Physical Activity	(0-2)	1
	Total		14
Spring Semester		(Th-Pr)	Cr
BICH 411	Comprehensive Biochemistry II	(3-0)	3
VTPB 405/MICR 351	Microbiology	4/(3-5)	5
VTPP 423/MARB 420	Physiology	(3-3)	4
Social Science Elective		(3-0)	3
	Total		14/15

Summer II at College Station		(Th-Pr)	Cr
Social Science Elective (5 wk)		(3-0)	3
Earth Science Elective (5/10 wk)		(3-3)	3
BIMS/BIOL/ZOOL Seminar (5 wk)		(1-0)	1
Botany Directed Elective		(3-0)	3
	Total		10

SENIOR YEAR			
Fall Semester		(Th-Pr)	Cr
MARB 435	Invertebrate Zoology	(3-3)	4
POLS 207	State and Local Government	(3-0)	3
MARB 450	Developmental Biology	(3-3)	4
Directed Elective		(3-0)	3
	Total		14
Spring Semester		(Th-Pr)	Cr
Humanities	Electives	(3-0)	3
MARB 310	Cell Biology	(3-3)	4
MARB 425	Marine Ecology	(3-3)	4
MARB 482	Seminar	(1-0)	1
MARB Elective†		(3-0)	3
	Total		15
		TOTAL HOURS	**144**

* Introductory or advanced scuba diving is recommended if feasible.

** BUAD Electives: ACCT209, ACCT229, BANA207, or MGMT211.

† MARB Directed Electives should be chosen in consultation with your academic advisor but generally include courses such as Ichthyology, Physiological Ecology, Fish Physiology, Biology of Marine Mammals, Physiological Ecology of Marine Mammals, Mammology or Animal Behavior.

‡ - Recommended Freshman year elective is MARB 289 (Suceeding in Science).

Curriculum in Marine Engineering Technology (MARE)

The Marine Engineering Technology program is designed to prepare the student for a career as an engineering technologist in the maritime profession. The program is available in a License Option version for students who want to serve as an engineering officer aboard seagoing vessels and in a Non-License Option for students who want an education in maritime-related applied engineering but do not plan to serve at sea. The Marine Engineering Technology curriculum is a thermal power-oriented specialization of a classical Mechanical Engineering Technology program. A thorough preparation in mathematics, science, and basic engineering courses is the foundation for further study in ship propulsion plants and electrical power generation and distribution equipment. The License Option Program builds on a sound education with professional training obtained by participating in the U.S. Maritime Service Corps of Cadets.

Marine Engineering Technology focuses on power cycles, principles, and methods used to convert the energy in fossil fuels into useful power, and the selection and operation of the major components and support systems in the power cycle. Courses in marine engineering are supplemented with studies in naval architecture and maritime application of electrical engineering fundamentals. The students' education is enhanced through the use of computer simulation of propulsion plants and direct operation of marine machinery aboard the University's training ship.

Participation in the USMS Corps of Cadets program builds on the Marine Engineering Technology curriculum with three summer cruises on the University's training ship and academic year training in first aid, marine firefighting, and shipboard maintenance.

Cadets who enroll in and apply to graduate under one of the license option curricula must complete the appropriate license examination for Third Mate or Third Assistant Engineer in order to graduate from Texas A&M University. Certain USCG courses require a minimum grade of C (70%).

Both License and Non-License Option graduates can obtain employment in shipyards, with marine engineering consulting firms, electric power utilities, and other industries dealing with energy conversion processes, equipment selection and manufacture, or sales.

FRESHMAN YEAR			
Fall Semester		(Th-Pr)	Cr
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
ENDG 105	Engineering Graphics	(0-6)	2
ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
MATH 150	Functions, Trigonometry and Linear Systems	(3-2)	4
NAUT 103	Maritime Orientation and Lifesaving*	(2-3)	3
	Total		17
Spring Semester		(Th-Pr)	Cr
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
ENGR 109	Engineering Problem Solving and Computing	(2-3)	3
KINE 199	Required Physical Activity**	(0-2)	1
MARE 100	Marine Engineering Fundamentals	(2-3)	3
MATH 151	Engineering Mathematics I	(3-2)	4
PHYS 218	Mechanics	(3-3)	4
	Total		19
SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II			
MARE 200	Basic Operations†*		4

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
HIST 105	History of the U.S.‡	(3-0)	3
MARE 180	Basic Machine Shop Techniques†	(0-3)	1
MARE 203	Diesel Engine Technology†	(2-3)	3
MARE 205	Engineering Mechanics I†	(3-0)	3
MARE 303	Marine Thermodynamics I†	(3-0)	3
MATH 161	Engineering Mathematics II	(3-0)	3
	Total Hours		16

Spring Semester		**(Th-Pr)**	**Cr**
ENGL 203	Introduction to Literature	(3-0)	3
MARE 206	Engineering Mechanics II†	(3-0)	3
MARE 209	Mechanics of Materials†	(3-0)	3
MARE 280	Welding Techniques†	(0-3)	1
MARE 295	Electromechanical Systems for Marine Tech.†	(3-0)	3
PHYS 208	Electricity and Optics	(3-3)	4
	Total Hours		17

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

MARE 300	Intermediate Operations†*	4

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity**	(0-2)	1
MARE 207	Electrical Power I†	(3-2)	4
MARE 304	Marine Thermodynamics & Heat Transfer†	(3-2)	4
MARE 305	Fluid Mechanics Theory†	(3-2)	4
MARE 309	Marine Construction Materials†	(3-3)	4
	Total Hours		17

Spring Semester		**(Th-Pr)**	**Cr**
ECON 203	Principles of Economics	(3-0)	3
HIST 106	History of the United States‡	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
MARE 306	Electrical Power II†	(2-2)	3
MARE 311	Steam Propulsion Plants†	(2-2)	3
MARE 312	Diesel Propulsion Plants†	(2-2)	3
POLS 207	State and Local Government	(3-0)	3
	Total		19

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

MARE 400	Advanced Operations†*	4

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 301	Technical Writing	(3-0)	3
MARE 307	Marine Electronics†	(3-0)	3
MARE 401	Marine Auxiliary Systems†	(2-2)	3
MARE 403	Marine Technology and the Environment†	(3-0)	3
NVSC 200	Merchant Marine Officer I	(3-0)	3
Humanities Elective		(3-0)	3
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
MARE 402	Shipboard Automation and Control†	(3-0)	3
MARE 404	Marine Air Conditioning & Refrigeration†	(3-0)	3
MARE 405	Fundamentals of Naval Architecture†	(3-0)	3
MARE 406	Marine Engineering Technology Projects†	(3-0)	3
POLS 206	American National Government	(3-0)	3
Social Science Elective		(3-0)	3
	Total		18
	Total Hours¤		**153**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Engineering License Option major. These courses will be used to compute the major GPR.

* - Indicates license courses leading to a USCG license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Cadets will be required to repeat the course until they earn a grade of C (70%) or better.

** - One of the four required KINE 199 activity classes is Health and Fitness.

‡-The American history requirement may also be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442 or 444. Students should consult their academic advisor.

¤-The total hours may be increased if the student is required to take college algebra or foreign language.

Marine Engineering Technology-Non-License Option

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
ENDG 105	Engineering Graphics	(0-6)	2
ENGL 104	Composition and Rhetoric	(3-0)	3
ENGR 109	Engineering Problem Solving & Computing	(2-3)	3
KINE 199	Required Physical Activity*	(0-2)	1
MATH 150	Functions, Trigonometry and Linear Systems.	(3-2)	4
	Total Hours		17
Spring Semester		**(Th-Pr)**	**Cr**
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
KINE 199	Required Physical Activity*	(0-2)	1
MARE 100	Marine Engineering Fundamentals†	(2-3)	3
MATH 151	Engineering Mathematics I	(3-2)	4
POLS 206	American National Government	(3-0)	3
PHYS 218	Mechanics	(3-3)	4
	Total		19

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
HIST 105	History of the United States‡	(3-0)	3
MARE 180	Basic Machine Shop Techniques†	(0-3)	1
MARE 203	Diesel Engine Technology†	(2-3)	3
MARE 205	Engineering Mechanics I†	(3-0)	3
MARE 303	Marine Thermodynamics I†	(3-0)	3
MATH 161	Engineering Mathematics II	(3-0)	3
	Total		16
Spring Semester		**(Th-Pr)**	**Cr**
ENGL 203	Introduction to Literature	(3-0)	3
MARE 206	Engineering Mechanics II†	(3-0)	3
MARE 209	Mechanics of Materials†	(3-0)	3
MARE 280	Welding Techniques†	(0-3)	1
MARE 295	Electromechanical Systems for Marine Tech.†	(3-0)	3
PHYS 208	Electricity and Optics	(3-3)	4
	Total		17

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity*	(0-2)	1
MARE 207	Electrical Power I†	(3-2)	4
MARE 304	Marine Thermodynamics & Heat Transfer†	(3-2)	4
MARE 305	Fluid Mechanics Theory†	(3-2)	4
MARE 309	Marine Construction Materials†	(3-2)	4
	Total		17
Spring Semester		**(Th-Pr)**	**Cr**
ECON 203	Principles of Economics	(3-0)	3
HIST 106	History of the United States‡	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARE 306	Electrical Power II†	(2-2)	3
MARE 311	Steam Propulsion Plants†	(2-2)	3
MARE 312	Diesel Propulsion Plants†	(2-2)	3
	Total		16

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 301	Technical Writing	(3-0)	3
MARE 307	Marine Electronics†	(3-0)	3
MARE 401	Marine Auxiliary Systems†	(2-2)	3
MARE 403	Marine Technology and the Environment†	(3-0)	3
Humanities Elective		(3-0)	3
	Total		15
Spring Semester		**(Th-Pr)**	**Cr**
MARE 402	Shipboard Automation and Control†	(3-0)	3
MARE 404	Marine Air Conditioning & Refrigeration†	(3-0)	3
MARE 405	Fundamentals of Naval Architecture†	(3-0)	3
MARE 406	Marine Engineering Technology Projects†	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Social Science Elective		(3-0)	3
	Total		18
	Total Hours¤		**135**

NOTE: All electives must be chosen in consultation with, and by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Engineering major. These courses will be used to compute the major GPR.

‡-The American history requirements may also be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442, or 444. Students should consult their academic advisor.

* - One of the four required KINE 199 activity classes is Health and Fitness.

¤-The total hours may be increased if the student is required to take college algebra or foreign language.

Curriculum in Marine Fisheries (MARF)

The curriculum in Marine Fisheries provides educational opportunities in the biological sciences, with emphasis on principles of marine fisheries management. Ecology, taxonomy, zoogeography, culture, and general biology of commercial species are emphasized. Course offerings are structured to provide not only a strong basis of formal academic instruction but also considerable hands-on field and collection experience by taking advantage of the coastal location of the University. A strong preparation in the sciences is recommended.

Marine Fisheries graduates are prepared to work as fishery managers or research biologists for state and federal agencies, ecological consulting firms, industry, and educational institutions. Qualified degree recipients may undertake postgraduate studies in resource management, mariculture, systematics, seafood technology, and fisheries economics.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
BIOL 113	Introductory Biology†	(3-0)	3
BIOL 123	Introductory Biology Lab†	(0-3)	1
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
HIST 105	History of the U.S.	(3-0)	3
MATH 151	Engineering Math	(3-0)	4
KINE 199	Required Physical Activity *	(0-2)	1
Elective Chosen with Advisor §			1
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
BIOL 114	Introductory Biology†	(3-0)	3
BIOL 124	Introductory Biology Lab†	(0-3)	1
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST 106	History of the U.S.	(3-0)	3
MATH 166	Topics in Contemporary Math	(3-0)	3
	Total		17

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab I	(0-3)	1
KINE 199	Required Physical Activity	(0-2)	1
MARB 315	Natural History of Vertebrates†	(3-3)	4
OCNG 251	Oceanography	(3-0)	3
OCNG 252	Oceanography Laboratory	(0-3)	1
PHYS 201	College Physics	(3-3)	4
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
ECON 202	Principles of Economics	(3-0)	3
MARB 311	Ichthyology†	(3-3)	4
PHYS 202	College Physics	(3-3)	4
POLS 206	American National Government	(3-0)	3
	Total		18

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 301	Technical Writing	(3-0)	3
MARB 301	Genetics†	(3-3)	4
MARB 303	Biostatistics†	(2-2)	3
MARB 312	Field Ichthyology†	(3-3)	4
MARB 436	Non-Vertebrate Fisheries†	(3-3)	4
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
MARB 320	Fisheries Techniques†	(3-3)	4
MARS 360	Marine Conservation Biology†	(3-3)	4
MICR 351	Fundamentals of Microbiology†	(3-3)	4
POLS 207	State and Local Government	(3-0)	3
Elective in Humanities			3
	Total		18

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity*	(0-2)	1
MARB 423	Mariculture†	(3-3)	4
MARB 425	Marine Ecology†	(3-3)	4
MARB 481	Seminar†	(1-0)	1
Directed Elective †‡			4
Elective in Humanities			3
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity*	(0-2)	1
MARB 445	Marine Fisheries Management†	(3-3)	4
MARB 460	Fisheries Population Dynamics†	(3-0)	3
MARB 482	Seminar†	(1-0)	1
Directed Elective †‡			4
Elective in Social Science			3
	Total		16
	Total Curriculum Hours¤		**138**

† Indicates required courses in the Marine Fisheries major. These courses will be used to compute the major GPR.

* - One of the four required KINE 199 activity classes is Health and Fitness.

§ - Recommended Freshman year elective is MARB 289 (Succeeding in Science).

‡ - Directed Elective must be selected from 300-400 level MARB courses or 200-300-400 level MATH or CPSC courses. Recommended elective courses include: Fish Physiology (MARB 335), Marine Parasitology (MARB 405), Aquatic Animal Nutrition (MARB 426), Introd. to Computing (CPSC 203), Biochem. (MARS 360).

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

Curriculum in Marine Sciences (MARS)

The Marine Sciences curriculum offers undergraduate degrees in Galveston and graduate degrees in College Station. The Marine Sciences program concentrates on the physical and chemical aspects of science of the marine, estuarine, and coastal environment. The coastal location of the campus enables students to acquire extensive hands-on field experience in addition to a solid base of academic instruction in chemistry, geology, physics, biology, and mathematics. Advanced work centers around four semesters of oceanography. Electives in the junior and senior year allow the student to obtain a broader background in ocean studies or to specialize, usually in the areas of environmental science, geology, or chemistry or to prepare for admission to graduate school or professional positions in industry or government.

Students may choose to pursue a minor in geology or chemistry through TAMU. To obtain a minor in geology you must choose a minimum of 16 hours of geology electives from the following: GEOL 104 (required), MARS 305, 306, 330, 340, 370, or 435. To obtain a minor in chemistry you must take CHEM 101, 102, 227, 228, 237, 238, 383, 316 and 318.

The Marine Sciences graduate has a strong, well-rounded foundation in the quantitative physical sciences with considerable field and laboratory experience. With suitably chosen electives, graduates are qualified to enter M.S. or Ph.D. programs in Oceanography or related disciplines, or alternatively to move directly into the employment market. Graduates go on to jobs in environmental monitoring, oceanographic instrumentation, pollution control, the offshore oil industry, and other fields requiring a general technical background. Many students also go on to careers in the Navy or with other government agencies.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
BIOL 113	Introductory Biology	(3-0)	3
BIOL 123	Introductory Biology Lab	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
GEOL 104	Physical Geology	(3-3)	4
KINE 199	Required Physical Activity*	(0-2)	1
MATH 151	Engineering Mathematics I	(3-2)	4
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
BIOL 114	Introductory Biology	(3-0)	3
BIOL 124	Introductory Biology Lab	(0-3)	1
HIST 105	History of the United States‡	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MATH 161	Engineering Mathematics II	(3-0)	3
OCNG 251	Oceanography†	(3-0)	3
OCNG 252	Oceanography Laboratory†	(0-2)	1
	Total		15

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
GEOG 210	Marine Geography	(3-0)	3
HIST 106	History of the United States‡	(3-0)	3
MATH 251	Engineering Mathematics III	(3-0)	3
PHYS 218	Mechanics	(3-3)	4
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
CPSC 203	Introduction to Computing	(2-2)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARS 310	Field Methods in Marine Sciences†	(1-6)	3
PHYS 208	Electricity and Optics	(3-3)	4
	Total		15

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab	(0-3)	1
KINE 199	Required Physical Activity*	(0-2)	1
MARS 440	Introduction to Chemical Oceanography†	(3-0)	3
POLS 206	American National Government	(3-0)	3
Elective in Humanities			3
Professional Elective §			3
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab	(0-3)	1
ENGL 301	Technical Writing	(3-0)	3
MARS 375	Science of Fluids†	(3-0)	3
MARS 430	Introduction to Geological Oceanography†	(3-0)	3
Professional Elective §			3
	Total		16

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
MARS 410	Introduction to Physical Oceanography†	(3-0)	3
MARS 481	Seminar†	(1-0)	1
METR 302	Weather Reports and Forecasting	(3-0)	3
Elective in Social Science			3
Professional Elective §			3
Elective			3
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
POLS 207	State and Local Government	(3-0)	3
OCNG 420	Introduction to Biological Oceanography†	(3-0)	3
MARS 450	Electrical and Physical Measurements†	(2-3)	3
MARS 485	Directed Studies†	(3-0)	3
Elective in Humanities			3
Professional Elective §			3
	Total		18
	Total Hours¤		**130**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Sciences major. These courses will be used to compute the major GPR. Also, if any upper level MARS or OCNG elective courses are taken, they will be used in the major GPR.

‡-The American history requirement may also be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442 or 444. Students should consult their academic advisor.

* - One of the four required KINE 199 activity classes is Health and Fitness.

§-Professional Electives must be chosen from 300 or 400 level Science or Mathematics courses, except GEOL 301.

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

Curriculum in Marine Sciences with a License Option

This program retains the basic physical science core of the Oceanography Department's Marine Sciences program but leads as well toward a license as a deck officer in the United States Merchant Marine. The student who successfully completes the license program will be qualified to sit for the U.S. Coast Guard examination as a Third Mate of any gross tonnage upon oceans, steam, or motor vessels. Students combine a broad base of courses in physical science and mathematics and practical instruction in seamanship and navigation with upper-level oceanography courses chosen by the student.

The objective of the program is to provide students with a sound intellectual and educational background to function in a scientifically and technologically advanced society, while also providing the practical hands-on training needed for employment in the maritime industry. Graduates are particularly well qualified to serve on research vessels where an understanding of the scientific purpose of the voyage is required. Students who wish to enter a physical science graduate program will need to take additional course work in science and mathematics.

Cadets who enroll in and apply to graduate under one of the license option curricula must complete the appropriate license examination for Third Mate or Third Assistant Engineer in order to graduate from Texas A&M University. Certain USCG courses require a minimum grade of C (70%).

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
BIOL 113	Introductory Biology	(3-0)	3
BIOL 123	Introductory Biology Lab	(0-3)	1
KINE 199	Required Physical Activity**	(0-2)	1
MATH 151	Engineering Mathematics I	(3-2)	4
NAUT 103	Maritime Orientation and Lifesaving*	(2-3)	3
POLS 206	American National Government	(3-0)	3
	Total		15

Spring Semester		**(Th-Pr)**	**Cr**
BIOL 114	Introductory Biology	(3-0)	3
BIOL 124	Introductory Biology Lab	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
MATH 161	Engineering Mathematics II	(3-0)	3
NAUT 203	Seamanship I	(2-3)	3
NAUT 204	Terrestrial Navigation	(2-2)	3
	Total		17

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 200	Basic Communications, Navigation and Seamanship*	4

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
GEOL 104	Physical Geology	(3-3)	4
KINE 199	Required Physical Activity**	(0-2)	1
NVSC 200	Merchant Marine Officer I	(3-0)	3
PHYS 218	Mechanics	(3-3)	4
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
KINE 199	Required Physical Activity**	(0-2)	1
NAUT 301	Seamanship II	(2-3)	3
NAUT 303	Celestial Navigation	(2-3)	3
PHYS 208	Electricity and Optics	(3-3)	4
OCNG 401	Introduction to Oceanography	(3-0)	3
	Total		18

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 300	Intermediate Communications, Navigation and Seamanship*	4

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CPSC 203	Introduction to Computing	(2-2)	3
ENGL 301	Technical Writing	(3-0)	3
GEOG 210	Marine Geography	(3-0)	3
MART 302	Marine Cargo Operations	(3-3)	4
NAUT 201	Naval Architecture I	(3-2)	4
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
MARS	Option †§		3
MART 321	Maritime Law I †	(2-0)	2
MART 406	Marine Cargo Operations II †	(3-2)	4
NAUT 202	Naval Architecture II	(3-0)	3
NAUT 304	Electronic Navigation*	(2-2)	3
	Elective in Humanities		3
	Total		18

SUMMER SESSION - Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 400	Advanced Communications, Navigation and Seamanship*	4

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
HIST 105	History of the United States ‡	(3-0)	3
MARS	Option †§		3
MARS 481	Seminar†	(1-0)	1
METR 302	Weather Reports and Forecasting	(3-0)	3
NAUT 302	Seamanship III*	(1-3)	2
NAUT 404	The Navigator	(2-3)	3
Elective in Social Science			3
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
HIST 106	History of the United States ‡	((3-0)	3
MARS 310	Field Methods in Marine Sciences	(1-6)	3
MARS	Option†§		3
POLS 207	State and Local Government	(3-0)	3
	Elective in Humanities		3
	Total		15
	Total Curriculum Hours ¤		**146**

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Sciences License Option major. These courses will be used to compute the major GPR also, if any upper level MARS or OCNG elective courses are taken, they will be used in the major GPR.

* - Indicates license courses leading to a USCG license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Cadets will be required to repeat the course until they earn a grade of C (70%) or better.

** - One of the four required KINE 199 activity classes is Health and Fitness.

‡-The American history requirement may also be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442 or 444. Students should consult their advisor.

§-MARS option courses must be chosen from MARS 410, 430, 440, or 450, or OCEN 420.

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

Curriculum in Marine Transportation (MART)

This program combines studies in the humanities and sciences with instruction and training in maritime disciplines to provide the U.S. Maritime Service Cadet with a broad-based education. The student who successfully completes the license program will be qualified to sit for the U.S. Coast Guard license examination as a Third Mate of any gross tonnage upon oceans, steam, or motor vessels. Cadets are also provided with solid fundamentals in business topics related to the maritime industry, ashore and afloat. Cadets who enroll in and apply to graduate in Marine Transportation must complete the license examination for Third Mate in order to graduate from Texas A&M University. Certain USCG courses require a minimum grade of C (70%). Seniors should take their licensing examination by March of their spring semester.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
ENDG 105	Engineering Graphics	(0-6)	2
ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
MATH 106	Plane and Spherical Trigonometry	(4-0)	4
NAUT 103	Orientation and Lifesaving*	(2-3)	3
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity**	(0-2)	1
HIST 105	History of the U.S.‡	(3-0)	3
MATH 151	Engineering Mathematics I	(3-2)	4
MARE 100	Marine Engineering Fundamentals	(2-3)	3
NAUT 203	Seamanship I†	(2-3)	3
NAUT 204	Terrestrial Navigation†	(2-2)	3
	Total		17

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 200	Basic Communications, Navigation and Seamanship †*	4

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CPSC 203	Introduction to Computing	(3-0)	3
ECON 202	Principles of Economics	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
METR 302	Weather Reports and Forecasting	(3-0)	3
PHYS 201	College Physics	(3-3)	4
NVSC 200	Merchant Marine Officer I	(3-0)	3
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
ECON 203	Principles of Economics	(3-0)	3
HIST 106	History of the U.S.‡	(3-0)	3
KINE 199	Required Physical Activity**	(0-2)	1
NAUT 301	Seamanship II†	(2-3)	3
NAUT 303	Celestial Navigation†	(2-3)	3
PHYS 202	College Physics	(3-3)	4
	Total		17

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 300	Intermediate Communications, Navigation and Seamanship †*	4

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ECON 452	International Trade and Finance	(3-0)	3
MART 301	Ocean Transportation I†	(4-0)	4
MART 302	Marine Cargo Operations I†	(3-3)	4
NAUT 201	Naval Architecture I†	(3-2)	4
POLS 206	American National Government	(3-0)	3
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
MART 321	Maritime Law I†	(2-0)	2
MART 406	Marine Cargo Operations II†	(3-2)	4
NAUT 202	Naval Architecture II†	(3-0)	3
NAUT 304	Electronic Navigation†*	(2-2)	3
ENGL 301	Technical Writing	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
	Total		18

SUMMER SESSION-Ten weeks aboard the T/S TEXAS CLIPPER II

NAUT 400	Advanced Communications, Navigation and Seamanship†*	4

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
MART 421	Maritime Law II†	(3-0)	3
NAUT 302	Seamanship III†*	(1-3)	2
NAUT 404	The Navigator†	(2-3)	3
Elective in Humanities			3
Elective in Math/Logical Reasoning §			3
	Total		14

Spring Semester		**(Th-Pr)**	**Cr**
MART 416	Port Operations†	(3-0)	3
MGMT 105	Introduction to Business	(3-0)	3
OCNG 401	Introduction to Oceanography	(3-0)	3
Elective in Humanities			3
Elective			3
	Total		15
	Total Hours¤		**145**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. Approved electives include but are not limited to MART 304, 489; MARA 301, 401, 402; MARS 350, 405. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Marine Transportation major. These courses will be used to compute the major GPR.

* - Indicates license courses leading to a USCG license endorsement or sea time credit accrual which require a minimum grade of C (70%) or better to earn the endorsement or accrual. Cadets will be required to repeat the course until they earn a grade of C (70%) or better.

** - One of the four required KINE 199 activity classes is Health and Fitness.

‡-The American history requirement may also be fulfilled by utilizing other American history courses offered at TAMUG including HIST 370, 442 or 444. Students should consult their academic advisor.

§-To be chosen from MATH 166, any math course above the 151 level, or PHIL 240, 342. The student is advised to take MATH 161 if planning to attend graduate school.

¤-The total hours may be increased if the student is required to take college algebra, pre-calculus or foreign language.

Curriculum in Maritime Administration (MARA)

This curriculum is designed to prepare the graduate for administrative work in marine and maritime industries and/or governmental organizations involved in coastal, marine and maritime activities. The curriculum provides a strong foundation in management, finance, business analysis, accounting, and economics. This business and administrative curriculum integrates courses that specialize in marine and maritime activities such as port operations, brokerage and chartering, maritime law, and inland waterways.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
HIST 105	History of the U.S.‡	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MATH 166	Topics in Contemporary Math II	(3-0)	3
NAUT 205	Introduction to Ships and Shipping	(3-2)	4
POLS 206	American National Government	(3-0)	3
	Total		14

Spring Semester		**(Th-Pr)**	**Cr**
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST 106	History of the U.S.‡	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARS 250	BASIC Programming	(2-2)	3
MATH 151	Engineering Mathematics I	(3-2)	4
Elective in Science §		(3-3)	4
	Total		18

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ACCT 229	Introduction to Accounting†	(3-0)	3
ECON 202	Principles of Economics	(3-0)	3
ENGL 203	Introduction to Literature	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MART 301	Ocean Transportation I†	(3-0)	3
Elective (General)			3
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
ACCT 230	Introduction to Accounting†	(3-0)	3
ECON 203	Principles of Economics	(3-0)	3
MARA 212	Business Law†	(3-0)	3
MART 304	Ocean Transportation II†	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Elective in Humanities		(3-0)	3
	Total		18

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ACCT 315	Intermediate Accounting†	(3-0)	3
INFO 303	Statistical Methods†	(3-0)	3
ECON 322	Applied Microeconomic Theory†	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARA 363	Management Process †	(3-0)	3
MKTG 321	Marketing†	(3-0)	3
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
INFO 364	Operations Management†	(3-0)	3
ECON 311	Money and Banking †	(3-0)	3
ENGL 301	Technical Writing	(3-0)	3
FINC 341	Business Finance†	(3-0)	3
MARA 401	Brokerage and Chartering†	(3-0)	3
	Total		15

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
INFO 336	Decision Support Systems†	(3-0)	3
ECON 452	International Trade Theory and Policy†	(3-0)	3
MARA 373	Human Resource Management †	(3-0)	3
MART 421	Maritime Law II †	(3-0)	3
Elective in Science §			4
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
INFO 424	Economics of Transportation†	(3-0)	3
MARA 402	Inland Waterways †	(3-0)	3
MARA 466	Strategic Management †	(3-0)	3
MARA 470	Environmental Law †	(3-0)	3
MART 416	Port Operations, Admin. and Economics†	(3-0)	3
	Total		15
		Total Hours¤	**128**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

†-Indicates required courses in the Maritime Administration major. These courses will be used to compute the major GPR.

‡-The American history requirement may also be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442 or 444. Students should consult their academic advisor.

* - One of the four required KINE 199 activity classes is Health and Fitness.

§-Four credit hours in introductory biology, chemistry, physics, oceanography or geology, one credit hour which must be a laboratory.

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, foreign language or computer science.

Curriculum in Maritime Studies (MAST)

Maritime Studies, the only Bachelor of Arts program offered at TAMUG, looks at the ocean through a series of liberal arts courses. The program provides a broad-based interdisciplinary education that focuses on various ways of understanding the sea.

The interdisciplinary curriculum allows students to study maritime subjects through courses such as philosophy, political science and anthropology. Students also take an educational voyage on board the TEXAS CLIPPER II.

The program allows students whose interests and aptitudes lie outside science, business or technology to be trained for a wide variety of careers pertaining to the maritime setting. The Maritime Studies curriculum positions graduates for employment opportunities that include jobs in coastal planning, sea-related recreation and tourism and economic and environmental development. The program stems from the fact that the maritime culture makes up a major part of the economic base of Texas and the nation.

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST 105	History of the United States	(3-0)	3
KINE 199	Kinesiology*	(0-2)	1
MATH 166	Topics in Contemporary Math II	(3-0)	3
Science elective §		(3-3)	4
	Total		14

Spring Semester		**(Th-Pr)**	**Cr**
HIST 106	History of the United States	(3-0)	3
KINE 199	Kinesiology*	(0-2)	1
Literature elective ¤		(3-0)	3
PHIL 240	Introduction to Logic	(3-0)	3
Science elective §		(3-3)	4
	Total		14

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ANTH 202 †	Introduction to Archaeology	(3-0)	3
HIST 232 †	American Seapower	(3-0)	3
KINE 199	Kinesiology*	(0-2)	1
POLS 206	American National Government	(3-0)	3
SCOM 203	Public Speaking	(3-0)	3
SPAN 101	Beginning Spanish I	(3-2)	4
	Total		17

Spring Semester		**(Th-Pr)**	**Cr**
ANTH 210 †	Social and Cultural Anthropology	(3-0)	3
KINE 199	Kinesiology*	(0-2)	1
MARS 250	Basic Programming	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
SPAN 102	Beginning Spanish II	(3-2)	4
STAT 201	Elementary Statistical Inference	(3-0)	3
	Total		17

INTERSESSION CRUISE aboard the TEXAS CLIPPER II

GEOG 210	Marine Geography	(3-0)	3

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ANTH 216 †	Nautical Archaeology	(3-0)	3
ENGL 301	Technical Writing	(3-0)	3
POLS 347 †	Poltics of Energy and Environment	(3-0)	3
SPAN 201	Intermediate Spanish I	(3-0)	3
Elective		(3-0)	3
	Total		15

Spring Semester		**(Th-Pr)**	**Cr**
ENGL 335 †	Literature of the Sea	(3-0)	3
OCNG 401 †	Introduction to Oceanography	(3-0)	3
POLS 340	Introduction to Public Administration	(3-0)	3
SPAN 202	Intermediate Spanish II	(3-0)	3
History elective ‡		(3-0)	3
	Total		15

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
MARA 470 †	Environmental Law	(3-0)	3
MARA 489 †	Marine Environment Regulations	(3-0)	3
GEOG 201 †	Human Geography	(3-0)	3
POLS 331	World Politics	(3-0)	3
RPTS 301 †	Leisure Outdoor Recreation	(3-0)	3
Elective		(3-0)	3
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
ANTH 318 †	Archaeology of the Americas	(3-0)	3
MAST 411 †	International Maritime Culture	(3-0)	3
MAST 481 †	Seminar	(1-0)	1
PHIL 314	Environmental Ethics	(3-0)	3
Electives		(6-0)	6
	Total		16
		Total Hours ¤	**129**

NOTE: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

§ Science electives are to be selected from the approved Core Curriculum list for science.

†-Indicates required courses in the Maritime Studies major. These courses will be used to compute the major GPR.

¤ Any English course in literature may be used to satisfy the literature elective.

‡ Any history course may be used to satisfy the history elective.

* - One of the four required KINE 199 activity classes is Health and Fitness.

¤ The total hours may be increased if the student is required to take pre-calculus, lower level English or mathematics.

Curriculum in Maritime Systems Engineering (MASE)

The Maritime Systems Engineering program is a design-oriented structural/ocean engineering program with emphasis on steel and concrete structures, offshore and coastal structures, coastal engineering, and hydrodynamics. The Maritime Systems program offers educational opportunities for students whose interests and talents attract them to engineering in the ocean and marine fields.

Maritime Systems Engineering has two integrated areas of study: Offshore Engineering and Coastal Engineering. The offshore engineering area of study addresses the design of marine structures; the calculation of wind and wave forces on marine structures; hydrodynamics; design criteria for marine structures; and ocean engineering technology. Coastal Engineering addresses the applied engineering technologies associated with the design, construction, operation, and maintenance of coastal structures and facilities including breakwaters, piers, wharves, channels, and pipelines. Coastal processes and water wave mechanics involving strong integration of structural, geotechnical, and construction are emphasized.

The program is accredited by the Accreditation Board for Engineering and Technology (ABET).

FRESHMAN YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CHEM 101	Fundamentals of Chemistry I	(3-3)	4
ENGR 111	Fundamentals in Engineering I	(1-3)	2
ENGL 104	Composition and Rhetoric	(3-0)	3
PHYS 218	Mechanics	(3-3)	4
KINE 199	Required Physical Activity*	(0-2)	1
MATH 151	Engineering Mathematics I	(3-2)	4
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
CHEM 102	Fundamentals of Chemistry II	(3-3)	4
ENGR 112	Fundamentals in Engineering II	(1-3)	2
MATH 161	Engineering Mathematics II	(3-0)	3
PHYS 208	Electricity and Optics	(3-3)	4
Social Science Elective			3
	Total		16

SOPHOMORE YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 203	Introduction to Literature	(3-0)	3
ENGR 211	Conservation Principles in Eng. Mechanics	(2-2)	3
ENGR 212	Conservation Principles in Thermal Sciences	(2-2)	3
HIST 105	History of the U.S.‡	(3-0)	3
MATH 251	Engineering Mathematics III	(3-0)	3
POLS 206	American National Government	(3-0)	3
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
CVEN 365	Intro. to Geotechnical Engineering	(2-2)	3
MASE 213	Principles of Materials Engineering	(2-2)	3
MASE 214	Conservation Principles of Continuum Mech.	(2-2)	3
MASE 215	Principles of Electrical Engineering	(2-2)	3
MATH 308	Differential Equations	(3-0)	3
Humanities Elective			3
	Total		18

JUNIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
CVEN 311	Fluid Dynamics†	(3-0)	3
CVEN 345	Theory of Structures†	(3-0)	3
ECON 203	Principles of Economics	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MASE 310	Engineering Analysis†	(3-0)	3
MASE 336	Flow Measurement Fundamentals†	(2-2)	3
	Total		16

Spring Semester		**(Th-Pr)**	**Cr**
CVEN 346	Structural Steel Design †	(2-3)	3
KINE 199	Required Physical Activity*	(0-2)	1
MASE 301	Dynamics of Waves and Structures†	(3-0)	3
OCEN 300	Ocean Engineering Wave Mechanics†	(3-0)	3
OCEN 462	Hydromechanics†	(3-0)	3
Technical Electives §			3
	Total		16

SENIOR YEAR

Fall Semester		**(Th-Pr)**	**Cr**
ENGL 301	Technical Writing	(3-0)	3
HIST 106	History of the U.S.‡	(3-0)	3
MASE 415	Marine Structures Design†	(3-0)	3
OCEN 400	Basic Coastal Engineering†	(3-0)	3
Technical Electives §§			6
	Total		18

Spring Semester		**(Th-Pr)**	**Cr**
KINE 199	Required Physical Activity*	(0-2)	1
MASE 401	Measurements in the Ocean†	(3-0)	3
MASE 405	Finite Element Analysis in Engineering Design†	(3-0)	3
MASE 407	Design of Ocean Engineering Facilities†	(1-6)	4
MASE 410	Measurements in the Ocean Laboratory†	(0-3)	1
POLS 207	State and Local Government	(3-0)	3
	Total		15
		Total Hours¤	**135**

†-Indicates required courses in the Maritime Systems Engineering major. These courses will be used to compute the major GPR.

‡-The American history requirement may be fulfilled by utilizing other American history courses offered at TAMUG, including HIST 370, 442, or 444. Students should consult with their academic advisor.

* - One of the four required KINE 199 activity classes is Health and Fitness.

¤-The total hours may be increased if the student is required to take pre-calculus, lower level English, or computer science.

§ - To be selected from CVEN 344, MASE 319 and MASE 459.

§§ - To be selected from MASE 411, MASE 421, MASE 483, MASE 485 and MASE 489.

Note 1. All electives must be chosen in consultation with, and approved by, the student's academic advisor. See Core Curriculum for a listing of course options for humanities and social sciences electives.

Note 2. A grade of C or better will be required for the Common Body of Knowledge (CKB) Courses (MATH 151, and 161; PHYS 208 and 218; CHEM 101 and 102; ENGL 104; ENGR 111 and 112.

Note 3. MASE students are required to earn a grade of C or better in all basic sciences, mathematics and engineering courses taken to satisify degree requirements.

Note 4. MASE students must complete all mathematics courses (MATH 151, 161, 251 and 308) before taking MASRE 310, MASE 405 and OCEN 462.

Note 5. MASE 407 cannot be taken prior to the last semester before graduation.

Curriculum in Ocean and Coastal Resources (OCRE)

Note: The B.S. in Ocean and Coastal Resources is pending approval of the State of Texas Coordinating Board for Higher Education.

Ocean and Coastal Resources (OCRE) is offered through the Department of Oceanography, Marine Sciences Program. OCRE will educate students with regard to the economic, environmental and social issues related to the development of marine resources, while providing them with the scientific background needed to understand these issues. These resources include fisheries, oil and gas, ocean mining and others. The OCRE degree differs considerably in content from the Marine Sciences (MARS) curriculum through increased focus on geological and biological sciences, along with economics, political science and law. While the present MARS program is designed to produce well-rounded physical scientists capable of attending graduate programs in oceanography, the OCRE curriculum is oriented more to societal and environmental impacts of ocean science.

Many of the resource development issues in today's world center around environmental pollution, sustainable development, biological diversity, fisheries and mariculture and oil and gas development. Every aspect of marine resources development is undergoing rapid growth. From fisheries management to ocean mining and offshore oil and gas development, the demand for trained entry-level personnel from both government and industry is extremely high. While these areas will continue to need practicing scientists, there is also a strong demand for individuals who understand and can use scientific information in the planning and management process, but who are not themselves bench or field scientists. The OCRE degree is designed to address this need. It is also well-suited for students who wish to obtain certification as secondary school science teachers.

FRESHMAN YEAR

Fall Semester		
BIOL 113	Introductory Biology (3-0)	3
BIOL 123	Introductory Biology Laboratory (0-3)	1
ENGL 104	Composition and Rhetoric (3-0)	3
GEOL 104	Physical Geology (3-3)	4
KINE 199	Health and Fitness (0-2)	1
MATH 151	Engineering Mathematics I (3-2)	4
	Total Hours	16

Spring Semester		
BIOL 114	Introductory Biology (3-0)	3
BIOL 124	Introductory Biology Laboratory (0-3)	1
KINE 199	Required Physical Activity (0-2)	1
MATH 161	Engineering Mathematics II (3-0)	3
or MATH 166	Topics in Contemporary Mathematics II	
OCNG 251	Oceanography (3-0)	3
OCNG 252	Oceanography Laboratory (0-3)	1
POLS 206	American National Government (3-0)	3
	Total Hours	15

SOPHOMORE YEAR

Fall Semester

CHEM 101	Fundamentals of Chemistry I . . . . . (3-3)	4
GEOG 210	Marine Geography . . . . . (3-0)	3
MARS 250	Basic Programming . . . . . (2-2)	3
PHYS 218	Mechanics . . . . . (3-3)	4
or PHYS 201	College Physics	
POLS 207	State and Local Government . . . . . (3-0)	3
	Total Hours	17

Spring Semester

CHEM 102	Fundamentals or Chemistry II . . . . . (3-3)	4
ECON 202	Principles of Economics . . . . . (3-0)	3
KINE 199	Required Physical Activity . . . . . (0-2)	1
MARS 280	Coastal and Ocean Resources . . . . . (3-0)	3
STAT 201	Elementary Statistical Inference . . . . . (3-0)	3
Elective	. . . . .	3
	Total Hours	17

JUNIOR YEAR

Fall Semester

ECON 322	Applied Microeconomic Theory . . . . . (3-0)	3
or AGEC 350	Environmental and Natural Resource Economics	
HIST	American History Requirement* . . . . . (3-0)	3
KINE 199	Required Physical Activity . . . . . (0-2)	1
MGMT 211	Legal and Social Environment of Business . . . (3-0)	3
SCOM 203	Public Speaking . . . . . (3-0)	3
Professional Elective ‡	. . . . .	3
	Total Hours	16

Spring Semester

GEOL 301	Mineral Resources . . . . . (2-3)	3
HIST	American History Requirement* . . . . . (3-0)	3
MARS 310	Field Methods in Marine Sciences† . . . . . (1-6)	3
MARS 430	Introduction to Geological Oceanography . . . (3-0)	3
Professional Elective ‡	. . . . .	3
	Total Hours	15

SENIOR YEAR

Fall Semester

ENGL 301	Technical Writing . . . . . (3-0)	3
POLS 347	Politics of Energy and the Environment . . . . (3-0)	3
Humanities Elective	. . . . .	3
Professional Elective ‡	. . . . .	3
Elective	. . . . .	3
	Total Hours	15

Spring Semester

MARB 431	Wetlands Ecology . . . . . (2-6)	4
MARS 481	Seminar . . . . . (1-0)	1
OCNG 420	Introduction to Biological Oceanography . . . (3-0)	3
PHIL 314	Environmental Ethics . . . . . (3-0)	3
Professional Elective ‡	. . . . .	3
Elective	. . . . .	3
	Total Hours	17

Total Curriculum Hours 128

* Select from University Core Curriculum

† Field Experience may also be met with MARB 300 plus one credit hour of a field oriented lab course.

‡ Recommended professional electives are: CHEM 316 Quantitative Analysis (see note below), CHEM 318 Quantitiative Analysis Laboratory (see note below), CHEM 383 Chemistry of Environmental Pollution, MARA 470 Environmental Law, MARA 489 Marine Environmental Affairs Research, MARB 345 Introduction to Scientific Diving, MARB 432 GIS Use in Coastal Resources, MARB 423 Mariculture, MARB 320 Fisheries Techniques, MARS 305 Paleontology, MARS 330 Petroleum Geology, MARS 370 Coastal Processes, MARS 410 Introduction to Physical Oceanography, MARS 415 Remote Sensing Technology, MARS 435 Exploration Geophysics, MARS 440 Introduction to Chemical Oceanography, MARS 485 Problems in Marine Sciences

Note: For this elective credit both CHEM 316 and CHEM 318 are required.

COURSE DESCRIPTIONS

All undergraduate courses offered at the University are described on the following pages and are listed by disciplines, arranged alphabetically.

The course numbering scheme is as follows: 100 to 199, courses primarily open to freshmen; 200 to 299, courses primarily open to sophomores; 300 to 399, courses primarily open to juniors; 400 to 499, courses primarily open to seniors.

Figures in parentheses following the number of the courses indicate the clock hours per week devoted to theory and practice, respectively. Theory includes recitations and lectures; practice includes work done in the laboratory, shop, drawing room, or field. The unit of credit is the semester hour, which involves one hour of theory, or from two to four hours of practice per week for one semester of 15 weeks.

When courses are cross-listed (e.g., offered as MARA 212 at TAMUG and MGMT 212 at TAMU), credit cannot be received for both courses.

Any course may be withdrawn from the semester or summer schedule if the number of registrants is too small to justify its being offered.

Accounting (ACCT)

229. INTRODUCTORY ACCOUNTING. (3-0). Credit 3. Analysis, recording and reporting of business transactions; partnership and corporation accounting; analysis and use of financial statements. Prerequisite: sophomore standing.

230. INTRODUCTORY ACCOUNTING. (3-0). Credit 3. Continuation of ACCT 229. Use of budgets; introduction to cost accounting; cost control techniques and methods of measuring performance. Prerequisite: ACCT 229 and sophomore standing.

315. INTERMEDIATE ACCOUNTING FOR NON-ACCOUNTING MAJORS I. (3-0). Credit 3. Revenue recognition principles of asset valuation, and disclosure requirements for corporations; intrepretation of financial statements, rather than their preparation. Prerequisites: ACCT 230 and junior classification.

Anthropology (ANTH)

202. INTRODUCTION TO ARCHAEOLOGY. (3-0). Credit 3. An introduction to the study of the human past through the retrieval, analysis, and interpretation of material remains.

210. SOCIAL AND CULTURAL ANTHROPOLOGY. (3-0). Credit 3. Evolution of cultures; differences, similarities and effects of material and non-material culture on economic, social and political organization.

216. NAUTICAL ARCHAEOLOGY. (3-0). Credit 3. Underwater shipwrecks, sunken harbors, and other submerged evidence of human activities; relationship to cultural geography in general; problems of diving technology, surveying and preservation; relevance to modern problems.

318. NAUTICAL ARCHAEOLOGY OF THE AMERICAS. (3-0). Credit 3. Seafaring in the Americas from the 16th to the 20th centuries based on shipwreck archaeology; ship construction, exploration, commerce, naval warfare and related activity; influence of seafaring on the cultures, economics and history of the Western Hemisphere.

Biology (BIOL)

113. INTRODUCTORY BIOLOGY. (3-0). Credit 3. Survey of structures and functions common to living forms in general. Principles of cell biology, regulation of growth and development, reproduction, evolution, and ecology. Concurrent registration in BIOL 123 is suggested.

114. BIOLOGY. (3-0). Credit 3. Survey of major groups of living forms; their special structures and functions which enable them to exist. Survey includes prokaryotes, fungi, lower and higher plants, animals, and humans. Concurrent registration in BIOL 124 is suggested. Prerequisite: BIOL 113.

123. INTRODUCTORY BIOLOGY LABORATORY. (0-3). Credit 1. Laboratory supporting BIOL 113. Prerequisite: BIOL 113 or registration therein.

124. INTRODUCTORY BIOLOGY LABORATORY. (0-3). Credit 1. Laboratory supporting BIOL 114. Prerequisite: BIOL 113, 123.

Center for Academic Enhancement (CAEN)

101. SUCCEEDING IN COLLEGE. (2-0). Credit 2. A seminar course designed to introduce students to the resources, skills, and strategies needed to succeed in college.

Chemistry (CHEM)

101. FUNDAMENTALS OF CHEMISTRY I. (3-3). Credit 4. Introduction to modern theories of atomic structure and chemical bonding; chemical reactions; stoichiometry; states of matter; solutions; equilibrium; acids and bases; coordination chemistry; laboratory: introduction to methods and techniques of chemical experimentation; qualitative and semiquantitative procedures applied to investigative situations.

102. FUNDAMENTALS OF CHEMISTRY II. (3-3). Credit 4. Theory and applications of oxidation-reduction systems; thermodynamics and kinetics; complex equilibria and solubility product; nuclear chemistry; descriptive inorganic and organic chemistry; laboratory: introduction to analytical and synthetic methods and to quantitative techniques to both inorganic and organic compounds. Prerequisites: CHEM 101 or its equivalent.

227. ORGANIC CHEMISTRY I. (3-0). Credit 3. Introduction to chemistry of compounds of carbon. General principles and their application to industrial and biological processes. Prerequisite: CHEM 102 or 104. Concurrent registration in CHEM 237 is suggested.

228. ORGANIC CHEMISTRY II. (3-0). Credit 3. Continuation of CHEM 227. Prerequisite: CHEM 227. Concurrent registration in CHEM 238 is suggested.

237. ORGANIC CHEMISTRY LABORATORY. (0-3). Credit 1. Operations and techniques of elementary organic chemistry laboratory. Preparation, reactions and properties of representative organic compounds. Prerequisites: CHEM 112 or 114; CHEM 227 or registration therein.

238. ORGANIC CHEMISTRY LABORATORY. (0-3). Credit 1. Continuation of CHEM 237. Prerequisites: CHEM 237; CHEM 228 or registration therein.

285. DIRECTED STUDIES. Credit 1-4. Introduction to research, library, and laboratory work. Prerequisite: Approval of MARS department head.

316. QUANTITATIVE ANALYSIS. (2-0). Credit 2. Introduction to methods of chemical analysis. Chemical equilibrium. Prerequisite: CHEM 102 or 104.

318. QUANTITATIVE ANALYSIS LABORATORY. (0-3). Credit 1. Laboratory work consists of selected experiments in quantitative analysis designed to typify operations of general application; work is primarily volumetric with limited gravimetric experiments. Prerequisites: CHEM 102 or 114; CHEM 315 or 316 or registration therein.

383. CHEMISTRY OF ENVIRONMENTAL POLLUTION. (3-0). Credit 3. Chemical pollutants in the air, in water, and on land. Their generation, chemical reactivity, action on environment and disappearance through chemical mechanisms. Chemistry of existing pollution abatement. Prerequisite: CHEM 228 or equivalent.

485. DIRECTED STUDIES. Credit 1-4. Introduction to research, library, and laboratory work. Prerequisites: Senior classification; approval of MARS department head.

Civil Engineering (CVEN)

311. FLUID DYNAMICS. (3-0). Credit 3. Fluid properties; statics; kinematics; basic conservation principles of continuity, energy and momentum; similitude and hydraulic models; incompressible flow in pipes; fluid dynamic drag. Prerequisite: MASE 206 or equivalent.

336. FLUID DYNAMICS LABORATORY. (0-2) Credit 1. Introduction to laboratory techniques; calibration principles, reports and fluid measurements; determination of fluid properties; visualization of types of flow; experiments in closed conduit flow of air, water and oil; fluid drag and turbomachinery tests; open channel and gravity wave demonstrations.

344. REINFORCED CONCRETE STRUCTURES. (2-3). Credit 3. Analysis and design of reinforced concrete beams, columns, slabs, and footings using ultimate strength methods. Prerequisite: CVEN 345.

345. THEORY OF STRUCTURES. (3-0). Credit 3. Structural engineering-functions of structure, design loads, reactions and force systems. Analysis of statically determinate structures; including beams, trusses, and arches. Methods of determining deflections of structures. Influence lines and criteria for moving loads. Analysis of indeterminate structures; including continuous beams and frames. Prerequisite: MASE 209 or equivalent.

346. STRUCTURAL STEEL DESIGN. (2-3). Credit 3. Materials, types of members and typical arrangements. Design of tension members, compression members, beams, and beam columns. Design of bolted connections and welded connections. Theory and practice as indicated in typical current specifications. Prerequisite: CVEN 345.

365. INTRODUCTION TO GEOTECHNICAL ENGINEERING. (2-2). Credit 3. Physical properties of soils, classification systems, soil exploration, permeability, consolidation, compaction, and shear strength. Laboratory tests conducted to determine the physical and engineering soil properties needed for application in geotechnical engineering design.

483. ANALYSIS AND DESIGN OF STRUCTURES. (2-3). Credit 3. Overall procedure of analysis and design; including functions, loads, layouts of force systems; analysis, design drafting, specifications, cost comparisons, and maintenance as applied to typical simple bridge and building structures. Prerequisites: CVEN 344, 346, 365.

Computer Science (CPSC)

203. INTRODUCTION TO COMPUTING. (2-2). Credit 3. Algorithms, programs, and computers. Basic programming and program structure. Data representation. Computer solution of numerical and non-numerical problems using a high-level programming language, FORTRAN.

285. DIRECTED STUDIES. Credit 1-6. Permits work on special projects in computing science. Project must be approved by MARS department head.

485. DIRECTED STUDIES. Credit 1-6. Permits work on special projects in computing science. Project must be approved by MARS department head. Prerequisite: Senior classification.

Developmental Studies (CAEX)

001. BASIC MATHEMATICAL SKILLS. Credit 0. Developmental instruction in mathematics; includes the integers and rational numbers and applications, exponents, polynomials, solution of equations, graphing, elementary geometry, and reasoning skills. May not be used for credit toward a degree.

002. BASIC WRITING SKILLS. Credit 0. Individualized instruction in English composition based on an analysis of the student's proofreading, revision, and editing skills; a programmed sequence of study and practice designed for improvement of writing performance through mastery of basic skills at word, sentence, paragraph, and multiparagraph levels. May not be used for credit toward a degree.

003. BASIC READING SKILLS. Credit 0. Individualized instruction in reading based on an analysis of the student's reading comprehension skills; study and practice of reading strategies designed to increase reading comprehension skills. May not be used for credit toward a degree.

Economics (ECON)

202. PRINCIPLES OF ECONOMICS. (3-0). Credit 3. Elementary principles of economics; the economic problem and the price system; theory of demand, theory of production and the firm, theory of supply; the interaction of demand and supply. Prerequisites: MATH 151, 166.

203. PRINCIPLES OF ECONOMICS. (3-0). Credit 3. Measurement and determination of national income, employment, and price; introduction to monetary and fiscal policy analysis; the effects of government deficits and debt, exchange rates and trade balances. Prerequisite: ECON 202, MATH 151, 166 or approval of advisor.

285. DIRECTED STUDIES. Credit 1-3. Research and design of specific problem areas approved on an individual basis with the intention of promoting independent study and to supplement existing course offerings. Results of study presented in writing. Prerequisite: Major or minor in MARA or Economics (TAMU); approval of MARA department head.

311. MONEY AND BANKING. (3-0). Credit 3. Fundamental principles of money, credit, and banking; arbitrage conditions in domestic and international capital markets; theoretical and institutional analysis of money markets. Prerequisite: ECON 203.

322. APPLIED MICROECONOMIC THEORY. (3-0). Credit 3. Use of microeconomic theory in the analysis of problems that would face decision makers, not only in business but also in government, non-profit firms and other institutions. Prerequisite: ECON 202.

412. PUBLIC FINANCE. (3-0). Credit 3. Economic role of governments; the choice of public sector output in a democracy and the effects of various taxes on resource allocation and income distribution. Prerequisites: ECON 322.

452. INTERNATIONAL TRADE THEORY AND POLICY. (3-0). Credit 3. Basis for trade; theory of comparative advantage; determination of product and factor prices; gains from international trade; commercial policy and its implications for income distribution; concept of effective protection; market distortions, policy generated distortions and the arguments for tariffs. Prerequisite: ECON 322.

485. DIRECTED STUDIES. Credit 1-3. Research and design of specific problem areas approved on an individual basis with the intention of promoting independent study and to supplement existing course offerings. Results of study presented in writing. Prerequisite: Major or minor in MARA or Economics (TAMU); approval of MARA department head.

Educational Technology (EDTC)

305. Instructional Technology: Theory and Practice. (1-2) Credit 2. Theoretical and practical study of communication with emphasis on technology; laboratory experiences in the selection, preparation, use and evaluation of instructional materials. For undergraduate students with a minimum of prior educational training.

Engineering Design Graphics (ENDG)

105. ENGINEERING GRAPHICS. (0-6). Credit 2. Graphical approach to the engineering design process as applied to products; methods of graphical communications, three-dimensional geometry, working drawings, data analysis, computer graphics, introduction to team dynamics, and creative problem solving. (ENGR 1204).

106. ENGINEERING DESIGN GRAPHICS. (0-6). Credit 2. Introduction to engineering design; product development and team dynamics using graphical methods and descriptive geometry. Spatial analysis of geometric elements, vectors, data analysis, and graphical applications to a variety of engineering areas. Prerequisite: ENDG 105.

Engineering (ENGR)

109. ENGINEERING PROBLEM SOLVING AND COMPUTING. (2-3). Credit 3. Professional ethics, registration, and disciplines in engineering; engineering problem-solving environments (economic, political, technical,

social), requirements, and methodologies; FORTRAN programming on PCs, minis and mainframes. Prerequisites: Admission to engineering curriculum and background in trigonometry.

111. FOUNDATIONS OF ENGINEERING I. (1-3). Credit 2. Introduction to the engineering profession, ethics, and disciplines; development of skills in teamwork, problem solving, logic processing, design and drawing; emphasis on computer applications and CAD tools. Co-requisite: MATH 151.

112. FOUNDATIONS OF ENGINEERING II. (1-3). Credit 2. Development of skills in problem solving, design, analysis. Estimation and teamwork; utilization of computer tools for documentation and presentation; introduction to logic processing and computer programming; introduction to accounting and conservation principles in engineering sciences. Prerequisite: ENGR 111.

211. CONSERVATION PRINCIPLES IN ENGINEERING MECHANICS. (2-2) Credit 3. Conservation principles in engineering and their application to the modeling of mechanical systems and structures; equations of motion for particles and rigid bodies; fundamentals of engineering mechanics. Prerequisite: MATH 251 or 253 or registration therein.

212. CONSERVATION PRINCIPLES IN THERMAL SCIENCES. (2-2) Credit 3. Theory and application of energy methods in engineering; conservation principles to investigate "traditional" thermodynamics and internal flow fluids. Prerequisites: Upper division status in major; MATH 251 or MATH 253 or registration therein; ENGR 211 or registration therein.

English (ENGL)

104. COMPOSITION AND RHETORIC. (3-0). Credit 3. Focus on referential and persuasive researched essays through the development of analytical reading ability, critical thinking and library research skills.

203. INTRODUCTION TO LITERATURE. (3-0). Credit 3. Exploration of literature by genre and/or theme; literary analysis and interpretation; intensive writing about literature. Prerequisite: ENGL 104.

212. SHAKESPEARE. (3-0). Credit 3. Exploration of selected works of Shakespeare. Prerequisite: ENGL 104.

222. WORLD LITERATURE. (3-0). Credit 3. Representative works in translation of major authors from A.D. 1500 to present from various cultures, including such authors as Cervantes, Moliére, Goethe, Tolstoy, Mahfouz, Munif, Achebe, Tolstaya, Vargas Llosa, and Duras. Prerequisite: ENGL 104.

228. AMERICAN LITERATURE: CIVIL WAR TO PRESENT. (3-0). Credit 3. Expressions of the American experience in realism, regionalism and naturalism; varieties of modernist and contemporary writing; the rise of ethnic literature and experimental literary forms; includes such writers as Dickinson, Twain, James, Crane, Frost, Eliot, Fitzgerald, Hemingway, Faulkner, O'Neill, Baldwin, and Rich. Prerequisite: ENGL 104.

251. THE LANGUAGE OF FILM. (2-2). Credit 3. Development of the language of film: major movements, representative works, theory and techniques; lecture/discussion following film screenings. Prerequisite: ENGL 104.

285. DIRECTED STUDIES. Credit 1-3. Readings selected for specific need of major or minor in English.

301. TECHNICAL WRITING. (3-0). Credit 3. Advanced writing in technical, scientific, and business fields; reports, proposals, and other papers; correspondence. Prerequisite: ENGL 104; junior classification in the major department, or approval of instructor.

334. SCIENCE FICTION PAST AND PRESENT. (3-0). Credit 3. Origins and development of the science fiction genre, including such authors as Wells, Lewis, Clarke, Miller, and Le Guin. Prerequisite: ENGL 104.

335. LITERATURE OF THE SEA. (3-0). Credit 3. Significance of the sea in fictional and factual accounts, such as novels, short stories, poems, and narratives of sailors and seafaring life. Prerequisite: 3 credits of literature at 200 level or above.

374. WOMEN WRITERS. (3-0). Credit 3. History of literature by women in English primarily from the 16th century to the present; emphasis on continuity of ideas and on literary contributions; study of poetry, essays, novels, short stories, with particular attention to characteristic themes and to racial, social, cultural diversity of women writing in English. Prerequisite: ENGL 104.

485. DIRECTED STUDIES. Credit 1-3. Readings selected for specific need of major or minor in English.

Finance (FINC)

341. BUSINESS FINANCE. (3-0). Credit 3. Financial practices and financial management of modern business corporations; cash flow, planning, procurement of funds, management of long-term funds and working capital. Prerequisites: ECON 202 and ACCT 230 or equivalent and junior classification.

Geography (GEOG)

201. INTRODUCTION TO HUMAN GEOGRAPHY. (3-0). Credit 3. A survey of the major systems of man-land relations of the world and their dissimilar developments. The processes of innovation, diffusion, and adaptation stressed with regard to changing relationships between people and their environment.

210. MARINE GEOGRAPHY. (3-0). Credit 3. Introduction to the physical and cultural patterns of the coastal zones of the world. Interrelationships between the physical forms and processes and the cultural patterns are used to analyze human use and abuse of the sea.

301. GEOGRAPHY OF THE UNITED STATES. (3-0). Credit 3. Geographic personality (physical and cultural) of the United States. Note: To be used as a humanities elective for any degree program.

Geology (GEOL)

104. PHYSICAL GEOLOGY. (3-3). Credit 4. Earth materials, structures, external and internal characteristics; physical processes at work upon or within the planet. A working knowledge of high school chemistry and mathematics is required.

285. DIRECTED STUDIES. Credit (1-4) each semester. Individually supervised research or advanced study on restricted area not covered in regular courses.

301. MINERAL RESOURCES. (2-3) Credit 3. Origin, geologic relations, geographic distribution, reserves and uses of exhaustible mineral and energy resources. Not available to geology majors.

485. DIRECTED STUDIES. Credit (1-4) each semester. Individually supervised research or advanced study on restricted area not covered in regular courses.

History (HIST)

105. HISTORY OF THE UNITED STATES. (3-0). Credit 3. Colonial Heritage; revolution; adoption of Constitution; growth of nationalism and sectionalism; Civil War; reconstruction.

106. HISTORY OF THE UNITED STATES. (3-0). Credit 3. Since reconstruction; new social and industrial problems; rise of progressivism; U.S. emergence as a world power; World War I; reaction and New Deal; World War II; contemporary America.

226. HISTORY OF TEXAS. (3-0). Credit 3. History of Texas from Spanish period to present day. Stress placed upon period of Anglo-American settlement, revolution, republic, and development of modern state.

232. HISTORY OF AMERICAN SEA POWER. (3-0). Credit 3. Development of American sea power from the 18th century to the present.

285. DIRECTED STUDIES. Credit 1-3. Selected fields of history not covered in depth by other courses. Reports and extensive reading required. Prerequisite: Approval of department head.

370. CIVIL WAR AND RECONSTRUCTION. (3-0). Credit 3. Survey of background and causes of the war; military, political, economic, and diplomatic aspects of the war; life behind the lines; reconstruction and post-war adjustments, 1861-1877.

373. THE GREAT DEPRESSION AND WORLD WAR II. (3-0). Credit 3. The United States, 1929-1945; cultural, social, economic, and political developments in the nation; global diplomacy and military strategy.

374. THE UNITED STATES AFTER WORLD WAR II. (3-0). Credit 3. The United States since World War II; political, economic, cultural, and social changes and role as a world leader.

485. DIRECTED STUDIES. Credit 1-3. Selected fields of history not covered in depth by other courses. Reports and extensive reading required. Prerequisite: Approval of department head.

Information and Operations Management (INFO)

303. STATISTICAL METHODS. (3-0). Credit 3. Collection, tabulation, and presentation of numerical data; sampling, estimation of averages and variation, probability and error, hypothesis testing, and correlation. Prerequisites: MATH 151, 166 and junior classification.

336. DECISION SUPPORT SYSTEMS. (3-0). Credit 3. Application of quantitative decision-making techniques to management decision problems. Planning, analysis, and control of operating systems in organizational settings. Prerequisites: INFO 303, senior classification or approval of instructor.

364. OPERATIONS MANAGEMENT. (3-0). Credit 3. Concepts, issues and techniques used to plan, analyze, and control systems of production; operational problems in producing goods and services. Prerequisite: INFO 303, field trip fee.

485. DIRECTED STUDIES. Credit 1-4 each semester. Directed study of selected problems in an area of business analysis not covered in other courses. Prerequisite: Approval of MARA department head.

Interdisciplinary Studies (INST)

210. UNDERSTANDING SPECIAL POPULATIONS. (3-0) Credit 3. Referral, assessment and categorization of special populations including physical, cognitive and affective characteristics; cultural, ethnic, economic and linguistic differences; giftedness; special education and compensatory programs; awareness of legislative history that results in rights for special populations. Prerequisite: Sophomore classification or above.

301. EDUCATIONAL PSYCHOLOGY. (3-0) Credit 3. Application of psychology to problems of teaching. Nature and operation of principles of learning, transfer of training; nature, measurement and significance of individual differences; conditions influencing efficiency of learning. Prerequisite: Junior or senior classification.

Kinesiology (KINE)

199. REQUIRED PHYSICAL ACTIVITY. (0-2). Credit 1. May be repeated for credit each semester.

Management (MGMT)

105. INTRODUCTION TO BUSINESS. (3-0). Credit 3. Survey of economic systems, forms of business ownership and running the small business; organizing and managing businesses; managing human resources; managing production and information; managing marketing; introducing financial issues including accounting, money, and banking, securities markets; business issues and challenges including legal and regulatory environment, business ethics, and international business.

211. LEGAL AND SOCIAL ENVIRONMENT OF BUSINESS. (3-0) Credit 3. Role of government in business and society; analysis of social policy and legal institutions; ethical problems in management decisions; administrative law; antitrust law; employment and discrimination law; regulation of business transactions; protection of property rights; regulation of information in markets including securities and product safety; international business law. Prerequisite: Sophomore classification.

481. SEMINAR IN MANAGEMENT. (1-0). Credit 1. Discussions and observation of current management practice in the public and private sectors of the nation. Reading and discussion of current events and changes taking place in management theory and/or its application and practice in actual business and government situations. May be repeated for credit. Prerequisites: Junior classification or approval of instructor.

Marine Biology (MARB)

285. DIRECTED STUDIES. Credit 1-6 per semester. Special topics and problems in field and/or laboratory work suited to analysis by individuals or small groups concerning aspects of marine biology. Usually requires a report describing techniques and results. Only 3 credit hours may be used in the degree plan curriculum. Prerequisites: 2.25 GPR, Approval of instructor.

289. SPECIAL TOPICS IN MARINE BIOLOGY. Credit 1-4. Study of selected topics in an identified area of marine biology. Prerequisite: Approval of instructor.

300. SCIENTIFIC METHODS IN MARINE BIOLOGY. (1-3). Credit 2. An introduction to field, laboratory and analytical methods, equipment and instruments. The field portion will include making proper observations, sampling techniques, and data recording. The laboratory portion will include sample analysis methods, use of instruments, introduction to data analysis including elementary statistics, introduction to scientific literature and report writing style. Prerequisites: BIOL 113, 114, 123, 124; curriculum sophomore or approval of instructor.

301. GENETICS. (3-3). Credit 4. Fundamental principles of genetics; physical basis of Mendelian inheritance; expression and interaction of genes, linkage, sex linkage, biochemical nature of genetic material, and mutation. Prerequisites: MARS 360; CHEM 227, 228, 237 and 238; curriculum sophomore or approval of instructor.

303. BIOSTATISTICS. (2-2). Credit 3. Introduction to sampling, experimental design, analysis of data, and testing of hypotheses, with emphasis on methods applied to biological investigations. Parametric and non-parametric techniques. Descriptive statistics, analysis of variance, correlation and regression. Prerequisites: MATH 131, three credit hours of computer science, curriculum sophomore or approval of instructor.

310. INTRODUCTION TO CELL BIOLOGY. (3-3). Credit 4. Cellular structure/function; procaryotic vs. eucaryotic cells. Examination of cellular membranes and membrane transport. Analysis of DNA replication, transcription, and protein translation (an extension of their treatment in MARB 301). Introduction to the components and genetics of immunology. Cell Biology should precede or be concurrent with enrollment in MARB 450. Prerequisites: BIOL 113, BIOL 114, CHEM 228, MARB 301, MARS 360, curriculum junior or approval of instructor.

311. ICHTHYOLOGY. (3-3). Credit 4. Freshwater and marine fishes. Subject will be mainly systematic, but evolution, ecology, life history, and economics of more important species will be treated. Prerequisites: BIOL 113, 114, 123, 124, curriculum sophomore or approval of instructor.

312. FIELD ICHTHYOLOGY. (3-3). Credit 4. Field and laboratory studies on identification and ecology of freshwater and marine fishes of Texas. Field trips required. Prerequisite: MARB 311, curriculum sophomore or approval of instructor.

315. NATURAL HISTORY OF VERTEBRATES. (3-3). Credit 4. Natural history of fishes, amphibians, reptiles, birds, and mammals, with emphasis on coastal Texas vertebrates. Prerequisites: BIOL 113, 114, 123, 124, curriculum sophomore or approval of instructor.

320. FISHERIES TECHNIQUES. (3-3). Credit 4. An introduction to theory and techniques in fisheries biology and ecology. Experience with fisheries equipment and techniques will be provided in both field and laboratory. Practical sampling design, collection, and interpretation of data from estuarine, coastal and offshore environments will be addressed. Prerequisites: BIOL 113, 114, MARB 311 or approval of instructor.

325. BIOSPELEOLOGY. (3-3). Credit 4. A field-oriented introduction to the biology of aquatic and terrestrial cave organisms with discussions on the origin of caves, cave environment, cave fauna, and evolution. Field trips required. Prerequisites: BIOL 114, CHEM 101, GEOL 104 or approval of instructor.

330. PHYSIOLOGICAL ECOLOGY. (3-0). Credit 3. Examination of how ecological pressures dictate individual and interorganismal physiological processes that lead to individual and community adaptation. Discussion of the physiological interrelationships between members of an ecological community. Attention will be directed toward physiological systems of plants and animals. Prerequisites: BIOL 113, 114, 123, 124 or approval of instructor.

335. FISH PHYSIOLOGY. (3-0). Credit 3. Study of the basic physiology of fishes. Examination of fish cardiovascular, renal, digestive, locomotor, reproductive, and central/peripheral nervous systems. Discussion of physiological adaptations enhancing survival in a water medium. Prerequisite: BIOL 113, 114, 123, 124 or MARB 311 or equivalent or approval of instructor.

345. INTRODUCTION TO SCIENTIFIC DIVING. (3-3). Credit 4. Prepare and qualify divers for entry into the TAMUG Scientific Diving Program. Students must pass medical, swimming, skin diving and scuba diving tests. Lectures include diving equipment, physics, physiology, medicine, regulations, environment, emergency and decompression procedures. Prerequisites BIOL 113, PHYS 201 or approval of instructor.

350. METHODS IN RESEARCH DIVING. (2-6). Credit 4. Survey of research methods and techniques using diving. Lecture and lab designed to train students in safe, efficient use of diving to collect and record data underwater for studies primarily in biology, geology, and archaeology. Prerequisites: BIOL 114, CHEM 101, PHYS 201 or approval of instructor.

360. MARINE CONSERVATION BIOLOGY. (3-3). Credit 4. Lectures and laboratories cover the major principles of conservation biology; a new synthetic field that applies concepts of ecology, systematics and evolution, biogeology, genetics, behavioral sciences, and social sciences to the conservation of marine fisheries resources. Lab exercises include morphometric and genetic variation, GIS, molecular systematics and phylogenetic inference. Prerequisite: MARB 311 or approval of instructor.

400. BIOLOGY OF MARINE MAMMALS. (3-3). Credit 4. A broad-spectrum course on the taxonomy, evolution, morphology behavior, and ecology of marine mammals, including sirenians, carnivores, baleen and toothed whales and dolphins. Prerequisite: BIOL 113,114,123,124, MARB 315, 410; or approval of instructor.

401. PHYSIOLOGICAL ECOLOGY OF MARINE MAMMALS. (3-0). Credit 3. Taxonomy, phylogeny and physiological adaptations of marine mammals. Prerequisites: BIOL 113, 114, and MARB 315.

402. GENERAL MAMMOLOGY. (2-3) Credit 3. Mammalian biology; evolution, classification, biogeography, reproduction, physiology, ecology, and behavior; focuses on basic concepts necessary for a foundation in both wildlife science and biology. Prerequisite: Junior classification and MARB 315.

403. CETACEAN BEHAVIOR AND BEHAVIORAL ECOLOGY. (3-3). Credit 4. This course consists of lecture of up to date descriptions of Cetacean behavior and ecology; and of labs that evaluate the literature of topics of present relevance. Prerequisite: Junior standing and MARB 315 and MARB 400 or instructor permission.

405. MARINE PARASITOLOGY. (3-3). Credit 4. Fundamentals of parasitology, with emphasis on marine applications. Survey of major parasites of marine animals and the diseases they cause, especially in ecologically and commercially-important host species. Prerequisites: BIOL 114, 124 or approval of instructor.

408. MARINE BOTANY. (3-3). Credit 4. Morphology, systematics, ecology, and biochemistry of representative algae, fungi, and submarine grasses. Prerequisites: BIOL 114, 124, curriculum sophomore or approval of instructor.

410. ANIMAL BEHAVIOR. (2-3). Credit 3. Examination of ethological concepts. Discussion of the development, genetics, physiology, and evolution of animal behavior patterns involved in reproduction, territoriality, aggression, communication, population dispersion, sociality, and sociobiology of invertebrates and vertebrates. Prerequisites: BIOL 114, 124, curriculum sophomore or approval of instructor.

412. SOCIOBIOLOGY OF REPRODUCTION. (3-0). Credit 3. Application of sociobiological concepts to examine the evolution and adaptive significance of reproductive strategies utilized by marine and terrestrial animals. Strategy-influencing factors to be discussed include: mate selection and competition, sex roles, bonding, parental investment in offspring, and socialization, Prerequisites: BIOL 114, MARB 301 or equivalent, or registration therein, curriculum sophomore or approval of instructor.

420. COMPARATIVE ANIMAL PHYSIOLOGY. (3-3). Credit 4. Principles of animal physiology are examined using invertebrate and vertebrate model systems. Topics include osmoregulation in marine vs. freshwater vs. terrestrial organisms, excretion, fluid circulation, nervous system structure and function, muscle activity, sensory neurobiology, and endocrine mediation. Prerequisites: BIOL 114, CHEM 228, MARB 310, MARS 360, curriculum junior or approval of instructor.

423. MARICULTURE. (3-3). Credit 4. Study of factors determining the success of efforts to cultivate estuarine and marine species of economic importance for use as human food. Mariculture practices used worldwide in the production of algae, mollusks, crustaceans, and fishes will be discussed. Prerequisite: Curriculum junior or approval of instructor.

425. MARINE ECOLOGY. (3-3). Credit 4. Relationship between various marine environments and their inhabitants; intra- and interspecific relationships between organisms; structure and function among marine communities. Laboratory emphasis is placed on study of living material and natural habitats in the Gulf of Mexico. Prerequisites: MARB 315, 408, 435; ENGL 301; curriculum senior or approval of instructor.

426. AQUATIC ANIMAL NUTRITION. (3-0). Credit 3. Chemistry, digestion, absorbtion and intermediary metabolism of nutrient classes with special emphasis on their relationship to warmwater fish nutrition. Determination of nutrient requirements, feed evaluation, feed processing, ration formulation and feeding practices. Prerequisite: CHEM 227 or approval of instructor.

430. COASTAL PLANT ECOLOGY. (3-3). Credit 4. Study of the identification, distribution, production, and ecological importance of estuarine, coastal marsh, and dune vascular plants; the interaction of plants with their abiotic and biotic environments; and techniques of vegetation management and evaluation. Prerequisite: BIOL 114, curriculum junior or approval of instructor.

431. WETLANDS ECOLOGY, MONITORING, AND DELINEATION. (2-6). Credit 4. Study of the characteristics and importance of wetlands and methods for delineating, monitoring, and evaluating wetlands. Students will become knowledgeable in wetland soils, plants, ecological interactions of wetlands and other habitats and animals, and the laws pertaining to obtaining permits and managing wetlands of the U.S. Prerequisites: BIOL 113, 114, 123 and 124 or approval of instructor.

432. G.I.S. USE IN COASTAL RESOURCES. (2-3). Credit 3. Basic concepts of design, planning, and integration of Geographical Information Systems in management of biological systems in coastal environments. Students are taught to input data into GIS, organize the data, and analyze, query, and manage data sets. Prerequisite: junior classification.

435. MARINE INVERTEBRATE ZOOLOGY. (3-3). Credit 4. General biology of marine invertebrate animals; morphology, evolution, and systematics. Laboratory will stress studies of local fauna. Prerequisites: BIOL 113, 114, 123, 124, curriculum junior or approval of instructor.

436. NON-VERTEBRATE FISHERIES. (3-3). Credit 4. A survey of the history and importance of harvesting commercially important algae and invertebrates, with an assessment of the current status, problems and prospects for each fishery. Indentification, distribution and biology of commercially important species will also be addressed. Prerequisites: BIOL 113, 114; or approval of instructor.

437. PATHOLOGY OF MARINE ANIMALS. (3-3). Credit 4. An introduction to the structural and functional changes in cells, tissues and organ systems of marine invertebrates and vertebrates as they relate to disease and/or injury. Mechanisms of disease and identification of lesions in common diseases and human-induced injuries will be included. Laboratory will consist of gross and microscopic aspects of pathology in both invertebrate and vertebrate animals. Prerequisites: MARB 315, 435, MICR 351, Junior status or approval of instructor.

438. COASTAL ORNITHOLOGY. (2-3). Credit 3. Field and laboratory studies on the identification, classification, distribution and ecology of birds with special emphasis on birds of the Texas Gulf Coast. Classroom lectures to include anatomy, physiology, behavior and migration. Field trips required. Prerequisites: MARB 315, junior or instructor approval.

445. MARINE FISHERIES MANAGEMENT. (3-3). Credit 4. Basic knowledge from marine ichthyology, biology of fishes and biological oceanography related to applied aspects of marine fisheries sciences. Emphasis placed on management techniques applicable to tidal-influenced inland water, estuaries, and oceans. Prerequisite: Approval of instructor.

450. DEVELOPMENTAL BIOLOGY OF MARINE ORGANISMS. (3-3). Credit 4. Patterns and mechanisms of development in animal embryos (from sea urchins to mammals) at the molecular, cellular, and tissue levels. Emphasis on cellular differentiation via gene expression. Laboratory includes fixed sections and observations of live animals. Prerequisites: BIOL 113-124; curriculum junior or approval of instructor. Completion of MARB 301 is recommended. Completion or enrollment in MARB 310 is recommended.

454. ORNAMENTAL FISH HEALTH MANAGEMENT. (3-0). Credit 3. Maintenance and health care of ornamental fish in closed recirculating systems; aquariology, anatomy and physiology, nutrition, immunology,

infectious and noninfectious diseases, checklists, quarantine procedures and health maintenance of ornamental fish. Prerequisites: MICR 351 and MARS 360.

460. FISHERIES POPULATION DYNAMICS. (3-3). Credit 4. An introduction to the behavior of populations. Classical and recent population theories will be discussed in lecture. In lab, extant and programs written by students will be used to explore population behavior and interactions. Prerequisties: Senior status, MATH 151 or instructor approval.

466. EVOLUTIONARY BIOLOGY. (3-0). Credit 3. A conceptual examination of evolutionary theory, not a survey of specific organismal evolutions. Evidence for the abiotic origin of life is presented, followed by a discussion of micro-evolutionary (including drift and natural selection) and macro-evolutionary (including evolutionary trends) mechanisms. The course concludes with application of these concepts to human evolution. Prerequisites: BIOL 113 and 114. MARB 301 is recommended but not required.

481. SEMINAR IN MARINE BIOLOGY. (1-0). Credit 1. Critique of articles from the current biology literature. Emphasis placed on evaluation of methods and results reported in scientific papers. Prerequisites: Curriculum junior or approval of instructor.

482. SEMINAR IN MARINE BIOLOGY. (1-0). Credit 1. Compilation of literature pertaining to topics in marine biology. Emphasis placed on preparation of a written report and presentation of a synopsis of that report. Prerequisites: Curriculum junior or approval of instructor.

484. UNDERGRADUATE INTERNSHIP. Credit 1-9. Supervised study in a research or teaching laboratory within or outside of the Texas A&M University System. Student involvement is to consist of real-life learning or marine biological research, teaching, management, or a combination of these. Prerequisites: junior classification or approval of instructor.

485. DIRECTED STUDIES. Credit 1-6 per semester. Special topics and problems in field and/or laboratory work suited to analysis by individuals or small groups concerning aspects of marine biology. Usually requires a report describing techniques and results. Only 3 credit hours may be used in the degree plan curriculum. Prerequisites: 2.25 GPR, curriculum sophomore and approval of instructor.

489. SPECIAL TOPICS IN MARINE BIOLOGY. Credit 1-4. Study of selected topics in an identified area of marine biology. Prerequisite: Curriculum junior or approval of instructor.

Marine Engineering Technology (MARE)

100. MARINE ENGINEERING FUNDAMENTALS. (2-3). Credit 3. A study of basic marine engineering systems, with emphasis on propulsion plants. Introduction to propulsion plant machinery, watchstanding organization and duties, shipboard safety practices and equipment.

180. BASIC MACHINE SHOP TECHNIQUES. (0-3). Credit 1. Safety, care of machines and hand-tools, cutting speeds and feeds, measuring instruments, gauging, standard machine tool work in metals, layouts, drilling, tapping, threading, vertical and horizontal milling and shaving.

200. BASIC OPERATIONS. Credit 4. Practical application of student's classroom studies while at sea on training ship during sea-training period. Student required to complete several projects relating to engineering plant of ship. Prerequisite: NAUT 103.

203. DIESEL ENGINE TECHNOLOGY. (2-3). Credit 3. Basic principles of two- and four-stroke diesel engines; intake, scavenging and exhaust systems, injection systems; starting and reversing methods; cooling and lubricating systems; engine room layout in modern motor vessels.

205. ENGINEERING MECHANICS I. (3-0). Credit 3. Statics, basic vector operations, mechanics of particles and rigid bodies. Center of gravity, analysis of structures, friction, moments of inertia. Prerequisite: MATH 151, PHYS 218.

206. ENGINEERING MECHANICS II. (3-0). Credit 3. Dynamics; scalar and vector solutions of relative linear velocities and acceleration; kinetics; dynamics of translation and rotation; work; energy; impact; momentum. Prerequisite: MARE 205.

207. ELECTRICAL POWER I. (3-3). Credit 4. Application of electromagnetic principles to AC and DC circuits including: batteries, DC motors and generators, AC motors and generators, balanced three-phase systems, transformers, and electrical instruments. Prerequisite: PHYS 208.

209. MECHANICS OF MATERIALS. (3-0). Credit 3. Introduction to the study of stresses, strains, and deformation of a solid body which results when static forces are applied. Transformation of stresses and strains, torsion, beam deflection, and combined loadings are discussed. Prerequisite: MARE 205.

280. WELDING TECHNIQUES. (0-3). Credit 1. To introduce students to the materials, equipment and techniques of welding and brazing and to develop skills required by the marine engineer for this work in the engine room of commercial ships.

285. DIRECTED STUDIES. Credit 1-3 each semester. Special problems in marine engineering technology not covered by any other course in the curriculum. Work may be in either theory or laboratory. Prerequisite: Approval of department head.

289. SPECIAL TOPICS. Credit 1-4 each semester. Selected topics in an identified area of marine engineering technology. May be repeated for credit. Prerequisite: Approval of instructor..

295. ELECTROMECHANICAL SYSTEMS FOR MARINE TECHNOLOGISTS. (3-0). Credit 3. Practical solutions of physical models of electromechanical systems; steady state and transient response of linear electrical and mechanical systems; elements of periodic and random excitations and techniques for practical solutions; computer modeling of elementary continuous systems. Prerequisites: MATH 161 and PHYS 218; PHYS 208 or registration therein.

300. INTERMEDIATE OPERATIONS. Credit 4. Training program for second sea-training period. Sea project required of each student under supervision of officer-instructors. Lifeboat and safety training.

303. MARINE THERMODYNAMICS I. (3-0). Credit 3. Energy concepts. First and second law of thermodynamics. Carnot and Rankine principles and reversible heat cycles. Properties and processes of vapors, vapor-power cycles, and vapor refrigeration cycles. Prerequisite: MATH 161.

304. MARINE THERMODYNAMICS & HEAT TRANSFER. (3-2). Credit 4. Advanced topics in gas dynamics: flow through nozzles and through compressor and turbine blades, compressible duct flow with friction. Study of gas mixtures and chemical combustion. Thermodynamics of propulsion systems, elements of heat transfer and heat exchanger analysis. Prerequisite: MASE 303.

305. FLUID MECHANICS THEORY. (3-2). Credit 4. Theory of incompressible and compressible fluid flow, introduction to fluid power systems and controls, and dynamics of turbomachinery. Mathematical analysis of piping systems to determine pump head, system resistance, and pipe sizing optimization. Topics include physical properties of fluids, continuity equation, Bernoulli's Equation, Darcy's Equation, series and parallel flow, relative roughness, friction factors, dimensional analysis, and laws of similitude.

306. ELECTRICAL POWER II. (2-2). Credit 3. Shipboard electric power generation and distribution; switchboard instrumentation, controls and safety devices; motor controllers and safety devices; operation, maintenance and repair procedures and practices. AC and DC electric ship propulsion systems. Prerequisite: MARE 207.

307. MARINE ELECTRONICS. (3-0). Credit 3. Introduction to the theory of electronic circuits. Fundamentals and basic concepts of semiconductors; solid-state components; power supplies; amplifiers; inverters; rectifiers; oscillators; digital and linear integrated circuits. Applications in automation, motor controllers, battery-charging systems, communications, and propulsion plant performance monitoring systems.

309. MARINE CONSTRUCTION MATERIALS. (3-3). Credit 4. Introduction to materials science; study of the properties of materials as related to marine engineering design and applications. Laboratory includes experimental testing of material properties and heat treatment techniques. Prerequisite: MASE 209.

311. STEAM PROPULSION PLANTS. (2-2). Credit 3. Comprehensive study of fossil fuel steam generators, propulsion turbines and condensers, reduction gears, line shafting. Studies include internal fittings and fluid flow paths, automatic controls; regulatory requirements for safety device settings, and system tests and inspections. Additional topics include boiler water-feed water test and treatment, and turbine/reduction gear lubrication.

Laboratory includes computer-aided heat balance and parametric analysis of plant performance. Prerequisite: MARE 304, 305.

312. DIESEL PROPULSION PLANTS. (2-2). Credit 3. Comprehensive study of diesel propulsion plants, including direct-drive low speed diesels, geared medium speed diesels, waste heat recovery systems, engine reversing methods, and heavy fuel processing, Laboratory includes computer-aided parametric analysis of engine performance and use of a low-speed diesel propulsion plant simulator. Prerequisite: MARE 304, 305.

395. ELECTROMECHANICAL SYSTEMS FOR TECHNOLOGISTS. (3-0). Credit 3. Practical solutions of physical models of electromechanical systems; steady state and transient response of linear electrical and mechanical systems; elements of periodic and random excitations and techniques for practical solutions; computer modeling of elementary continuous systems. Prerequisite: MATH 161, PHYS 218, 219 or 208.

400. ADVANCED OPERATIONS. Credit 4. Training program for third sea-training period. At the end of this period each student will have achieved the knowledge and will have demonstrated the ability to take complete charge of a modern marine power plant while underway at sea.

401. MARINE AUXILIARY SYSTEMS. (2-2). Credit 3. Study of the principal shipboard auxiliary systems, including: auxiliary fired-boilers, sea water service, ballast, freshwater service, lubricating oil, fuel oil storage and transfer, distilling, and steering systems. Major components, operation and maintenance, and interrelationship with other auxiliary systems are covered. Additional topics include steam turbine, gas turbine, and diesel-driven electric power generators and support systems, as well as propulsion train power take-off type electric power generation systems. Prerequisites: MARE 304, 305.

402. SHIPBOARD AUTOMATION AND CONTROL. (3-0). Credit 3. Study of automation in marine power plants; including electronic and pneumatic proportional, integral and derivative control elements; applications in boiler combustion and water level control; engine speed control; remote sensing and performance monitoring systems. Prerequisites: MARE 307, 311, 312.

403. MARINE TECHNOLOGY AND THE ENVIRONMENT. (3-0). Credit 3. Study of environmental protection requirements such as the Oil Pollution Act of 1990, Code of Federal Regulations, and international agreements and conventions addressing prevention of pollution of the seas by oil and sewage. In addition, atmospheric pollution from propulsion plant exhaust gas is addressed. Ships' structure and systems, operational requirements, and licensed-officer liabilities are discussed.

404. MARINE AIR CONDITIONING & REFRIGERATION. (3-0). Credit 3. Study of refrigeration processes, refrigerants, psychometrics, air conditioning and refrigeration systems, and operation and maintenance of AC&R systems. Prerequisite: MARE 304.

405. FUNDAMENTALS OF NAVAL ARCHITECTURE. (3-0). Credit 3. Ship geometry and arrangement; ship-form calculations; intact and damaged stability; ship's structure; fundamentals of resistance and propulsion; ship motion, maneuverability, and control; introduction to ship design, construction, and overhaul. Prerequisite: MASE 309.

406. MARINE ENGINEERING TECHNOLOGY PROJECTS. (3-0). Credit 3. Team approach to analysis and design of basic marine industry-level projects, in particular marine propulsion plants including efficiency enhancement for conventional steam and diesel plants, regenerative and steam injected gas turbine propulsion plants, and combined cycle plants. Additional topics include transmission and drive systems, and propulsors; integration of concepts learned in previous required courses; capstone learning experience. Prerequisites: MARE 311, 312, and MARE 401.

485. DIRECTED STUDIES. Credit 1-3 each semester. Special problems in marine engineering technology not covered by any other course in the curriculum. Work may be in either theory or laboratory. Approval of department head.

489. SPECIAL TOPICS. Credit 1-4 each semester. Selected topics in an identified area of marine engineering technology. May be repeated for credit. Prerequisite: Approval of instructor.

Marine Sciences (MARS)

101. INTRODUCTION TO MARINE SCIENCES. (1-0). Credit 1. A non-technical introduction to the field of marine sciences, including biology, ocean activities, and marine industries. Course includes lectures, seminars, outside speakers, and industrial contacts.

250. BASIC PROGRAMMING. (2-2). Credit 3. Introduction to microcomputer business and data applications. Fundamental concepts of information technology and algorithm development. Use of integrated wordprocessing, spreadsheet and database applications software to solve science and/or business problems.

280. COASTAL AND OCEAN RESOURCES. (3-0). Credit 3. Resources from the ocean including food, minerals, transportation and recreation. Methods of recovery and utilization of resources from the ocean, efficiency and cost effectiveness. Provides a foundation for understanding the wealth of resources available from the ocean and its margins, to include the impact of human activity on these resources.

285. DIRECTED STUDIES. Credit 1-6 each semester. Special topics and problems suited to analysis by individuals or small groups concerning special aspects of marine sciences. Prerequisite: Approval of department head.

289. SPECIAL TOPICS IN MARINE SCIENCES. Credit 1-4. Study of selected topics in an identified area of marine sciences. Prerequisite: Approval of instructor.

305. PALEONTOLOGY. (2-3). Credit 3. Analysis of history of life and processes controlling it; study of groups of organisms important in the marine fossil record; application of paleontology to geologic problems. Field trips required. Prerequisite: GEOL 104, junior standing or permission of the instructor.

306. STRATIGRAPHY AND SEDIMENTATION. (3-3). Credit 4. Principles of stratigraphy and study of environments of deposition. Laboratory work in sampling, analyzing, and interpreting sedimentary rocks. Field trips required. Prerequisite: GEOL 104, junior standing or permission of the instructor..

310. FIELD METHODS IN MARINE SCIENCES. (1-6). Credit 3. Techniques of documenting collected materials, the methods of reconnaissance and the mapping of traverses in the major coastal environments. Sampling and recording techniques, interview procedures, and the use of maps and remotely sensed imagery will be introduced. Prerequisites: CHEM 102, PHYS 202 or PHYS 208, GEOL 104, junior standing or permission of the instructor.

330. PETROLEUM GEOLOGY. (3-0). Credit 3. Origin, migration and accumulation of petroleum. Reservoir rock, traps, accumulation and conditions, and subsurface methods. Prerequisite: GEOL 104, junior standing or permission of the instructor.

340. GEOCHEMISTRY. (3-0). Credit 3. Chemical principles and processes that govern the behavior of geologic materials. Silica and carbonate low temperature equilibrium and kinetics. Prerequisites: CHEM 102, GEOL 104, junior standing or permission of the instructor.

360. BIOCHEMISTRY. (3-0). Credit 3. General introductory biochemistry; structures of lipids, saccharides and nucleotides; amino acids and protein structure; relationship of protein structure to biochemical reactivity; kinetics (and inhibition) of enzyme-catalyzed reactions; membrane phospholipids and glycoproteins and the structure and function of membranes; catabolic reaction pathways of monosaccharides and fatty acids; oxidative phosphorylation. Prerequisites: BIOL 114, CHEM 228, junior standing or permission of the instructor.

370. COASTAL PROCESSES. (3-0). Credit 3. Introduction to the coastal system, waves and wave-dominated coasts, shoreline morphodynamics, tidal and lake coasts, long-term coastal development, sea level changes, subtidal and beach ecosystems, coastal dunes and wetlands, structures and organizations, coastal management, and coastal hazards. Prerequisite: GEOL 104, junior standing or permission of the instructor.

375. SCIENCE OF FLUIDS. (3-0). Credit 3. Classical fluid mechanics; fundamental physical principles. Fluid statics, principles of fluid motion, frictionless flow, surface waves, viscous flows, turbulence, molecular basis of fluid mechanics. Prerequisites: MATH 251, PHYS 218, junior standing or permission of the instructor.

376. INTRODUCTION TO UNIX AND C. (3-0). Credit 3. Introduction to the Unix operating system and C-Language programming in a multi-user networked environment. Prerequisite: Junior standing or permission of the instructor.

380. INTRODUCTION TO PHYSICAL CHEMISTRY. (3-0). Credit 3. Classical thermodynamics with applications to gases, liquids, solutions, and phase equilibria. Kinetics and transport properties of gases. Statistical mechanics, spectroscopy, instrumentation, and quantum theory at the survey level. Prerequisites: CHEM 102, MATH 151, junior standing or permission of the instructor.

405. WATERBORNE TRANSPORTATION OF HAZARDOUS CHEMICALS. (3-0). Credit 3. Basic concepts associated with the transportation of hazardous chemicals in congested port areas, along the nation's inland waterways, and at sea. Special emphasis on the hazards of fire, health, air and water pollution and chemical reactivity. Promulgation of safe operating practices by industry, the USCG and IMO. Prerequisite: CHEM 101, junior standing or permission of the instructor.

410. INTRODUCTION TO PHYSICAL OCEANOGRAPHY. (3-0). Credit 3. Introduction to elements of the physics of the ocean; descriptive aspects and theoretical explanations of circulation, characteristic structure, and waves. Prerequisites: MATH 251, PHYS 208, junior standing or permission of the instructor.

415. REMOTE SENSING TECHNOLOGY. (3-0). Credit 3. An introduction to the uses of remote sensing technology in the marine sciences, including electromagnetic, acoustic, and seismic methods. Generation, transmission, and reception methods. Active and passive systems, multispectral techniques, and signal analysis systems. Prerequisites: PHYS 202 or 208, BIOL 114, junior standing or permission of the instructor.

430. INTRODUCTION TO GEOLOGICAL OCEANOGRAPHY. (3-0). Credit 3. Introduction to geological processes in the marine system: Physiographic provinces, origin and evolution of basins, shelves, slopes, and beaches. Geological sampling and geophysical methods; coastal beach and estuarine processes. Prerequisites: GEOL 104, junior standing or permission of the instructor.

435. EXPLORATION GEOPHYSICS. (3-0). Credit 3. Physiomechanical properties of rocks and sediments. Seismic reflection and refraction principles applicable to offshore, coastal and onshore exploration. Determination of media velocity and stratigraphy from reflection and refraction studies in both marine and non-marine systems. Prerequisites: PHYS 202 or PHYS 208, GEOL 104, MATH 151 or approval of instructor.

440. INTRODUCTION TO CHEMICAL OCEANOGRAPHY. (3-0). Credit 3. Introduction to chemical processes in the marine environment. Composition of sea salt, chemical specification of dissolved material in the ocean. Biogeochemistry of oxygen, major elements, nutrient elements, and some trace metals in the surface and deep ocean. Formation, chemical composition, and alterations of detrital material and marine sediments. Simple models which relate ocean chemistry to the circulation of identifiable masses of water. Radioisotopes and stable isotopes in chemical oceanography. Prerequisite: CHEM 102, junior standing or permission of the instructor.

450. ELECTRICAL AND PHYSICAL MEASUREMENTS. (2-3). Credit 3. Study of basic instrumentation pertinent to marine sciences and biology as well as simple circuit design and digital electronics. Laboratory emphasizes spectroscopy, environmental measurements, and basic oceanographic measurements. Prerequisites: CHEM 102, PHYS 202 OR PHYS 208, MATH 151, junior standing or permission of the instructor.

481. SEMINAR. (1-0). Credit 1. Problem-oriented discussion session. Topics and reports selected for current relevance. May be repeated once only for credit. Prerequisite: Junior standing or permission of the instructor.

484. UNDERGRADUATE INTERNSHIP. Credit 1-6. Supervised study in a research or teaching laboratory within or outside of the Texas A&M University System. Student involvement is to consist of real-life learning or marine sciences research, teaching, management or a combination of these. Prerequisites: Junior standing or permission of the instructor and approval of the department head.

485. DIRECTED STUDIES. Credit 1-6 each semester. Special topics and problems suited to analysis by individuals or small groups concerning special aspects of marine sciences. Prerequisites: Junior standing or permission of the instructor. Approval of department head.

489. SPECIAL TOPICS IN MARINE SCIENCES. Credit 1-4. Study of selected topics in an identified area of marine sciences. Prerequisite: Junior standing or permission of the instructor.

Marine Transportation (MART)

285. DIRECTED STUDIES. Credit 1-4. Directed study in problems in marine transportation not covered by other courses in the department. Prerequisite: Approval of department head.

289. SPECIAL TOPICS IN MARINE TRANSPORTATION. Credit 1-3. Study of selected topics in an identified area of marine transportation or nautical science. Prerequisite: Approval of department head.

301. OCEAN TRANSPORTATION I. (4-0). Credit 4. Examination of theory and practice in the management of transportation logistics, labor, rate-making, role of government, international conventions and treaties. Exposure to current trends and developments in shipping. Prerequisites: MART Students - NAUT 103 and 201, ECON 202 or concurrent enrollment. MARA students - NAUT 205, ECON 202 or concurrent enrollment.

302. MARINE CARGO OPERATIONS I. (3-0). Credit 3. Objectives and problems with break-bulk cargo handling during loading, discharging, and in-transit carriage. Requirements of special refrigerated and dangerous cargoes. Heavy lift operations with conventional cargo gear and its restraints. Cargo loss prevention, safety and related documentation, as well as log book entries, modern cargo concepts-containerization, roll-on roll-off, lash, and others. Maximum cargo efficiency with relation to space, cargo gear, crew and labor costs. Practical cargo gear use and cargo observations during lab periods. Prerequisite: NAUT 200, 202, 301 or concurrent enrollment.

304. OCEAN TRANSPORTATION II. (3-0). Credit 3. Marine insurance problems and cases and how they relate directly to a ship's officer. Hull, cargo, and personal injury cases are examined from the officer's and insurers' points of view. Introduction to Admiralty Law and the court process for seamen's rights and ship owner's privileges. Actual hearings and trials are observed to complete the background. Prerequisite: MART 301 or approval of department head.

321. MARITIME LAW I. (2-0). Credit 2. Basic laws governing vessel navigation; International and U.S. Inland Rules for the prevention of collision at sea, and the safety of life at sea convention. Prerequisite: NAUT 200.

406. MARINE CARGO OPERATIONS II. (3-2). Credit 4. Principles and practice of bulk liquid, gas handling, and carriage by water craft. Theoretical and practical problems involved in loading, stowing and discharging of petroleum, chemical, elevated temperature and cryogenic cargoes. Marine pollution abatement, personnel safety, and firefighting techniques and systems. Prerequisites: MART 302, NAUT 300.

416. PORT OPERATIONS, ADMINISTRATION AND ECONOMICS. (3-0). Credit 3. Concepts of the port and methods of intermodal transfer. Port functions divided and analyzed along business lines: economics, management, finance, accounting, and marketing. Cost studies. Prerequisite: ECON 452, MART 301, MGMT 105, or approval of MART department head.

421. MARITIME LAW II. (3-0). Credit 3. Essential principles of admiralty, general maritime, and international law as applicable to the marine industry and ocean shipping. Evolution and state of the law concerning maritime liens, ship mortgages, rights of seamen and harbor workers, limitation of liability, bills of lading and cargo carriage, collision liability, general average, marine salvage, charter parties, and international rights and responsibilities of ships and shipping. Prerequisites: MART 301, 321, OR MARA 212.

485. DIRECTED STUDIES. Credit 1-4. Directed study in problems in marine transportation not covered by other courses in the department. Prerequisite: Senior classification or approval of department head.

489. SPECIAL TOPICS IN MARINE TRANSPORTATION. Credit 1-3. Study of selected topics in an identified area of marine transportation or nautical science. Prerequisite: Approval of MART department head.

Maritime Administration (MARA)

212. BUSINESS LAW. (3-0). Credit 3. Legal principles of business, legal reasoning, dispute resolution and procedure, contract law, bankruptcy law, property law, Uniform Commercial Code sections concerning contracts, security interests, negotiable instruments and sales. Prerequisite: sophomore classification.

285. DIRECTED STUDIES. Credit 1-4. Directed study on selected problems in the area of Maritime Administration not covered in other courses. Prerequisite: Approval of MARA department head.

289. SPECIAL TOPICS. Credit 1-3. Study of selected topics in an identified area of Maritime Administration.

363. THE MANAGEMENT PROCESS. (3-0). Credit 3. Management as an academic discipline; goal setting; planning, controlling and decision-making; models for thinking about organizations; organization design; organization change; models for understanding individual behavior; job performance and job satisfaction; interpersonal behavior, motivation and leadership, behavior in work groups; careers in management, ethics and international management. Prerequisite: Junior classification.

373. HUMAN RESOURCE MANAGEMENT. (3-0). Credit 3. Strategic issues in managing human resources; shared responsibilities of line managers and human resource staff for developing and implementing human resource policies and procedures; human resource planning; job design, analysis and evaluation; staffing; compensation; performance appraisal; training and development career management; labor relations; legal, ethical and international issues. Prerequisites: MARA 363 or approval of instructor.

401. BROKERAGE AND CHARTERING. (3-0). Credit 3. Operational and legal environment of ship brokerage and chartering; responsibilities of owner and charterer under various charter forms; American, British and Canadian acts governing charters and bills of lading; rules and regulations concerning loading and discharging. Prerequisites: ECON 203.

402. INLAND WATERWAYS. (3-0). Credit 3. Development of inland waterways of the U.S. and federal policies relating to them. Port and terminal development, competition with other transportation forms, manpower, rates, environmental concerns and the impact of waterway systems on regional economies. Prerequisites: ECON 203.

424. ECONOMICS OF TRANSPORTATION. (3-0). Credit 3. Historical development, structure, function, and regulation of highway, rail, water, pipeline, and air transportation systems. Application of economic concepts and principles to transportation development and operations. Prerequisite: ECON 203 and senior classification or approval of instructor.

435. LABOR LAW AND POLICY. (3-0). Credit 3. Federal and state public policy and laws regulating human resource management including National Labor Relations Act, Railway Labor Act, Fair Labor Standards Act, employment discrimination statutes, statutes regarding public sector unionization, and other relevant legal authorities; various forms of dispute settlement including litigation, mediation, fact finding and arbitration; legal ramification of strategic human resource management decision making. Prerequisite: Senior classification or approval of instructor.

460. MANAGEMENT SYSTEMS AND CONTROL. (3-0). Credit 3. Application of management processes to complex interdisciplinary organizational environments through the study of program and project management. Adoptions of traditional management theories to the project environment. Student will be expected to master typical project management microcomputer software for project planning; resource allocation; project budgeting; and control of project cost, schedule and performance. Prerequisites: BANA 364, MARA 363 or approval of instructor.

466. STRATEGIC MANAGEMENT. (3-0). Credit 3. Strategic issues facing organizations, including top management decision making and social responsibility; environmental and industry analysis; establishing organizational mission and objectives; corporate, business and functional level strategy formulation; global and multidomestic strategies; strategic implementation and control; integrating operations, finance, marketing and human resource strategies; case analysis. Prerequisites: MARA 363, MKTG 321, BANA 364, FINC 341, and senior classification.

470. ENVIRONMENTAL LAW. (3-0). Credit 3. Designed to provide a broad background of basic statutes, regulations, and cases dealing with the major issues in international and federal environmental law. Specifically, the course will focus on pragmatic training in statutory, regulatory, and treaty reading and interpretation; analysis of administrative and legislative intent for law. Prerequisites: Senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit 1-4. Directed study on selected problems in the area of Maritime Administration not covered in other courses. Prerequisite: Approval of MARA department head.

489. SPECIAL TOPICS. Credit 1-3. Study of selected topics in an identified area of Maritime Administration.

Maritime Systems Engineering (MASE)

213. Principles of Materials Engineering. (2-2) Credit 3. Description of properties of materials using a unified approach; discussion of the chemical structure, crystalline structure, mictostructure, interface structure, and phase diagrams for materials; develop bulk properties and characteristics of metals, polymers, and ceramics; mechanical, electrical, matnetic, thermal, and optical properties for these mateerials. Prerequisites: ENGR 211, 212; PHYS 208; MATH 308 or registration therein.

214. Conservation Principles of Continuum Mechanics. (2-2) Credit 3. Discussion of continuous media using a unified approach; conservation laws, fundamental concepts, and examples of their use: heat conduction, Newtonian fluids, linear elastic solids; axial bars, torsion, shear and moment diagrams, beam bending. Prerequisites: ENGR 211, 212; MATH 308 or registration therein.

215. PRINCIPLES OF ELECTRICAL ENGINEERING (2-2). Credit 3. Fundamentals of electric circuit analysis, AC power, and electronics; intended as a terminal course in these areas for most engineering disciplines. Prerequisites: ENGR 211, 212; PHYS 208.

285. DIRECTED STUDIES. Credit 1-8. Directed study on selected current problems in the ocean and/or maritime industry. Offered to enable individuals or groups to undertake and complete with credit some specialized investigation not covered by other courses. Prerequisite: Approval of department head.

301. DYNAMICS OF WAVES AND STRUCTURES. (3-0). Credit 3. Prediction of loads due to wind, current, and waves; introduction to concepts of linear structural dynamics and to the design of ocean structures; mooring and towing analysis; fluid-structure interactions; vibration of submerged structures. Prerequisites: CVEN 345; OCEN 300 or concurrent enrollment therein.

310. ENGINEERING ANALYSIS. (3-0). Credit 3. Application of numerical methods to ocean-related engineering problems; development, evaluation, and comparison of various techniques for root finding, curve fitting, numerical integration, simultaneous linear algebraic equations, matrix methods, probability and statistics, and ordinary differential equations in ocean-related engineering applications. Prerequisites: ENGR 109 AND MATH 308.

319. NAVAL ARCHITECTURE DESIGN I. (2-3). Credit 3. Introduction to Naval Architecture. Terminology. Hydrostatics and hydrostatic stability. Processes of the design of ships, semi-submersibles and underwater vehicles including layout, arrangements, construction and construction techniques. Hull design of ships, underwater vehicles and mobile offshore drilling units (MODUs). acu. Prerequisites: MASE 205, CVEN 311.

336. FLOW MEASUREMENT FUNDAMENTALS. (2-2). Credit 3. Introduction to fundamental principles of measuring fluctuating velocities in flows, emphasis on the properties of lasers particularly relevant to Laser Doppler Measurements; probe methods for velocity measurement. The laboratory includes the experimental investigation of surface waves and classic fluid dynamic problems. Prerequisites: PHYS 219.

401. UNDERWATER ACOUSTICS. (3-0). Credit 3. Fundamentals of underwater acoustics, SONAR equations, propagation of underwater sound, acoustic transducers and arrays, noise in the ocean environment, design and prediction of SONAR systems, ocean engineering applications of underwater sound. Prerequisites: CVEN 311.

405. FINITE ELEMENT ANALYSIS IN ENGINEERING DESIGN. (3-0). Credit 3. Introduction to the fundamental theory and techniques; direct approach and energy formulation; element equations, assembly and solution schemes; computer implementation, design considerations; applications to field problems; original computer project required. Prerequisites: MASE 209, CVEN 345, MASE 310.

407. DESIGN OF OCEAN ENGINEERING FACILITIES. (1-6). Credit 4. Design of structures, equipment and systems for the ocean; environmental, logistical, and reliability requirements. Complete design process followed through a group design project. Delineation of alternatives, constraints, economics and environmental consequences included to strengthen real-life problem solving skills. Prerequisite: OCEN 300, 400.

410. MEASUREMENTS IN THE OCEAN LABORATORY. (0-3). Credit 1. Fundamental techniques and instrumentation for field and laboratory measurements pertaining to ocean engineering (e.g., temperature, depth, force, currents, wave height, sound velocity, surveying, etc.) experiment planning; data analysis and data presentation; written reports describing planning, analysis and results of experiments. Prerequisites: MASE 301, OCEN 400 and MASE 401 or registration therein.

411. ENVIRONMENTAL NEARSHORE HYDRODYNAMICS. (3-0). Credit 3. Fundamentals of current and shallow water wave motions. Beach response to nearshore processes. Coastal sediment and pollutant transport including nearshore currents, longshore onshore-offshore transport and shoreline configuration; facilities for shoreline stabilization, backshore protection and inlet stabilization. Environmentally conscious coastal engineering design is emphasized. Prerequisite: OCEN 300.

415. OFFSHORE STRUCTURE DESIGN. (3-0). Credit 3. Design of large structures using diffraction analysis. Design project: Design of a fixed offshore structure including dynamics effects. Prerequisite: MASE 301.

421. NAVAL ARCHITECTURE DESIGN II. (2-3). Credit 3. Ship motion and mooring. Theory and practice of naval architecture, basic principles and design calculations. Hull structural design considerations, ship resistance and propulsion power prediction, propeller selection concepts, dynamic positioning systems, mobile offshore drilling unit (MODU) design considerations, practical design work on a vessel or MODU of the student's choosing under the guidance of the instructor. Prerequisites: MASE 319, CVEN 346, OCEN 462.

459. MECHANICAL VIBRATIONS. (3-0). Credit 3. Basic theory of vibrating systems with single and multiple degrees of freedom and principles of transmission and isolation of vibrations. Prerequisite: MASE 206.

461. ELECTRONIC INSTRUMENTATION. (2-2). Credit 3. For non-electrical engineering majors. Applications of electronic instruments to research problems in field of measurements and control systems. Prerequisites: MATH 308, PHYS 219.

482. SEMINAR. (1-0). Credit 1. State of technology topics in ocean engineering; professional ethics, membership in professional societies and professional registrations; case studies and lectures presented by staff and practicing engineers. Prerequisite: Junior and Senior Classification.

483. MARINE FOUNDATION ANALYSIS AND DESIGN. (3-3). Credit 4. Design of foundations for onshore, alongshore, and offshore structures, including prediction of settlement and the bearing capacity of shallow and deep foundations; determination of earth pressure acting on retaining structures and design of steel and concrete bulkheads; design of pile foundations; and design of cofferdams and caissons. Laboratory tests conducted to determine the physical and engineering properties needed for application in geotechnical engineering design. Prerequisites: CVEN 344, CVEN 345, AND CVEN 346, CVEN 365.

485. DIRECTED STUDIES. Credit 1-8. Directed study on selected current problems in the ocean and/or maritime industry. Offered to enable individuals or groups to undertake and complete with credit some specialized investigation not covered by other courses. Prerequisite: Approval of department head.

Maritime Studies (MAST)

285. DIRECTED STUDIES. Credit (1-6). Individually supervised research or advanced study on restricted area not covered in regular courses.

289. SPECIAL TOPICS. Credit (1-4). Selected topics in a identified area of maritime studies. May be repeated for credit.

411. INTERNATIONAL MARITIME CULTURE. (3-0) Credit 3. Strategies used in the exploitation of marine, coastal, and island habitats throughout human evolutionary history and the variety and complexity of adaptations in such environments. Classes will be devoted to lectures and group discussions with occasional slide or movie presentations.

481. SEMINAR IN MARITIME STUDIES. (1-0). Credit 1. This course is intended to provide students with the opportunity to conduct in-depth research on a particular issue, event, period, or people in maritime studies. This one-credit hour course is open to senior maritime studies majors or those who obtain instructor's approval.

485. DIRECTED STUDIES. Credit (1-6). Individually supervised research or advanced study on restricted area not covered in regular courses.

489. SPECIAL TOPICS. Credit (1-4). Selected topics in a identified area of maritime studies. May be repeated for credit.

Marketing (MKTG)

321. MARKETING. (3-0). Credit 3. Institutions, processes, and problems involved in transferring goods from producers to consumers; economic and social aspects. Prerequisite: ECON 202 and junior classification.

Mathematics (MATH)

102. ALGEBRA. (3-0). Credit 3. Sets, structure of number system. Absolute values, solution sets of equations of second and higher degree, of systems of equations, and of inequalities. Relations and functions, graphical representations, variation, progressions, mathematical induction, determinants.

106. PLANE AND SPHERICAL TRIGONOMETRY. (4-0). Credit 4. Definitions of trigonometric functions; evaluation of functions of special angles, fundamental relations; solution of triangles; trigonometric reductions; angular measure; functions of composite angles; logarithms, inverse trigonometric functions; trigonometric equations; basic ideas and formulas of spherical trigonometry; solution of spherical trigonometry; solution of spherical triangles, application to terrestrial and astronomical triangles.

150. FUNCTIONS, TRIGONOMETRY, AND LINEAR SYSTEMS. (3-2). Credit 4. Graphs, functions, college algebra and trigonometry, linear systems and vectors.

151. ENGINEERING MATHEMATICS I. (3-2). Credit 4. Rectangular coordinates, analytical geometry, functions, limits, derivatives of functions, applications, integration, areas and volumes by integration. Prerequisites: High school algebra, trigonometry and geometry or satisfactory performance on qualifying exam. Credit will not be given for more than one of MATH 121, 131 142, 151, and 171.

161. ENGINEERING MATHEMATICS II. (3-0). Credit 3. Differentiation and integration techniques and their applications, improper integrals, approximate integration, analytical geometry, infinite series, power series, Taylor series. Prerequisite: MATH 151 or equivalent.

166. TOPICS IN CONTEMPORARY MATHEMATICS II. (3-0). Credit 3. Finite mathematics, matrix theory, probability theory, game theory. Prerequisites: High school algebra I and II and geometry. Credit will not be given for more than one of MATH 141 and 166.

251. ENGINEERING MATHEMATICS III. (3-0). Credit 3. Vector calculus, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line integrals, Stoke's theorems. Prerequisite: MATH 152 or 161 or equivalent.

285. DIRECTED STUDIES. Credit 1 or more. Special problems in mathematics not covered by any other course in the curriculum. Work may be in either theory or laboratory. Prerequisite: Approval of department head.

308. DIFFERENTIAL EQUATIONS. (3-0). Credit 3. Linear ordinary differential equations, solutions in series, solutions using Laplace transforms, systems of differential equations. Prerequisite: MATH 251 or equivalent.

485. DIRECTED STUDIES. Credit 1 or more. Special problems in mathematics not covered by any other course in the curriculum. Work may be in either theory or laboratory. Prerequisite: Approval of department head.

Meteorology (METR)

302. WEATHER REPORTS AND FORECASTING. (3-0). Credit 3. Basic description of atmospheric characteristics and processes relevant to the understanding of weather patterns and atmospheric principles.

Microbiology (MICR)

351. FUNDAMENTALS OF MICROBIOLOGY. (3-4). Credit 4. Basic microbiology; comparative morphology, taxonomy, pathogenesis, ecology, variation and physiology of microorganisms. Prerequisites: CHEM 227, 237; three hours of biology; or approval of instructor.

Nautical Science (NAUT)

103. MARITIME ORIENTATION AND LIFESAVING. (2-3). Credit 3. Introduction to the maritime industry, the ships, the seaman, and the purpose of the U.S. Merchant Marine. Shipboard nomenclature, cargoes, and

recent trends in the marine industry. Practical lifeboat and lifesaving training for certification as Lifeboatman by the U.S. Coast Guard.

200. BASIC COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 4. Practical application of student's classroom studies aboard training ship during first training cruise. Student completes basic projects in communications, navigation, seamanship and rules of the road. Prerequisite: NAUT 103, 203, 204 or permission of MART department head.

201. NAVAL ARCHITECTURE I. (3-2). Credit 4. Description of ship as self-sustaining unit. Shipbuilding nomenclature and dimensions, types of construction, and classification of merchant ships. Classification societies, shipbuilding materials and methods, and structural components of ships. Prerequisite: NAUT 103.

202. NAVAL ARCHITECTURE II. (3-0). Credit 3. Ship's lines drawing and form calculations; principles of flotation and buoyancy; inclining experiments, free liquids, transverse stability; motion of ships in waves, seaway and dynamic loads, ship structure tests. Prerequisite: NAUT 201.

203. SEAMANSHIP I. (2-3). Credit 3. Intermediate lifeboat, lifesaving and firefighting procedures. Practical use in lab of manila lines, wire, splicing, knots, block and tackle, cargo gear, anchoring, mooring, and steering gear operations. Introduction to the International Rules of the Road. Projects aboard merchant, research and offshore oil vessels in the ports of Galveston and Texas City. Prerequisite: NAUT 103 or concurrent enrollment.

204. TERRESTRIAL NAVIGATION. (2-2). Credit 3. Fundamentals of piloting, chart construction and development, aids to navigation, useful publications, principles of magnetism and the magnetic compass, great circle, Mercator and middle latitude sailing. Prerequisite: Algebra and trigonometry recommended.

205. INTRODUCTION TO SHIPS AND SHIPPING. (3-2). Credit 4. Introduction to the maritime industry and ships used in transportation of goods and services. Shipboard nomenclature, types and missions of merchant ships, shipbuilding nomenclature and dimensions, shipbuilding materials and methods, modes of cargo handling and their impact on ship design.

300. INTERMEDIATE COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 4. Practical application of student's classroom studies aboard training ship during second training cruise. Student completes intermediate projects in communications, navigation, seamanship, and Rules of the Road. Thorough study made of U.S. Public Health requirements in first aid. Prerequisite: METR 302, NAUT 200, 301, 303 or permission of MART department head.

301. SEAMANSHIP II. (2-3). Credit 3. Mechanical appliances aboard ship, accident prevention, vessel sanitation, marine inspection laws and regulations, search and rescue procedures, communications. Prerequisite: NAUT 203 or concurrent enrollment.

302. SEAMANSHIP III. (1-3). Credit 2. Principles and methods of propulsion and steering of ships. Ship handling in narrow channels and heavy seas, docking, undocking, mooring and towing. Prerequisite: NAUT 202, 301 or concurrent enrollment.

303. CELESTIAL NAVIGATION. (2-3). Credit 3. Full range of celestial navigation. Survey of nautical astronomy, sight reduction, sextants, compass error determination, and solutions of the navigational triangle by various methods. Prerequisites: NAUT 200, 204 or permission of MART department head.

304. ELECTRONIC NAVIGATION. (2-2). Credit 3. Theory, operation and application of marine electronic navigation aids and systems; marine gyro compass, radio direction finder, Loran, Omega, Decca, satellite, echo sounder, Doppler and integrated navigation systems. Marine radar theory, operation and interpretation. Student examined for U.S. Coast Guard Certification as "Radar Observer" following completion of course. Prerequisite: NAUT 303.

306. RADAR/ARPA. (3-3). Credit 4. Introduction to the theory, operation and interpretation of marine radar and automatic radar plotting aids (ARPA). Student examined for U.S. Coast Guard Certification as "RADAR Observer" and for Standards of Training and Certification and Watchkeeping (STCW) Radar and ARPA endorsements. Minimum grade of 70% required for USCG andSTCW endorsements. Prerequisites: NAUT 200, PHYS 202 or approval of instructor.

400. ADVANCED COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 4. Practical application of student's classroom studies aboard training ship during third training cruise. Student completes advanced projects in communications, navigation, seamanship and Rules of the Road. Prerequisites: NAUT 200, 300, 302, 304; MART 321, 406.

404. THE NAVIGATOR. (2-3). Credit 3. Intensive, in-depth review of the principles of electronic, celestial, and terrestrial navigation in preparation for the U.S. Coast Guard examination for Third Mate. Prerequisites: NAUT 204, 304, 400.

Naval Science (NVSC)

101. INTRODUCTION TO NAVAL SCIENCE. (2-1). Credit 2. Sea power and the naval service; mission, organization, regulations, and broad warfare components of the Navy; overview of officer and enlisted rank and rating structures, procurement and recruitment, training and education, promotion and advancement, and retirement policies. Basic tenets of naval courtesy and customs, discipline, naval leadership, and ship's nomenclature. Major challenges facing Naval officers; areas of equal opportunity and drug/alcohol abuse. Prerequisite: Approval of department head.

102. LEADERSHIP AND MANAGEMENT I. (3-1). Credit 3. Principles of leadership and management and their application to the duties and responsibilities of a Junior Naval Officer; management theory, professional responsibility and human resource system programs; skills in leadership, goal setting and communication developed through guided participation in case studies and situational problems. Prerequisite: NVSC 101 or approval of department head.

104. NAVAL SHIP SYSTEMS I. (3-0). Credit 3. Introduction to naval ship systems. Types, structure, and purpose of naval ships; ship propulsion systems; auxiliary power systems; interior communication and damage control; elements of ship design and stability characteristics. Prerequisite: NVSC 101 or approval of department head.

200. NAVAL SCIENCE FOR THE MERCHANT MARINE OFFICER. (3-0). Credit 3. Organization of the U.S. Navy (including the Naval Control of Shipping Organization) with discussion of the Merchant Marine Naval Reserve commission in order to provide a sound basis for liaison between the U.S. Navy and the Merchant Marine. Seapower will be analyzed and Naval damage control procedures and underway replenishment procedures will be introduced.

201. LEADERSHIP AND MANAGEMENT II. (3-1). Credit 3. Practical applications of leadership and management as an academic discipline; interpersonal behavior and performance evaluation; skills in leadership, control, direction, planning, communication, counseling and discipline developed through guided participation in case studies and situational problems. Prerequisite: NVSC 102 or approval of department head.

204. NAVAL SHIP SYSTEMS II. (3-0). Credit 3. Theory and principles of operation of naval weapons systems; types of weapons and fire control systems, capabilities and limitations, theory of target acquisition, identification and tracking, trajectory principles, and basics of naval ordnance. Prerequisite: NVSC 102 or approval of department head.

285. DIRECTED STUDIES. Credit 1-3. Directed study in problems in the field of naval science not covered by other courses in department. Prerequisite: Senior classification and approval of department head.

302. NAVIGATION AND NAVAL OPERATIONS II. (2-2). Credit 3. Duties and responsibilities of the OOD (u/w), navigator and bridge watch team during routine and special at sea evolutions; relative motion, formations tactics, internationals and inland Rules of the Nautical Road and applied aspects of ship handling; familiarization with naval communications and messages. Prerequisite: NVSC 301.

485. DIRECTED STUDIES. Credit 1-3. Directed study in problems in the field of naval science not covered by other courses in department. Prerequisite: Senior classification and approval of department head.

Ocean Engineering (OCEN)

300. OCEAN ENGINEERING WAVE MECHANICS. (3-0). Credit 3. Physical and mathematical fundamentals of ocean wave behavior. Mechanics of wave motion. Use of statistics and probability to develop design wave criteria. Prerequisite: CVEN 311 or MEEN 213.

400. BASIC COASTAL ENGINEERING. (3-0). Credit 3. Mechanics of wave motion. Wave refraction, diffraction, and reflection. Wave forecasting. Shore processes. Planning of coastal engineering projects. Design of seawalls, breakwaters, and fixed offshore installations. Offshore pipelines. Dredging. Control of oil spills in estuaries and at sea. Prerequisite: CVEN 311; OCEN 300.

462. HYDROMECHANICS. (3-0). Credit 3. Kinematics of fluids, incompressible, irrotational and turbulent flow. Navier-Stokes equations, flow of viscous fluids. Prerequisites: CVEN 311; MATH 308.

Oceanography (OCNG)

251. OCEANOGRAPHY. (3-0). Credit 3. Overview of the ocean environment; interrelation of the subdisciplines of ocean sciences; importance of the oceans to human beings; human impact on the oceans. Prerequisite: Concurrent registration in ONCG 252 if necessary for meeting the 8 credit hour science core curriculum requirement.

252. OCEANOGRAPHY LABORATORY. (0-3). Credit 1. Practical laboratory experiments and exercises demonstrating principles of ocean sciences. May include weekend field trips. Prerequisite: OCNG 251 or registration therein.

285. DIRECTED STUDIES. Credit (1-4) each semester. Individually supervised research or advanced study on restricted area not covered in regular courses.

401. INTRODUCTION TO OCEANOGRAPHY. (3-0). Credit 3. Quantitative survey of interdisciplinary relationship between biological, chemical, geological, geophysical, and physical aspects of the ocean. Prerequisites: Approval of instructor; junior or senior classification; MATH 131 or equivalent and CHEM 101.

420. INTRODUCTION TO BIOLOGICAL OCEANOGRAPHY. (3-0). Credit 3. Biological aspects of the marine environment. Use of the sea and problems of productivity, pollution, and fouling and boring organisms. Prerequisites: BIOL 114; junior or senior classification.

485. DIRECTED STUDIES. Credit (1-4) each semester. Individually supervised research or advanced study on restricted area not covered in regular courses.

Philosophy (PHIL)

240. INTRODUCTION TO LOGIC. (3-0). Credit 3. Methods and principles used to distinguish between correct and incorrect reasoning; uses of language, informal and formal fallacies, Venn diagrams, truth-tables, symbolic notation, formal deductive proof, induction.

314. ENVIRONMENTAL ETHICS. (3-0). Credit 3. Moral basis of duties to preserve or protect plants, animals and environmental systems; foundations of environmental law and policy; the idea of nature in philosophy; critique of social and economic analyses of environmental values. Prerequisite: Sophomore classification or approval of instructor.

Physics (PHYS)

201. COLLEGE PHYSICS. (3-3). Credit 4. Fundamentals of classical mechanics, heat, and sound. Prerequisite: MATH 150 or equivalent.

202. COLLEGE PHYSICS. (3-3). Credit 4. Continuation of PHYS 201. Fundamentals of classical electricity and light; introduction to contemporary physics. Prerequisite: PHYS 201.

208. Electricity and Optics. (3-3). Credit 4. Continuation of PHYS 218. Electricity, magnetism and introduction to optics. Primarily for engineering students. Prerequisites: MATH 152, 161 or 172 and PHYS 218.

218. MECHANICS. (3-3). Credit 4. Mechanics for students in science and engineering. Prerequisite: MATH 151 or registration therein.

219. ELECTRICITY. (3-3). Credit 4. Continuation of PHYS 218. Electricity, magnetism and introduction to optics. Prerequisite: MATH 161 or equivalent; PHYS 218.

285. DIRECTED STUDIES. Credit 1-4. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum. Prerequisite: Approval of department head.

485. DIRECTED STUDIES. Credit 1-4. Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum. Prerequisite: Approval of department head.

Political Science (POLS)

206. AMERICAN NATIONAL GOVERNMENT. (3-0). Credit 3. Survey of American national government, politics, and constitutional development.

207. STATE AND LOCAL GOVERNMENT. (3-0). Credit 3. Survey of state and local government and politics with special reference to the constitution and politics of Texas.

331. INTRODUCTION TO WORLD POLITICS. (3-0). Credit 3. Analysis of contemporary world from point of view of nation-state; political problems, factors involved in foreign policies and relations of nations. Prerequisite: POLS 206 or approval of department head.

340. INTRODUCTION TO PUBLIC ADMINISTRATION. (3-0). Credit 3. American public administration; development of public service; theories of organization and management, executive leadership and policy formation, bureaucratic politics, administrative accountability, and personnel practices. Prerequisite: POLS 206 or approval of department head.

347. POLITICS OF ENERGY AND THE ENVIRONMENT. (3-0). Credit 3. U.S. energy and environmental problems and politics and the political, legal, and institutional factors influencing their development and implementation. Prerequisite: POLS 206 and approval of department head.

Psychology (PSYC)

107. INTRODUCTION TO PSYCHOLOGY. (3-0). Credit 3. Introductory course dealing with elementary principles of human behavior.

306. ABNORMAL PSYCHOLOGY. (3-0) Credit 3. Survey of behavior pathology; functional and organic psychoses, psychoneurosis, character disorders, psychophysiological disorders, alcohol and drug addiction and mental retardation; therapeutic and diagnostic methods. Prerequisite: Junior classification or PSYC 203 and 204.

Recreation, Park and Tourism Sciences (RPTS)

301. LEISURE AND OUTDOOR RECREATION. (3-0) Credit 3. Development and administration of recreational facilities in natural and indoor settings. Development of community, land and water resources to provide recreational opportunities in which environmental factors play major roles. Fundamental concepts of recreation and leisure and their roles in modern American culture.

Spanish (SPAN)

101. BEGINNING SPANISH I. (3-2). Credit 4. Elementary language study with oral, written and reading practice. Preparation for conversation. Part of class preparation will be done in language laboratory. Students with prior instruction are required to take the Spanish Placement Test before enrolling for the first time in college Spanish course.

102. BEGINNING SPANISH II. (3-2). Credit 4. Continuation of SPAN 101. Part of class preparation will be done in language laboratory. Prerequisite: SPAN 101. Students with prior instruction in Spanish are required to take the Spanish Placement Test before enrolling the first time in a college Spanish course.

201. INTERMEDIATE SPANISH I. (3-0). Credit 3. Readings of average difficulty. Review of grammar; practice in conversation and composition. Prerequisite: SPAN 102. Students with prior instruction in Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

202. INTERMEDIATE SPANISH II. (3-0). Credit 3. Continuation of SPAN 201 with more advanced material. Prerequisite: SPAN 201. Students with prior instruction in Spanish are required to take the Spanish Placement Test before enrolling for the first time in a college Spanish course.

Speech Communication (SCOM)

203. PUBLIC SPEAKING. (3-0). Credit 3. Training in speeches of social and technical interest designed to teach students to develop and illustrate ideas and information and to inform, stimulate, and persuade their audiences.

Statistics (STAT)

201. ELEMENTARY STATISTICAL INFERENCE. (3-0). Credit 3. Data collection, tabulation and presentation. Elementary description of the tools of statistical inference; probability, sampling and hypothesis testing. Applications of statistical techniques to practical problems. May not be taken for credit after any other course in statistics or BANA 303 has been taken.

Teacher Education (TEED)

323. PRINCIPLES AND PRACTICES OF TEACHING. (2-3) Credit 3. Secondary school instructional design. Structure and management of secondary schools; planning, organizing and evaluating learning activities; unit and lesson preparation; diagnosis of learner differences; alternative instructional strategies; mainstreaming; ethical and legal aspects of teaching; responses to reading problems of secondary school learners. For students pursuing a Secondary Certification with the Special Education Delivery System, the requirements of this course may be met by completing SPED 415. Prerequisite: Junior classification; admission to teacher education.

Teacher Education Field Based (TEFB).

201. SELF-DIRECTED EXPERIENCES WITH ADOLESCENTS. (1-3) Credit 1. Study of adolescents in diverse school and community settings; issues in physical, mental, social and emotional development; issues relating to racism, sexism, and cultural diversity; development, presentation, and defense of portfolio required. Attendance at seminars required. Phase I of secondary program. Must be taken on a satisfactory / unsatisfactory basis.

406. SCIENCE IN THE MIDDLE AND SECONDARY SCHOOL. (2-6) Credit 3. Methods course for the prospective secondary teacher in the physical and biological sciences; implementation of contemporary curricula. Phase IV, Practicum I. Prerequisite: Completion of phases I, II, and III of the secondary program, admission to teacher education, and enrollment in science related teaching field; successful completion of EDTC competency test.

429. SUPERVISED STUDENT TEACHING. (0-36) Credit 9. Observation and participation in an accredited public school classroom; techniques of teaching student's teaching fields, and appropriate instructional strategies for assigned student population. For students pursuing the extended program option in interdisciplinary studies. Prerequisite: Admission to teacher education program and student teaching.

Veterinary Pathobiology (VTPB)

409. INTRODUCTION TO IMMUNOLOGY. (3-0) Credit 3. Diverse concepts relative to immunologic mechanisms inherent to domestic and laboratory animals. Prerequisite: VTPB 405 or approval of instructor and advanced classification.

Wildlife and Fisheries Science (WFSC)

420. ECOLOGY FOR TEACHERS. (3-0). Credit 3. Lectures, discussions, and readings in principles of ecology and their application in today's problems in environmental conservation. Prerequisites: Junior or senior classification.

THE FACULTY

The faculty and administrative positions are current as of Spring, 2000. Figures in parentheses indicate date of first appointment at the University and date of appointment to present positions, respectively.

ALVARADO-BREMER, JAIME, Assistant Professor of Marine Biology (1999). B.S., Universidad, Autonoma Metropolitana, Mexico, 1985; M.S., Ph.D. University of Toronto, 1988, 1994.

ANIS, AYAL, Assistant Professor of Oceanography (2000). B.S., Tel-Aviv University, 1982; M.S., Hebrew University, 1984; Ph.D., Oregon State University, 1993.

ANZ-MEADOR, PHILLIP D., Lecturer in Oceanography (Physics Laboratory) (1989). B.S., M.S., Ph.D., Baylor University, 1982, 1985, 1989.

ASHE, DIANA L., Lecturer, General Academics (English) (1999). B.A., Southwestern University, 1991; M.A., Ph.D., Texas A&M University, 1994, 1998.

ATKINSON, CHRISTI L., Lecturer, General Academics (Kinesiology) (2000). B.S., Texas A&M University, 1997.

BAKER, ROBERT K., Senior Lecturer in Marine Transportation (1999). B.S., Texas A&M University, 1977; M.B.A., University of Houston, 1983.

BALABAN, ALEXANDRU, Lecturer of Oceanography (2000). Diploma, Radiochemist, Ph.D., Polytecnic University, Bucharest, Romania, 1953, 1957, 1959.

BALDWIN, JANETTA, Senior Lecturer in General Academics (Kinesiology) (1980, 1994). B.S., University of Texas at Austin, 1969; M.S., Texas A&M University, 1980.

BASILOTTO, JOHN P., Lecturer in Maritime Administration (1994). B.S., M.B.A., University of Dayton, 1968, 1974.

BENNETT, LINDA, Lecture of Oceanography (1999). B.S. University of Houston - University Park, 1973; M.S., University of Houston - Clear Lake, 1976.

BERK, ILONA, Lecturer in Marine Biology (2000). B.S., Slippery Rock University, 1992; M.S., Texas A&M University, 1997.

BOLER, JAMES S., Lecturer in General Academics (Mathematics) (1985). B.A., Ph.D., Rice University, 1971, 1974.

BOURGEOIS, PETER J., Lecturer in Marine Transportation (1991). B.S., U.S. Merchant Marine Academy, 1956.

BRAULT, AARON C., Lecturer in Oceanography (Marine Sciences, Chemistry) (1977). B.S., Texas A&M University, 1995

BUTTS, JAMES L., Lecturer in General Academics (Kinesiology) (1998). B.S., Ithaca College, 1969; M.S., University of Arizona, 1980; Ed.D., Texas A&M University, 1985.

CARHART, JOHN W., Lecturer in General Academics (Political Science) (1988). B.A., M.A., Southwest Texas State University, 1981, 1988.

CHANG, TYNE-HSIEN (TED), Associate Professor of Maritime Systems Engineering and Head of Maritime Systems Engineering (1981, 1991). B.S., National Chen-kung University, 1974; M.S., Ph.D., University of Florida, 1978, 1981.

CIMINELLO, VITO J., JR., Lecturer in Maritime Administration, (1994). B.A., Brown University, 1977; M.S., Northwestern University, 1979.

CISLER, WILLIAM, Instructor, Department of Naval Science. B.S., University of Texas at Austin, 1994.

CLAYTON, WILLIAM H., President Emeritus (1971) (1987). B.S., Bucknell University, 1949; Ph.D., Texas A&M University, 1965.

COLE, COLLIER M., Lecturer in General Academics (Psychology) (1983). B.A., University of California at Los Angeles, 1971; M.A., Ph.D., University of Houston, 1973, 1976

COLEMAN, CHARLES H., Jr., Lecturer in Oceanography and Director of the Geology Laboratory (1981, 1992). B.S., Texas A&M University, 1975; M.S., University of Houston-Clear Lake, 1986.

COLEMAN, CHERYL L., Lecturer in General Academics, (Kinesiology), (1997). B.S., United States Naval Academy, 1984; J.D., Northwestern University, 1993.

COLEMAN, GERARD T., Senior Lecturer in Marine Engineering Technology (1996). B.S., U.S. Naval Academy, 1980; M.S., George Washington University, 1996.

CURLEY, STEPHEN J., Professor in General Academics (English) (1973, 1996). B.A., Fordham University, 1968; Ph.D., Rice University, 1974.

DAILEY, WILLIAM, Lecturer in Marine Biology (2000). B.S., Texas A&M University, 1998.

DAVIS, RANDALL W., Professor of Marine Biology (1990, 1994). B.S., University of California, Riverside, 1974; Ph.D., University of California, San Diego, 1980.

DEEN, WESLEY, Instructor, Department of Naval Science.

DELLAPENNA, TIMOTHY M., Lecturer in Oceanography (Geology) (1999). B.S., Michigan State University, 1986; M.S. Western Michigan University, 1993; Ph.D., College of William and Mary, 1999.

DUDLEY - SCOTT, KATHERINE E., Laboratory Instructor in Oceanography (Marine Sciences, Physics), (1999). B.S. Texas A&M University, 1992.

DUNN, TIMOTHY J., Lecturer in General Academics (Philosophy) (2000). B.S., B.A., Tulane University, 1991; M.A., Rice University, 1997.

ESTES III, ERNEST L., Professor of Oceanography (Geology) and Maritime Systems Engineering and Head of Marine Sciences (1976, 1987,1996). B.S., Lawrence University, 1965; M.S., Duke University, 1967; Ph.D., University of North Carolina, 1971.

EVANS, WILLIAM E., Professor Emeritus of Oceanography, Wildlife and Fisheries Science and Marine Biology, (1989, 1989, 1999). B.S., Bowling Green State University, 1953; M.A., Ohio State University, 1954; Ph.D., University of California at Los Angeles, 1975.

FIEGLEIN, J. MICHAEL, Lecturer in Maritime Administration (1999). B.S.M.E., University of Houston, 1970; J.D., Villanova School of Law, 1974.

FIEGLEIN, SUSAN A., Lecturer in General Academics (Mathematics) (1999). B.A., College of William and Mary, 1964.

FITZHUGH III, THOMAS C., Lecturer in Maritime Administration (1996). B.S., Texas A&M University, 1971; J.D., University of Texas, 1976.

FOLDEN, CHARLES A., Lecturer in Oceanography (Chemistry Laboratory) (1980). Systems Analyst (1997). B.S., California State University, Long Beach, 1975; M.A., Governors State University, 1979.

GEORGE, GINA, Lecturer and Technical Services Librarian, (1999), B.A., B.S., M.S.L.S., University of North Texas, 1993, 1993, 1997.

GILL, GARY A., Associate Professor of Oceanography (1992, 1996). B.S., University of Washington, 1976; M.S., Ph.D., University of Connecticut, 1980, 1986.

GLENN, WILLIAM, Lecturer in Maritime Administration and Marine Transportation (1997). B.S., Texas A&M University, 1981; J.D., Franklin Pierce Law Center, 1992.

GRACIA, PETE A., Lecturer in General Academics (Mathematics) (1993). B.S., Lamar University, 1959; M.S., University of Houston-Clear Lake, 1991.

GRIFFIN, LAWRENCE L., Associate Professor of Oceanography (Chemistry) (1976, 1984). B.A., M.S., Ph.D., University of Texas at Austin, 1962, 1965, 1972.

HARPER, DONALD E., JR., Professor of Marine Biology (1975, 1997), B.S., University of Miami, 1963; M.S., Ph.D., Texas A&M University, 1966, 1970.

HAUPT, KARL H., Master of the Training Ship and Commandant of Cadets (1995, 1997). B.S. Texas A&M University, 1981.

HAYES, PETER J., Lecturer in Marine Transportation (1998). B.S., Texas A&M University, 1988; M.A., University of Houston, 1999.

HAYMES, WILLIAM E., Lecturer in Oceanography and Director of the Physics Laboratory (1989, 1992). B.S., M.S., University of Missouri-Rolla, 1964, 1971; Ph.D., University of Manchester, England, 1976.

HENDRIX, DANIEL E., Lecturer in Marine Science (Physics Laboratory) (1996). B.A., Case Western Reserve University, 1960.

HITE, GERALD E., Professor of Oceanography and Maritime Systems Engineering (Physics) (1980, 1998). B.S., Case Western Reserve, 1962; M.S., Ph.D., University of Illinois, 1965, 1967; Habilitation, Universitat Kaiserslautern, 1974.

ILIFFE, THOMAS M., Associate Professor of Marine Biology (1989, 1997). B.S., Penn State University, 1970; M.S., Florida State University, 1973; Ph.D., University of Texas Medical Branch, 1977.

JAMES, ARTHUR P., Assistant Professor in Maritime Administration (1995). B.A., Birmingham-Southern College, 1971; M.A., University of Alabama, 1974; Ph.D., University of Missouri-Columbia, 1989.

JOHNSON, THOMAS S., Associate Professor in General Academics (English) (1974, 1981). B.A., Loyola University of Los Angeles, 1966; M.A., University of California at Los Angeles, 1968; Ph.D., University of Texas at Austin, 1973.

JONES, GLENN, Professor of Oceanography (1996). B.A., University of Rhode Island, 1977; M.S., Columbia University, 1979; Ph.D., Columbia University, 1983.

JONES, VICTORIA L., Lecturer in Maritime Systems Engineering, (1993). B.S., Texas A&M University, 1991; M.S., University of Florida, 1993.

KANZ, JAMES E., Associate Professor of Marine Biology (1978, 1985). B.A., University of Washington, 1966; Ph.D., Tufts University, 1973.

KEMP, WALTER M., Professor of Biology (1975), Vice President and C.E.O. (1997). B.S.E. Abilene Christian University, 1966; Ph.D., Tulane University, 1970.

KLEIN, DOUGLAS J., Professor of Oceanography (Chemistry, Physics) (1979, 1987). B.S., Oregon State University, 1965; M.A., Ph.D., University of Texas, 1967, 1969.

KLINGER, RON, Lecturer in General Academics (1998). B.S., Bowling Green State University, 1996; M.S., Texas A&M University, 1998.

KNOCK, SUSAN L., Lecturer in Oceanography and Director of Chemistry Laboratories (1996). B.A., Colorado State College, 1975; Ph.D., University of Texas Medical Branch, 1988.

KNOX, KRIS J., C.P.A., Lecturer in Maritime Administration (1984). B.B.A, M.B.A., University of Houston, 1979,1984; Ph.D., University of Texas Health Science Center at Houston, 1992.

KUHLMAN, DEBORAH J., Lecturer in General Academics (English) (1986). B.A., Texas Christian University, 1970; M.A., University of Arkansas, 1980; Ph.D., Texas Christian University, 1985.

LANDRY Jr., ANDRÉ M., Professor of Marine Biology and Head of Marine Biology, (1977, 1991, 1997). B.S., Tulane University, 1968; M.S., Ph.D., Texas A&M University, 1971, 1977.

LANG, DONNA C., Lecturer in Maritime Administration (1996). B.S., Texas A&M University, 1988; M.A., Ed.D. University of Houston-Clear Lake, 1992, 2000.

LANG, VICTOR J., Lecturer in General Academics, (Speech) (1997). B.A., University of Texas at Austin, 1960.

LESKO, MELANIE J., Senior Lecturer in Oceanography (Chemistry) (1983, 1991). Associate Department Head (1996). B.S., Lamar University, 1972; Ph.D., University of Houston, 1977.

LUKENS, RICHARD W., Department Head, Marine Engineering Technology (1997), Department Head, Marine Transportation (1998), Superintendent, Texas State Maritime Program (1999). B.S., University of Oklahoma, 1976; M.S., Naval Post Graduate School, 1983.

MACEO, DEBRA, Lecturer in General Academics (Kinesiology) (1994). B.S., Lamar University, 1975; M.A., University of Houston, 1995.

MAGNUSON, ALLEN H., Senior Lecturer in Maritime Systems Engineering (1996). B.S., University of Michigan, 1964; M.S., Pennsylvania State University, 1967; Ph.D., University of New Hampshire, 1972.

MCCLOY, JAMES M., Professor of Oceanography (Marine Geography), Associate Vice President for Research and Academic Affairs (1971, 1984, 1999). B.A., California State College at Los Angeles, 1961; Ph.D., Louisiana State University, 1969.

MCLAUGHLIN-WEST, ELIZABETH, Lecturer in Oceanography (Chemistry) (2000). B.A., Drew University, 1989; M.S., Ph.D., University of Washington, 1992, 1998.

MCMULLEN, WILLIAM T., Professor in Maritime Administration and Interim Department Head, (1995, 2000). B.S., State University of New York Maritime College, 1964; M.B.A., University of Houston, 1973; Ph.D., University of Wales, 1993.

MERIDA, ABDELL A., Lecturer in General Academics (Spanish) (2000). M.A., Universidad Pedagogica Experimental, Liberatador, Venezuela, 1976.

MIGNERY, LINDA, Lecturer in General Academics, (Mathematics) (1998). B.S., Georgia State University, 1971.

OERTLING, THOMAS J., Lecturer in General Academics (Nautical Archaeology) (2000). B.S., Tulane University, 1977; M.A., Texas A&M University, 1984.

PASCALI, RARESH, Senior Lecturer in Marine Engineering Technology (1999). B.S., Polytecnic University, Brooklyn, N.Y., 1990; M.S., Polytechnic University, Farmingdale, N.Y., 1993.

PEARL, FREDERIC B., Lecturer in General Academics (Anthropology) (2000). B.A., San Diego State University, 1991; M.A., Texas A&M University, 1997.

PEART, WALTER L., Senior Lecturer in Maritime Systems Engineering (2000). B.S., M.S., Louisiana Tech University, 1984, 1985; Ph.D., Texas A&M University, 1990.

PERRIGO JR., JAMES, Lecturer in Oceanography (Chemistry) (1983, 1997). B.S., Texas A&M University, 1981.

PICCARDO-LA VALLEE, OLIMPIA M., Lecturer in General Academics (Spanish) (1990). B.A., M.S., Universidad Central de Venezuela, Caracas, 1964, 1966.

RAVENS, THOMAS M., Assistant Professor in Maritime Systems Engineering (1999). B.E., B.A., M.B., Dartmouth College, 1983; M.A., University of Massachusetts, 1990; Ph.D., Massachusetts Institute of Technology, 1997.

RAY, SAMMY M., Professor Emeritus of Marine Biology (1990). B.S., Louisiana State University, 1942; M.S., Ph.D., Rice University, 1952, 1954.

ROOKER, JAY R., Assistant Professor of Marine Biology (1998). B.A., Gustavus Adolphus College, 1985; M.S., University of Puerto Rico, 1991; Ph.D., University of Texas at Austin, 1997.

RYAN, JAMES G., Associate Professor in General Academics (History) (1990, 1996). B.A., M.A., University of Delaware, 1970, 1973; M.A., Ph.D., University of Notre Dame, 1975, 1981.

SANTSCHI, PETER H., Professor of Oceanography (1988). B.S., Gymnasium Berne, Switzerland, Matura, 1963; M.S., Ph.D., University of Berne, 1971, 1975; Privatdozent, Switzerland Federal Institute of Technology, 1984.

SCANIO, STEVEN J., Lecturer in Maritime Systems Engineering (1999). B.S., Texas A&M University, 1991; M.S., University of Houston, 1996.

SCHLEMMER II, FREDERICK C., Associate Professor of Oceanography (1978, 1985). B.S., U.S. Naval Academy, 1965; M.A., University of South Florida, 1971; Ph.D., Texas A&M University, 1978.

SCHMALZ, THOMAS G., Professor of Oceanography (Chemistry, Computer Science) (1981, 1996). B.S., Montana State University, 1970; Ph.D., University of Illinois, 1975.

SCHWARZ, JOHN R., Professor of Marine Biology and Oceanography (1976, 1986). B.S., PH.D., Rensselaer Polytechnique Institute, 1967, 1972.

SEITZ, WILLIAM A., Professor of Oceanography (Chemistry, Computer Science) (1977, 1988). B.A., Rice University, 1970; Ph.D., University of Texas at Austin, 1973.

SELIG, OURY L., Lecturer in Marine Transportation (1998). B.S., University of Texas at Austin, 1949.

SHALLENBERGER, GRANT W., Lecturer in General Academics (Kinesiology) (1996). B.B.A., Texas A&M University, (1986); M.A., University of Houston, Clear Lake, 1994.

SIEBOLD, KARL H., Lecturer in Oceanography (Marine Sciences, Physics) (2000), B.S., Technische Univerisitat Corolo-Wilhelmiina zu Brausweig, 1965; M.S., Ph.D., Technical University Braunschweig, 1991, 1999.

SMITH, SHAWN C., Lecturer in Marine Transportation (1999). B.S., Texas A&M University, 1997

STEPHENS, TRACEY H., Lecturer in Oceanography (Marine Sciences, Chemistry) (1999), B.S., University of New Orleans, 1994; M.S., University of Southern Mississippi, 1997.

STERN, JONATHAN S., Lecturer in Marine Biology (1992,1998). M.A., San Francisco State University, 1990; Ph.D., Texas A&M University, 1998

STUNZ, GREGORY W., Lecturer in Marine Biology (2000). B.S., University of Texas - San Antonio, 1990; M.S., Ph.D., Texas A&M University, 1995, 1999.

SUEN, CHING Y., Professor in General Academics (Mathematics) (1984, 1998). M.S., Tsing Hua University, 1978; Ph.D., University of Houston, 1983.

SUTHERLAND, TODD, Lecturer in General Academics (Kinesiology) (2000). B.S., Texas A&M University, 1990.

SZUCS, JOSEPH M., Professor in General Academics (Mathematics) (1980, 1991). M.S., Ph.D., Szeged University, 1965, 1967.

THOMAS, JOHNSON P., Lecturer in Oceanography (Chemistry Laboratory) (1994). B.S., M.S., University of Kerala, India, 1983, 1985; M. Tech., Ph.D., Indian Institute of Technology, 1988, 1994.

TURNER, ELIZABETH A., Lecturer in General Academics (CAEX Courses) (1997). B.S., University of Houston, Clear Lake, 1992.

VON ZHAREN, WYNDYLYN M., Professor of Maritime Administration and Oceanography (1990, 2000). B.A., M.A., Ed.D., University of Florida; J.D., University of South Carolina Law School, 1987.

WADDELL JR., MATHIS T., Lecturer in General Academics (Political Science) (1995). B.A., M.A., University of Texas, Austin,1962, 1963.

WALSH, BETH W., Lecturer in General Academics (English) (1999). B.A., M.P.A.,University of Texas at Austin, 1984, 1986; M.L.A., University of St. Thomas, 1997.

WARD, CHERYL, Assistant Professor in General Academics (Nautical Archaeology and Anthropology) (1998). B.A., Texas Tech University, 1982; M.A., Texas A&M University, 1984; M.S. Institute of Archaeology, University of London 1986; Ph.D., Texas A&M University, 1993.

WARDLE, WILLIAM J., Associate Professor of Marine Biology (1973, 1983). B.S., Lynchburg College, 1963; M.S., Ph.D., Texas A&M University, 1970, 1974.

WATSON, DIANE B., Lecturer and Librarian (1988). B.S., University of Oklahoma, 1968; M.L.S, Vanderbilt University/Peabody College, 1973.

WEBB, JAMES W., Associate Professor of Marine Biology (1978, 1988). B.S., University of South Carolina, 1966; M.S., University of Georgia, 1973; Ph.D., Texas A&M University, 1977.

WENDT, DANNY S., Lecturer in General Academics (Mathematics, Statistics) (1998). B.S., Moorhead State University, 1987; M.S., Purdue University, 1989.

WIEST, NATALIE H., Lecturer and Library Director (1982). B.A., Pennsylvania State University, 1971; M.S., Drexel University, 1973; M.S., University of Tennessee, 1980.

WILLETT, DONALD E., Associate Professor in General Academics (History) (1985, 1993). B.A., St. Edward's University, 1972; M.A., Stephen F. Austin University, 1976; Ph.D., Texas A&M University, 1985.

WHITE, CARLTON J., Lecturer in General Academics (Recreation, Parks and Tourism Sciences) (2000). B.A., M.S., Texas A&M University, 1986, 1995.

WHITWORTH, JONATHON P., Lecturer in Maritime Administration (1997). B.S., Texas A&M University, 1989; M.B.A., University of North Texas, 1993.

WORTHY, GRAHAM, A.J., Professor of Marine Biology (1990, 1999). B.S., M.S., Ph.D., University of Guelph, Canada, 1979, 1982, 1985.

WURSIG, BERND W., Professor of Marine Biology (1989). B.A., College of New Rochelle, 1969; B.S., Ohio State University, 1971; Ph.D., State University of New York, Stony Brook, 1978.

YAO, VICTORIA, Lecturer in Marine Biology (2000). B.S., Texas A&M University, 1999.

Texas Common Course Numbering System

The Texas Common Course Numbering System (TCCNS) has been designed for the purpose of aiding students in the transfer of general academic courses between colleges and universities throughout Texas. Common courses are freshman and sophomore academic credit courses that have been identified as common by institutions that are members of the common course numbering system. The system ensures that if the student takes the courses the receiving institution designates as common, then the courses will be accepted in transfer and the credit will be treated as if the courses had actually been taken on the receiving institution's campus.

The table below lists the courses Texas A&M University has identified as common and their TCCNS equivalents. Before using this table students should be sure that the institution they attend employs the TCCNS.

The current version of this document may be found on the Office of Admissions and Records Internet site at www.tamu.edu/admissions/undergrad/tccns.shtml.

Texas A&M Course		TCCNS Equivalent Course		
ACCT	229	Intro Accounting	ACCT	2301
ACCT	229	Intro Accounting	ACCT	2401
ACCT	230	Intro Accounting	ACCT	2302
ACCT	230	Intro Accounting	ACCT	2402
AGEC	105	Intro to Agri Economics	AGRI	2317
AGLS	101	Mod Agri Systems & Ren Nat Res	AGRI	1131
AGLS	101	Mod Agri Systems & Ren Nat Res	AGRI	1231
AGLS	201	Computer Applications in Agri	AGRI	1309
AGRO	105	World Food and Fiber Crops	AGRI	1307
AGRO	105	World Food and Fiber Crops	AGRI	1308
AGRO	105	World Food and Fiber Crops	AGRI	1407
AGSM	201	Farm Tractors and Power Units	AGRI	2301
AGSM	201	Farm Tractors and Power Units	AGRI	2401
ANSC	107	General Animal Science	AGRI	1319
ANSC	107 & 108	General Animal Science	AGRI	1419
ANTH	201	Intro to Anthropology	ANTH	2346
ANTH	202	Intro to Archaeology	ANTH	2302
ANTH	210	Social and Cultural Anthropology	ANTH	2351
ARTS	103	Design I	ARTS	1311
ARTS	111	Drawing I	ARTS	1316
ARTS	112	Drawing II	ARTS	1317
ARTS	149	Art History Survey I	ARTS	1303
ARTS	150	Art History Survey II	ARTS	1304
BIOL	113	Intro Biology	BIOL	1306
BIOL	113 & 123	Intro Biology Lab	BIOL	1406
BIOL	114	Intro Biology	BIOL	1307
BIOL	114 & 124	Intro Biology and Lab	BIOL	1407
BIOL	123	Intro Biology Lab	BIOL	1106
BIOL	124	Intro Biology Lab	BIOL	1107
BOTN	101	Botany	BIOL	1311 & 1111
BOTN	101	Botany	BIOL	1411
CHEM	101	Fund of Chemistry I	CHEM	1411
CHEM	102	Fund of Chemistry II	CHEM	1412
CHEM	106	Molecular Science for Citizens	CHEM	1305
CHEM	106 & 116	Molecular Sci. for Citizens and Lab	CHEM	1405
CHEM	116	Molecular Science for Citizens Lab	CHEM	1105
CHEM	227	Organic Chemistry I	CHEM	2323
CHEM	227 & 237	Organic Chemistry I and Organic Chemistry Lab	CHEM	2423
CHEM	228	Organic Chemistry II	CHEM	2325
CHEM	228 & 238	Organic Chemistry II and Organic Chemistry Lab	CHEM	2425
CHEM	237	Organic Chemistry I Lab	CHEM	2123
CHEM	237	Organic Chemistry I Lab	CHEM	2223
CHEM	238	Organic Chemistry II Lab	CHEM	2125
CHEM	238	Organic Chemistry II Lab	CHEM	2225
CLAS	101	Beginning Classical Greek I	GREE	1411
CLAS	102	Beginning Classical Greek II	GREE	1412
CLAS	121	Beginning Latin I	LATI	1411
CLAS	122	Beginning Latin II	LATI	1412
CLAS	201	Intermediate Greek:New Testament	GREE	2311
CLAS	221	Intermediate Latin	LATI	2311
COSC	253	Const. Materials and Methods I	ARCH	2312
COSC	254	Const. Materials and Methods II	ARCH	2313
CPSC	203	Intro. to Computing	COSC	1317
CPSC	203	Intro. to Computing	COSC	1417
CPSC	203	Intro. to Computing	ENGR	2304
CPSC	206	Structured Prog. in C	BCIS	1420
CPSC	206	Structured Prog. in C	COSC	1420
CPSC	207	Structured Prog. in Pascal	COSC	1318
CPSC	207	Structured Prog. in Pascal	COSC	1418
CPSC	210	Data Structures	COSC	2315
CPSC	210	Data Structures	COSC	2415
CPSC	220	Assembly Language Programming	COSC	1319
CPSC	220	Assembly Language Programming	COSC	1419
CVEN	201	Plane Surveying	ENGR	1307
CVEN	201	Plane Surveying	ENGR	1407
CVEN	205	Engineering Mechanics of Materials	ENGR	2332
DASC	202	Dairying	AGRI	1311
ECON	202	Principles of Microeconomics	ECON	2302
ECON	203	Principles of Macroeconomics	ECON	2301
ENDG	105	Engineering Graphics	ENGR	1204
ENDG	105	Engineering Graphics	ENGR	1304
ENDS	101	Design Process	ARCH	1311
ENDS	105	Design Foundations	ARCH	1403
ENDS	115	Design Communication Foundations	ARCH	1407
ENDS	149	Survey of Architectural History I	ARCH	1301
ENDS	150	Survey of Architectural History II	ARCH	1302
ENGL	104	Composition and Rhetoric	ENGL	1301
ENGL	203	Intro. to Literature	ENGL	1302
ENGL	210	Scientific and Technical Writing	ENGL	2311
ENGL	221	World Literature	ENGL	2332
ENGL	222	World Literature	ENGL	2333
ENGL	227	American Literature: Colonial to Amer.	ENGL	2327
ENGL	228	Am. Literature: Civil War to Present	ENGL	2328
ENGL	231	Survey of English Literature I	ENGL	2322
ENGL	232	Survey of English Literature II	ENGL	2323
ENGL	235	Intro to Creative Writing - Prose	ENGL	2307
ENGL	236	Intro to Creative Writing - Poetry	ENGL	2308
ENGR	189	Freshman Engineering Orientation	ENGR	1101
ENTO	201	General Entomology	AGRI	1413
ENTO	201	General Entomology	AGRI	2313
FINC	201	Personal Finance	BUSI	1307
FREN	101	Beginning French I	FREN	1411
FREN	102	Beginning French II	FREN	1412
FREN	201	Intermediate French I	FREN	2311
FREN	202	Intermediate French II	FREN	2312
FSTC	201	Food Science	AGRI	1329
GEOG	201	Intro. to Human Geography	GEOG	1302
GEOG	202	Geography of Global Village	GEOG	1303
GEOG	204	Economic Geography	GEOG	2312
GEOL	101	Principles of Geology	GEOL	1303 & 1103
GEOL	101	Principles of Geology	GEOL	1403
GEOL	106	Historical Geology	GEOL	1304 & 1104
GEOL	106	Historical Geology	GEOL	1404
GERM	101	Beginning German I	GERM	1411
GERM	102	Beginning German II	GERM	1412
GERM	201	Intermediate German I	GERM	2311
GERM	202	Intermediate German II	GERM	2312
HIST	101	Western Civilization to 1660	HIST	2311
HIST	102	Western Civilization since 1660	HIST	2312
HIST	103	World History to 1500	HIST	2321
HIST	104	World History since 1500	HIST	2322
HIST	105	History of the United States	HIST	1301
HIST	106	History of the United States	HIST	1302
HIST	213	History of England	HIST	2313
HIST	214	History of England	HIST	2314
HIST	226	History of Texas	HIST	2301
HLTH	216	First Aid	PHED	1206
HLTH	216	First Aid	PHED	1306
HLTH	231	Healthy Lifestyles	PHED	1304
HORT	201	General Horticulture	AGRI	1315
HORT	201	General Horticulture	AGRI	1415
HORT	201	General Horticulture	HORT	1301
HORT	201	General Horticulture	HORT	1401
ITAL	101	Beginning Italian I	ITAL	1411
ITAL	102	Beginning Italian II	ITAL	1412
ITAL	201	Intermediate Italian I	ITAL	2311
ITAL	202	Intermediate Italian II	ITAL	2312
JAPN	101	Beginning Japanese I	JAPN	1411
JAPN	102	Beginning Japanese II	JAPN	1412
JAPN	201	Intermediate Japanese I	JAPN	2311
JAPN	202	Intermediate Japanese II	JAPN	2312
JOUR	102	American Mass Media	COMM	1307
JOUR	203	Media Writing I	COMM	2311
JOUR	214	Photojournalism	COMM	1316
JOUR	225	Television Production I	COMM	1336
KINE	121	Phys. and Motor Fitness Assessment	PHED	1238
KINE	199	Required Physical Activity	PHED	1151
KINE	199	Required Physical Activity	PHED	1152
KINE	199	Required Physical Activity	PHED	1164
KINE	199	Required Physical Activity	PHED	2155
KINE	199	Required Physical Activity	PHED	2255
KINE	199	Required Physical Activity	PHED (Any activity course)	
KINE	213	Foundations of Kinesiology	PHED	1301
MATH	102	Algebra	MATH	1314
MATH	103	Plane Trigonometry	MATH	1316
MATH	141	Business Math. I	MATH	1324
MATH	142	Business Math. II	MATH	1325
MATH	150	Functions,Trigonometry Linear Systems	MATH	2412
MATH	151	Engineering Math. I	MATH	24131
MATH	152	Engineering Math. II	MATH	24141
MATH	251	Engineering Math. III	MATH	23151, 2
MATH	253	Engineering Math. III	MATH	24151
MEEN	213	Engineering Mechanics II	ENGR	2302
MGMT	105	Intro. to Business	BUSI	1301
MGMT	211	Legal and Social Environ.of Business	BUSI	2302
MGMT	212	Business Law	BUSI	2301
MICR	206	Intro. Microbiology	BIOL	2421
MUSC	102	Fundamentals of Music	MUSI	1301
MUSC	201	Music and the Human Experience	MUSI	1306
MUSC	202	Music Theory	MUSI	1302
MUSC	250	Individual Performance-Piano	MUSI	1181
MUSC	250	Individual Performance-Piano	MUSI	1182
MUSC	250	Individual Performance-Piano	MUSI	2181
MUSC	250	Individual Performance-Piano	MUSI	2182
NUTR	202	Fundamentals of Human Nutrition	BIOL	1322
NUTR	202	Fundamentals of Human Nutrition	HECO	1322
OCNG	205	Intro. to Ocean Studies	GEOL	1345
PHIL	111	Contemporary Moral Issues	PHIL	2306
PHIL	240	Intro. to Logic	PHIL	2303
PHIL	251	Intro. to Philosophy	PHIL	1301
PHYS	201	College Physics	PHYS	1301 & 1101
PHYS	201	College Physics	PHYS	1401
PHYS	202	College Physics	PHYS	1302 & 1102
PHYS	202	College Physics	PHYS	1402
PHYS	218	Mechanics	PHYS	2325 & 2125
PHYS	218	Mechanics	PHYS	2425*
PHYS	219	Electricity	PHYS	2326 & 2126
PHYS	219	Electricity	PHYS	2426*
POLS	206	American National Government	GOVT	2301
POLS	206	American National Government	GOVT	2305
POLS	207	State and Local Government	GOVT	2302
POLS	207	State and Local Government	GOVT	2306
POLS	209	Intro. to Political Science Research	GOVT	2304
POSC	201	General Avian Science	AGRI	1327
PSYC	107	Intro. to Psychology	PSYC	2301
RPTS	201	Foundations of Rec. and Parks	PHED	1336
RUSS	101	Beginning Russian I	RUSS	1411
RUSS	102	Beginning Russian II	RUSS	1412
RUSS	201	Intermediate Russian I	RUSS	2311
RUSS	202	Intermediate Russian II	RUSS	2312
SCOM	101	Intro. to Speech Communication	SPCH	1311
SCOM	203	Public Speaking	SPCH	1315
SCOM	203	Public Speaking	SPCH	1321
SCOM	243	Argumentation and Debate	SPCH	2335
SCOM	290	Speech Practicum	SPCH	1144
SCOM	290	Speech Practicum	SPCH	1145
SCOM	290	Speech Practicum	SPCH	2144
SCOM	290	Speech Practicum	SPCH	2145
SOCI	205	Intro to Sociology	SOCI	1301
SPAN	101	Beginning Spanish I	SPAN	1411
SPAN	102	Beginning Spanish II	SPAN	1412
SPAN	201	Intermediate Spanish I	SPAN	2311
SPAN	202	Intermediate Spanish II	SPAN	2312
STAT	201	Elementary Statistical Inference	MATH	1342
STAT	201	Elementary Statistical Inference	MATH	1442
THAR	101	Intro. to Western Theater	DRAM	1310
THAR	110	Acting I: Fundamentals	DRAM	1351
THAR	115	Voice and Articulation	DRAM	2336
THAR	115	Voice and Articulation	SPCH	1342
THAR	135	Technical Theater	DRAM	1330
THAR	150	Theatrical Makeup	DRAM	1341
THAR	210	Acting II: Characterization	DRAM	1352
THAR	255	Costume Construction	DRAM	1342
THAR	280	History of Theater I	DRAM	2361
THAR	281	History of Theater II	DRAM	2362
THAR	290	Theater Practicum	DRAM	1120
THAR	290	Theater Practicum	DRAM	1121
THAR	290	Theater Practicum	DRAM	1220
THAR	290	Theater Practicum	DRAM	1221
THAR	290	Theater Practicum	DRAM	1320
THAR	290	Theater Practicum	DRAM	1321
THAR	290	Theater Practicum	DRAM	2120
THAR	290	Theater Practicum	DRAM	2121
THAR	290	Theater Practicum	DRAM	2220
WFSC	201	Wildlife Conserv. and Management	AGRI	2330
ZOOL	107	Zoology	BIOL	1313 & 1113
ZOOL	107	Zoology	BIOL	1413

NOTES:

1.The sequence of calculus courses for science and engineering majors may be offered in several ways. The credit value of these courses varies among institutions; the second digit of each course number designates the semester hour credit and may be 3, 4, or 5, but the course content for the sequence is comparable among most institutions. Students are encouraged to complete the entire sequence at the same institution.

2. MATH 2315 will transfer as MATH 251 only if it requires at least 8 semester hours of calculus as a prerequisite. Otherwise, MATH 2315, accompanied by MATH 2314, will transfer as MATH 152.

* Must include a lab.