

TEXAS A&M UNIVERSITY AT GALVESTON

2010 - 2011 CATALOG NO. 133

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ACADEMIC CALENDAR

2010 Summer Term I*

May 28	Last day to register for first term and pay fees, 5 p.m.
May 31	Memorial Day. Faculty and staff holiday.
June 1	First day of first term classes.
June 4	Last day for adding/dropping courses for the first term, 5 p.m. Last day to apply for degrees to be awarded in August for students completing degree requirements in the first term, 5 p.m.
June 21	Last day for all students to drop courses with no penalty for the first term (Q-drop), 5 p.m. Last day to change Kinesiology 198/199 grade type for the first term on the website howdy.tamu.edu , 5 p.m. Last day to officially withdraw from the University for the first term, 5 p.m.
July 2	Last day of first term classes.
July 5	First term final examinations. Last day to register for the second term and pay fees, 5 p.m.
July 8	First term final grades due in Enrollment Services, 10 a.m.
August 13	Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.

2010 Summer Term II*

July 5	Last day to register for the second term and pay fees, 5 p.m.
July 6	First day of second term classes.
July 9	Last day for adding/dropping courses for the second term, 5 p.m. Last day to apply for degrees to be awarded in August for students completing degree requirement in the second term, 5 p.m.
July 26	Last day for all students to drop courses with no penalty for the second term (Q-drop), 5 p.m. Last day to change Kinesiology 198/199 grade type for the second term on the website https://howdy.tamu.edu/cp/home/displaylogin , 5 p.m. Last day to officially withdraw from the University for the second term, 5 p.m.
August 9	Last day of second term classes.
August 10–11	Second term final examinations for all students.
August 12	Grades for degree candidates from departments due in Enrollment Services, 10 a.m.
August 13	Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.
August 14	Commencement, 9 a.m.
August 16	Final grades for second term due in Enrollment Services, 10 a.m.

2010 10-Week Summer Semester*

May 28	Last day to register for 10-week semester and pay fees, 5 p.m.
May 31	Memorial Day. Faculty and staff holiday.
June 1	First day of 10-week semester classes.
June 4	Last day for adding/dropping courses for the 10-week semester, 5 p.m.
July 5	No 10-week semester classes.
July 9	Last day to apply for degrees to be awarded in August for students completing degree requirements in the 10-week semester, 5 p.m.
July 20	Last day for all students to drop courses with no penalty for the 10-week semester (Q-drop), 5 p.m. Last day to officially withdraw from the University for the 10-week semester, 5 p.m..
August 9	Last day of 10-week semester classes.
August 10–11	10-week semester final examinations for all students.
August 12	Grades for degree candidates from departments due in Enrollment Services, 10 a.m.
August 13	Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.
August 14	Commencement, 9 a.m.
August 16	Final grades for 10-week semester due in Enrollment Services, 10 a.m.

*These dates are subject to change.

2010 Fall Semester*

August 27	Last day to register for fall semester classes and pay fees. 5 p.m.
August 30	First day of fall semester classes.
September 3	Last day for adding/dropping courses for the fall semester. 5 p.m.
September 10	Last day to apply for all degrees to be awarded in December. 5 p.m.
October 18	Mid-semester grades due in Enrollment Services. 10 a.m.
November 5	Last day for all students to drop courses with no penalty (Q-drop). 5 p.m. Last day to change Kinesiology 198/199 grade type on the website https://howdy.tamu.edu/cp/home/displaylogin , 5 p.m. Last day to officially withdraw from the University. 5 p.m. Last day to submit Change of Curriculum form for the Spring 2011 semester. 5 p.m.
November 18	Bonfire 1999 Remembrance Day.
November 15	Preregistration for 2011 spring semester.
November 25-26	Thanksgiving holiday.
December 6	Redefined day, students attend their Friday classes. Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) shall be given on these days.
December 7	Last day of fall semester classes. Redefined day, students attend their Thursday classes. Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) shall be given on these days.
December 8-9	Reading days, no classes.
December 10, 13-15	Fall semester final examinations for all students.
December 16	Grades due for degree candidates due in Enrollment Services. 10 a.m.
December 17	Last day for December undergraduate degree candidates to apply for Tuition Rebate. 5 p.m.
December 18	Commencement and Commissioning.
December 20	Final grades for all students due in Enrollment Services. 10 a.m.
December 24 - 31	Faculty and Staff holiday.

2011 Spring Semester*

January 14	Last day to register for spring semester classes and pay fees. 5 p.m.
January 17	Martin Luther King, Jr. Day. Faculty and staff holiday.
January 18	First day of spring semester classes.
January 24	Last day for adding/dropping courses for the spring semester. 5 p.m.
January 28	Last day to apply for all degrees to be awarded in May. 5 p.m.
March 7	Mid-semester grades due in Enrollment Services. 10 a.m.
March 14-18	Spring break.
March 18	Faculty and Staff holiday.
April 4	Last day for all students to drop courses with no penalty (Q-drop). 5 p.m. Last day to change Kinesiology 198/199 grade type on the website https://howdy.tamu.edu/cp/home/displaylogin , 5 p.m. Last day to officially withdraw from the University. 5 p.m. Last day to submit Change of Curriculum form for the Fall 2011 semester. 5 p.m.
April 11	Preregistration begins for the 2011 first term, second term, 10-week summer semester and fall semester.
April 21	Muster. Campus ceremony.
April 22	Reading day, no classes.
May 2	Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) shall be given on these days.
May 3	Last day of spring semester classes. Redefined day, students attend their Friday classes. Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) shall be given on these days.
May 4-5	Reading days, no classes.
May 6, 9-11	Spring semester final examinations for all students.
May 12	Grades for degree candidates due in Enrollment Services. 10 a.m.
May 13	Last day for May undergraduate degree candidates to apply for Tuition Rebate. 5 p.m.
May 14	Commencement and Commissioning.
May 16	Final grades for all students due in Enrollment Services. 10 a.m.

*These dates are subject to change.

2011 Summer Term I*

May 27	Last day to register for first term and pay fees. 5 p.m.
May 30	Memorial Day. Faculty and Staff holiday.
May 31	First day of first term classes.
June 3	Last day for adding/dropping for the first term 5 p.m. Last day to apply for degrees to be awarded in August for students completing degree requirements in the first term. 5 p.m.
June 20	Last day for all students to drop courses with no penalty for the first term (Q-drop). 5 p.m. Last day to change Kinesiology 198/199 grade type for the first term on the website https://howdy.tamu.edu/cp/home/displaylogin , 5 p.m. Last day to officially withdraw from the University for first term. 5 p.m.
July 1	Friday. Last day of first term classes.
July 4	Independence Day. Faculty and Staff holiday.
July 5	First term final examinations.
July 8	First term final grades due in Enrollment Services. 10 a.m.

2011 Summer Term II*

July 5	Last day to register for the second term and pay fees, 5 p.m.
July 6	First day of second term classes.
July 8	Last day to apply for degrees to be awarded in August for students completing degree requirements in the second term. 5 p.m.
July 11	Last day for adding/dropping courses for the second term.
July 26	Last day for all students to drop courses with no penalty for the second term (Q-drop). 5 p.m. Last day to change Kinesiology 198/199 grade type for the second term on the website https://howdy.tamu.edu/cp/home/displaylogin , 5 p.m. Last day to officially withdraw from the University for second term. 5 p.m.
August 8	Last day of second term classes.
August 9-10	Second term final examinations for all students.
August 11	Grades for degree candidates due in Enrollment Services. 10 a.m.
August 12	Last day for August undergraduate degree candidates to apply for Tuition Rebate. 5 p.m.
August 13	Commencement. 9 a.m.
August 15	Final grades for second term due in Enrollment Services. 10 a.m.

2011 10-Week Summer Semester*

May 27	Last day to register for 10-week semester and pay fees. 5 p.m.
May 30	Memorial Day. Faculty and Staff holiday.
May 31	First day of 10-week semester classes.
June 3	Last day for adding/dropping for the 10-week semester. 5 p.m.
July 5	No 10-week semester classes.
July 8	Last day to apply for degrees to be awarded in August for students completing degree requirements in the 10-week semester. 5 p.m.
July 20	Last day for all students to drop courses with no penalty for the 10-week semester (Q-drop). 5 p.m. Last day to officially withdraw from the University for 10-week semester. 5 p.m.
August 8	Last day of 10-week semester classes.
August 9-10	10-week semester final examinations for all students.
August 11	Grades for degree candidates due in Enrollment Services. 10 a.m.
August 12	Last day for August undergraduate degree candidates to apply for Tuition Rebate. 5 p.m.
August 13	Commencement. 9 a.m.
August 15	Final grades for 10-week semester due in Enrollment Services. 10 a.m.

Note: All dates and times are subject to change.

ADMINISTRATION

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Texas A&M University at Galveston

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Donna C. Lang	Associate Vice President for Enrollment Management and Educational Outreach
William W. Pickavance	Superintendent, Texas Maritime Academy
Susan H. Lee	Associate Vice President for Finance
Grant Shallenberger	Interim Chief of Staff and Assistant Vice President for Student Affairs and Auxiliary Services

GENERAL INFORMATION

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, transportation and liberal arts. 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 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). Some research and classroom work is conducted at the three-acre Ft. Crockett Campus on Galveston Island, including additional space leased from the National Marine Fisheries Services. The 10-acre Offatts Bayou Campus houses the Center for Marine Training and Safety and student recreational facilities.

Students who complete the academic programs of Texas A&M University at Galveston (TAMUG) 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 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 Associate Vice President for Academic Affairs or designee.

Purpose of Catalog

The purpose of this catalog is to provide information about the academic programs of Texas A&M University at Galveston to students, prospective students, faculty and staff of the University. Included is information concerning admissions, academic regulations and requirements, services available to students, academic offerings and a list of the administrative officers and faculty of the University. While every effort has been made to make this catalog as complete and accurate as possible, changes may occur at any time in requirements, deadlines, fees, curricula and courses listed in this catalog. Students should refer to the website <https://howdy.tamu.edu/cp/home/displaylogin> for course offerings in any given semester. For administrative reasons, because of insufficient enrollment or because of limited resources, any given course might not be offered in the announced semester.

The provisions of this catalog do not constitute a contract, express or implied, between any applicant, student, faculty or staff member of Texas A&M or The Texas A&M University System. This catalog is for informational purposes only. The University reserves the right to change or alter any statement herein without prior notice. This catalog should not be interpreted to allow a student that begins his or her education under the catalog to continue the program under the provisions in the catalog.

Academic Programs

TAMUG provides undergraduate academic instruction in marine and maritime-related degree programs in Marine Biology (MARB), Marine Sciences (MARS), Marine Engineering Technology (MARR), Marine Transportation (MART), Marine Fisheries (MARF), Maritime Systems Engineering (MASE), Maritime Administration (MARA), Maritime Studies (MAST), Ocean and Coastal Resources (OCRE) and University Studies (USGA). All students complete the University Core Curriculum requirements set by TAMU to ensure a broad-based education.

TAMUG also administers a Master of Marine Resources Management (MARM) degree and a Masters and Doctorate in Marine Biology. Other cooperative graduate degree programs, at both the master and doctorate levels, are in place with the departments of Wildlife and Fisheries Sciences, Oceanography and Biology at TAMU. The Texas Maritime Academy is headquartered on the Galveston Campus. A Teacher Certification program is offered via distance education through the Texas A&M College of Education in College Station.

A certificate program in Marine Biology/Biomedical Sciences prepares the graduate for careers in aquatic animal health, seafood technology and various marine related disciplines, as well as advanced studies in veterinary medicine, human medicine, allied health, biological oceanography and related biological disciplines.

Academic Facilities

Classrooms, laboratories and meeting spaces are housed within 15 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 University training ship, 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

Faculty, post-doctoral fellows, research staff and students are actively involved in research throughout the world from Alaska to Antarctica to American Samoa to Asia. Research is conducted under the direction of more than 42 faculty members with funding from federal, state, private and university sources including the National Science Foundation, National Oceanic and Atmospheric Administration, Department of the Interior, National Undersea Research Program, Minerals Management Service, Department of Energy, Texas Commission on Environmental Quality, Texas General Land Office, Texas Water Development Board, Texas Department of State Health Services, Welch Foundation, Alaska Sea Life Center, CONACYT, McDaniel Foundation, National Speleological Society, Texas Institute of Oceanography and Research Development Fund. Externally funded research expenditures for FY08 were over \$4.7 million.

Research encompasses both the basic and applied aspects of fields such as marine biology, oceanography, coastal/ocean engineering, marine geology, marine policy and management, environmental studies, conservation, business, admiralty law and coastal zone management. Research is focused largely in the areas of coastal and beach processes (e.g., physical profiling of coastal regions and erosion processes and control), marine life studies (e.g., marine mammal, fish, shellfish, algae and sea turtle biology and ecology), bay and estuary ecosystems (e.g., wetlands management and toxic contaminant analysis), geochemical cycling in marine/aquatic/atmospheric systems and offshore/deepwater environments.

TAMUG offers a M.S. (thesis or non-thesis) and Ph.D. in Marine Biology. It also offers both a thesis and non-thesis Masters of Marine Resource Management. There are over 40 students participating in this program. Many of the faculty researchers also have graduate appointments in TAMUG and/or TAMU departments. Approximately 65 M.S. and Ph.D. graduate students from the TAMU departments of Wildlife and Fisheries Sciences, Oceanography, Ecosystem Science and Management, Ocean/Civil Engineering, Biology and Anthropology are conducting their research under a TAMUG faculty member.

Undergraduate students at TAMUG have many opportunities to participate in research, such as the Texas Institute of Oceanography Undergraduate Student Research Program, working as student workers and technicians on funded research programs, taking independent study classes or participating in the Undergraduate Research Scholars Program. Undergraduate students may work in the laboratory and at field sites throughout the world, participate in research cruises, present results at local, national and international meetings, and serve as authors on publications.

Accreditation

Texas A&M University at Galveston is fully accredited by the Southern Association of Colleges and Schools. Maritime Systems Engineering and Marine Engineering Technology are 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 Statement

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 does 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 outreach programs of the University include Sea Camp (a marine biology summer camp for youths aged 10-18), Sea Campus Kids (a marine biology day camp for youths aged 6-12) 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. The Center for Marine Training and Safety offers broad-based professional development to employees of coastal and offshore maritime industries. 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 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.

Academic Year

The academic year 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.

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:

In addition to the University Core Curriculum and degree specific requirements, Texas A&M University has criteria that must be met by all students in order to receive a degree. See the Degree Information section of this catalog for this criteria.

1. The ability to communicate through the use of the spoken or written word requires the development of speech and writing skills.

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: AGJR 404, COMM 203, COMM 205, COMM 243, ENGL 203, ENGL 210, ENGL 235, ENGL 241 and ENGL 301.

2. Without knowledge of mathematics and logic, it is not possible to understand or participate in the development of knowledge.

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. Knowledge and appreciation of science as a significant human activity, rather than merely a listing of results or collection of data, is acquired only by engaging in the activities of science.

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: ASTR 111, BIOL 101, BIOL 107, BIOL 111, BIOL 113/123, CHEM 101/111, CHEM 103/113, CHEM 107, GEOL 101, PHYS 201 and PHYS 218.

Remaining hours to be selected from courses listed and/or: ANTH 225, ASTR 101/102, ASTR 109, ATMO 201/202, BESC 201, BIOL 112, BIOL 225, CHEM 102/112, CHEM 104/114, CHEM 106/116, CHEM 222/242, ENGR 101, ENTO 322, FRSC 304, GENE 301, GENE 310, GEOG 203/213, GEOL 106, GEOL 307, GEOS 210, GEOS 410, HORT 201/202, OCNG 251/252, PHYS 109, PHYS 202, PHYS 208, PHYS 219, RENR 205/215, SCSC 105, SCSC 301 and SCSC 405.

4. Knowledge of our culture and its ideals makes possible both social integration and self-realization (see note 4).

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: AFST 201, AFST 302, AMST 300, AMST 320, ANTH 202, ANTH 205, ANTH 301, ANTH 302, ANTH 303, ANTH 308, ANTH 313, ANTH 315, ANTH 316, ANTH 317, ANTH 318, ANTH 324, ANTH 350, ANTH 351, ANTH 353, ANTH 354, ARCH 249, ARCH 250, ARCH 329, ARCH 345, ARCH 350, ARCH 430, ARCH 434, ARTS 149, ARTS 150, ARTS 329, ARTS 330, ARTS 335, ARTS 349, ARTS 350, ARTS 445, CLAS 351, COMM 301, COMM 327, COMM 425, DCED 301, ENGL 203, ENGL 204, ENGL 205, ENGL 212, ENGL 221, ENGL 222, ENGL 227, ENGL 228, ENGL 231, ENGL 232, ENGL 235, ENGL 251, ENGL 308, ENGL 310, ENGL 312, ENGL 313, ENGL 314, ENGL 315, ENGL 316, ENGL 317, ENGL 321, ENGL 322, ENGL 323, ENGL 329, ENGL 330, ENGL 333, 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 356, ENGL 360, ENGL 361, ENGL 362, ENGL 365, ENGL 374, ENGL 375, ENGL 376, ENGL 377, ENGL 378, ENGL 379, ENGL 385, ENGL 390, ENGL 392, ENGL 393, ENGL 394, ENGL 396, ENGL 401, ENGL 412, ENGL 414, ENGL 415, ENGL 431, ENGL 474, ENGL 481, ENGR 482, GEOG 202, GEOG 301, GEOG 305, GEOG 320, GEOG 321, GEOG 323, GEOG 325, GEOG 326, GEOG 327, HIST (any course), HORT 203, HUMA 211, HUMA 213, HUMA 303, HUMA 304, LAND 240, LAND 340, LBAR 203, LBAR 331, LBAR 332, LBAR 333, LING 307, LING 310, MAST 371, MAST 411, 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 351, RELS 360, RELS 392, THAR 101, THAR 155, THAR 201, THAR 280, THAR 281, WGST 200, WGST 333, WGST 374, WGST 401, WGST 409, WGST 461, WGST 473, WGST 474 and WGST 477.

* or any course in the Department of Hispanic Studies or the Department of European and Classical Languages and Cultures (see note 5).

- B. Visual and Performing Arts* (3 hours). Acceptable courses are: ANTH 324, ARCH 249, ARCH 250, ARCH 350, ARCH 430, ARCH 434, ARCH 437, ARTS 103, ARTS 111, ARTS 112, ARTS 149, ARTS 150, ARTS 212, ARTS 305, ARTS 311, ARTS 329, ARTS 330, ARTS 335, ARTS 349, ARTS 350, ARTS 445, CARC 335, CLAS 352, CLAS 415, DCED 161, DCED 162, DCED 168, DCED 172, DCED 173, ENDS 101, ENDS 115, ENGL 212, ENGL 219, ENGL 251, ENGL 312, ENGL 317, ENGL 340, ENGL 351, ENGL 356, ENGL 385, ENGL 412, EURO 405, EURO 406, EURO 425, EURO 432, EURO 435, EURO 446,

EURO 447, EURO 455, FILM 201, FILM 301, FILM 394, FILM 406, FILM 415, FREN 425, GERM 334, GERM 432, GERM 435, HORT 203, ITAL 455, KINE 160, KINE 161, KINE 162, KINE 163, KINE 164, KINE 165, KINE 166, KINE 167, KINE 168, KINE 169, KINE 170, KINE 171, KINE 172, KINE 173, KINE 174, KINE 175, KINE 311, LAND 240, MODL 352, MUSC 200, MUSC 201, MUSC 280, MUSC 302, MUSC 311, MUSC 312, MUSC 315, MUSC 319, MUSC 321, MUSC 324, PERF 301, PHIL 330, PHIL 375, RUSS 446, RUSS 447, SPAN 410, SPAN 413, THAR 101, THAR 110, THAR 155, THAR 201, THAR 210, THAR 280, THAR 281 and THAR 407.

* Note: Students graduating from the Galveston Campus may choose to complete 3 additional hours of the Humanities in place of Visual and Performing Arts.

5. As the human social environment becomes more complex, it is increasingly important for individuals to understand the nature and function of their social, political and economic institutions (see note 4).

A. Social and Behavioral Sciences (3 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: ALED 340, ALED 400, ALED 440, AGECE 105, AGECE 350, AGECE 429, AGECE 430, AGECE 452, AGECE 453, ANTH 201, ANTH 210, ANTH 225, ANTH 300, ANTH 314, ANTH 403, ANTH 404, ANTH 410, ANTH 439, BIOL 225, COMM 315, COMM 320, COMM 325, COMM 335, ECON (any course), ENGL 209, ENGL 311, ENGL 403, ENGR 400, EPSY 320, EPSY 321, GEOG 201, GEOG 304, GEOG 306, GEOG 311, GEOG 330, GEOG 401, GEOG 440, HLTH 236, HORT 335, INST 310, INST 322, JOUR 102, JOUR 301, KINE 304, KINE 319, LBAR 204, LING 209, LING 311, LING 402, MARS 210, MGMT 475, POLS (any course), PSYC (any course except 203, 204), RELS 403, SOCI (any course except 220, 420), SPMT 336, SPMT 337, VTPB 221, WGST 207, WGST 300, WGST 310, WGST 316, WGST 317, WGST 332, WGST 367, WGST 404, WGST 424, WGST 439, WGST 462 and WGST 463.

B. U.S. History and Political Science (12 hours, 6 hours of history, and 6 hours of political science). To be a responsible citizen of the world, it is necessary, first, to be a responsible citizen of one's own country and community.

POLS 206 and 207 and HIST 105 and 106 or other courses in American and Texas history, except those courses pertaining solely to Texas history, may not comprise more than 3 hours.

6. As individual and national destinies become progressively more interconnected, the ability to survive and succeed is increasingly linked to the development of a more pluralistic, diverse and globally-aware populace. Two courses from the following list are to be taken by the student. If a course listed below also satisfies another University Core Curriculum requirement, it can be used to satisfy both requirements if the student wishes to do so. For example, a course that satisfies the Social and Behavioral Sciences requirement may be used to satisfy the International and Cultural Diversity requirement if that course also appears on the list.

International and Cultural Diversity (6 hours) Acceptable courses are: ACCT 445, AFST 201, AFST 302, AGECE 452, AGECE 453, ALED 422, ANTH 205, ANTH 210, ANTH 300, ANTH 301, ANTH 314, ANTH 315, ANTH 319, ANTH 324, ANTH 403, ANTH 404, ANTH 426, ARCH 250, ARCH 345, ARCH 350, ARCH 458, ARTS 150, ARTS 350*, BIMS 489, BUSN 289, CARC 301, CARC 311, CARC 321, CARC 331, CARC 335, COMM 327, COMM 335, COMM 407, COMM 425, COSC 484*, COSC 494*, DCED 301, ECON 312, ECON 319, ECON 320, ECON 324, ECON 330, EHRD 408, ENDS 101, ENDS 484*, ENDS 494*, ENGL 204, ENGL 205, ENGL 222, ENGL 232, ENGL 251, ENGL 333, ENGL 336, ENGL 337, ENGL 338, ENGL 339, ENGL 340, ENGL 352, ENGL 362, ENGL 374, ENGL 378, ENGL 379, ENGL 393, ENGL 403, ENGL 474, EURO 223, EURO 323, EURO 406, EURO 443, EURO 444, EURO 447, FINC 445, FREN 301, FREN 322, FREN 336, FREN 418, FREN 425, GEOG 201, GEOG 202, GEOG 301, GEOG 305, GEOG 306, GEOG 311, GEOG 320, GEOG 321, GEOG 323, GEOG 325, GEOG 326, GEOG 327, GEOG 402, GERM 322, HIST 210, HIST 214, HIST 258, HIST 301, HIST 305, HIST 307, HIST 319, HIST 324, HIST 336, HIST 339, HIST 342, HIST 343, HIST 345, HIST 346, HIST 348, HIST 352, HIST 355, HIST 356, HIST 402, HIST 405, HIST 407, HIST 412, HIST 439, HIST 440, HIST 441, HIST 449, HIST 451, HIST 455, HIST 460, HIST 461, HIST 464, HIST 473, HIST 477, HLTH 236, HLTH 334, HORT 335, HORT 440, HUMA 303, HUMA 304, IBUS 401, IBUS 403, IBUS 445, IBUS 446, IBUS 450, IBUS 452, IBUS 455, IBUS 456, IBUS 457, IBUS 458, IBUS 459, IBUS 460, INST 310, INST 322, LAND 240, LBAR 331, LBAR 332, LBAR 333, LING 307, LING 402, MARS 210, MARS 280, MAST 411, MGMT 430, MGMT 450, MGMT 452, MGMT 489, MKTG 330, MKTG 401, MKTG 403, MODL 222, MODL 352, MODL 362, MODL 363, MUSC 312, MUSC 315, MUSC 319, MUSC 324, PHIL 283, PHIL 416, PHIL 419, POLS 317, POLS 322, POLS 323, POLS 324, POLS 326, POLS 328, POLS 329, POLS 331, POLS 338, POLS 365, POLS 366, POLS 367, POLS 424, POLS 432, POLS 462, PSYC 300, RELS 303, RELS 304, RELS 403, RLEM 314, RPTS 340, RUSS 443, RUSS 444, RUSS 447, SOCI 207, SOCI 316, SOCI 317, SOCI 321, SOCI 323, SOCI 324, SOCI 325, SOCI 329, SOCI 330, SOCI 340, SOCI 350, SOCI 403, SOCI 419, SOCI 423, SOCI 424, SPAN 312, SPAN 320, SPAN 410, SPAN 411, SPAN 412, SPAN 421, SPAN 450, SPMT 336, SPMT 337, TEFB 271, TEFB 273, THAR 201, THAR 281, URSC 461, VTPB 221, VTPP 401, WGST 200, WGST 207, WGST 300, WGST 307, WGST 308, WGST 310, WGST 316, WGST 317, WGST 333, WGST 334, WGST 367, WGST 374, WGST 391, WGST 401, WGST 404, WGST 407, WGST 424, WGST 430, WGST 461, WGST 462, WGST 463, WGST 473, WGST 474 and WGST 477. * See note 7.

7. As the ancient scholars knew and as modern research has confirmed, the development of the body as well as the mind is an integral part of the educational process.

Kinesiology requirements are to be fulfilled by completing KINE 198 Health and Fitness and any other one KINE 199 course. KINE 199 used to fulfill University Core Curriculum requirements must be taken S/U. KINE 199 courses not included in the University Core Curriculum can be taken for a grade in accordance with the student's college policy. Transfer students with fewer than 2 hours of kinesiology credit must meet the KINE 198 requirement either by transfer of credit or by taking the course at Texas A&M.

Notes:

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

2. With the exception of courses satisfying the International and Cultural Diversity requirement (see Section 6), 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 285 or 485 do not satisfy University Core Curriculum requirements. Individual Special Topics (289 and 489) courses may be approved for use in the University Core Curriculum.
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 (last section of this catalog) and the Transfer Course Credit Policies in this catalog.
7. Courses taken abroad, which are conducted in another country by a TAMU faculty member, completed as reciprocal education exchange programs (REEP), or completed in another country through direct enrollment in another institution, can be used to satisfy the Core Curriculum requirement for International and Cultural Diversity. This includes credits earned through 285, 291, 484, 485, and 491 courses conducted abroad for which grades are determined by a TAMU faculty member.
8. Courses approved as satisfying one or more areas of the University Core Curriculum become effective the semester or summer session immediately following approval by the Faculty Senate.

DEGREE INFORMATION

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 declaration of a major or change in major, or those of any later catalog of the student's choice. Normally, a student will not be granted a degree based upon completion of the requirements set forth in a catalog more than seven years old. Before changing catalogs, the student must consult his or her academic advisor. A student changes catalogs by filing a written notification with the student's department head. It is incumbent on the student to verify that the change has been made.

The University Student Rules (including periodic revisions) is published each year at www.tamug.edu/studentlife for the benefit of the student body. This is the governing document in case of conflicts between this catalog and the University Student Rules. It is the responsibility of the individual student to read this information carefully and to use it as a reference.

Whereas each college must retain the flexibility to improve its curriculum, course offerings may be changed during the student's education. If a course required under a previous catalog is no longer offered, a student eligible to graduate according to that catalog should consult his or her academic advisor to identify another course that may be used to fulfill the requirement. Course adjustments in the degree program are permitted only with the approval of the Associate Vice President for Academic Affairs, through the department head or program director. The University reserves the right to make any changes in requirements by due notice in the catalog.

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 Associate Vice President for Academic Affairs.

Degrees Offered

The following degrees are offered by 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 Marine Biology
- 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
- Bachelor of Science in Ocean and Coastal Resources
- Bachelor of Arts in University Studies
- Bachelor of Science in University Studies
- Master of Marine Resources Management
- Master of Science in Marine Biology
- Doctorate of Marine Biology
- Master of Maritime Administration and Logistics (pending)

Requirements for a Baccalaureate Degree

The diploma of the University, with the appropriate degree, will be granted to the student who has made formal application for the degree by the published official deadline, has all grades on record in Enrollment Services, including grades pertaining to graduation with honors, by no later than 5 p.m., Friday, the first week of classes of the succeeding semester or summer term following commencement and has satisfied the requirements outlined in the following:

1. A curriculum leading to a baccalaureate degree shall contain a minimum of 120 credit hours including the required physical activity courses.
2. The undergraduate student must complete with at least a 2.0 grade point ratio all undergraduate coursework attempted at Texas A&M University at Galveston (see 6).
3. The undergraduate student must complete with a 2.0 grade point ratio all courses included in the major field of study (see 7).
4. The student is required to successfully complete one semester of KINE 198 and one semester of KINE 199 (taken satisfactory/unsatisfactory), unless a substitution for this requirement is petitioned through the student's department head.
5. The undergraduate student must satisfy all areas of the University Core Curriculum as outlined in the student's catalog.
6. The total number of grade points earned at this institution in courses must be at least twice the number of hours that the student carried in courses at this institution. Grades of F and U shall be included.
 - a. The number of credit hours associated with grades of S in courses taken on a satisfactory/unsatisfactory basis are not included in this computation.
 - b. The number of credit hours associated with grades of U in courses taken on a satisfactory/unsatisfactory basis are included in this computation.
 - c. With the approval of a student's department head, grades in courses not applying to the degree may be waived for the purpose of graduation only.

- d. The waiver of grades in courses as indicated in item c. will not affect the student's official grade point ratio or entitlement to graduation with honors.
- e. The provisions of item c. will not affect a student's probationary status prior to graduation.
7. The total number of grade points earned at this institution in courses in the student's major department must be at least twice the number of hours that he or she carried at this institution in his or her major department.
8. Grades made in courses elected in excess of a student's degree requirements shall be counted, but if failed, such courses need not be repeated.
9. First year grade exclusion cannot be invoked after a baccalaureate degree has been conferred upon the student. First Year Grade Exclusion requests for all degree candidates must be received in Enrollment Services not later than 5 p.m. the day midterm grades are due when the student is graduating in a fall or spring semester or not later than 5 p.m. Friday of the third week of class for the second summer session when the student is graduating in August.
10. The student must be formally recommended for graduation by the Faculty Senate after consideration of his or her complete record.
11. The student must have settled all financial obligations to the University.
12. Graduate and undergraduate students who plan to attend a commencement ceremony must do so the semester they apply for graduation and complete the degree requirements.
13. To be a candidate for a degree at the end of the semester or summer term, a student must be registered for or have completed all degree requirements by the 50th class day in the fall and spring semesters, the 15th class day for summer I and II and the 35th class day for the 10-week summer term of the academic calendar of Texas A&M University at Galveston either in residence or at another college or university. Proof of registration must be provided to Enrollment Services by the deadline. A student must be enrolled in his or her degree-granting college(s) and major(s) at the beginning of the student's last semester or summer term at Texas A&M to be a candidate for a degree from that college.
14. Foreign Language: A year of foreign language is required in many degree programs from Texas A&M. This degree requirement can be satisfied by the satisfactory completion in high school of two units of the same foreign language or one year of college work.
 - a. International students are not permitted to enroll in courses to satisfy this degree requirement if those courses are taught in their native language.
 - b. Bachelor of Arts degrees require an additional 6 semester hours at the 200-level.
 - c. 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. 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 Office of Academic Enhancement. 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.
 - d. American Sign Language (ASL) may be used to fulfill the foreign language degree 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.)
15. All students must take at least two courses in their major that are designated as fulfilling a writing requirement (W). The requirement may be met by taking two writing (W) courses or one writing (W) course and one oral communication (C) course. The requirement may not be met by any course listed as a University Core Curriculum communication requirement, nor may it be met through credit by examination. It may be met by a course transferred from another institution of higher learning, with the approval of the academic department head and the Associate Vice President for Academic Affairs. Upon request, students will provide a course description, syllabus or writing sample from the course being transferred.

Residence Requirement

A minimum of 36 semester hours of 300- and/or 400- level coursework must be successfully completed in residence at Texas A&M to obtain a baccalaureate degree. A minimum of 12 of these 36 semester hours must be in the major.

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 Enrollment Services by the stated deadline.

Tuition Charged for Excess Credit Hours

The State of Texas will not provide funds to state institutions of higher education for excess semester credit hours earned by a resident student. Because funding will not be provided by the State, and as permitted by State law, Texas A&M will charge tuition at the non-resident rate to all students who exceed the semester credit hour limit for their program. Excess semester credit hours are those which accrue after the student attempts more than 30 hours the number of semester credit hours required for the completion of the degree program in which the student is enrolled. Thus, the student may accumulate up to 30 hours beyond those required for the chosen degree program and not exceed the limitation. The limitation on excess credit hours applies only to those undergraduate students who first enter higher education in the fall 1999 and thereafter. The semester credit hours counted toward the limitation include all hours attempted by the student except:

- Semester credit hours earned by the student before receiving a baccalaureate degree that has been previously awarded.
- Semester credit hours earned by the student by examination or other procedure by which credit is earned without registering for a course for which tuition is charged.

Requirement in Political Science (Government) and History

In order to meet the legal requirements for a baccalaureate degree, all students must have at least 6 credit hours in political science (government) and at least 6 credit hours in American history. POLS 206 (American National Government) and POLS 207 (State and Local Government with emphasis on Texas) fulfill the political science requirement. Both the political science and American history requirements may be met, in whole or in part, by equivalent coursework satisfactorily completed at another accredited college or university.

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 appropriate department head, students successfully completing the required 12 hours of upper-level ROTC courses will be deemed to have completed the equivalent of Political Science 206 or 207 plus History 105 or 106 (or another appropriate course) for a total of 6 hours. Students pursuing teacher certification are not allowed to substitute ROTC credits for this requirement.

Supplementary Fee for Courses Attempted More than Twice

A course that is repeated by a student more than twice at a public institution of higher education in Texas may not be reported for state funding. As a result, the institution must either pass the non-funded portion to all students, or charge a supplementary fee to the student who is repeating the course. Texas A&M has chosen to assess a supplementary fee to those students repeating a course more than twice. A student attempting certain courses more than twice at Texas A&M will be subject to a supplementary fee of \$125 per semester credit hour (\$375 for a 3 hour course) for the repeated course, in addition to tuition and required fees associated with the course. The general criteria for determining which courses are subject to the supplementary fee are:

- A course is subject to the fee if a student has completed it twice at Texas A&M with a grade of A, B, C, D, F, F* (academic dishonesty), S (satisfactory), U (unsatisfactory), I (incomplete), Q (authorized drop after the add/drop period) or X (no grade submitted).
- Courses identified by the University as repeatable for credit are not subject to the fee. A schedule of repeated courses can be found at <http://admissions.tamu.edu/registrar/>.
- Courses dropped with no record (NR), no grade (NG) and withdrawals (W) are not counted as repeated courses.

Students will be notified at the time they register for a course that it has been taken twice at Texas A&M and is subject to the supplementary fee.

Graduation Requirements in 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. This requirement can be met by:

- completing two units (two full years) of high school coursework in the same foreign language;
- completing two semesters (one full year) of coursework at the college level in the same foreign language; or
- demonstrating proficiency in a foreign language by examination.

Application for a Degree

Formal application for degrees must be submitted online by the deadline stated in the academic calendar and online degree application. Under unusual circumstances, an application for a degree may be accepted after the stated deadline; however, no application will be accepted after grade sheets for graduating students have been produced for the faculty. The student must apply online at <https://howdy.tamu.edu/cp/home/displaylogin>.

The buying, selling, creating, duplicating, altering, giving or obtaining the Texas A&M 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.

Two Degrees

A candidate pursuing 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 hours additional to the greater number required for either degree. The student must have a minimum of 36 hours of 300–400 level courses, 12 hours of which must be in the major field of study, in residence at Texas A&M. The student must also meet the citizenship requirements for history and political science.

Undergraduate Minor Programs

A minor is a concentration of courses that focus on a single area or an interdisciplinary perspective as developed by the department or program that offers the minor. The department or program offering the minor is responsible for setting enrollment limits and deciding which courses are used to meet the minor. Coursework consists of 15–18 hours with a minimum of 6 in residence at the 300–400 level.

If a minor is offered by a department or academic unit, then the minor is considered to be available to all students as resources permit. The academic advisor in the major-granting department will add the minor for the student on COMPASS. In some cases, approval by the advisor of the minor-granting department is required before the minor is added by the advisor in the student's major. Substitutions in a minor can be initiated by either the major- or minor- granting department, but must be approved by both departments. Students must declare a minor no later than the date on which they apply for graduation. A maximum of two minors can be completed by students. A minor is displayed on the transcript after graduation but not displayed on the diploma. See the curriculum section of this catalog for a complete list of undergraduate minor programs.

Graduation with Honors

To be eligible for graduation with honors, a student seeking a baccalaureate degree must enroll in and complete a minimum of 60 undergraduate semester hours preceding graduation at this institution. Course credit received by examination and for graduate level courses 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 for the appropriate category of honors.

Categories for honors shall be designated as follows:

- Summa Cum Laude: A student may be graduated Summa Cum Laude with a grade point ratio of 3.90 or above.
- Magna Cum Laude: A student may be graduated Magna Cum Laude with a grade point ratio range of 3.70 through 3.899.
- Cum Laude: A student may be graduated Cum Laude with a grade point ratio range of 3.50 through 3.699.

ADMISSION

The applications for undergraduate admission in the year 2011 are the ApplyTexas Application for Admission to Texas Public Universities for freshman, transfer and international admission. You may access the appropriate application from the ApplyTexas Application website (www.applytexas.org) or the Texas A&M University at Galveston website (www.tamug.edu).

Acceptance by Enrollment Services does not constitute admission to the U.S. Maritime Service Corps of Cadets (separate application required).

When admission requirements have been satisfied, Enrollment Services will send the new student a letter of acceptance and an acceptance packet with a housing application, test information and New Student Conference registration information.

The admission guidelines presented here are for admission to the spring, summer or fall 2011 semester. While they are the best guide available, admission criteria are subject to change.

Application Information

Deadlines for admissions are listed below, however, for Fall admission, it is advantageous to gain acceptance before March 1 to be eligible for many scholarships and for on-campus housing. The application for Spring 2011, Summer 2011 and Fall 2011 are not available on-line until after August 1, 2010.

Types of Admission

A Freshman student is an applicant who is a citizen or permanent resident of the United States*; is a degree-seeking applicant and is without college credit**; or is still in high school, with or without college credit. The application for Freshman admission will be available August 1, 2010. The completed application must be in the Office of Enrollment Services by 5 p.m., July 29, 2011 to be considered.

* - Someone who has applied for permanent residency, or who qualifies for Texas residency based on SB 1528.

** - An applicant who has enrolled in a post-secondary institution since high school graduation, with or without credit received, must apply as a transfer applicant.

A Transfer student is an applicant who is a citizen or permanent resident of the United States; is a degree-seeking applicant; has graduated from high school or equivalent; has enrolled in a post-secondary institution after graduation from high school; does not have a bachelor's degree; and does not qualify for readmission. The application for Transfer admission will be available August 1, 2010. The completed application must be in the Office of Enrollment Services by 5 p.m., July 29, 2011 to be considered.

An International Freshman student is an applicant who is not a citizen or permanent resident of the United States or an applicant for permanent residency; has never enrolled at Texas A&M as an undergraduate degree-seeking student; or is someone who has not graduated from a Texas high school after three years of residence in Texas (if this applies to you, please apply as a U.S. freshman or U.S. transfer applicant).

An International Transfer student is an applicant who is not a citizen or permanent resident of the United States or an applicant for permanent residency; has never enrolled at Texas A&M as an undergraduate degree-seeking student.

International Freshmen and Transfer students may apply during the following date periods:

To apply for Spring 2011 - August 1, 2010 to December 1, 2010.

To apply for Summer I 2011 - August 1, 2010 to April 1, 2011.

To apply for Fall 2011 - August 1, 2010 to May 28, 2011.

To apply for Spring 2012 - August 1, 2011 to December 1, 2011.

A Readmission student is an applicant who is a former degree-seeking Texas A&M undergraduate student (including an international student); does not have a bachelor's degree; did not officially register for the previous semester (excluding summer sessions) at Texas A&M. Readmission does not include applicants whose only previous enrollment at Texas A&M has been as a non-degree student.

A Postbaccalaureate Undergraduate student is an applicant who has a bachelor's degree and wishes to pursue a second undergraduate degree.

A Non-degree Seeking student is an applicant who wishes to take specific undergraduate coursework and does not wish to pursue a degree at Texas A&M.

Items Necessary to Complete an Application File

Please see the Readmission, International, Postbaccalaureate or Non-degree sections for other items required to complete the transfer application for those types of admission. U.S. citizens completing a non-U.S. high school program should refer to the Texas A&M University Office of International Admissions for questions concerning transcripts, examination results and foreign credentials.

An application is reviewed to make a decision about admission after all items listed below have been received.

Texas Common Application submitted electronically

Application Fee (check, money order, Visa, MasterCard, Discover or American Express)

- Domestic fee is \$45, International fee is \$75. Graduate application fee is \$50.
- If payment of the application fee creates an extreme financial hardship, please enclose verification of need for a fee waiver. Freshmen should provide a letter from the school counselor verifying need criteria or SAT/ACT fee waiver form. Transfer/Readmission students should provide a letter from post-secondary school financial aid counselor verifying need or a letter verifying state/federal financial assistance (i.e. Pell Grant). No waiver of the international application fee is available.
- Checks or money orders are accepted provided they display an agency bank in the United States and have magnetic ink character recognition (MICR) routing numbers at the bottom of the check. Make checks and money orders payable to Texas A&M University at Galveston. The applicant's name and date of birth should be included on the face of the check or money order. Do not send cash.

Essays

- Freshmen are required to complete Essay Topics A and B. Essay C is strongly recommended for applicants who will be considered in the holistic review process.
- Transfer applicants are required to complete Essay Topic A.

SAT or ACT Scores

- Required of all freshman applicants, including international freshman applicants.
- Applicants must take the SAT with the writing component or the ACT with the writing component.
- Scores should be sent directly from the testing agency.
- The SAT code is 6835; the ACT code is 6592.
- Test scores with the writing component must be from a test date within five years of the date of planned enrollment.
- The highest test score from one test date will be used. Texas A&M does not allow combined test scores from different test dates.

Official High School Transcripts

- Freshman applicants who have not graduated from high school at the time of application must submit an official transcript indicating coursework, credits earned, grades and class rank at least through their junior year. If admitted, the applicant will be required to submit a final transcript with graduation data.
- If the applicant's high school does not rank its students, a school profile from the high school must be provided as part of the application file.
- Freshman and transfer applicants who have graduated from high school at the time of application are to submit an official high school transcript that includes a numerical class rank and date of graduation, or a certificate verifying completion of a GED program.
- Readmit and postbaccalaureate applicants are not required to submit a high school transcript as part of the application file.
- To be considered official, a transcript must bear an original signature of a school official or an original school seal.
- Transcripts in a language other than English must be accompanied by an official English translation. Applicants who have attended high school both in the U.S. and out of the U.S. should submit official transcripts from each school attended.
- For students enrolled in the United States, copies of official transcripts from other countries will be accepted provided the copies are on file and verified by the U.S. institution.
- Fax copies are not official and will not be accepted.

Official College Transcripts

- An official transcript is required from every post-secondary institution attended even if the applicant did not earn credit, receive a course grade or the course is not transferable. Coursework from one college posted on the transcript of another college will not satisfy this requirement. Failure to acknowledge attendance and to provide transcripts from all schools attended may cause the application to be considered fraudulent.
- Official transcripts on paper are to be sent by the sending institution in a sealed envelope. The transcript will not be considered official if the student has had access to the actual transcript.
- Transcripts in a language other than English must be accompanied by an official English translation.
- Fax copies are not official and will not be accepted.
- For students enrolled in the U.S., copies of official transcripts from other countries will be accepted provided the copies are on file and verified by the U.S. institution.

Lawful Permanent Residents of the United States

An applicant who has applied for or been granted Lawful Permanent Resident (LPR) status in the United States by the Department of Homeland Security (DHS) is eligible to submit an application as a Domestic Applicant. To qualify, you must include one of the following with the application:

- a copy of both sides of the DHS-issued Permanent Resident Card, or
- the I-551 Entry Stamp and Immigrant Visa in the passport, or
- an approved I-797 Notice of Action or I-797C Notice of Receipt.

If your parent is also a permanent resident, a copy of the parent's proof of LPR status will be necessary to determine in-state residency for tuition purposes.

Note: If you have applied for adjustment of status to Lawful Permanent Residency and have not received your LPR card or Notice of Action that says Notice Type: Approval Notice, you are considered an International Student once you are admitted to the University. There are certain requirements that International Students must fulfill upon enrollment. Please contact International Student Services at iss@tamu.edu for more information about these requirements.

Notification of Application Status

Check the Applicant Information System (AIS) Web site at <https://applicanttamug.tamu.edu/> to verify your application has been received and to determine if any credentials are missing. Please allow at least two weeks to process credentials.

Enrollment Services will make every effort to inform applicants of incomplete files through AIS. If incomplete applications are received within one month of the closing date, there may not be sufficient time for Enrollment Services to notify applicants. All items necessary to complete an application must be received by Enrollment Services by the closing date to assure consideration for admission.

Required Coursework

Applicants who graduate from an accredited Texas public or private high school applying to Texas A&M University must have completed either the recommended or advanced/distinguished high school curriculum.

A. Information Presented in the Application

- Extracurricular activities including time commitment and duration of involvement
- Leadership and/or exceptional talent as shown in extracurricular activities and/or work
- Community/volunteer work including time commitment and duration of involvement
- Awards and achievements earned while in high school
- Employment and/or internships including dates of work and hours per week
- Family educational background and household income

B. Essay Topics A and B

- Essay Topics A and B on the ApplyTexas Application are required for admission processing.
- Essay Topic C is recommended for applicants in review status. Scholarship review by departments may utilize Essay Topics A, B and C in award decisions.

Freshman Admissions 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 or 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 automatically admitted to TAMUG.

2. Academic Admits

Domestic applicants who rank in the top 25% of their high school graduating class, achieve a combined SAT math and SAT critical reading score of at least 1300, with a test score of at least 600 in each of these components of the SAT, or a composite ACT score of at least 30 with a test score of at least 27 in ACT math and ACT English, and meet minimum coursework will be automatically admitted to TAMUG. These applicants must submit all required credentials to qualify for automatic admission.

3. Other Applicants

Applicants not meeting the above requirements for automatic admission but who have met the state of Texas Uniform Admission Policy will have their complete application file reviewed in a holistic manner to make an admission decision.

State of Texas Uniform Admission Policy

Texas Education Code (TEC) 51.803-51.809 requires that all students meet one of the following college readiness standards in order to be eligible to be considered for admission at a Texas Four-Year Public Institution.

- Successfully complete the recommended or advanced high school program or complete the portion of the program that was available to them; or
- Successfully complete a curriculum that is equivalent in content and rigor to the recommended or advanced high school program at a high school that is exempt from offering such programs; or
- Satisfy the College Readiness Benchmarks on the SAT or ACT assessment.
 - SAT – 1500 out of 2400 (Verbal + Math + Writing)
 - ACT – 18 English, 21 Reading, 22 Mathematics and 24 Science

Information for all Freshman Applicants

- All applicants should use the application questions and the essays to present their academic background and personal strengths as well as personal circumstances.
- Letters of recommendation are not required. If an applicant chooses to submit letters of recommendation, be sure they validate or certify leadership, exceptional talent, or special circumstances. The most helpful letters are from individuals who know the applicant well and who can write about what distinguishes the applicant from other applicants. Please submit no more than two letters of recommendation. Photocopies are acceptable.
- A limited number of applicants who do not have the college preparatory coursework or strong academic credentials may be offered provisional admission that requires the successful completion of a summer program at TAMUG.

Notice of Admission Decision

Admission 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. Decisions are made on a rolling basis and are generally made upon file completion. Bridge Program admissions decisions are usually made in early February.

Suspected Fraudulent Admission Applications

Applicants for admission to Texas A&M should be aware that the information submitted will be relied upon by University officials to determine their status for admission and residency for tuition purposes. By signing and submitting an admission application, the applicant certifies that the information in, and submitted with, the application is complete and correct and may be verified by Texas A&M. The submission of false or incomplete information is grounds for rejection of the application, withdrawal of any offer of acceptance, cancellation of enrollment, or any other appropriate disciplinary action.

For prospective students (admitted but not enrolled), or for enrolled students, the initial determination of whether an individual has submitted a fraudulent application will be made by the Executive Director of Enrollment Services with a final right of appeal to the Associate Vice President for Academic Affairs.

Any University official who suspects that a prospective student or enrolled student has submitted a fraudulent admission application must notify the Executive Director of Enrollment Services.

Transfer Admissions Criteria

Transfer applicants are admitted to a specific major and are required to follow the curriculum of that major.

Admission Criteria

Most transfer admission decisions are made through a competitive review process. 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.

- Transfer applicants must have at least a 2.5 grade point ratio (GPR) on at least 24 graded semester hours of transferable coursework at the time of application to be considered.
- Applicants who drop or withdraw from courses frequently and who do not achieve satisfactory grades routinely will be at a disadvantage in the review for admission.
- Spring grades may be used in the fall admission decision if received by June 1.
- The entire application, including Essay Topic A, is considered to identify admissible candidates.

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 Enrollment Services, 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 2.5 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 coursework 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 found at <http://www.tccns.org/matrix/index.htm>.

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 24 semester credit hours. However, applicants with a minimum of 12 semester credit hours will be considered.

Notification of Admission Decisions

Transfer admission decisions are made through a competitive review process. These applicants are notified of the admission decision by early May for summer/fall admission (late November for spring). For those applicants submitting spring grades for fall consideration, decisions should be announced in early July.

Information for Transfer Applicants

1. At least a 2.0 GPR on coursework in progress during the semester (excluding summer terms) immediately prior to enrollment at Texas A&M is a condition of admission.
2. Grades for all transferable courses are used in the computation of the GPR. This includes:
 - Failing grades, repeated courses, WF, Incomplete, etc.
 - Grades reported as Incomplete are computed as Fs.
 - Plus and minus grade designations are not used; C+ is computed as a C, B- as a B, etc.
3. Credit by examination courses which are transcribed from other colleges or universities may be transferred if sequential coursework with credit is also indicated. If there is evidence that the credit by examination courses are part of the student's program of study at that institution, credit will be awarded for those courses that meet the transfer guidelines.
4. Coursework taken as credit-by-exam must be listed as a specific course on an official college transcript to be considered in the admissions process and for transfer of credit.

Foundation Courses for Transfer Students

Texas Common Course Numbering System	Texas A&M Course	Hours	Chosen Degree Program
ENGL 1301	ENGL 104	3	All majors
HIST 1301, 1302	HIST 105, 106	6	All majors
GOVT 2305, 2306	POLS 206, 207	6	All majors
MATH 1324, 1325	MATH 141, 142	6	MARA majors
MATH 2413, 1324	MATH 151, 166	7	MARB, MARF majors
MATH 2412, 2413	MATH 150, 151	8	MARR majors
MATH 2413, 2414	MATH 151, 152	8	MASE majors
MATH 1316, 2413	MATH 106, 151	8	MART major
MATH 2413, 2314	MATH 151, 161	7	MARS majors
BIOL 1406, 1407	BIOL 111, BIOL 112	8	MARB, MARF, MARS and OCRE majors

PHYS 1401, 1402	PHYS 201 and 202	8	MART majors
PHYS 2425, 2426	PHYS 218, 208	8	MASE and MARR majors
Any science		8	MAST and MARA 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. 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 next section of this catalog entitled "Residency Requirements for a Baccalaureate Degree," which explains residency requirements.

Residence Requirement for Baccalaureate Degree

A minimum of 36 semester hours of 300- and/or 400-level coursework, with a minimum 12 course hours in the major, must be completed in residence at Texas A&M University at Galveston or College Station to qualify for a baccalaureate degree.

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.

Change of Curriculum to Another Campus

Texas A&M offers coursework off campus. Participation in such programs or coursework does not give the participant automatic campus enrollment privileges. Students are eligible to change to another campus, center or location only after completion of a minimum of 30 hours earned while enrolled as a student in residence at the campus, center or location of admission. The 30 hours should include at least 29 graded hours and may include one pass/fail KINE course with at minimum GPR of 2.50. For a change of curriculum to be approved, students must meet the conditions of their desired curriculum and space must be available at the campus, center or location of desired enrollment. Final approval is granted by the academic dean of the college that administers the curriculum.

Transfer Course Credit Policies

Transfer credit on coursework complete at the time of application to Texas A&M University is transferable only when an official transcript from the originating institution is presented as part of the application for admission or readmission process.

The transfer of course credit will be determined by Enrollment Services on a course-by-course basis. Credit submitted for transfer must be on an official transcript received by Enrollment Services 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, criteria 10 may be qualified by criteria 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) may 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 a course or courses 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's Texas A&M major is engineering technology or that the student's department head 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 courses which are transcribed from other colleges or universities may be transferred if sequential coursework with credit is also indicated. If there is evidence that the credit by examination courses are part of the student's program of study at that institution, credit will be awarded for those courses that meet the transfer guidelines.
7. Courses similar to ones offered by the Colleges of Agriculture and Life Sciences, Business, Geosciences, Engineering or TAMUG at the junior or senior level transfer 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 may be transferred by title only.
9. Credit for cooperative education will not be transferred.
10. A course that is substantially equivalent to a TAMUG course transfers as an equivalent course. Two or more courses may be combined to form one or more equivalent courses. If there is doubt about the equivalency of a course, the TAMUG department offering the course subject matter is asked to determine if the course is equivalent.

11. As a general policy, credit for admission will be given for transfer work satisfactorily completed with a passing grade at another properly accredited institution.
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 TAMUG grades of W, WF, F, I or U are assigned shall be included; those having grades equivalent to TAMUG 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, Enrollment Services will determine the transfer of credit based on University policy, previous actions of the University and prior experience.

Resolution of Transfer Disputes for Lower Division Courses Between Public Institutions in Texas

The following procedures shall be followed by public institutions of higher education in the resolution of credit 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 rules and guidelines of the Texas Higher Education Coordinating Board (THECB).
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 denies 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 TAMUG 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.

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 TAMUG.

Credit from Abroad

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 with a grade of C or better 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 Texas A&M. Official credentials submitted directly from Enrollment Services 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 Abroad 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.

Credit for Military Experience

The University follows, with limitations, the recommendations of the American Council on Education (ACE) 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 specialties 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 semester hours for basic ROTC and 4 semester hours 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.
4. Army/ACE Registry Transcript System (AARTS).

5. Sailor/Marine ACE Registry Transcript System (SMARTS).

Extension and Correspondence Courses

Students may apply a maximum total of 30 semester hours of approved extension class work and correspondence study toward a degree. 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 does not offer courses by correspondence. The Office of Academic Enhancement is authorized to act as an agent to receive correspondence courses.

Correspondence courses taken through the Defense Activity for Nontraditional Education Support (DANTES) may be accepted and included in the 12 hours allowed.

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

- Obtain advance written permission from the student's department head;
- Present appropriate evidence of having completed the course.

International Admissions Criteria

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 requirements, deadlines, admissions criteria, expenses and English language proficiency, international students should refer to the Texas A&M University Catalog or contact International Admissions, Texas A&M University, P. O. Box 30014, College Station, TX 77842-3014. Phone: 979-845-1060. Email: international-admission@tamu.edu.

Transcripts/Examination Results

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.

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 TAMUG Enrollment Services.

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 that are on file and verified by the U.S. institution. Unofficial photocopies, fax copies, notarized copies of records, examination results or translations will not be accepted.

Admission Criteria for International Applicants with U.S. Based Credentials

International applicants that are completing their education at an institution that is accredited by the U.S. will be reviewed in accordance with the guidelines determined for domestic admission. However, these applicants must still meet international deadlines and testing requirements. (See item 2 below.)

Admission Criteria for International Applicants with Foreign Credentials

International applicants that are completing their education at an institution that is not accredited by the U.S. will be reviewed based on the following criteria:

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 the General Certificate of Secondary Education (GCSE). Predicted 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 coursework is required.
2. Testing: SAT or ACT scores (with writing component) will be considered in the review criteria for international freshman applicants. Applicants whose native language is not English are required to demonstrate English proficiency by meeting any one of the following requirements:
 - TOEFL scores of 550 paper-based test, 213 computer-based test, or 80 internet-based test
 - IELTS with a 6.0 overall band score
 - SAT Critical Reading score of 500 or higher
 - ACT English score of 19 or higher
 - Completed all four years of high school from a U.S. accredited high school.
 - Additional English testing may be required after admission and before enrollment.
3. Individual Achievement and Recognition
 - Leadership positions held
 - Honors/awards received
 - Major national, state or Texas A&M scholarships received

Additional Requirements for International Applicants After Admission

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

1. International Student Services Channel

Visit <https://howdy.tamu.edu/cp/home/displaylogin> and click on the Applicant tab. Go to the International Student Services Channel and click on New Students. At the international student homepage, follow the instructions. For more information, please visit <http://international.tamu.edu/iss/default.asp>.

2. 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 five ways:

- A. Official TOEFL score of 600 paper-based test, 250 computer-based test, or 100 internet-based test;
- B. Official IELTS score of 7.0 overall band;
- C. Have an official SAT critical reading score of 500, or ACT English score of 19;
- D. 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
- E. 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.

Scholarship Information for International Students

One special opportunity that a student may be eligible for upon admission to Texas A&M University is the Texas/Mexico Education Scholarship. Texas law allows a limited number of admitted applicants who are citizens of Mexico, and who can document financial need, to pay the same tuition as the residents of the State of Texas.

For more information regarding how to apply for this scholarship, please refer to International Student Services Web site at <http://international.tamu.edu/iss/default.asp>. Additional information and application forms are available from International Student Services/Texas A&M University, 1226 TAMU, College Station, TX 77843-1226. Phone: 979-845-1824. Email: iss@tamu.edu.

For additional information, please contact International Admissions/Texas A&M University, P.O. Box 40002, College Station, TX 77842-4002. Phone 979-845-1060. Email: international-admission@tamu.edu.

Other Types of Admissions Criteria

Provisional Admission Criteria

Using the application questions and essay topic, all applicants should present complete information about their academic background, personal strengths and circumstances to the best of their ability. A limited number of applicants who do not have all of the college preparatory coursework or strong academic credentials may be offered provisional admission that requires the successful completion of a summer program at TAMUG. This program (Bridge) requires attendance on campus at TAMUG during the second summer term.

Readmission Criteria

Admission 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.
- If you were previously admitted but did not attend class through the official census date, you must apply as either a freshman or transfer student.

Transcripts from institutions attended since the last enrollment at Texas A&M are required as follows:

If desired Readmission Term is	Must have transcripts through
2011 Spring semester	2010 Summer session;
2011 Summer semester	2010 Fall semester;
2011 Fall semester	2010 Fall semester if applying by June 1; or 2011 Spring semester if applying after June 1.

Postbaccalaureate Undergraduate Student

Admission is limited and is intended for applicants with a degree who wish to apply for further study at the undergraduate level to pursue a second bachelor's degree.

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 is necessary.
- Official transcripts from all colleges attended (official high school transcript not required).

Admission decisions for postbaccalaureate undergraduates consider:

- GPR on transferable college coursework.
- Completion of prerequisite coursework.
- Information presented in the application.

Priority is given to qualified applicants for their initial degree; therefore, postbaccalaureate undergraduate admission may be limited or may not be available. See the Classification section of this catalog for the enrollment rights and privileges of this classification.

Undergraduate Non-degree Criteria

Admission is limited and is intended for applicants with a high school diploma (with the exception of high school concurrent enrollment participants) or for degree applicants who do not intend to pursue a baccalaureate degree at Texas A&M. This includes:

- Local residents or University employees taking courses on a part-time basis.
- Applicants completing established Texas A&M University requirements for teacher or other certification.
- Applicants completing a prescribed set of courses as preparation for application to graduate studies or professional programs (i.e., medical school, veterinary school, law school or CPA exam).
- Others as deemed appropriate by Enrollment Services and the college or program of admission.

Additional requirements to complete an undergraduate non-degree application:

- A statement explaining why enrollment at Texas A&M is desired.
- A complete, official transcript showing high school graduation or the highest and latest collegiate coursework attempted or completed.
- Additional information presented in the application may be considered.

Priority is given to qualified applicants for their initial bachelor's degree; therefore, non-degree admission may be limited or not available. See the Classification section of this catalog for the enrollment rights and privileges of this classification.

Transient Session Only Criteria

Admission is considered for applicants who wish to attend one specific session only and who present appropriate credentials for the level of specified coursework and apply within the processing period for the specific session.

Additional requirements to complete transient session only application:

- A statement explaining why enrollment at Texas A&M is desired.
- A complete, official transcript showing the highest and latest collegiate coursework attempted or completed.

Academic Fresh Start Policy

Applicants for admission or readmission to Texas A&M may choose to have academic coursework 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 THEA requirements, and will follow the academic requirements of the Undergraduate Catalog of record for the term of admission.

Forfeited coursework 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.

COURSE CREDIT AND TESTING

Credit by Examination

Undergraduate students at Texas A&M may earn course credits by demonstrating superior achievement on tests offered through several examination programs. Credit by examination is available to freshmen who plan to enter the University and to students who are currently enrolled. Credit earned by examination does not contribute to a student's grade point ratio. The University awards credit for scores on certain tests published by the College Level Examination Program Computer-Based Testing (CLEP CBT), the SAT Subject Tests, the DANTES Subject Standardized Tests (DSST), the Advanced Placement Program (AP) and the International Baccalaureate (IB) Program. Texas A&M also offers qualified students opportunities to earn credits by taking departmental examinations prepared by the faculty. Information concerning credit by examination may be obtained from the Office of Academic Enhancement, 409-741-4343. Students will need to contact the Office of Academic Enhancement to determine the eligibility of any credit earned.

Please note these regulations concerning credit by examination:

1. Test scores and/or credit eligibility must be reported formally to Office of Academic Enhancement for credit by examination to be awarded. Credit is posted to the academic record once appropriate scores are received by the Office of Academic Enhancement and the student has officially enrolled in the University.
2. Students may not receive credit by examination for courses that are prerequisites to courses for which they already have credit except with the approval of the department authorizing the examination.
3. A student may not have credit posted for credit by examination for a course in which the student is currently registered or has acquired a grade other than Q, W or NG.

College Level Examination Program Computer-Based Testing (CLEP CBT)

CLEP CBT tests are designed to evaluate nontraditional college-level education such as independent study, correspondence work, etc. Both enrolled undergraduate students and entering freshmen may receive CLEP CBT credit for the courses which are listed below. Only examination titles below are currently accepted. Students will need to contact the Office of Academic Enhancement to determine the eligibility of credit earned by CLEP tests. The minimum scores listed below are based on the current version of CLEP CBT Examinations.

CLEP CBT Subject Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Algebra	50	MATH 102	3
American Government	50	POLS 206	3
American Literature	52*	ENGL 228	3
Calculus with Elementary Functions	50	MATH 151 or MATH 171	4
Chemistry	45	CHEM 101	4
English Literature	53*	ENGL 231	3
Financial Accounting	50	ACCT 209	3
French	50	FREN 101	4
German	50	GERM 101	4
History of the United States I: Early Colonization to 1877	65	HIST 105	3
History of the United States II: 1865 to the Present	65	HIST 106	3
Human Growth and Development	50	EPSY 320 or PSYC 307	3
Macroeconomics	50	ECON 203	3
Microeconomics	50	ECON 202	3
Pre-Calculus	50	MATH 150	4
Psychology, Introductory	50	PSYC 107	3
Sociology, Introductory	50	SOCI 205	3
Spanish	50	SPAN 101	4
Western Civilization I: Ancient Near East to 1648	65	HIST 101	3
Western Civilization II: 1648 to Present	65	HIST 102	3

* Students must qualify on both the essay and objective portions of the test. The essay portion is an additional 90-minute test that may be taken immediately following the multiple-choice test, or may be scheduled at a later date and time. Students who fail a portion of any English test must retake both sections after a 6-month wait.

SAT Subject Tests

Credits are offered to entering freshmen who score high on the SAT Subject Tests. High school students who are interested in taking these tests should contact their school counselors or write College Board ATP, Box 592, Princeton, NJ 08541.

Subject Test	Minimum Score Required*	Texas A&M Course(s)	Credit Hours
Chemistry	630	CHEM 101	4
French	640	FREN 101	4
	740	FREN 101, 102	8
German	630	GERM 101	4
	740	GERM 101, 102	8
Italian	630	ITAL 101	4
	750	ITAL 101, 102	8
Latin	630	CLAS 121	4
	730	CLAS 121, 122	8
Physics	680	PHYS 201, 202	8
Spanish	630	SPAN 101	4
	750	SPAN 101, 102	8

* The minimum score required is based on the recentered scale. Students who took tests before April 1, 1995 should contact the Office of Academic Enhancement to determine the minimum score required.

Departmental Examinations for Entering Freshmen and Currently Enrolled Students

Qualified entering freshmen may take departmental tests during New Student Conferences prior to initial enrollment at Texas A&M University at Galveston. Entering freshmen and currently enrolled students can also take the exams throughout the year. Check the Academic Enhancement website (<http://www.tamug.edu/acen/>) for eligibility requirements. A testing date may be reserved when registering for a Conference. All new and currently enrolled students should contact the Office of Academic Enhancement for registration information to seek credit for the following courses:

CHEM 101, 102

CSCE 110

MATH 102, 103, 131, 141, 142, 151, 152, 166, 171, 172, 251 (Available to entering freshmen only during the semester before enrolling in Texas A&M)

PHYS 201, 202, 208, 218, 219

POLS 206, 207

Foreign Languages (up to four semesters of coursework in Arabic, French, German, Italian, Japanese, Latin, Russian and Spanish)

Dantes Subject Standardized Tests (DSST) Program

The DSST Program is available to all interested persons. These tests are untimed. Enrolled undergraduate students and entering freshmen may receive DSST credit for the courses listed below. For more information about the test, please contact the Office of Academic Enhancement.

DSST Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Art of the Western World	50	ARTS 149, 150	6
Astronomy	48	ASTR 101	3
Business Law II	52	MGMT 212	3
Lifespan Develop. Psyc.	47	PSYC 307	3
Physical Geology	46	GEOL 103	3
Principles of Statistics	48	STAT 201 or PSYC 203	3, 4

Advanced Placement Program (AP)

Examinations offered by the AP are administered during late spring by high schools. Students usually take the examinations after completing Advanced Placement courses, although experience in an AP course is not required. Interested students should contact their high school counselors for information concerning registration and test sites. High school students and currently enrolled students should have the College Board forward their scores to the Office of Academic Enhancement. Advanced Placement scores of entering freshmen are generally received in late July. Students will need to contact the Office of Academic Enhancement to determine the eligibility of credit earned by AP tests.

The following list includes all AP examinations currently accepted for credit.

AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Art History	4	ARTS 149, 150	6
Biology	4	BIOL 111, 112	8
Calculus AB	4*	MATH 151	4
Calculus BC	3*	MATH 151	4
	4*	MATH 151, 152	8
Chemistry	3	CHEM 101	4
	4	CHEM 101, 102	8
Comparative Governments	4	POLS 329	3
Computer Science A	4	CSCE 110	4
Computer Science AB	4	CSCE 110	4
Economics: Macroeconomics	4	ECON 203	3
Economics: Microeconomics	4	ECON 202	3
English Lang. and Comp.	3	ENGL 104	3
	4	ENGL 104, 241	6
English Lit. and Comp.	3	ENGL 104	3
	4	ENGL 104, 203	6
Environmental Science	3	GEOS 105	3
European History	4	HIST 102	3
French Language	3	FREN 101, 102	8
	4	FREN 101, 102, 201	11
	5	FREN 101, 102, 201, 202	14
German Language	3	GERM 101, 102	8
	4	GERM 101, 102, 201	11
	5	GERM 101, 102, 201, 202	14
Human Geography	3	GEOG 201	3
Italian Language	3	ITAL 101, 102	8
	4	ITAL 101, 102, 201	11
	5	ITAL 101, 102, 201, 202	14
Latin Literature	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221	11
	5	CLAS 121, 122, 221, 222	14
Latin: Vergil	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221	11
	5	CLAS 121, 122, 221, 222	14
Music Theory	4	MUSC 102	3
Physics B	3	PHYS 201, 202	8
Physics C: Mechanics	3†	PHYS 201 or 218	4
Physics C: Elec. and Magnetism	3†	PHYS 202 or 208 or 219	4
Psychology	3	PSYC 107	3
Spanish Language	3	SPAN 101, 102	8
	4	SPAN 101, 102, 201	11
	5	SPAN 101, 102, 201, 202	14
Spanish Literature	3	SPAN 202	3
	5	SPAN 202, 320	6
Statistics	3	STAT 301, 302, or 303	3
Studio Art: Drawing	4	ARTS 103, 111	6
Studio Art: 2-D	4	ARTS 103, 111, 112	9
U.S. Government and Politics	3	POLS 206	3
U.S. History	4	HIST 105, 106	6
Visual Arts	5	ARTS 103	3
World History	4	HIST 104	3

* Credit in MATH 151 may be substituted for MATH 131, 142 or 171. Credit in MATH 152 may be substituted for credit in MATH 172.

† Credit in physics is based on the curriculum of a student's intended major.

International Baccalaureate (IB)

Texas A&M University, in compliance with SB111, will grant at least 24 semester credit hours of course-specific college credit in subject-appropriate areas on all International Baccalaureate (IB) exam scores of 4 or above as long as the incoming freshman has earned an IB diploma. While some course credit will be awarded regardless of a student's IB diploma status, some course credit at Texas A&M University may be subject to the successful completion of the IB diploma.

Entering freshman students should submit their International Baccalaureate transcript to Texas A&M University, score recipient code: 01355, for review. Students should contact the Office of Academic Enhancement regarding their eligibility for course credit. Students should work with an academic advisor to determine the use of the IB credits in their individual degree plan and the impact accepting the credit may have upon tuition rebate eligibility, tuition charges for excessive total hours, and preparedness for sequential coursework based on IB test scores. Students will need to contact the Office of Academic Enhancement in order to accept or deny the credit earned via IB tests.

Texas A&M University will notify IB applicants of their eligibility to receive credit by posting information on the website www.tamu.edu/mars/testingsite/index.htm, and by establishing links to other web pages. The evaluation of IB courses in order to identify the appropriate course credit is continuing and will be posted as it becomes available. The following list includes all IB examinations currently accepted for credit.

IB Higher Level Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Biology SL	4 w/diploma	BIOL 113, 123	4
Biology HL	4	BIOL 111	4
	5	BIOL 111, 112	8
Business Management SL	4 w/diploma	MGMT 309	3
Business Management HL	4 w/diploma	MGMT 309	3
Chemistry SL	4 w/diploma	CHEM 106, 116	4
Chemistry HL	4	CHEM 101	4
	5	CHEM 101, 102	8
Chinese: Language A or B SL	4 w/diploma	CHIN 101	4
	5 w/diploma	CHIN 101, 102	8
Chinese: Language A or B HL	4	CHIN 101, 102	8
	5	CHIN 101, 102, 201, 202	14
Computer Science SL	4 w/diploma	CSCE 111	4
Computer Science HL	4	CSCE 111	4
Economics SL	4 w/diploma	ECON 203	3
Economics HL	4	ECON 203	3
English: Lang. A SL	4 w/diploma	ENGL 104	3
English: Lang. A HL	4	ENGL 104	3
	5	ENGL 104, 222	6
Environmental Systems	4	GEOS 105	3
French: Lang. A or B SL	4 w/diploma	FREN 101	4
	5 w/diploma	FREN 101, 102	8
French: Lang. A or B HL	4	FREN 101, 102	8
	5	FREN 101, 102, 201, 202	14
Fundamentals of Music	5	MUSC 102, 202	6
Further Mathematics SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Geography SL	4 w/diploma	GEOG 201	3
Geography HL	4	GEOG 201	3
German: Lang. A or B SL	4 w/diploma	GERM 101	4
	5 w/diploma	GERM 101, 102	8
German: Lang. A or B HL	4	GERM 101, 102	8
	5	GERM 101, 102, 201, 202	14
History HL			
Africa	4 w/diploma	HIST 289	3
Americas	4 w/diploma	HIST 105	3
	5 w/diploma	HIST 105, 106	6
E and SE Asia and Oceania	4 w/diploma	HIST 289	3
Europe	4 w/diploma	HIST 102	3
South Asia and Middle East	4 w/diploma	HIST 289	3
History SL			
Islamic History	4 w/diploma	HIST 289	3
Info Tech in a Global Society SL	4 w/diploma	PHIL 205	3
Info Tech in a Global Society HL	4	PHIL 205	3

Italian: Lang. A or B SL	4 w/diploma	ITAL 101	4
	5 w/diploma	ITAL 101, 102	8
Italian: Lang. A or B HL	4	ITAL 101, 102	8
	5	ITAL 101, 102, 201, 202	14
Japanese: Lang. A or B SL	4 w/diploma	JAPN 101	4
	5 w/diploma	JAPN 101, 102	8
Japanese: Language A or B HL	4	JAPN 101, 102	8
	5	JAPN 101, 102, 201, 202	14
Mathematics SL	4	MATH 150	4
Mathematics HL	4	MATH 150	4
	5	MATH 150, 151	8
Mathematical Methods SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Mathematical Studies SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Music SL	4 w/diploma	MUSI 201	3
Music HL	4	MUSI 201	3
Other Languages SL	4 w/diploma	MODL 289	4
	5 w/diploma	MODL 289	8
Other Languages HL	4	MODL 289	8
	5	MODL 289	14
Philosophy SL	4 w/diploma	PHIL 251	3
Philosophy HL	4	PHIL 251	3
Physics SL	4 w/diploma	PHYS 205	4
Physics HL	4	PHYS 201, 202	4
Psychology SL	4 w/diploma	PSYC 107	3
Psychology HL	4	PSYC 107	3
Social and Cultural Anthropology SL	4 w/diploma	ANTH 210	3
Social and Cultural Anthropology HL	4	ANTH 210	3
Spanish: Lang. A or B SL	4 w/diploma	SPAN 101	4
	5 w/diploma	SPAN 101, 102	8
Spanish: Language A or B HL	4	SPAN 101, 102	8
	5	SPAN 101, 102, 201, 202	14
Theater Arts SL	4 w/diploma	THAR 101	3
Theater Arts HL	4	THAR 101	3
Visual Arts SL	4 w/diploma	ENDS 101	3
Visual Arts HL	4	ENDS 101	3

* Credit for MATH 151 may be substituted for MATH 131, 142 or 171.

Texas Success Initiative (TSI)

The Texas Success Initiative (TSI) was instituted to ensure that students enrolled in Texas public colleges and universities possess the necessary academic skills to perform effectively in college and to provide diagnostic information about reading, writing and mathematics skills of each student. All undergraduate students who did not meet one of the allowed exemptions must take the Texas Higher Education Assessment (THEA) test or an approved alternative.

Students who do not meet established cutoff scores or other approved exemptions for the THEA test are required by Texas law to be enrolled in, and actively attend, an academic skills course and/or program each semester prior to completing all TSI requirements. Academic skills courses in each of the three TSI areas are offered by Texas A&M. Failure to meet the attendance requirements of the academic skills course will result in withdrawal from Texas A&M. The hours for these courses will not count toward any degree program but may count toward determining full-time status. Students required to take the THEA test should have their scores sent by the testing agency to Texas A&M University at Galveston.

More information can be obtained from testing centers at most Texas public colleges and universities or by contacting:

National Evaluation Systems, Inc.

P. O. Box 140347

Austin, TX 78714-0347

512-927-5397

<http://www.thea.nesinc.com>

or

TAMUG Office of Academic Enhancement

P.O. Box 1675

Galveston, TX 77553-1675

409-741-4343

Senior Citizens

Senior citizens, 65 years old or older, may, with the permission of the instructor, audit courses if space is available in the assigned classroom. It is not necessary for senior citizens to be admitted to the University and academics records of their attendance will not be maintained.

REGISTRATION AND ACADEMIC STATUS

Registration for the fall and spring semesters is accomplished at several times. In the preceding fall and spring semester (during November and April), a preregistration period is held for currently enrolled and readmitted students to register for the next semester. There are periods of announced open registration for students who were unable to preregister during the scheduled preregistration period. New Student Conferences serve as an opportunity for new undergraduate students to register. During the week before classes begin for a particular semester, there is a delayed registration period for students who have not already registered. Further information concerning registration may be obtained from the academic calendar published in this catalog or from Enrollment Services. The Class Schedule is posted at www.tamug.edu (available shortly before pre-registration periods).

Academic Advising

Academic advising is coordinated and supervised by the academic department. Within departments, faculty members or advising specialists are available to assist students with course selection, academic program planning and curriculum-related advising in general. If a student has special problems, the department head may be consulted.

Full-Time Student

A full-time undergraduate student is defined as one who is registered for 12 semester hours during a fall or spring semester, 4 hours in a five-week summer term and 8 hours in a 10-week summer semester. A Q grade or W grade does not count toward the certification of enrollment status. Only hours for which a student is currently enrolled at Texas A&M University at Galveston can be used toward certification of enrollment. A license option student registered for summer cruise (MART 200, 300, 400 or MARE 200, 300, 400) will be considered a full time student.

Undergraduates Registering for Graduate Courses

A senior undergraduate student with a cumulative grade point ratio of at least 3.00 or approval of his/her department head, is eligible to enroll in a graduate course and reserve it for graduate credit by filing a petition obtained from the student's undergraduate department and approved by the course instructor, the student's major department head and the Associate Vice President for Academic Affairs.

An academically superior undergraduate student with a cumulative grade point ratio of at least 3.25 or approval of his/her department head, is eligible to apply graduate credit hours toward his/her undergraduate degree program by filing a petition obtained from the student's undergraduate department and approved by the course instructor, the student's major department head and the Associate Vice President for Academic Affairs. Graduate credit hours used to meet the requirements for a baccalaureate degree may not be used to meet the requirements for a graduate degree.

Maximum Schedule

An undergraduate 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 6 hours (7 if part is laboratory) in a summer term with the approval of his or her advisor. An undergraduate student with an overall grade point ratio of less than 3.0 must obtain approval of his or her undergraduate department head before registering for a course load in excess of 19 hours in a fall or spring semester or 6 hours (7 if part is laboratory) in a summer term.

Classification

Each student has a classification which indicates the type of degree program in which the student is enrolled (undergraduate, graduate or professional), and reflects the student's progress within that program at the undergraduate and professional levels. The classifications are:

Code	Classification Definition
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U0	Undergraduate Non-degree
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	Students with a high school diploma (with the exception of high school concurrent enrollment participants) who do not intend to pursue a baccalaureate degree at Texas A&M University. This includes:
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| | <ol style="list-style-type: none">Summer session only students.Local residents or University employees taking courses on a part-time basis.Others as may be deemed appropriate by Enrollment Services and the college or program of admission. |
|--|--|

	Undergraduate non-degree students are not permitted to enroll in courses until all degree seeking students have had the opportunity to enroll. Undergraduate non-degree enrollment begins on the first day of open registration. Enrollment may be limited by college or program policies. Undergraduate non-degree students are limited to part time status except for summer session or because of extenuating circumstances which result in the approval of full-time status at the time of admission. Admitted students are not eligible for refund of the admission processing fee regardless of course availability.
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	An undergraduate non-degree student must maintain a 2.0 GPR on all coursework attempted to remain eligible to register. Enrollment is subject to review at the end of each semester of enrollment. Enrollment beyond two years of attendance will be approved only in exceptional cases.
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	Should an undergraduate non-degree student desire admission to a degree program, regular formal application is necessary, including: a complete application for admission, the required application processing fee, the submission of all required credentials, and the meeting of all admission requirements.
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	An undergraduate non-degree student may not take graduate-level coursework.
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	Undergraduate non-degree students are subject to TSI and English proficiency requirements.
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	An undergraduate non-degree student does not qualify for financial aid through the University.
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	With few exceptions, undergraduate non-degree status is not available to international students.
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Code Classification Definition

U1 Freshman 0–29 hours

U2 Sophomore 30–59 hours

U3 Junior 60–89 hours

U4 Senior 90+ hours

U5 Postbaccalaureate Undergraduate

Students with a recognized baccalaureate degree who wish to complete requirements for a second baccalaureate degree at Texas A&M University or to complete established Texas A&M University certification requirements.

The postbaccalaureate undergraduate classification (U5) has all the privileges and responsibilities of a senior classification (U4).

Recipients of a Texas A&M University baccalaureate degree are not eligible for continued enrollment unless they have the specific approval of the college offering the second bachelor's degree or certification. Should they break enrollment, they must apply for re-admission as second bachelor's degree candidates.

A candidate for a second baccalaureate degree must complete all the essential work of the second degree 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 (see the section on Two Degrees in this catalog). To pursue a second baccalaureate degree concurrently with the pursuit of the initial degree, all essential work required for a second degree must be defined in advance in writing by the dean of the college granting the second degree. To pursue a second baccalaureate degree sequentially requires admission to a second bachelor's degree classification. Pursuit of a second baccalaureate degree may be limited or may not be allowed by some colleges.

E0 Extension, Undergraduate

Up to 30 hours of extension work may apply toward an undergraduate degree.

I0 English Language Institute Only

Academic Status

Distinguished Student and Dean's Honor Roll*

An undergraduate 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 not less than 3.5 for the semester or for a summer session shall be designated "distinguished student." A student who, under the same circumstances, achieves a grade point ratio of at least 3.75 shall also be designated as a member of the "dean's honor roll." First semester freshmen must complete a semester schedule of at least 15 hours with no grade lower than a C, no Q-drops and with a grade point ratio of not less than 3.5 for "distinguished student" designation and a 3.75 for "dean's honor roll." Official notification of these designations will be issued to the student by the student's department head. The hours earned with a grade of S shall not be included in determining minimum hours required for the designation of "distinguished student" or "dean's honor roll." A grade of I or U disqualifies a student from being considered as a "distinguished student" or for the "dean's honor roll." Students who use grade exclusion must still meet the minimum of requirements in hours and grades to qualify for the appropriate honors. Grades of Q, W and NG may not be included in the 15 graded hours. Only undergraduate courses or graduate courses used for the undergraduate degree will be used in either honors calculation.

Scholastic Probation

Scholastic probation is a conditional permission for an undergraduate student to continue in the University after he or she has become scholastically deficient. For University policy regarding scholastic deficiency and scholastic probation, see the Texas A&M University at Galveston Student Rules at <http://www.tamug.edu/studentlife/>.

Withdrawal from the University

A student wishing to withdraw from the University before the completion of a semester or summer term is required to comply with the official withdrawal procedure. This process is initiated with Enrollment Services. Students may not withdraw after the Q-drop deadline. The Associate Vice President for Academic Affairs will retain the authority to support a student withdrawal after the deadline.

During the summer session, a student must withdraw from the University under the following circumstances:

1. If the student is currently enrolled in only one of the following terms and decides to drop to zero hours (withdraw) in that term:
 - first 5-week summer term
 - second 5-week summer term
 - 10-week summer semester
2. If the student is currently enrolled in the 10-week summer semester and either of the 5-week terms and decides to drop to zero hours (withdraw) in both terms.

When a student withdraws from the University between the first class day, but before the Q-drop deadline, Enrollment Services will assign a grade of W to all courses enrolled in that semester. Any courses previously graded for that semester will be changed to W, and the W grades will be displayed on the permanent record.

Correct Addresses

It is necessary to have a correct residence address on file with the University. Students may change their address on the Howdy portal at <https://howdy.tamu.edu/cp/home/displaylogin>. International students must have a correct physical and permanent address. International students must go to the International Student Services Office to change the physical and the permanent address. The University assumes no obligation for failure of a student to receive communications. Texas A&M uses email for official communications with currently enrolled students. It is each student's responsibility to claim his/her Texas A&M University email account at www.gateway.tamu.edu.

GRADING SYSTEM

Because 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 class meeting. 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 points (hours included in GPR)
- I Incomplete, no grade points (hours not included in GPR)
- NG No grade, course dropped without penalty (hours not included in GPR)
- Q Dropped course with no penalty (hours not included in GPR)
- 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 1996)
- F* Aggie Honor Code violation

There are two failing grades, F and U, indicating work of unsatisfactory quality.

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 for 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. A 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.

First Year Grade Exclusion Policy

A fully admitted, currently enrolled Texas A&M undergraduate student as defined by the Texas Higher Education Coordinating Board as “first time in college”^{*} may elect to exclude from his/her undergraduate degree and cumulative GPR calculation grades of D, F or U. This exclusion shall be permitted for up to a maximum of three courses taken for credit at Texas A&M University during the twelve month period beginning with the student’s initial enrollment at Texas A&M.

The first year grade exclusion option may be used by current “first time in college” freshmen for courses taken in the twelve months beginning with their initial enrollment at Texas A&M. Sophomores, juniors and seniors also may use the exclusions for courses taken in their first twelve months as “first time in college” freshmen, dating from initial enrollment. All courses chosen for first year grade exclusion shall remain on the official transcript and be designated on the transcript as excluded. First year grade exclusion cannot be invoked after a baccalaureate degree has been conferred upon the student. First Year Grade Exclusion requests for degree candidates must be received in Enrollment Services no later than 5 p.m. the day midterm grades are due when the student is graduating in a fall or spring semester or no later than 5 p.m. Friday of the third week of class for the second summer session when the student is graduating in August. Additional information may be found at websites <http://student-rules.tamu.edu/> or <http://admissions.tamu.edu/Registrar/Current/GradeEXPolicy.aspx>.

^{*}First time in college: an undergraduate, degree seeking, student who applied and enrolled in college for the first time regardless of whether the student has acquired college level credit through testing, advanced placement or summer enrollment.

I and X Grades

A temporary grade of I (incomplete) at the end of a semester or summer term indicates that the student (graduate or undergraduate) has completed the course with the exception of a major quiz, final examination or other work. The instructor shall give this grade only when the deficiency is due to an authorized absence or other cause beyond the control of the student. When an instructor reports an incomplete grade to Enrollment Services, he or she will fill out an “Incomplete Grade Report,” which is filed with the student’s department head. Copies are sent to the student and to the Associate Vice President for Academic Affairs. This report includes (1) a statement of the instructor’s reason for awarding the incomplete grade and (2) a statement concerning the remaining work to be completed before the last day of scheduled classes of the next fall or spring semester in which the student enrolls in the University unless the student’s department head, with the consent of the instructor (in the absence of the instructor), 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 Enrollment Services. Grades of I assigned to 684, 691, 692 or 693 are excluded from this rule.

The X notation is assigned to a course by Enrollment Services at the end of a semester or summer term only when a grade is not submitted by the instructor.

Enrollment Services will notify the department head of the department offering the course that an X notation has been made. The department head of the department offering the course will request that the instructor submit a Grade Change Report Form removing the X notation and assigning a letter grade with a Grade Change Report. The instructor will have 30 days from the beginning of the succeeding semester or summer term to report a change of grade to Enrollment Services. If a Change of Grade Report is not received during this time period, Enrollment Services will automatically remove the X notation and assign a grade of F. Grades of X assigned to 684, 691 or 692 are excluded from this rule.

Q-Drop and Add and Drop

1. A student may enroll in a class during the first five class days of a fall or spring semester or during the first four class days of the summer terms or a 10-week summer semester. A student requesting to add a course after these deadlines must have the approval of the student’s department head.
2. A student may drop a course with no record during the first five class days of a fall or spring semester and during the first four class days of a summer term or a 10-week summer semester. Following this period, if approved by the student’s department head, a student may drop a course without penalty through the 50th class day of a fall or spring semester, the 15th class day of a summer term or the 35th class day of a 10-week summer semester. The symbol Q shall be given to indicate a drop without penalty.

Under section 51.907 of the Texas Education Code, “an institution of higher education may not permit a student to drop more than six courses, including any course a transfer student has dropped at another institution of higher education.” This statute was enacted by the State of Texas in spring 2007 and applies to students who enroll in a Texas public institution of higher education as first-time freshmen in fall 2007 or later. Any course that a student drops is counted toward the six-course limit if “(1) the student was able to drop the course without receiving a grade or incurring an academic penalty; (2) the student’s transcript indicates or will indicate that the student was enrolled in the course; and (3) the student is not dropping the course in order to withdraw from the institution.” Some exemptions for good cause could allow a student to drop a course without having it counted toward this limit, but it is the responsibility of the student to establish that good cause.

Undergraduate students at Texas A&M University will normally be permitted three Q-drops during their undergraduate studies. However, in order to comply with this statute a student who has dropped courses at other Texas public institutions may not be permitted three Q-drops if the student’s total number of dropped courses would exceed the State limit of six.

3. Any course taught on a shortened format or between regularly scheduled terms will have add/drop, Q-grade and withdrawal dates proportionally the same as if the course were offered in a regular term. These dates will be determined by Enrollment Services.
4. A student who drops a course after the Q-drop period has elapsed will receive a grade of F unless unusual circumstances exist as determined by the student’s department head. A grade of W may be recorded by the student’s department head if it is determined such circumstances do exist.

Satisfactory/Unsatisfactory

1. Undergraduate Students

- a. Undergraduate students may be permitted to take courses in their degree programs on a satisfactory/unsatisfactory (S/U) basis consistent with the requirements of the student's department.
- b. The hours for which a student receives a grade of satisfactory shall not be included in the computation of the student's semester or cumulative grade point ratio; a grade of unsatisfactory shall be included in the computation of the student's grade points per credit hour as an F. A grade of satisfactory will be given only for grades of C and above; a grade of unsatisfactory will be given for grades D and F. The hours earned on a satisfactory/unsatisfactory basis shall not be included in the designation of distinguished student or dean's honor roll.
- c. Students on probationary standing may be required to take KINE 199 or electives on an S/U basis as determined by published college policies.

2. Graduate students

- a. Graduate students will not receive graduate degree credit for undergraduate degree courses taken on a satisfactory/unsatisfactory basis. Graduate students may take any graduate courses that are not used on their degree plans on an S/U basis.
 - b. A grade of satisfactory (S) will be given only for grades of A and B in graduate courses, and for grades of C and above in undergraduate and professional courses; a grade of unsatisfactory (U) will be given for grades of C and below in graduate courses, and for D and F grades in undergraduate and professional courses.
 - c. S/U grades are not included in the grade point ratio calculation for graduate students.
 - d. Students entering Texas A&M University in the fall 2001 semester and later must enroll in their first KINE 199 on an S/U basis. Effective fall 2003, Health and Kinesiology majors must enroll in KINE 199 as a graded course.
 - e. Students registered for KINE 198 or additional classes of KINE 199 who wish to change the grade type from a graded course to S/U or from S/U to a graded course, may do so on the Myrecord tab in the Howdy Web portal. All requests for KINE 198 and 199 changes must be completed on or before the Q-drop deadline for the fall, spring or summer semester.
3. Students must register for courses on an S/U basis during the official registration periods and shall not be permitted to change the basis on which their grades will be recorded on their official transcripts, except for unusual circumstances and with the approval of the student's academic dean.
4. Courses numbered 681, 684, 690, 691, 692, 693, 695 and 697 are graded on an S/U basis only.

Semester Credit Hour

A lecture course which meets one hour per week for 15 weeks is worth 1 semester credit hour. Thus, a course worth 3 semester credit hours, meets three hours per week. Credit hours for laboratory courses are determined to be some fraction of the number of hours spent in class.

Grade Point Ratio (GPR)

For undergraduate students, only the grade made in coursework for which the student was registered in this institution shall be used in determining his or her grade point ratio. Students anticipating graduating with honors should refer to that section of this catalog for information concerning the computation of grade point ratios for that purpose.

An undergraduate student's grade point ratio for any period shall be computed by dividing the total number of semester hours for which he or she received grades into the total number of grade points earned in that period. Semester credit hours to which grades of F or U are assigned shall be included; those involving grades of W, Q, S, X, NG and I shall be excluded.

Classification

Classification for academic purposes shall be based solely on scholastic progress as shown by the official records in Enrollment Services. Sophomore, junior and senior classification will be granted students who have passed 30, 60 and 90 semester hours, respectively.

Grade Reports

Midsemester Report

Near the middle of the fall and spring semesters, a preliminary report, showing the current progress of all undergraduate students who have completed less than 30 semester credit hours of coursework at Texas A&M, and of a selected group of other undergraduate students that the academic deans/departments are monitoring will be made available. Preliminary grades are not recorded on the student's permanent record. Grades are available at Myrecord in the Howdy Web portal.

Final Grade Report

End of semester final grades are available at Myrecord in the Howdy Web portal. No student grade may be posted in a manner that is personally identifiable unless the student has given written consent in advance. By means of reports at regular intervals and frequent conferences with the Enrollment Services and members of the teaching staff, university officials keep in close touch with the student's progress. Advice and counsel are offered from time to time as seem justified in each case. For failure to keep up with studies, the student may at any time be dropped from the rolls of the University.

Parent/Guardian Access to Grades

A parent or guardian may access midterm and final grades at <https://howdy.tamu.edu/cp/home/displaylogin> after the student sets the parent access password. Please discuss this with your student. Enrollment Services cannot see the passwords created by students for parental access; therefore, you must receive a password from your student.

Transcripts

Students applying for admission to Texas A&M 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.

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. During grading and degree posting at the end of a semester or summer term, official transcripts may be produced for currently enrolled students only if all courses for that semester or term are shown as in progress (IP) or have all final grades posted. If both grades and IP are on the transcript in the same term, it will not be produced until all grades are available and the official GPR is calculated. Students and former students may request an official transcript by mail, by fax or by completing the transcript request form at Myrecord in the Howdy Web portal. A faxed or internet request must be paid by using a credit card from a United States bank. Requests made by mail may be paid with check, money order or a credit card.

TUITION, FEES AND OTHER 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, non-resident of Texas, or pursuing a license-option curriculum (MARB-LO, MARS-LO, MART or MARR).

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 Financial Management Services 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. Discover, Mastercard and American Express credit cards and E-checks are accepted for tuition and fee payments over the web at <https://howdy.tamu.edu/cp/home/displaylogin>. Convenience fees will be charged in credit card transactions.

No tuition and fee statements will be mailed. Notices of amounts owed should be obtained through <https://howdy.tamu.edu/cp/home/displaylogin>. An e-mail will be sent to a student's official campus e-mail address through NEO e-mail when the tuition and fee statement is available to view on line. Students must use their NEO e-mail Net ID and password to log into these two programs.

Students who plan to pay their bill in full by the due date will receive notification through their NEO e-mail that the fee statement is available to view on-line and when tuition is due and payable.

Students on the installment plan will receive notification through their NEO e-mail account that the fee statement is available to view on line and when each installment payment is due and payable. In addition, students will be notified through this medium when any changes have occurred to their tuition and fee statement and if and when they have a refund check available.

Installment Plan

Tuition, most fees, room, board, and parking may be paid in four installments with 25% payable prior to the first day of classes and the remainder payable in equal payments during the semester. Charges that are not eligible for the installment plan must be paid separately from your installment. A one-time \$15 service charge will be assessed to each student who chooses to use the installment plan. Students who wish to pay fees in installments must select the installment plan option during registration.

Tuition and Fees: Texas Residents (undergraduate and graduate students)

The following represents the tuition and fees, housing and meals, and one time deposits usually paid by a Texas resident registered for 15 credit hours during the regular school year and 6 credit hours during a summer term. Texas residents, except those in license-option curricula, pay \$181.85 per hour for tuition, which includes \$50 per semester credit hour for tuition plus University Authorized Tuition (\$131.85) per semester credit hour) and fees. Graduate students pay an additional \$50 per credit hour.

Tuition and Fees - Texas Resident

	Fall Semester	Spring Semester	Summer Term (5 weeks)*
Tuition	\$750.00	\$750.00	\$300.00
University Authorized Tuition	1,977.75	1,977.75	791.10
Student Services	194.16	194.16	97.08
Computer Use Fee	255.00	255.00	102.00
Health Center Fee	40.50	40.50	20.25
Library Use Fee	180.00	180.00	72.00
Student Center Complex Fee	40.00	40.00	20.00
Software License Fee	18.75	18.75	7.50
Recreation Sports Fee	20.00	20.00	10.00
Identification Card Fee	5.00	5.00	3.00
Utility Fee	97.50	97.50	39.00
Total	\$3,578.66	\$3,578.66	\$1,461.93

Texas Resident: Residence Hall and Meal Options/Per Semester

On-Campus Residence Halls	\$1,375.00	1,375.00	538.00
19 Meal Plan**	1,762.91	1,762.91	587.64
Total	3,137.91	3,137.91	1,125.64

One Time Only Fees

Room Deposit (refundable)	250.00
Orientation Fee	75.00
General Property Deposit (refundable)	100.00

*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 Cadets (not NROTC)

This fee schedule represents the tuition and fees, housing and meals, and one-time deposits paid by License-option Cadets in the Texas Maritime Academy (not NROTC). These students are enrolled in MARB-LO, MARS-LO, MART or MARR curriculum. All Cadets enrolled in License Option curricula pay the same tuition regardless of their state residency status (in-state or out-of-state). Cadets in the Corps of Cadets who are NROTC, Drill and Ceremonies, or International are not eligible for the special license-option tuition and will pay normal Texas resident or non-Texas resident fees as applicable. The following is based on 15 hours during the regular school year and 4 hours for summer cruise aboard the TEXAS CLIPPER.

Tuition and Fees - License Option Cadets

	Fall Semester	Spring Semester	Summer Cruise
Tuition	\$937.50	\$937.50	\$250.00
University Authorized Tuition	1,977.75	1,977.75	527.40
Student Services	194.16	194.16	64.72
Computer Use Fee	255.00	255.00	68.00
Cruise Fee (Summer Cruise only)*			4,138.59
Health Center Fee	40.50	40.50	40.50
Library Use Fee	180.00	180.00	48.00
Student Center Complex Fee	40.00	40.00	20.00
Software Licensing Fee	18.75	18.75	5.00
Recreational Sports Fee	20.00	20.00	10.00
Identification Card Fee	5.00	5.00	3.00
Utility Fee	97.50	97.50	26.00
Total**	\$3,766.16	\$3,766.16	\$5,201.21

Residence Hall and Meal Plan Options***

	Fall Semester	Spring Semester
Room	1,850.00	1,850.00
Meal Plan		
Total	1,850.00	1,850.00

One Time Only Fees

Room Deposit (refundable)	250.00
Orientation Fee	75.00
General Property Deposit (refundable)	100.00

* The Summer Cruise expense aboard the TEXAS CLIPPER includes a cruise fee (\$1,850), fuel fee (\$150), room (\$845) and meal plan (\$1,293.59). The Summer Cruise meal plan expense includes state and city tax of 8.25%.

** Other expenses may include uniforms with an initial outlay of \$1,800, special training such as fire fighting school and incidentals.

*** The Room and Meal Plan expenses for Cadets will vary according to the location of the room and the classification of the Cadet.

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.

Tuition and Fees: Non-Texas resident Students (undergraduate and graduate students)

Non-Texas resident students, except those pursuing a license option curriculum, pay tuition at \$360 per semester credit hour plus additional University Authorized Tuition (\$131.85 per semester credit hour) and fees. Graduate students pay an additional \$50 per 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 summer term.

Tuition and Fees - Non-Texas Resident

	Fall Semester	Spring Semester	Summer Term (5 weeks)*
Tuition	\$5,400.00	\$5,400.00	\$2,160.00
University Authorized Tuition	1,977.75	1,977.75	791.10
Student Services	194.16	194.16	97.08
Computer Use Fee	255.00	255.00	102.00
Health Center Fee	40.50	40.50	20.25
Library Use Fee	180.00	180.00	72.00
Student Center Complex Fee	40.00	40.00	20.00
Software License Fee	18.75	18.75	7.50
Recreation Sports Fee	20.00	20.00	10.00
Identification Card Fee	5.00	5.00	3.00
Utility Fee	97.50	97.50	39.00
Total	\$8,228.66	\$8,228.66	\$3,321.93

Residence Hall and Meal Options/Per Semester

	Fall Semester	Spring Semester	Summer Term (5 weeks)*
On-Campus Residence Halls	\$1,375.00	1,375.00	538.00
19 Meal Plan**	1,762.91	1,762.91	587.64
Total	3,137.91	3,137.91	1,125.64

One Time Only Fees

Room Deposit (refundable)	250.00
Orientation Fee	75.00
General Property Deposit (refundable)	100.00

*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%.

Late Fees and Penalties

Penalties include:

- \$20 late payment penalty for failure to make payment on the scheduled due date.
- \$100 late registration/re-registration penalty for registration/re-registration between the 1st and 12th class days.
- \$200 late registration penalty for registration after the census day (12th class day).
- \$50 late class-add penalty for adding a course after the census day (12th class day) when a net result of the change is an increase in the number of credit hours.
- \$50 reinstatement fee.

These penalties will apply to all students, including those who are dropped for nonpayment and are required to reregister for classes. Please refer to Payment Due Date table published in the online Class Schedule.

Student Financial Responsibility

By registering for classes, students agree to pay all tuition and required fees associated with their registration, optional services and other fees, whether paying in full or utilizing the installment payment option. Failure to pay tuition, fees and other charges may result in penalties, late registration fees and/or possible cancellation. If amounts become past due, the University re-

serves the right to report the account to the Credit Bureau. This will also initiate internal collection efforts and could cause the University to employ an outside collection agency to recover the debt. If any collection efforts must be made, the student will be required to pay all collection costs, including collection agency fees, legal fees and other costs incurred in collecting the amounts due. Additionally, the student's account will be blocked from registering for the next semester and from obtaining a transcript.

Students Dropped for Non-Payment: Fall and Spring Terms

Students that have not paid their tuition and fees in full or have not paid their first installment payment by the due date will be “administratively dropped” from their classes on the Friday before the first day of classes each semester. Students may still attend classes after they have been administratively dropped, but a \$100 late registration fee will be assessed and students must make the required payment for their classes to be restored. Students that have not paid their tuition and fees in full or have not paid their first installment payment by the 20th class day will be “hard” dropped from their classes. At this point in time, students may no longer attend classes in the current term.

Students Dropped for Non-Payment: Summer Terms

Students that have not paid their tuition in full by the due date will be “administratively dropped” from their classes on the Friday before the first day of classes each summer term. Students may still attend classes after they have been administratively dropped, but a \$100 late registration fee will be assessed and students must make the required payment for their classes to be restored.

Students that have not paid their tuition and fees in full by the 15th class day will be “hard” dropped from their classes. At this point in time, students may no longer attend classes in the current term.

Emergency Tuition and Fee Loans:

Emergency tuition and fees loans are available to help students get through the crunch at fee payment time. Students can borrow up to the amount of their tuition and fees for a maximum term of 90 days in the Fall and Spring semester and 30 days in the summer semester. The loan proceeds are applied directly to the student's account to cover current due charges. Students that anticipate their financial aid or some other third party payment may be delayed are encouraged to pursue an emergency tuition and fee loan so they will not get dropped from their classes or incur additional fees. Students may apply for this loan at: <https://financialaid.tamu.edu/stlapp/default.asp>.

Emergency Tuition and Fee Loans are available through the Student Financial Services office. There are limited funds available, so they are offered on a first-come, first-served basis. Loans are available for residents, non-residents and students enrolled in the License Option curricula. These loans are 60-day, short term loans for fall and spring terms and 30-day short term loans for summer terms. Only one loan is available for the summer. Students that anticipate their financial aid or some other third party payment may be delayed are encouraged to pursue an emergency tuition and fee loan so they will not get dropped from their classes or incur additional fees.

Unpaid Check

If a check accepted by Financial Management Services, the bookstore or any other campus department is returned unpaid by the bank on which it is drawn, a penalty of \$30 will be assessed. The returned check and the penalty fee must be paid with cash, cashier's check or money order. If not redeemed, the student may be dropped from the University. Student accounts will be blocked for future registration and transcripts. The student is eligible for reinstatement after payment of penalties, a \$50 reinstatement fee and redemption of the check. If Financial Management Services receives three returned checks from one student, the University will no longer accept this payment type for the student.

Mandatory Fees

Computer Use Fee

The computer use fee is charged at the rate of \$17.00 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 absentia, must make a property deposit to protect the University from damage to or loss of university property. Charges will be billed directly to the student or collected by the department upon reissue of supplies or property. Failure to pay the charges promptly will cause the student to be barred from re-admission and receiving an official transcript from the University. If a student withdraws from the University without paying the charges, the deposit will be held for 30 days after the close of the semester or a student's withdrawal, so that all charges and fines may be totaled from the various departments. This deposit, less 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 Services Fee

This fee is required of all students enrolled in undergraduate classes at the rate of \$40.50 for each regular semester, \$40.50 for the summer training cruise, and \$20.25 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 are required to purchase a 15- or 19-meal plan. The limited exceptions are detailed in the Housing section of this catalog. All changes must be made through Housing/Residential Services. 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 fees are included in the fee schedules listed earlier.

Mail Service Fee

Limited availability exists for students residing in non-university owned or operated housing to rent a campus mailbox. The fee is \$20 per semester and \$20 per ten week summer term. Inquiries should be directed to the Bookstore (409-740-4488). Students residing in university owned or operated housing have mail services included as part of the University's room charge.

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. All changes must be made through the Food Service Office.

Fall and Spring

15 Meal Plan - Mon. - Sun.,

\$1,518.83 + \$125.31 tax = \$1,644.14

19 Meal Plan - Mon. - Sun.,

\$1,628.55 + \$134.36 tax = \$1,762.91

Fall and Spring (Optional meal plan)

Any 10 meals per week

\$1,172.33 + \$96.72 tax = \$1,269.05

Any 5 meals per week

\$675.68 + \$55.75 tax = \$731.43

Each 5-Week Summer Session

15 Meal Plan - Mon. - Sun.,

\$496.65 + \$40.98 tax = \$537.63

19 Meal Plan - Mon. - Sun.,

\$542.85 + \$44.79 tax = \$587.64

Summer (Optional meal plan)

Any 5 meals

\$150.15 + \$12.39 tax = \$162.54

Any 10 meals

\$334.95 + \$27.64 tax = \$362.59

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

Identification Card Maintenance Fee

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 \$12 per semester credit hour. Funds collected for this fee are devoted to enhancement of library holdings and services.

New Student Conference Fee

The New Student 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 \$75 per student. This fee supports the provision of advanced materials to accepted students, the conduct of professional orientations and student activities.

Housing 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 Life Offices. The balance of the refund due will be issued

through Financial Management Services after deducting all room 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. Housing deposits can be paid by cash, cashiers check, money order or personal check only.

Student Center Complex Fee

The student center complex fee is required for all students at the rate of \$40 per spring or fall semester or \$20 for summer cruise or five-week summer term. 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 \$16.18 per semester credit hour not to exceed \$194.16 per semester or \$97.08 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 \$131.85 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.

NROTC/Naval Science Tuition

Military science courses are usually not counted towards a degree. Texas law designates that a special tuition fee of \$220 per semester credit hour (SCH) applies to military science courses, only if they do not count towards a degree. The \$220 per hour tuition takes the place of all other per SCH charges, including state tuition and university designated tuition.

Recreational Sports Center Fee

This \$20 fee assessed for the fall and spring terms and \$10 for each 5-week summer term will provide building maintenance and programming support for the Recreational Sports Center.

Software License Fee

This fee funds campus-wide software site licenses for students as well as the associated administrative costs of managing these licenses. This fee is assessed at \$1.25 per semester credit hour. It provides students with many software programs at greatly reduced prices.

Supplementary Fee for Courses Attempted More than Twice

A course that is repeated by a student more than twice at a public institution of higher education in Texas may not be reported for state funding. As a result, the institution must either pass the non-funded portion to all students, or charge a supplementary fee to the student who is repeating the course. Texas A&M has chosen to assess a supplementary fee to those students repeating a course more than twice. A student attempting certain courses more than twice at Texas A&M University will be subject to a supplementary fee of \$125 per semester credit hour (\$375 for a 3 hour course) for the repeated course, in addition to tuition and required fees associated with the course. The general criteria for determining which courses are subject to the supplementary fee are stated in the Degree Information section of this catalog.

Utility Fee

The \$6.50 per semester credit hour fee is required of all students to cover rising utility costs for educational and general facilities on the Texas A&M University at Galveston campus.

Fees for other Services

Academic Enhancement Fee for the Texas Success Initiative: This \$50 per course fee will be used to provide tutoring, classroom materials and textbooks to students required to take academic enhancement developmental courses in math, reading and/or writing (for CAEX or MATH 102 courses) in compliance with Texas Success Initiative regulations.

Application Fee: Students who submit an application for undergraduate studies pay a \$45 fee. Students who submit an application for graduate studies pay a \$50 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.

Distance Education Fee: \$50 per semester credit hour is assessed to students taking courses using distance education resources.

Engineering Instructional Enhancement Fee: A student registering in certain engineering courses may be required to pay a Engineering Instructional Enhancement Fee (between \$0 and \$210).

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 \$40 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.

Instructional Enhancement Fee: This fee is used for the purchase and maintenance of equipment, visual aids, supplemental materials and educational supplies to provide students with a rich learning environment. The fee will not exceed \$200 per course.

International Student Service Fee: International students who are not sponsored are assessed a \$46 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.

Parking Permit: All students parking an automobile or motorcycle on the campus pay a fee of \$100 for the academic year (Fall, Spring, Summer). By request, prorated refunds can be issued for terms not used.

P.E. Service Fee: All students taking Physical Education (kinesiology) courses are required to pay a \$20 service fee for each Physical Education course.

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

Scuba Tank Rental Fee: \$125 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.

Testing Administrative Fee: This \$50 per test fee will be used to pay for personnel to proctor credit-by-exams and THEA tests and to pay shipping costs to send tests to testing centers.

10-Week Summer Semester: Students may register for 10-week summer semester courses during the first summer term registration. All 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.

License Option Cadet Expenses: License-option students must purchase uniforms with initial outfitting estimated at \$1,800. Other items such as caps, belt buckles, name tags may be required to be purchased from the TAMUG Bookstore.

Tickets to Texas A&M University home games may also be purchased at registration. Refunds are not allowed for individual games or games missed.

The University operates a bookstore which supplies textbooks, stationery, 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 \$30 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, Instructional Enhancement 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 5 class days of a fall or spring semester or 4 days of a summer semester. For Fall or Spring Semesters, students may also drop classes with special permission of the dean/departments head between the 6th 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 Financial Management Services on the day the course is added. Students may drop classes during the 1st through 5th class day with full refunds. Refunds will not be issued for classes dropped after the 5th 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 Spring 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 Financial Management Services.

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

bers 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 and fees 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 Financial Management Services 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.

Fee Schedules for Special Circumstances

DE (Distance Education Instruction): This group includes traditional off-campus classes, all university centers and telecommunications, video and other nontraditional Distance Education Instruction delivery models.

IA (In Absentia): The traditional student who is performing individual research or completing degree requirements that do not require classroom instruction.

OC (Off-Campus): Courses offered in person at an off-campus location or courses comprised solely of field trips. Students enrolled in these courses do not have physical access to campus resources.

SA (Study Abroad): Students participating in Texas A&M University at Galveston Study Abroad programs.

GG (Galveston Graduate Students): Texas A&M University graduate students who are enrolled at College Station, but who are taking courses exclusively at Galveston.

<i>Required Tuition and Fees</i>	<i>DE</i>	<i>IA</i>	<i>OC</i>	<i>SA</i>	<i>GG</i>
State Minimum Tuition	Yes	Yes	Yes	Yes	Yes
University Authorized Tuition	Yes	Yes	Yes	Yes	Yes
Computer Access Fee	Yes	Yes	Yes	Yes	Yes
Distance Learning Fee	Yes	No	No	No	No
Library Access Fee	Yes	Yes	Yes	Yes	Yes
Student Services Fee	Yes	No	No	Yes	Yes
Health Center Fee	No	No	No	No	No
Student Center Complex Fee	No	No	No	No	Yes
Recreational Sports Center Fee	No	No	No	No	No
Equipment Access Fees	Yes	Yes	Yes	Yes	Yes
Field Trip Fees	Yes	Yes	Yes	Yes	Yes
Laboratory Fees	Yes	Yes	Yes	Yes	Yes
International Student Services Fees	Yes	Yes	Yes	Yes	Yes
Sponsored International Student Fee	Yes	Yes	Yes	Yes	Yes
Property Deposit	Yes	Yes	Yes	Yes	Yes
Identification Card Fee	Yes	Yes	Yes	Yes	Yes

Tuition Rebates After Graduation

Certain undergraduate students who attempt no more than three hours in excess of the minimum number of semester credit hours required to complete the degree under the catalog which they were graduated may be entitled to a \$1,000 tuition rebate after graduation. Several conditions apply and students must meet all of the specified criteria. Please see website http://finance.tamu.edu/sbs/tuition/tuition_rebate.asp for a complete set of institutional and student responsibilities and other criteria.

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 eligible non-citizens who are enrolled in degree seeking 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 University, College Station, TX.

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

This correspondence should be sent to:

Texas A&M University
Financial Aid-Galveston Processing
P.O. Box 40005
College Station, TX 77842

General Information

The Office of Student Financial Aid at Texas A&M University at Galveston follows the same general policies and procedures as Texas A&M University. A complete general listing may be found at website <http://financialaid.tamu.edu/>. Information specific to TAMUG may be found at website www.tamug.edu/finaid. For information, call 409-740-4500 or email 4finaid@tamug.edu.

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 on Pell Grant eligibility and the lowest EFC. In order to fulfill this requirement, Texas A&M University at Galveston has the following priority deadlines for the academic year:

April 1 for the following Fall semester.

October 1 for the following Spring semester.

March 1 for the following Summer semester.

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

Costs of Attendance

TAMUG uses average costs of attendance in determining the financial need budget. These costs are posted on all financial aid award letters. These costs include tuition and fees (30 credit hours per year), room and board, books and supplies, personal expenses, transportation and loan fees (if applicable). Additional costs may be added for child care or disability-related expenses. There are three major categories of student budgets: Texas resident, non-Texas resident, and license-option students (based on 12 months and includes summer cruise).

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, except for designated awards. 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 on-campus employment. The Career Planning and Placement Office coordinates 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 Office of Student Financial Aid. 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: Subsidized and Unsubsidized Federal Stafford Student Loan, the Perkins Loan, the Federal Parent Loan for Undergraduate Students and the Grad Plus loan. All loans require an application and a

promissory note. Credit reviews will be performed on Federal PLUS loans. New borrowers are required to complete 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.

Disbursement of Student Aid Funds: Student employees are paid biweekly. Students awarded grants or TAMUG scholarships will have funds credited to their accounts by the first day of class in Financial Management Services. Outside scholarship checks must indicate the recipient with UIN and must be made payable to TAMUG. These will be credited to the student's account. These checks must be sent to:

Texas A&M University
Financial Aid-Galveston Processing
P.O. Box 40005
College Station, TX 77842

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 Financial Management Services. 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 should come to campus prepared to pay for deposits, books, supplies, sundries, and for Cadet uniforms (approximately \$1,440).

Emergency Tuition and Fee Loans are available through Financial Management Services for students needing assistance with fee payments. The loans are made on a first-come, first served basis.

Satisfactory Academic Progress Policy

The purpose of the Satisfactory Academic Progress (SAP) Policy for financial aid is to ensure that students benefitting 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.

The Office of Student Financial Aid must monitor the progress of each student toward the completion of a certificate or degree in order to meet federal and state guidelines governing the administration of student financial assistance. Students who fall behind in their coursework, or fail to achieve minimum standards for grade point average and completion of classes, may lose their eligibility for all types of federal, state, and university aid administered by the Office of Student Financial Aid.

There are three components to SAP. Failure to comply with any component may result in a loss of aid eligibility. The three components are as follows:

1. Minimum Grade Point Ratio (GPR):

- Undergraduates is 2.0.
- Graduate students is 3.0.

2. Deficit Hours:

While students are expected to enroll full-time to be eligible for financial aid, each student must complete at least 75% of all credit hours attempted at Texas A&M University. This percentage includes all credit hours attempted at Texas A&M University, regardless of whether or not financial aid was received. Grades of W, F, I, U, Q, X, NG, repeated courses, and grade exclusions are not considered to be adequate grades for completion.

3. Excessive Hours:

Undergraduate students are eligible to receive financial assistance for a limited period of time while pursuing a degree. A student should not exceed 150 percent of the number of credits that it takes to obtain their degree. Our policy for Excessive Hours is based on the minimal credit hours an undergraduate student must have in order to be eligible to receive a baccalaureate degree. The minimum hours required to receive a degree is 120 credits based on the TAMUG 2009-2010 *Undergraduate Catalog*. Therefore, students must not exceed 180 attempted credit hours in order to remain eligible for financial aid. Students that exceed 180 attempted credit hours are considered ineligible for financial aid based on Excessive Hours. The Excessive Hours policy does not apply to graduate students.

Withdrawing from the University-Financial Aid

Federal law specifies how Texas A&M University must determine the amount of Student Financial Aid program assistance that a student earns if he or she withdraws. This law requires that, when a student withdraws during a semester, the amount of Student Financial Aid program assistance that the student has earned up to that point is determined by a specific formula. If a student received (or Texas A&M University received on the student's behalf) less assistance than the amount the student earned, the student will be able to receive those additional funds. If the student or the parent on the student's behalf received more assistance than the student earned, the excess funds must be returned.

The amount of assistance that a student earns is determined on a pro-rata basis. That is, if the student completed 30 percent of the semester, the student earned 30 percent of the assistance he or she was scheduled to receive. Once the student has completed

more than 60 percent of the semester, he or she is considered to have earned all of the assistance disbursed to him or her. (Adapted from the U.S. Department of Education's publication "The Student Guide".)

The specific formula takes into consideration the average institutional costs used to award students financial assistance. For example, the standard cost of attendance at Texas A&M University is based on 15 credit hours per semester for undergraduate students and 9 credit hours for graduate students. Therefore, if a student was registered for fewer credit hours a semester, he or she may be required to return the additional funds disbursed to him or her.

Students should also be aware that as a recipient of financial assistance compliance of the Satisfactory Academic Progress Policy must occur. By withdrawing, a student may not be eligible for financial assistance in the future from Texas A&M University because he or she did not complete a specified number of credit hours for which aid was disbursed. Information regarding this policy can be found on the Texas A&M University homepage at <http://financialaid.tamu.edu/>.

STUDENT SERVICES

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 Office of Student Financial Aid to determine if they are eligible for a Hazlewood tuition exemption.

Inquiries regarding veterans benefits may be addressed to Enrollment Services, Texas A&M University at Galveston, P.O. Box 1675, Galveston, TX 77553-1675. Phone: 409-740-4416.

Health Services

Medical Clinic: Texas A&M University at Galveston contracts with a local community clinic for health services for enrolled undergraduate 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, meningitis and other health concerns 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 strongly encouraged to maintain 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 is staffed with medical personnel 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.

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 helps 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 drug/alcohol abuse prevention education. Computers, academic skill enhancement software, videos, tutor referrals and written information are available to students wanting academic and or personal assistance. The function of the Counseling Office is to provide the students of this college with wellness and counseling services aimed at maximizing the personal growth and development of its members. These services include a wide variety of preventive, curative, educational, and crisis management activities.

Our counseling philosophy is built on the assumption that counseling must address the whole person as a physical, rational, emotional, sexual, social, and spiritual being. Accordingly, we attempt to offer a variety of services relevant to an extended range of student concerns. Our clients are encouraged to grow in knowledge and understanding both generally and specifically regarding their presenting and underlying issues. As they pursue wholeness our aim is that they will gain an appreciation of personal worth and potential as individuals. We strive to help students:

- 1) Develop a more integrated sense of self
- 2) Work towards individual meaning and purpose for their lives
- 3) Develop respectful and enduring relationships with others
- 4) Evaluate their personal and career oriented strengths and weaknesses

These goals are sought in an atmosphere that is confidential as well as comfortable for all students regardless of race, gender, ethnic background, age, citizenship, disability or physical status.

Inquiries or appointments regarding counseling may be addressed to the Office of Student Counseling, P.O. Box 1675, Galveston, TX 77553-1675, call 409-740-4736.

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. The Office maintains a career resource room containing company and career information, as well as career development materials. Companies and organizations post job vacancy notices on a web-based job board and in the career resource room and visit the campus throughout the year to interview graduating students for full-time positions. Students and alumni may post their resumes on the job board 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 submit a professional resume. 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.

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, call 409-740-4736.

STUDENT LIFE

Housing

The Office of Student Life coordinates 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 students are required to live in campus housing and participate in the board plan if campus housing is available. Approximately 40 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 Life. This application, along with the \$250 housing deposit, should be returned to Financial Management Services. Rooms are assigned in accordance with the date on which the housing application and room deposit are received in Financial Management Services. Housing applications may be forwarded prior to acceptance to the University, but housing assignments will be contingent upon admission to the University.

A waiver for the \$250 housing deposit may be submitted. To do so, the student should submit the housing application with an attached letter stating reasons for the waiver request. In order to be considered, the student must have a FAFSA submitted to TAMUG.

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 Office of Student Life.

Student Activities

A wide variety of student activities are coordinated through the Office of Student Life in the Mary Moody Northen Student Center. The Northen Student Center contains dining facilities, counseling, student activities, 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 on campus include the American Society of Mechanical Engineers, Sail Club, Dive Club, Propeller Club, Fine Arts Association, Future Students Club, Pre-Vet Society, Society of Naval Architects and Mechanical Engineers, the Drama Club, Circle K Service Organization, Residence Hall Association, several leadership organizations and many others.

The student government is the Student Government Association (SGA). The SGA serves as a direct link to the administration regarding student life. The SGA includes the Senate, the Executive Branch and the Student Judicial Board. Members are elected each year. Students also publish a newspaper (The Nautilus) and a literary publication (Seaspray).

The recreational sports program provides each student with the opportunity to participate in regularly organized activities. Co-rec teams are organized in flag football, soccer, water polo, racquetball, tennis, basketball, softball and volleyball. Texas A&M University at Galveston also has soccer, and rugby teams which compete in local leagues. The Campus Sail Team and Rowing Club compete in intercollegiate competition and are varsity sports.

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. Computers and skill enhancement software are also provided for incoming students wanting to review basic chemistry and calculus. Graduate school prep software including LSAT, GRE and GMAT is available for upperclassmen. Multicultural Services is also responsible for the Culture Club which is open to all persons seeking to gain valuable experience in promoting diversity through multicultural programming. For more information, call the Office of Student Life at 409-740-4582.

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 Office of Student Life.

Office of Academic Enhancement

The Office of Academic Enhancement provides support services to maximize the academic experience of all Texas A&M University at Galveston students. Services provided include academic advising, credit by exam, support for students in academic difficulty, freshman transition courses, academic excellence programs, tutoring, supplemental instruction, THEA testing, and developmental education. Students needing support for their courses are encouraged to visit the tutoring lab for one on one, or group support. Supplemental Instruction (SI) is also offered for selected courses and is facilitated by an SI leader who is an undergraduate that has already successfully completed the course. Each SI leader attends all lectures of the course again and conducts 2-3 one hour sessions per week outside of class where they employ a variety of techniques to increase student mastery of the material. Currently, SI support is provided for selected courses at the freshmen and sophomore level. Both tutoring support and the SI sessions are free of charge and available to all TAMUG students. To learn more about the services of the Office of Academic Enhancement, schedules for tutoring and SI sessions, please visit our web site at www.tamug.edu/acen.

University Police

The University Police are responsible for the protection of persons and property of Texas A&M University, and for the enforcement of the laws of the State of Texas and the rules and regulations of Texas A&M University as promulgated by the Texas Education Code. University police are commissioned peace officers involved in regular foot and vehicle patrol of campus, late-night security escorts, crime prevention programs for the campus community, and criminal investigations for the recovery of property and apprehension of criminals. Officers also provide regular security checks of buildings and property on campus. All University personnel are requested to cooperate with University police officers.

Student Right to Know and Campus Security Act

In compliance with the Federal Right to Know and Campus Security Act of 1990, a brochure is available which includes information on campus security and safety resources, policies and procedures for safety (reporting crimes and emergencies, crime awareness and prevention, security of campus facilities and residence halls), alcohol, drugs and weapons, and crime information and statistics. This information is available from the University Police Office, Building. 3025, and can be reached at 409-740-4545.

TEXAS MARITIME ACADEMY

Mission and Purpose

The Texas Maritime Academy (TMA) is a prestigious, highly specialized maritime training program that is embedded within Texas A&M University at Galveston (TAMUG), which is a branch of Texas A&M University (TAMU) at College Station, Texas. The mission of TMA is to provide the maritime industries of the State of Texas and the United States with highly trained and professional U.S. Coast Guard licensed Merchant Officers (deck/engine) to serve on ocean-going and inland waterways vessels. Additionally, for those Cadets who volunteer and meet the qualifications, TMA through the Naval Science Department/NROTC program, provides the opportunity for Cadets to be commissioned and serve in the Merchant Marine Reserve (MMR) program. Cadets also have the option to request active duty in the U.S. Navy or a direct commission in the U.S. Coast Guard.

Background

The Texas Maritime Academy is over 47-years-old and has a rich tradition of providing outstanding Merchant Marine Officers and active duty Naval/Coast Guard officers who have proudly served in the Merchant Marine and on active duty in the military during the Viet Nam War, Desert Storm, Somalia, and Bosnia, and now serve in the Iraqi/Afghanistan Wars. Our graduates have gone in harm's way and served honorably. Future graduates will serve as well since our world faces many national security and economic challenges such as piracy and terrorism.

Other graduates have established themselves with impeccable reputations as ship harbor/river pilots from Texas to all ports on the east and west coast and south to the Panama Canal. Other graduates serve the maritime industry ashore in private, academic and government positions. TAMUG/Texas Maritime Academy enables our graduates to have the ability to face any adversity and overcome any challenge. This is accomplished through an extremely demanding academic degree program coupled with a rigorous practical mariner training program taught by handpicked, highly experienced Master Mariners and Engineers. This enables our Cadets to meet the demanding licensing standards and requirements of the U. S. Coast Guard (USCG). This is the reason our graduates are sought nationwide.

To meet the high academic and practical deck and engineering seamanship training standards required to receive a degree, a U.S. Coast Guard (USCG) license, and a Commission, an individual must be highly motivated, honorable, extremely dedicated, and of high moral character, willing to sacrifice to meet the necessary regimentation found in the Cadet Battalion. License option Cadets, regardless of age or status are required by federal law to be in the Cadet Battalion for minimum of 3 years and participate in three summer Cruises. A minimum of two cruises will be aboard the training ship (first and third cruises). The second cruise between the sophomore/junior years may be on a commercial vessel depending on the individual's grades and availability of commercial vessels. It should be emphasized that a "C" average is required by Cadets in all USCG Standards of Training, Certification and Watch standing (STCW) courses that are a cruise prerequisite (as noted in this catalog) to participate on a summer cruise. Cadets must also complete all ship's maintenance training and worked off all demerits prior to being certified for each summer cruise. These requirements may be appealed to the Superintendent who will make the final determination of eligibility that cruise. However, a "C" average or better is required in all USCG/STCW courses for a Cadet to be eligible for a USCG license. This requirement is not open to appeal and must be met as noted in the license option curriculum in this catalog.

Ashore, all Cadets in the Battalion are required to live on campus with the exception of those applicants who are married, 25 years of age or older or have prior military service. These individuals are placed in "Victor" Company which reports directly to the Commandant of Cadets. In the Battalion, Cadets learn to develop and hone a myriad of skills but in particular the leadership skills needed upon graduation in the very demanding environment of a future Merchant Marine Officer or Military Officer. The regimentation found in the Battalion instills not only leadership, but also honor, self discipline, trust, character and moral responsibility to enable each Cadet to easily face the challenges of a seafaring life. The Cadet Battalion follows many of the traditions and customs found in the Corps of Cadets at TAMU in College Station. However, after over 40 years as a Maritime Academy, some seafaring traditions and customs have developed. Finally, after meeting all the requirements and upon graduation, each Cadet will receive a diploma from Texas A&M University and a U.S. Coast Guard license as a Third Officer (Deck/Engine) in the Merchant Marine. If the Cadet has participated in the Merchant Marine Naval Reserve program (to be discussed later), a Commission as an Ensign in the U.S. Navy Reserve will also be presented. Cadets can also apply for active duty in the U.S. Navy and a direct Commission in the U.S. Coast Guard.

The Cadet Battalion

Applicants who desire a degree program leading to a USCG license option (LO) as a Merchant Marine officer (Deck or Engine) are required to be a member of the Cadet Battalion. The Battalion provides Cadets a regimented environment designed to develop the leadership skills required to be a Merchant Marine or military officer. Leadership development is the ultimate goal of the Battalion which will be extremely beneficial to every Cadet whether they serve at sea or ashore. One of the principal components of leadership development is uniformity and cohesion. Therefore, all Cadets are required to wear uniforms and meet established standards of dress, grooming and discipline. These standards prepare the Cadets to “dress for success” when they enter the maritime industry, the Military or, for the Drill and Ceremony Cadets, the corporate environment. The uniform requirement list and cost/payment procedure will be provided to each Cadet when accepted into the Battalion. The cost of uniforms will vary but generally ranges from \$1,500 to \$2,000 for all four years. This includes \$200-300 for replacement items. Uniforms will be issued during Orientation Week which takes place prior to Fall semester.

All Cadets, except those mentioned below in V Company, will be required to live on campus, stand watches on the training ship and in the residence halls. All Cadets, regardless of status are required to perform maintenance on the training ship as required by the U.S. Coast Guard Standards of Training, Certification and Watchkeeping (STCW). Additionally, Cadets are required to attend mandatory formations, drill (including “march in’s” at College Station), stand announced and unannounced personnel and room inspections, participate in required physical fitness activities and perform other military type duties as required by the Battalion Rules. Cadets also have the opportunity to participate in numerous on campus sports, clubs and educational activities. Cadets can also compete to be members of the Hearn Honor Guard, the Drill Team, and the Flag Honor Guard who perform at events throughout Texas and other bordering states.

Six Categories of Cadets.

- **U.S. Merchant Marine Licensing Program:** The first category is the Merchant Marine License Cadets. This category includes those individuals who desire a Merchant Marine Engineering or Deck Officer License (issued by the U.S. Coast Guard).
- **U.S. Merchant Marine Licensing Program with Navy Reserve (MMR):** The second category is the Merchant Marine License Cadets who choose to join the Merchant Marine Reserve (MMR) program which is similar to NROTC, except summer cruises are accomplished on the training ship or a commercial ship instead of with the U. S. Navy. Cadets participating in the MMR program receive a Commission as an Ensign, USNR upon completion of their degree, and successfully passing the USCG license exam. For MMR Cadets who meet the academic requirements, there is an opportunity to compete for the Student Incentive Program (SIP) which provides \$8,000 per MMR Cadet per year. After commissioning as an Ensign, USNR, MMR (SIP) Cadets must agree to remain in the Reserves for 8 years. All MMR Cadets may choose to apply for Active Duty.
- **NROTC:** The third category is NROTC Cadets. These Cadets are in a non-license option program but desire to be an active duty Naval Officer (Navy/Marine). NROTC candidates may also compete for NROTC National Four Year Scholarships. Information on this program can be found by calling a U. S. Navy recruiter. All NROTC Cadets receive uniforms provided by the Navy. Greater detail on NROTC will be found below.
- **Drill and Ceremony:** The fourth category is the “Drill and Ceremony” (D&C) Cadets. These Cadets are not in a license option (LO) curriculum or NROTC but desire to be exposed to the leadership training, and the spirit and camaraderie of Battalion life. Some of these Cadets are individuals who come to TAMUG/TMA for two semesters pending transfer to the main campus at College Station. These Cadets are also fully integrated in the Battalion, must purchase all required uniforms, stand watches, perform drill, stand formation, room inspections, and physical fitness activities and perform maintenance on the training ship. They are not required to go on the summer cruise. At graduation, every D&C Cadet will be presented a Certificate indicating that they have voluntarily participated in this rigorous regimentation and leadership training experience.
- **V Company:** The fifth category is the “V Company” Cadets. These Cadets are individuals who are married, over the age of 25, or have been honorably discharged from the Armed Forces of the United States. These individuals are in a special unit that reports directly to the Commandant of Cadets. However, they too are required to buy all uniforms, participate in formations as determined by the Commandant, stand required watches and perform maintenance on the training ship. As stated above, they are permitted to live off campus. Due to their age and experience, they are not subject to all Battalion activities such as physical fitness activities.
- **International:** The sixth category is international Cadets desiring the Merchant Marine License Option training and the degree from Texas A & M University at Galveston. These Cadets are subject to U. S. Immigration laws, must have a student visa and excellent English language skills. It should be understood that by Federal Law, only U.S. citizens may take the USCG license exam. However, certificate of completion of all USCG courses and a degree will be presented upon completion of all required training/education.

Battalion Orientation Week

Prior to the beginning of the Fall academic semester, 4th Class Cadets (first year) are required to attend approximately one week of Battalion Orientation (O-Week). This program, under the guidance of the Commandant of Cadets and orchestrated by Cadet Officers, introduces each new Cadet to the routine of the Battalion, exposes new Cadets to the regimented Battalion environment, the customs and traditions of TAMU/TAMUG/TMA, and basic seamanship and nautical science skills. During O-Week, Cadets have formations, march to class and to meals, learn teamwork, experience hands on seamanship training and perform other training to enable them to hit the decks running when the entire Battalion reassembles following the Summer Cruise.

Admission requirements for License Option Applicants

U.S. Coast Guard License Option/Standards of Training, Certification, and Watchkeeping (STCW): Applicants who meet the University admissions standards and pass the U.S. Coast Guard physical requirements are eligible to apply to the Texas Maritime Academy and to be considered for admittance to one of the License Option courses and the Battalion in September of each year. License-option students are enrolled in MARB-LO, MARS-LO, MART or MARR curriculum. Admission criteria is governed by 46 U. S. Code 310 and includes a record free of criminal offense (background investigation) and proof of U.S. citizenship. Each application is thoroughly reviewed by TMA staff and a recommendation for admission is made to the Superintendent. The final decision for acceptance into the Texas Maritime Academy rests with the Superintendent who will notify all applicants by letter. It should be emphasized that acceptance to the University is not approval for acceptance into TMA. The application for admission for the Corps of Cadets is available through the website www.tamug.edu/corps. Generally, students will not be accepted into the LO curriculum after the 12th class day of the semester.

General Health Standards

Cadets enrolled in the License Option curriculum are held to special academic and physical standards due to the immense responsibility a Merchant Marine Officer has on board a merchant ship. Medical physical requirements for a license are included on the application Physical Form which must be submitted with the Texas Maritime Academy application. Both the TMA application and the Physical Form are available at the website www.tamug.edu/corps.

Examples of those requirements, as found in U.S. Code 46, Part 10, are:

Deck/Engineers license:

- minimum 20/800 in each eye correctable to 20/40 in each eye.
- must pass an approved color blind test.
- must be psychologically, perceptually and physically sound. Any disability, including some learning disabilities that might prevent an applicant from performing the duties of a Cadet or officer at sea, could preclude acceptance to TMA and licensing programs.
- applicant must be honest and forthcoming on all questions relating to medical conditions. Any deceptive/false answers will be reason for dismissal from the program.

Cadets are required to be screened for drugs prior to admission to TMA and will receive random screening while in the license option curriculum. Any Cadet testing positive is subject to removal from the LO curriculum. The cost for screening is the responsibility of the Cadet.

Additional U.S. Coast Guard Requirements

In addition to USCG approved and required Standards of Training, Certification and Watchkeeping (STCW) courses, Cadets will be required to obtain several additional training endorsements required by the USCG. Some of these include basic safety training, advanced firefighting, Radar/Automated Radar Plotting Aids training, Global Marine Distress System (GMDSS) training, and Bridge Resource Management training. Additionally, each Cadet will be required to obtain a Merchant Mariner Credential (MMC) and a Homeland Security "TWIC" card before the first cruise. For these documents, Cadets must have in their possession a valid U. S. Passport (www.travel.state.gov), original birth certificate, and a photo ID, preferably a driver's license. Most of this training and document cost have fees not associated with TAMUG/TMA. However, they are required by federal law and we will assist each Cadet in obtaining the endorsements they need to receive their license. A complete list of these requirements and costs will be made available during O-Week. It is extremely important that each applicant understand that the USCG requires all STCW courses to be passed with a grade of "C" or better or the course must be repeated. Also, class attendance is mandatory. Additionally, the law requires each Cadet, regardless of status, to attend TMA no fewer than three years and participate in three summer cruises; two on the training ship and a commercial cruise on merchant vessel between the 2 /Class and 3 /Class year. There are no waivers or exceptions to this requirement. Additionally, Cadets must have an overall "C" average in all STCW coursework to be eligible for summer cruise.

When all STCW and academic requirements are met, the Superintendent TMA will recommend and certify that Cadets are eligible to “sit” for their U.S. Coast Guard administered license. The exam takes place over a four day period and covers every aspect of STCW training. It is an intense and grueling four days and requires that each Cadet be fully prepared! It is important to understand that a degree can NOT be conferred until the test is successfully passed. International, non U.S. citizens are exceptions to this policy.

Battalion Standards of Conduct

Cadets are held to a very high standard and represent those Cadets who have gone before them. Therefore, TMA Cadets do not lie, cheat or steal nor tolerate anyone who does. TMA Cadets/Midshipmen are subject to Battalion Rules and an Honor Code that characterizes the objectives set forth in the development of their leadership skills. The Academy’s conduct and discipline process is a vehicle for assessing the aptitude and motivation of each Cadet for becoming an Officer in the Merchant Marine or Military. The ultimate goal of the conduct system is to build on the basic foundation of discipline and conduct Cadet possesses when he or she enters the Academy. Cadets are subject to demerits and those who continually have difficulty conforming to Battalion Rules will be subject to varying degrees of discipline as determined by TAMUG/TMA rules. If discipline conditions persist, a Cadet could face dismissal from TMA. Discipline is overseen by the Commandant. Cadets are afforded due process in all discipline cases with appeals decided by the Superintendent. License option Cadets dismissed from the TMA and who are permitted to remain at TAMUG will not be allowed to take LO courses, will be removed from the Corps housing, and if a non-Texas resident, will be subject to out of state tuition costs.

All Cadets are required to wear the specified uniform of the day to class, formation, and meals during the weekdays Monday thru Friday, when standing watch and as deemed appropriate by TMA Staff/Battalion Commander. It is permissible to relax the uniform requirement on the weekends, but appropriate attire in the Student Center/Galley is required.

Demerits and maintenance hours are required to be completed before a Cadet can sit for license examinations or attend a summer cruise.

Navy ROTC/Merchant Marine Reserve (MMR) Program

As indicated previously, the Department of Naval Science trains Cadets who desire to participate in the Merchant Marine Reserve (MMR), a voluntary joint program established in 1925 between the U. S. Navy and the U.S. Merchant Marine. The mission of the MMR is to assist the U.S. Navy in times of war/mobilization by augmenting the Navy’s sealift capacity. Cadets will be offered the opportunity to join the MMR program during their first year. Cadets who possess the appropriate military aptitude/military bearing, academic standing, and motivation and receives a positive interview and endorsement from the Officer in Charge of the Naval Reserve Officers Training Corps (NROTC) may apply via the Commandant for the MMR program and if selected on a competitive basis may be offered the opportunity to join the SIP program discussed above. Upon graduation and receipt of a license, Cadets will be commissioned as an Ensign USNR. They can also apply for active duty in the Navy or another branch of the Armed Forces.

Basic Eligibility Requirements:

- be under the age of 34.
- pass a Navy physical examination (to enter the program and another prior to Commissioning).
- pass the semi-annual Physical Readiness Test.
- be enrolled in a license option curriculum.
- minimum GPA of 2.0 (4.0 system).

The Naval Reserve Officer Training Corps (NROTC)

NROTC offers those individuals who desire to become Naval Officers and meet the qualifications to qualify for a commission while attending TAMUG. These Cadets are fully integrated into the Battalion, and perform all the activities required of the Battalion. Uniforms for NROTC Midshipmen are provided at the expense of the Navy. To be eligible for a Commission, NROTC Midshipmen must complete all requirements for a bachelor's degree as well as certain courses specified by the Navy. Students may join the NROTC program as National Four Year Scholarship Winners or as non-subsidized college program applicants. Information on the National Four Year Scholarship program can be obtained through a Navy recruiting office. The submission deadline is 15 January in the year application is being made. College program Midshipmen are eligible to compete for three and one year or three year and two year NROTC scholarships. All NROTC scholarships pay full tuition, fees and uniforms. All scholarship and junior/senior level Midshipmen receive an allowance of \$250-400 per month depending on class standing. Midshipmen are also paid during the summer training periods.

ADDITIONAL COSTS

The additional costs shown below are primarily associated with the Texas Maritime Academy, the Corps of Cadets, and the U.S. Coast Guard LO requirements and are over and above the costs of attending TAMUG (see Tuition and Fees):

- Coast Guard Approved Fire Fighting School - \$700-\$900.
- TWIC - \$150.
- Orientation Week Fee - To be determined.
- Merchant Mariner Credential - \$140.
- Drug testing - approx \$30 (each time).
- Uniforms - \$1,800-2,000.
- Training cruise - estimated about \$5000 depending on fuel costs.

UNDERGRADUATE ACADEMIC CURRICULA

Curriculum in Marine Biology (MARB)

The Department of Marine Biology offers these three degree programs: Marine Biology (MARB), Marine Biology License Option (MARB/LO) 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 111 and 112. Students may not advance to BIOL 112 until a grade of C or better is earned in BIOL 111.

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 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.

Through a partnership with the Texas A&M University College of Veterinary Medicine, students in the Marine Biology curriculum may pursue a Certificate in Biomedical Sciences.

Students majoring in Marine Biology can be eligible for a secondary teaching field in Life Sciences pending a passing score on the state certification test (ExCET). See the Teacher Certification section of this catalog.

FRESHMAN YEAR

Fall Semester		(Th-Pr)	Cr
BIOL 111	Introductory Biology I†**	(3-3)	4
CHEM 101	Fundamentals of Chemistry I.	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(0-3)	1
HIST	American History Requirement‡‡	(3-0)	3
MARB 101	Succeeding in Science (except transfer students)†	(1-0)	1
MATH 151	Engineering Math	(3-2)	4
or MATH 142	Business Math II	(3-0)	3
Total Hours			15 or 16

Spring Semester

BIOL 112	Introductory Biology II†**	(3-3)	4
CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST	American History Requirement‡‡	(3-0)	3
MATH 166	Topics in Contemporary Math‡	(3-0)	3
or MATH 141	Business Math I‡	(3-0)	3
Total Hours			17

SOPHOMORE YEAR

Fall Semester			
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab I.	(0-3)	1
KINE 198	Health and Fitness Activity	(0-2)	1
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			16

Spring Semester

CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
MARB 301	Genetics†	(3-3)	4
PHYS 202	College Physics.	(3-3)	4
POLS 207	State and Local Government	(3-0)	3
Total Hours			15

JUNIOR YEAR**Fall Semester**

ENGL 301	Technical Writing	(3-0)	3
MARB 303	Biostatistics†	(2-2)	3
Elective in Humanities	. . . . .		3
Electives in Marine Biology†§			8
Total Hours			17

Spring Semester

KINE 199	Required Physical Activity*	(0-2)	1
MARB 310	Cell Biology†.	(3-3)	4
MARB 435	Marine Invertebrate Zoology†****	(3-3)	4
Elective in Marine Biology†§			4
Elective in Social Science			3
Total Hours			16

SENIOR YEAR**Fall Semester**

MARB 420	Comparative Animal Physiology†	(3-3)	4
MARB 425	Marine Ecology†	(3-3)	4
Elective in Earth Science***			3
Electives in Marine Biology†§			4
Elective			3
Total Hours			18

Spring Semester

MARB 408	Marine Botany§§†****	(3-3)	4
MARB 482	Seminar in Marine Biology†****	(1-0)	1
Elective in Humanities			3
Elective in Marine Biology†§			4
Elective			3
Total Hours			15

Total Curriculum Hours□ 129 or 130

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Up to 4 hours of MARB 491 and/or MARB 484 may be substituted for courses in your curriculum. Please consult with your academic advisor.

* - Must be taken S/U.

** - A grade of "C" or better is required before advancing to upper level courses.

†- 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.

‡‡- The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

§§ - MARB 430, which is offered in the Fall semester, can be substituted for MARB 408. MARB 430 is also a writing intensive course.

§ - 20 credit hours of biology electives required. A minimum of 12 credit hours must be taken from the following: BIOL 351, MARB 311, MARB 330, MARB 400, MARB 410, MARB 430, MARB 466, MARS 360, MARS 361. For the remainder of the 20 hours of biology electives, students may take a maximum of two mammals courses (selected from MARB 400, MARB 401, MARB 403), one of the two MARB scientific diving courses (either 345 or 350), or any other MARB 300-400 level classes.

***- The Earth Science elective may be chosen from GEOL 104-499, OCNG 251-499, METR 302 or suitable MARS courses approved by the student's department head.

****- Designated writing intensive course.

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and cultural diversity courses. Students who take MATH 142 instead of MATH 151 will have 129 credit hours.

Curriculum in Marine Biology with a License Option (MARB-LO)

The Marine Biology License Option program allows the marine biology student to prepare for a career as an officer aboard a sea-going 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 111	Introductory Biology I †	(3-3)	4
CHEM 101	Fundamentals of Chemistry I	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(0-3)	1
HIST	American History Requirement††	(3-0)	3
MARB 101	Succeeding in Science †	(1-0)	1
MART 103	Basic Safety and Lifeboatman Training*.	(2-3)	3
MATH 141	Business Mathematics I	(3-0)	3
Total Hours			18

Spring Semester

BIOL 112	Introductory Biology II †	(3-3)	4
CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	1
MART 203	Seamanship I*	(2-3)	3
MART 204	Terrestrial Navigation*.	(2-2)	3
MATH 142	Business Mathematics II	(3-0)	3
Total Hours			17

Summer Session-Ten weeks aboard the University Training Ship

MART 200 Basic Communications, Navigation and Seamanship*	4
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SOPHOMORE YEAR

Fall Semester

CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab.	(0-3)	1
HIST	American History Requirement††	(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

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
MART 301	Seamanship II* §	(2-3)	3
MART 303	Celestial Navigation*.	(2-3)	3
PHYS 202	College Physics.	(3-3)	4
Total Hours			17

Summer Session-Ten weeks aboard the University Training Ship

MART 300 Intermediate Communication, Navigation and Seamanship*	4
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JUNIOR YEAR

Fall Semester

KINE 198	Health and Fitness Activity	(0-2)	1
MARB 315	Natural History of Vertebrates†	(3-3)	4
MART 305	Ship Construction and Stability*	(3-0)	3
MART 312	Marine Cargo Operations I*	(3-0)	3
POLS 206	American National Government	(3-0)	3
Total Hours			14

Spring Semester

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
MART 304	Electronic Navigation*	(1-3)	2
MART 307	Global Maritime Distress Safety System*	(2-3)	3
Elective in Humanities	. . . . .		3
Total Hours			17

Shoreside Summer

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

MARB 303	Biostatistics†	(2-2)	3
MARB 425	Marine Ecology†	(3-3)	4
MART 410	Bridge Watchstanding*	(1-3)	2
Elective in Computer Science ***	. . . . .		3
Elective in Humanities	. . . . .	(3-0)	3
Total Hours			15

Spring Semester

MARB 310	Cell Biology†.	(3-3)	4
MARB 311	Ichthyology †.	(3-3)	4
MARB 435	Invertebrate Zoology† §	(3-3)	4
OCNG 401	Introduction to Oceanography	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Total Hours			18

Summer Session-Ten weeks aboard the University Training Ship

MART 400	Advanced Communications, Navigation and Seamanship*		4
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Total Curriculum Hours□ 154

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

- A grade of "C" or better is required before advancing to upper level courses.

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

‡‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

* - 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. MART 307 requires a grade of 75% or better.

** - Must be taken S/U.

*** - Select from CSCE 100-499.

§ - Designated writing intensive course.

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and cultural diversity courses.

Marine Biology/Biomedical Sciences Certificate Program

This collaboration is intended to maximize the course offerings and resources of both the Biomedical Sciences program in College Station and the Marine Biology program in Galveston to provide students a greater wealth of opportunities.

The certificate program prepares the graduate for careers in aquatic animal health, seafood technology and various marine related disciplines as well as advanced studies in veterinary medicine, human medicine, allied health, biological oceanography and related biological disciplines. The program provides depth in an applied understanding of aquatic animal health and disease.

Because of limited resources the program will have a cap on the number of students admitted to the program. All courses in the program must be completed with a grade of C or better. The certificate will be awarded upon completion of a B.S. degree in Biomedical Sciences or Marine Biology.

Students desiring to obtain a certificate must have approval from the department granting the certificate. Students must have a cumulative 2.5 grade point ratio to be admitted to the certificate program and have completed BIOL 111, 112, CHEM 227 and 228.

Interested students should visit with an academic advisor in the department offering the certificate at least one semester prior to entry to discuss departmental requirements as well as to select coursework appropriate to his or her individual interests. Students should also consult an academic advisor in the major to determine how the certificate coursework will be applied to the degree. Students should seek additional advising if planning to pursue admission to medical school or veterinary medicine school.

Certificate in Biomedical Sciences (available to Marine Biology majors)

Students will complete 15 semester credit hours in BIMS consisting of:

At least 2 of the courses listed specifically as VAPH 305, VTPP 423 and VTPB 405 for 8 to 9 semester credit hours.

VAPH 305 Biomedical Anatomy (4 sch).

VTPP 423 Biomedical Physiology I (4 sch).

VTPB 405 Biomedical Microbiology (5 sch).

2 to 3 additional courses selected from approved BIMS directed electives for 6 to 7 semester credit hours.

Certificate in Marine Biology (available to Biomedical Sciences majors)

Students will complete 15 semester credit hours in MARB consisting of:

15 semester credit hours of approved marine biology electives (MARB prefix) chosen in consultation with an advisor.

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 111	Introductory Biology I†**	(3-3)	4
CHEM 101	Fundamentals of Chemistry I	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(0-3)	1
HIST	American History Requirement	(3-0)	3
MATH 151	Engineering Math	(3-0)	4
or MATH 142	Business Math II	(3-0)	3
MARB 101	Succeeding in Science	(1-0)	1
Total			15 or 16

Spring Semester

BIOL 112	Introductory Biology II†**	(3-3)	4
CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
HIST	American History Requirement	(3-0)	3
MATH 166	Topics in Contemporary Math‡‡	(3-0)	3
or MATH 141	Business Math I‡‡	(3-0)	3
Total			17

SOPHOMORE YEAR

Fall Semester

CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry Lab I	(0-3)	1
KINE 198	Health and Fitness 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

CHEM 228	Organic Chemistry II	(3-0)	3
CHEM 238	Organic Chemistry Lab II	(0-3)	1
MARB 311	Ichthyology†	(3-3)	4
PHYS 202	College Physics	(3-3)	4
POLS 206	American National Government	(3-0)	3
Total			15

JUNIOR YEAR

Fall Semester

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
or MARB 435	Marine Invertebrate Zoology†		
Total			18

Spring Semester

BIOL 351	Fundamentals of Microbiology†	(3-3)	4
MARB 320	Fisheries Techniques†	(3-3)	4
MARB 360	Marine Conservation Biology†	(3-3)	4
POLS 207	State and Local Government	(3-0)	3
Elective in Humanities	. . . . .		3
Total			18

SENIOR YEAR

Fall Semester

MARB 423	Mariculture†	(3-3)	4
MARB 425	Marine Ecology†	(3-3)	4
MARB 445	Marine Fisheries Management†	(3-3)	4
Elective in Humanities	. . . . .		3
Total			15

Spring Semester

ECON 202	Principles of Economics	(3-0)	3
KINE 199	Required Physical Activity*	(0-2)	1
MARB 460	Fisheries Population Dynamics†	(3-3)	4
MARB 482	Seminar†	(1-0)	1
Directed Electives †‡	. . . . .		7
Total			16

Total Curriculum Hours□ 131 or 132

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

-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

* - Must be taken S/U.

** - A grade of "C" or better is required before advancing to upper level courses.

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

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

□ - The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and cultural diversity courses. Students who take MATH 142 instead of MATH 151 will have 131 credit hours.

Note: The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

Curriculum in Marine Engineering Technology (MARR)

Texas A&M University at Galveston is a special purpose institution for teaching, research, and public service pertaining to marine and maritime studies in science, engineering, and business. The university is also the home of the Texas Maritime Academy. Within this context, the goal of the Department of Marine Engineering Technology is to prepare students for performing engineering work in the marine sector or marine-related shore-based industries involving the design, production, operation, maintenance, and management of engineering systems and projects. Opportunities for such work abound in the vicinity of the university, which is located just south of the fourth largest metropolis in the U.S. The Houston/Galveston area has extensive port facilities, considerable commercial, recreational, and military ship traffic, and ever-increasing offshore and onshore infrastructure associated with the oil industry. Career opportunities of various kinds (e.g. operational, management, leadership, etc.) are therefore available for these graduates who are ideally suited for working on ships, at port facilities, at offshore facilities and at shoreside facilities, particularly in power generation, distribution, and concomitant auxiliary support systems. The program provides a License Option and a Non-License Option. The license option is intended for cadets of the U.S. Maritime Service Corps who can then appear for the US Coast Guard's license examination, enabling them to serve as engineering officers aboard sea-going vessels.

Our goal is to provide students with a strong background in engineering fundamentals, mathematics, and analytical methods, which is reinforced by practical machine-shop and laboratory applications, including several on the training ship. The curriculum builds on a foundation of basic engineering topics such as fluid mechanics, thermodynamics, electricity, drafting, and materials science to develop inter-disciplinary skills required for the practice of marine engineering. In particular, the program's objectives are to produce students who: (1) Can practice engineering pertaining to marine and facilities power systems and associated auxiliary systems (e.g. propulsion, electrical power generation and distribution, refrigeration, and air conditioning) in support of the maritime sector (the Navy, Coast Guard, and companies operating sea-going vessels), the offshore oil and gas industry, and companies involved in facilities management or shore-based power systems; in particular, to plan, design, construct, operate, and maintain engineering systems intended to provide marine propulsion and electrical power; and (2) Are well-prepared to engage in lifelong education and professional development.

FRESHMAN YEAR

Fall Semester

		(Th-Pr)	Cr
CHEM 107	General Chemistry for Engineering Students	(3-0)	3
CHEM 117	General Chemistry for Engineering Students Laboratory	(0-3)	1
ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 198	Health and Fitness Activity	(0-2)	1
MARE 100	Marine Engineering Fundamentals†	(2-3)	3
MATH 150	Functions, Trigonometry and Linear Systems	(3-2)	4
Total			15

Spring Semester

ENGR 111	Foundation of Engineering I†	(1-3)	2
HIST	American History Requirement‡.	(3-0)	3
MART 103	Basic Safety and Lifeboatman Training*.	(2-3)	3
MATH 151	Engineering Mathematics I.	(3-2)	4
PHYS 218	Mechanics	(3-3)	4
Total			16

SUMMER SESSION-Ten weeks aboard the University Training Ship

MARE 200 Basic Operations†*			4
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SOPHOMORE YEAR

Fall Semester

ENGR 112	Foundations of Engineering II†	(1-3)	2
MARE 303	Marine Thermodynamics†	(3-0)	3
MARE 205	Engineering Mechanics I†	(3-0)	3
MARE 242	Manufacturing Methods I†*.	(0-3)	1
MATH 152	Engineering Mathematics II	(3-2)	4
PHYS 208	Electricity and Optics	(3-3)	4
Total Hours			17

SOPHOMORE YEAR**Spring Semester**

HIST	American History Requirement†	(3-0)	3
MARE 206	Engineering Mechanics II†	(3-0)	3
MARE 207	Electrical Power I†	(2-3)	3
MARE 243	Manufacturing Methods II†*	(1-3)	2
MARE 261	Engineering Analysis†	(3-0)	3
MARE 311	Steam Propulsion Plants†	(2-3)	3
Total Hours			17

SUMMER SESSION-Ten weeks aboard the University Training Ship

MARE 300 Intermediate Operations†*	4
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JUNIOR YEAR**Fall Semester**

MARE 209	Mechanics of Materials†	(3-0)	3
MARE 313	Heat Transfer†	(2-3)	3
MARE 305	Fluid Mechanics Theory†	(3-3)	4
MARE 306	Electrical Power II†	(2-3)	3
Elective in humanities/social and behavioral sciences/international and cultural diversity			(3-0) 3
(Recommended any course fulfilling the social and behavioral sciences/international and cultural diversity requirement)			
Total Hours			16

Spring Semester

ENGL 301	Technical Writing*	(3-0)	3
MARE 309	Marine Construction Materials†*	(2-3)	3
MARE 312	Diesel Propulsion Plants†	(2-3)	3
POLS 207	State and Local Government	(3-0)	3
Elective in humanities/social and behavioral sciences/international and cultural diversity			(3-0) 3
(Recommended any course fulfilling the humanities/international and cultural diversity requirement)			
Total			15

SUMMER SESSION-Ten weeks aboard the University Training Ship

MARE 400 Advanced Operations†*	4
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SENIOR YEAR**Fall Semester**

KINE 199	Required Physical Activity**	(0-2)	1
MARE 307	Marine Electronics†	(2-3)	3
MARE 405	Naval Architecture†§*	(2-3)	3
MARE 451	Senior Design Project I†	(1-3)	2
NVSC 200	Merchant Marine Officer I	(3-0)	3
POLS 206	American National Government	(3-0)	3
Total			15

Spring Semester

MARE 401	Marine Auxiliary Systems†	(2-3)	3
MARE 402	Shipboard Automation and Control†	(3-0)	3
MARE 441	Engineering Economics and Project Management†	(3-0)	3
MARE 452	Senior Design Project II†§	(1-3)	2
Elective in humanities/social and behavioral sciences/international and cultural diversity		(3-0)	3
(Recommended any course fulfilling the humanities/international and cultural diversity requirement)			
Total			14
Total Hours			137

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

†-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.

** - Must be taken S/U.

‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

-Must complete 6-hours of humanities and 3-hours of social and behavioral sciences of which two courses must be designated as international and cultural diversity. Suggested courses are given in parenthesis.

□-The total hours may be increased if the student is required to take remedial math, remedial English, computer science, foreign language or if the humanities or social science requirements do not fulfill the international and diverse cultures requirement.

§ - Designated writing intensive course.

Curriculum in Marine Engineering Technology Non-License Option (MARR-NLO)

This 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 MARE 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. 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.

FRESHMAN YEAR

Fall Semester

	(Th-Pr)	Cr
CHEM 107	General Chemistry for Engineering Students	(3-0) 3
CHEM 117	General Chemistry for Engineering Students Laboratory	(0-3) 1
ENGL 104	Composition and Rhetoric	(3-0) 3
KINE 198	Health and Fitness Activity	(0-2) 1
MARE 100	Marine Engineering Fundamentals †	(2-3) 3
MATH 150	Functions, Trigonometry and Linear Systems	(3-2) 4
Total		15

Spring Semester

ENGR 111	Foundation of Engineering I†	(1-3) 2
HIST	American History Requirement‡	(3-0) 3
MATH 151	Engineering Mathematics I.	(3-2) 4
PHYS 218	Mechanics	(3-3) 4
Elective in humanities/social and behavioral sciences/international and cultural diversity		(3-0) 3
(Recommended any course fulfilling the social and behavioral sciences/international and cultural diversity requirement)		
Total		16

SOPHOMORE YEAR

Fall Semester

ENGR 112	Foundations of Engineering II†	(1-3) 2
MARE 303	Marine Thermodynamics†	(3-0) 3
MARE 205	Engineering Mechanics I†	(3-0) 3
MARE 242	Manufacturing Methods I†	(0-3) 1
MATH 152	Engineering Mathematics II	(3-2) 4
PHYS 208	Electricity and Optics	(3-3) 4
Total Hours		17

Spring Semester

MARE 206	Engineering Mechanics II†	(3-0) 3
MARE 207	Electrical Power I†	(2-3) 3
MARE 243	Manufacturing Methods II†	(1-3) 2
MARE 261	Engineering Analysis†	(3-0) 3
MARE 311	Steam Propulsion Plants†	(2-3) 3
HIST	American History Requirement‡	(3-0) 3
Total Hours		17

JUNIOR YEAR

Fall Semester

MARE 209	Mechanics of Materials†	(3-0) 3
MARE 305	Fluid Mechanics Theory†	(3-3) 4
MARE 306	Electrical Power II†	(2-3) 3
MARE 313	Heat Transfer†	(2-3) 3
Directed elective (Selected from marine sciences/engineering)†		3
Total Hours		16

Spring Semester

ENGL 301	Technical Writing	(3-0)	3
MARE 309	Marine Construction Materials†	(2-3)	3
MARE 312	Diesel Propulsion Plants†	(2-3)	3
POLS 207	State and Local Government	(3-0)	3
Elective in humanities/social and behavioral sciences/international and cultural diversity			(3-0) 3
(Recommended any course fulfilling the humanities/international and cultural diversity requirement)			
Total			15

SENIOR YEAR**Fall Semester**

KINE 199	Required Physical Activity*	(0-2)	1
MARE 307	Marine Electronics†	(2-3)	3
MARE 405	Naval Architecture†***	(2-3)	3
MARE 451	Senior Design Project I†	(1-3)	2
POLS 206	American National Government	(3-0)	3
Elective in Marine Engineering†**			3
Total			15

Spring Semester

MARE 452	Senior Design Project II†***	(1-3)	2
MARE 441	Engineering Economics and Project Management†	(3-0)	3
Elective in Marine Engineering†**			3
Elective in Marine Engineering†**			3
Elective in humanities/social and behavioral sciences/international and cultural diversity			
(Recommended any course fulfilling the humanities/international and cultural diversity requirement)			
Total			14

Total Hours□ 125

Note: All electives must be chosen in consultation with, and by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social and behavioral sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

* - Must be taken S/U.

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

‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

** - Students may take any of the 400 level courses offered by the Marine Engineering Department in their senior year including standard courses such as MARE 401 and 402, which are offered to license option students.

□ - The total hours may be increased if the student is required to take remedial math, remedial English, computer science, foreign language or if the humanities or social science requirements do not fulfill the international and cultural diversity requirement.

Must complete 6-hours of humanities and 3-hours of social and behavioral sciences of which two courses must be designated as international and cultural diversity. Suggested courses are given in parenthesis.

*** - Designated writing intensive course.

Curriculum in Marine Sciences (MARS)

The Marine Sciences curriculum 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. 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 to move directly into jobs in environmental monitoring, oceanographic instrumentation, pollution control, the offshore oil industry and other fields.

Students majoring in Marine Sciences or Ocean and Coastal Resources can be eligible for a secondary teaching field in Physical Sciences, pending a passing score on the state certification test (ExCET). See the Teacher Certification section of this catalog.

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 101/111, 102/112, 227, 228, 237, 238, 383, 316 and 318. (pending approval)

FRESHMAN YEAR

		(Th-Pr)	Cr
Fall Semester			
CHEM 101	Fundamentals of Chemistry I	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(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

BIOL 112	Introductory Biology II.	(3-3)	4
CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	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			
CHEM 227	Organic Chemistry I	(3-0)	3
CHEM 237	Organic Chemistry I Lab	(0-3)	1
HIST	American History Requirement‡.	(3-0)	3
MARS 281	Sophomore Seminar†.	(1-0)	1
MATH 251	Engineering Mathematics III.	(3-0)	3
PHYS 218	Mechanics	(3-3)	4
Total			15

Spring Semester

CHEM 228	Organic Chemistry II.	(3-0)	3
CHEM 238	Organic Chemistry II Lab	(0-3)	1
KINE 198	Health and Fitness Activity	(0-2)	1
MARS 210	Marine Geography	(3-0)	3
PHYS 208	Electricity and Optics	(3-3)	4
POLS 206	American National Government	(3-0)	3
Total			15

JUNIOR YEAR

Fall Semester

HIST	American History Requirement‡	(3-0)	3
MARS 303	Introduction to Computing and Data Display†	(2-2)	3
OCNG 420	Introduction to Biological Oceanography†	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Professional Elective §	. . . . .		3
Total			15

Spring Semester

ENGL 301	Technical Writing	(3-0)	3
MARS 440	Introduction to Chemical Oceanography†	(3-0)	3
Elective in Humanities	. . . . .		3
Professional Elective §	. . . . .		3
Professional Elective §	. . . . .		3
Total			15

SENIOR YEAR

Fall Semester

MARS 325	Introduction to Geographic Information Systems†	(2-2)	3
MARS 410	Introduction to Physical Oceanography†	(3-0)	3
MARS 481	Seminar†	(1-0)	1
MARS 485	Writing Intensive Directed Studies†**		2
Professional Elective §	. . . . .		3
Elective in Humanities	. . . . .		3
Total			15

Spring Semester

MARS 430	Geological Oceanography - Plate Tectonics†**	(3-0)	3
MARS 460	Modern Oceanographic Methods†	(3-6)	5
Professional Elective §	. . . . .		3
Elective	. . . . .		3
Total			14

Total Hours□ 120

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

* - Must be taken S/U.

†-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 be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

§-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 remedial math, remedial English, foreign language or international and diverse cultures courses.

** - Designated writing intensive course.

Curriculum in Marine Sciences with a License Option (MARS-LO)

This program retains the basic physical science core of the Marine Sciences curriculum, and leads 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%). (pending approval)

FRESHMAN YEAR

Fall Semester		(Th-Pr)	Cr
GEOL 104	Physical Geology	(3-3)	4
KINE 198	Health and Fitness Activity	(0-2)	1
MART 103	Basic Safety and Lifeboatman Training*.	(2-3)	3
MATH 151	Engineering Mathematics I.	(3-2)	4
POLS 206	American National Government	(3-0)	3
Total			15

Spring Semester

BIOL 112	Introductory Biology II.	(3-3)	4
ENGL 104	Composition and Rhetoric	(3-0)	3
MART 203	Seamanship I*	(2-3)	3
MART 204	Terrestrial Navigation*.	(2-2)	3
MATH 161	Engineering Mathematics II	(3-0)	3
Total			16

SUMMER SESSION-Ten weeks aboard the University Training Ship

MART 200 Basic Communications, Navigation and Seamanship*	4
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SOPHOMORE YEAR

Fall Semester			
CHEM 101	Fundamentals of Chemistry I.	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(0-3)	1
KINE 199	Required Physical Activity**	(0-2)	1
NVSC 200	Merchant Marine Officer I	(3-0)	3
OCNG 251	Oceanography †	(3-0)	3
OCNG 252	Oceanography Laboratory †	(0-3)	1
PHYS 218	Mechanics	(3-3)	4
Total			16

Spring Semester

CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	1
MARS 210	Marine Geography	(3-0)	3
MART 301	Seamanship II*§§	(2-3)	3
MART 303	Celestial Navigation*.	(2-3)	3
PHYS 208	Electricity and Optics	(3-3)	4
Total			17

SUMMER SESSION-Ten weeks aboard the University Training Ship

MART 300 Intermediate Communications, Navigation and Seamanship*	4
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JUNIOR YEAR**Fall Semester**

MARS 303	Introduction to Computing and Data Display† (2-2)	3
MART 305	Ship Construction and Stability* (3-0)	3
MART 306	Radar/ARPA/ECDIS* (3-3)	4
MART 312	Marine Cargo Operations* (3-0)	3
Elective in Humanities		3
Total		16

Spring Semester

MARS	Option †§	3
MART 304	Electronic Navigation* (1-3)	2
MART 307	Global Maritime Distress Safety System* (2-3)	3
MART 321	Maritime Law I †* (2-0)	2
MART 406	Marine Cargo Operations II †* (3-2)	4
Total		14

SUMMER SESSION - Ten weeks aboard the University Training Ship

MART 400 Advanced Communications, Navigation and Seamanship*	4
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SENIOR YEAR**Fall Semester**

ENGL 301	Technical Writing (3-0)	3
HIST	American History Requirement‡ (3-0)	3
MARS	Option †§	3
MARS 481	Seminar† (1-0)	1
METR 302	Weather Reports and Forecasting (3-0)	3
MART 410	Bridge Watchstanding* (1-3)	2
Total		15

Spring Semester

HIST	American History Requirement‡ (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 □ 136

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

* - 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. MART 307 GMDSS requires a score of 75% or better.

** - Must be taken S/U.

†-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.

‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

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

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and cultural diversity courses.

§§ - Designated writing intensive course. MARS-LO majors must take two writing intensive courses. One of them is required MART 301. The other course may be chosen from MARS 280, MARS 430 or MARS 488.

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 and issuance of Standards of Training, Certification and Watchkeeping (STCW) credentials. 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 successfully complete the license examination for Third Mate in order to graduate from Texas A&M University. Courses earning USCG or STCW qualifications, sea time remission or STCW competency certification require a minimum grade of C (70%). In addition, all STCW proficiencies must be satisfactorily completed with a grade of 70% or better (See applicable course outlines available through the department).

FRESHMAN YEAR

Fall Semester

		(Th-Pr)	Cr
HIST	American History Requirement†	(3-0)	3
KINE 199	Required Physical Activity *.	(0-2)	1
MART 103	Basic Safety and Lifeboatman Training †**	(2-3)	3
MART 203	Seamanship I †**	(2-3)	3
MART 204	Terrestrial Navigation †**	(2-2)	3
MATH 141	Business Mathematics I	(3-0)	3
Total			16

Spring Semester

ENGL 104	Composition and Rhetoric	(3-0)	3
KINE 198	Health and Fitness Activity	(0-2)	1
HIST	American History Requirement†	(3-0)	3
MARE 100	Marine Engineering Fundamentals	(2-3)	3
MATH 142	Business Mathematics II	(3-0)	3
NVSC 200	Merchant Marine Officer I	(3-0)	3
Total			16

SUMMER SESSION-Ten weeks aboard the University Training Ship

MART 200 Basic Communications, Navigation and Seamanship †**	4
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SOPHOMORE YEAR

Fall Semester

MART 301	Seamanship II §†**	(2-3)	3
MART 303	Celestial Navigation †**	(2-3)	3
MART 305	Ship Construction and Stability †**	(2-3)	3
MART 312	Marine Cargo Operations I†**	(3-0)	3
POLS 206	American National Government	(3-0)	3
Total			15

Spring Semester

MART 306	Radar/ARPA/ECDIS †**	(3-3)	4
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
POLS 207	State and Local Government	(3-0)	3
Total			16

SUMMER SESSION-Ten weeks aboard the University Training Ship

MART 300 Intermediate Communications, Navigation & Seamanship †**	4
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JUNIOR YEAR

Fall Semester

ENGL 301	Technical Writing	(3-0)	3
MART 304	Electronic Navigation †**	(1-3)	2
MART 307	Global Maritime Distress Safety System †**	(2-3)	3
PHYS 201	College Physics.	(3-3)	4
Elective#	. . . . .		3
Total			15

Spring Semester

ECON 203	Principles of Economics	(3-0)	3
MARA 301	Ocean Transportation I†§	(3-0)	3
MART 309	Advanced Topics in Shipboard Operations †**	(2-0)	2
MART 410	Bridge Watchstanding †**	(1-3)	2
PHYS 202	College Physics.	(3-3)	4
Total			14

SUMMER SESSION-Ten weeks aboard the University Training Ship

MART 400	Advanced Communications, Navigation and Seamanship †**		4
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SENIOR YEAR

Fall Semester

MARA 416	Port Operations Administration and Economics†	(3-0)	3
MART 404	The Navigator †**	(1-3)	2
MART 422	Seamanship III †**	(1-3)	2
Elective#	. . . . .		3
Elective in Humanities	. . . . .		3
Total			13

Spring Semester

MARA 421	Admiralty Law †	(3-0)	3
MARA 424	Economics of Transportation †§	(3-0)	3
Elective#	. . . . .		3
Elective#	. . . . .		3
Elective in Humanities	. . . . .		3
Total			15

Total Hours□ 132

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

- Approved electives include but are not limited to MART 304, 404, 489; MARA 212, 363, 401, 402, 435; MARS 405. See University 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, which must be at least 2.25.

* - Must be taken S/U.

** - Indicates license courses leading to a USCG/STCW 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. MART 307 GMDSS requires a score of 75% or better.

‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 105, 106, 370, 442 or 444. See Core Curriculum.

§-Indicated a course that satisfies the writing intensive course requirements of the University.

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and cultural diversity courses.

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.

Students may elect to choose courses to obtain a Financial Management or Operations Management track.

Financial Management Track - Students electing a Financial Management Track should choose 6 from the following 7 courses: ACCT 315, ACCT 316, ECON 311, ECON 323, ECON 452, MARA 342 or MARA 424.

Operations Management Track - Students electing on Operations Management Track should register for all of the following 6 courses: INFO 336, MARA 401, MARA 402, MARA 416, MARA 450 and MARA 460. Students not interested in either track should choose any 6 courses from either track giving consideration to required prerequisites.

Minors

Maritime Administration majors may choose to obtain a minor in economics. To earn the economics minor, the MARA student's elective hours must include ECON 311, ECON 323 and ECON 452. For more information, see the website: <http://www.tamug.edu/academics/Minors.html>.

Students in other majors may choose to obtain a minor in Maritime Administration. See the Minor section of this catalog for curriculum information.

FRESHMAN YEAR

Fall Semester		(Th-Pr)	Cr
HIST	American History Requirement†	(3-0)	3
KINE 198	Health and Fitness Activity	(0-2)	1
MARA 205	Introduction to Ships and Shipping †	(3-2)	4
MATH 141	Business Math I	(3-0)	3
POLS 206	American National Government	(3-0)	3
Total			14

Spring Semester

ENGL 104	Composition and Rhetoric	(3-0)	3
HIST	American History Requirement†	(3-0)	3
MARA 250	Management Information Systems†	(2-0)	2
MATH 142	Business Math II	(3-0)	3
Elective in Science §			4
Total			15

SOPHOMORE YEAR

Fall Semester			
ACCT 229	Introduction to Accounting †	(3-0)	3
ECON 202	Principles of Economics †	(3-0)	3
ENGL 203	Introduction to Literature.	(3-0)	3
MARA 301	Ocean Transportation I †	(3-0)	3
Elective in Science §			4
Total			16

Spring Semester

ACCT 230	Introduction to Accounting †	(3-0)	3
ECON 203	Principles of Economics†	(3-0)	3
MARA 212	Business Law †	(3-0)	3
MARA 281	Seminar in Undergraduate Research Methods†	(1-0)	1
MARA 304	Ocean Transportation II †	(3-0)	3
POLS 207	State and Local Government	(3-0)	3
Total			16

JUNIOR YEAR

Fall Semester

INFO 303	Statistical Methods †	(3-0)	3
MARA 363	Management Process †	(3-0)	3
MKTG 321	Marketing †	(3-0)	3
Elective in MARA †	. . . . .		3
Elective in MARA †	. . . . .		3
Total			15

Spring Semester

ENGL 301	Technical Writing	(3-0)	3
FINC 341	Business Finance †	(3-0)	3
INFO 364	Operations Management †	(3-0)	3
Elective in Humanities	. . . . .		3
Elective in MARA †	. . . . .		3
Total			15

SENIOR YEAR

Fall Semester

MARA 373	Human Resource Management †	(3-0)	3
MARA 421	Admiralty Law †	(3-0)	3
MARA 440	Global Economy and Enterprise Management †**		3
Elective in MARA †	. . . . .		3
Elective (General)	. . . . .		3
Total			15

Spring Semester

KINE 199	Required Physical Activity *	(0-2)	1
MARA 466	Strategic Management †**	(3-0)	3
MGMT 481	Seminar in Management †	(1-0)	1
Elective in MARA †	. . . . .		3
Elective in MARA †	. . . . .		3
Elective (General)	. . . . .		3
Total			14

Total Hours □ 120

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. Students are advised that 6 credits in the degree must represent courses that satisfy University Core Curriculum requirements in international and cultural diversity. ENGL 222, ENGL 251, ENGL 339 and ENGL 374 may be taken in substitution for ENGL 203 (which is required in the curriculum) and also satisfies the international and cultural diversity requirement. All electives should be chosen in consultation with a student's advisor.

* - Must be taken S/U.

** - Designated writing intensive course.

†-Indicates required courses in the Maritime Administration major. These courses will be used to compute the major GPR. At the time of graduation, a MARA major must have a GPR of ≥ 2.25 in their major. A MARA major must achieve a grade of "C" or better in ECON 202, ECON 203, ACCT 229, ACCT 230 and INFO 303 as a graduation requirement. These courses may be repeated as necessary to meet this requirement, and the requirement applies to courses taken at TAMUG or offered for transfer from other institutions.

‡-The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

§-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 remedial math, remedial English, foreign language or international and cultural diversity courses.

- MARA Electives: Students are required to complete 18 credit hours of MARA electives and may elect a financial management or operations management track:

Financial Management Track - Students electing a Financial Management Track should choose 6 from the following 7 courses: ACCT 315, ACCT 316, ECON 311, ECON 323, ECON 452, MARA 342 or MARA 424**.

Operations Management Track - Students electing on Operations Management Track should choose 6 from the following 7 courses: INFO 336, MARA 401, MARA 402, MARA 416, MARA 450, MARA 460 or MARA 470. Students not interested in either track should choose any 6 courses from either track giving consideration to required prerequisites.

To earn the economics minor, the student's elective hours must include ECON 311, ECON 323 and ECON 452. For additional requirements of the economics minor, please see the website: <http://www.tamug.edu/academics/Minors.html>.

Curriculum in Maritime Studies (MAST)

Maritime Studies, the only Bachelor of Arts program offered at TAMUG, offers students a unique opportunity to look at the ocean through a series of broad-based interdisciplinary courses. The principle objective of a liberal arts education is to achieve a fundamental knowledge of the forces that have shaped and continue to direct our cultural identity. Maritime Studies students have interests that are not restricted to science, business or technology. The program focuses on the human aspects of the coastal and maritime environment. Nearly half of the nation's population lives within 50 miles of a coastline; and within 10 years that percentage is expected to grow significantly.

Tracks are offered in Archaeology, Public Policy, Cultural Studies and General Studies. Students tailor the program to meet their interests by selecting advanced courses from the fields of tourism, environmental management and anthropology/archaeology. Graduates are prepared for fields of environmental management, tourism, public service, pre-law or graduate studies in related fields.

Courses are offered in ethics, public administration and politics, anthropology, nautical archaeology, literature, statistics, maritime law and the history of the sea.

Elective courses allow students to design an important part of their curriculum. They might pursue a minor, study abroad for a semester, enroll in an internship, participate in field studies or concentrate on a particular topic.

Degree Requirements (120 hours must be completed from the following):

Maritime Studies. The student must complete 39 hours of courses in the major field as listed below. A grade of C or higher is required if the course is to be counted in the major field:

Credits	Course
3	ANTH 210 (Cultural Anthropology)
3	ANTH 316 (Nautical Archaeology)
3	ENGL 335 (Literature of the Sea)
3	HIST 232 (History of American Seapower)
3	MAST 411 (International Maritime Culture)
3	MAST 425 (Writing in Maritime Studies)
21	Selected from track sequences as defined below

Tracks (choose one of the following four tracks)

Archaeology Track

3	ANTH 318 (Nautical Archaeology of the Americas)
3	MAST 350 (History of Wooden Ship Building)
3	MAST 371 (Archaeology of the Pacific)
12	Directed Electives Minor in Anthropology

Public Policy Track

3	MARA 470 (Environmental Law)
3	PHIL 314 (Environmental Ethics)
3	POLS 331 (Introduction to World Politics)
3	POLS 347 (Politics of Energy and the Environment)
9	Directed Electives Minor in Economics, History or Maritime Administration

Cultural Studies Track

3	CLAS 371 (Homer and the Trojan War)
3	ENGL 415 (Studies in a Major Author)
3	MAST 320 (Introduction to Museums)
3	Philosophy (300- or 400-level, approved by advisor)
9	Directed Electives Minor in Anthropology, English or History

General Studies Track

- 21 Directed Electives selected from below (no minor needed):
ANTH 318, CLAS 371, MARA 470, MAST prefix courses 300-level
and higher (no more than 3 hours of MAST 484 or 485);
PHIL 314, POLS 331, POLS 347

Directed Electives

- 3 ANTH 318 Nautical Archaeology of the Americas
3 CLAS 371 In Search of Homer and the Trojan War
3 ENGL 415 Studies in a Major Author
3 MARA 470 Environmental Law
3 MAST 320 Introduction to Museums
3 MAST 345 Texas Maritime Culture and History
3 MAST 350 History of Wooden Ship Building
3 MAST 371 Archaeology of the Pacific
1-6 MAST 484 Undergraduate Internship
1-6 MAST 485 Independent Study*
1-4 MAST 489 Special Topics
1-4 MAST 491 Undergraduate Research*
3 PHIL 314 Environmental Ethics
3 POLS 331 World Politics
3 POLS 347 Politics of Energy and the Environment

* Only 3 hours of MAST 484-491 may be used to satisfy the requirements of the track sequence.
Additional hours may be used to satisfy free electives.

Core Curriculum and other Program Requirements

Credits	Course
3	ENGL 104 Composition and Rhetoric
3	Communication (3 hours): To be selected from ENGL 203, 210, 301, 235, 236 or 241; COMM 203 or 243.
6	Mathematics: MATH 131-467 (excluding 150, 165, 365, and 366). Three hours also may be in logic (PHIL 240, 341, 342).
8	Natural Sciences: Two or more courses which deal with the fundamental principles and in which a critical evaluation and analysis of data and processes are required. A minimum of one course shall include a corresponding laboratory. See approved list in the University Core Curriculum section of this catalog.
9	Humanities: To be selected from areas such as archaeology, history, philosophy, literature, the arts, culture, and language. See approved list in the University Core Curriculum section of this catalog.
3	Social and Behavioral Sciences: To be selected from areas such as anthropology, economics, geography, psychology, and applied ethics. See approved list in the University Core Curriculum section in this catalog.
12	U.S. History and Political Science: POLS 206 and 207. 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.
2	Kinesiology: KINE 198 Health and Fitness Activity and KINE 199 Required Physical Activity.
14	Foreign Language: Four-course sequence in French, German, Russian, Spanish, Italian, Japanese, Greek, or Latin.
6	International and Cultural diversity: To be selected from approved list. These courses may also be used to satisfy other requirements.
21	Free Electives: May be used to satisfy the Minor requirements.

Curriculum in Maritime Systems Engineering (MASE)

Texas A&M University at Galveston is a special purpose institution engaged in teaching, research, and public service pertaining to the general field of marine resources. Within this context, the goal of the Department of Maritime Systems Engineering is to prepare students for performing engineering work and advanced study in the offshore and coastal realm. Opportunities for such work abound in the vicinity of the University, which is located just south of the fourth largest metropolis in the U.S. The Houston/Galveston area is regarded as the international focus of the oil industry. As this industry ventures into ever-increasing water depths, it presents a wide array of engineering challenges. Similarly, the exposure of its coastline to the extremely energetic climatic regime of the Gulf of Mexico, as well as the impacts of a high level of urbanization and industrialization in the area, call for novel sustainable engineering approaches to deal with widespread coastal erosion and various environmental issues. Finally, the extensive port facilities in Galveston and Houston and the recreational and ship traffic on navigable waterways, afford opportunities to design and maintain a variety of associated engineered structures.

The educational objectives of the program are to produce students who practice engineering pertaining to offshore and coastal structures and associated marine systems (e.g. platforms, pipelines, harbors, terminals, etc.) in support of local industry and government agencies, in particular, to plan, design, construct, and maintain engineering works intended to: advance the extraction and transport of oil and gas products, protect the coastal environment from natural hazards as well as human/industrial influences, and to develop facilities for marine transportation; and are well-prepared to engage in lifelong education and professional development, including advanced study.

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

FRESHMAN YEAR

Fall Semester		(Th-Pr)	Cr
ENGL 104	Composition and Rhetoric	(3-0)	3
ENGR 111	Fundamentals in Engineering I	(1-3)	2
KINE 199	Required Physical Activity*	(0-2)	1
MASE 100	Introduction to Offshore and Coastal Engineering	(2-0)	2
MATH 151	Engineering Mathematics I	(3-2)	4
PHYS 218	Mechanics	(3-3)	4
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Total			16

Spring Semester

CHEM 107	General Chemistry for Engineering Students	(3-0)	3
CHEM 117	General Chemistry for Engineering Students Laboratory	(0-3)	1
ENGR 112	Fundamentals in Engineering II	(1-3)	2
MATH 152	Engineering Mathematics II	(3-2)	4
PHYS 208	Electricity and Optics	(3-3)	4
Social Science Elective		3
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Total			17

SOPHOMORE YEAR

Fall Semester			
CVEN 221	Engineering Mechanics: Statics.	(2-2)	3
ENGL 203	Introduction to Literature.	(3-0)	3
HIST	American History Requirement†.	(3-0)	3
MASE 216	Principles of Thermodynamics	(2-0)	2
MATH 251	Engineering Mathematics III.	(3-0)	3
POLS 206	American National Government	(3-0)	3
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Total			17

Spring Semester

CVEN 365	Intro. to Geotechnical Engineering.	(2-2)	3
MASE 210	Properties of Engineering Materials	(0-3)	1
MASE 214	Mechanics of Deformable Bodies	(3-0)	3
MASE 217	Electrical Engineering: Circuits	(2-0)	2
MASE 310	Engineering Analysis†	(3-0)	3
MATH 308	Differential Equations	(3-0)	3
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Total			15

SUMMER SESSION AT THE MITCHELL CAMPUS

ENGL 301	Technical Writing	(3-0)	3
KINE 198	Health and Fitness Activity	(0-2)	1

JUNIOR YEAR**Fall Semester**

CVEN 311	Fluid Dynamics†	(3-0)	3
CVEN 336	Fluid Dynamics Laboratory †	(0-2)	1
CVEN 345	Theory of Structures†	(3-0)	3
MEEN 363	Dynamics and Vibration †	(2-2)	3
MASE 405	Finite Element Analysis in Engineering Design†	(3-0)	3
Humanities Elective	. . . . .		3
Total			16

Spring Semester

CVEN 446	Structural Steel Design †	(3-0)	3
MARE 441	Engineering Economics and Project Management †	(3-0)	3
MASE 301	Hydrodynamics of Offshore Structures†	(3-0)	3
MASE 344	Reinforced Concrete Structures†	(2-3)	3
OCEN 300	Ocean Engineering Wave Mechanics†	(3-0)	3
Total			15

SUMMER SESSION AT THE MITCHELL CAMPUS

HIST	American History Requirement‡	(3-0)	3
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SENIOR YEAR**Fall Semester**

MARE 405	Fundamentals of Naval Architecture †	(2-3)	3
MASE 400	Introduction to Coastal Engineering†	(3-0)	3
MASE 406	Capstone Design I †	(1-0)	1
MASE 415	Marine Structures Design†	(3-0)	3
Technical Electives §§†	. . . . .		6
Total			16

Spring Semester

MASE 402	Applied Underwater Acoustics†	(1-0)	1
MASE 407	Capstone Design II†	(0-6)	3
MASE 410	Measurements in the Ocean Laboratory†	(0-3)	1
MASE 482	Seminar.	(1-0)	1
POLS 207	State and Local Government	(3-0)	3
General Science Elective**	. . . . .	(3-0)	3
Total			12

Total Hours□ 131

- Indicated courses in which the student must achieve a grade of C or better.

- Designated writing intensive course.

†-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 American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and diverse cultures courses.

§ - To be selected from MASE 319, MASE 485 and MASE 489.

§§ - To be selected from MASE 411, MASE 421, MASE 467, MASE 483, MASE 485 and MASE 489.

* - Must be taken S/U.

** - To be chosen from MARS 306, MARS 370, MARS 410, MARS 430, or MARS 435; or by approval of the MASE Department Head.

Note 1: All electives must be chosen in consultation with, and approved by, the student's academic advisor. See University Core Curriculum for a listing of course options for humanities and social sciences electives. The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

Note 2: A grade of C or better will be required for the Common Body of Knowledge (CKB) Courses (MATH 151, MATH 152; PHYS 208, PHYS 218; CHEM 107; ENGL 104; ENGR 111 and 112). Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

Note 3: MASE students are required to earn a grade of C or better in ENGR 211/221, CVEN 311, CVEN 345, OCEN 300 and MATH 308. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

Note 4: MASE students must complete all mathematics courses (MATH 151, 152, 251 and 308) before taking MASE 405.

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

Curriculum in Ocean and Coastal Resources (OCRE)

Ocean and Coastal Resources (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, 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. 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.

Student in OCRE may establish a minor field of study in Maritime Administration through completing 18 credits as outlined in the Maritime Administration curriculum pages. A minor in Ocean and Coastal Resources is available for students of other University disciplines.

Students majoring in Ocean and Coastal Resources can be eligible for a secondary teaching field in Physical Sciences, pending a passing score on the state certification test (ExCET). See the Teacher Certification section of this catalog. (pending approval)

FRESHMAN YEAR

Fall Semester		(Th-Pr)	Cr
ENGL 104	Composition and Rhetoric	(3-0)	3
GEOL 104	Physical Geology	(3-3)	4
KINE 198	Health and Fitness Activity	(0-2)	1
MATH 151	Engineering Mathematics I.	(3-2)	4
POLS 206	American National Government	(3-0)	3
Total Hours			15

Spring Semester

BIOL 112	Introductory Biology II.	(3-3)	4
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 207	State and Local Government	(3-0)	3
Total Hours			15

SOPHOMORE YEAR

Fall Semester			
CHEM 101	Fundamentals of Chemistry I.	(3-0)	3
CHEM 111	Fundamentals of Chemistry Laboratory I	(0-3)	1
COMM 203	Public Speaking	(3-0)	3
MARS 280	Coastal and Ocean Resources †	(3-0)	3
MARS 281	Sophomore Seminar in MARS†.		1
PHYS 218	Mechanics	(3-3)	4
or PHYS 201	College Physics		
Total Hours			15

Spring Semester

CHEM 102	Fundamentals of Chemistry II	(3-0)	3
CHEM 112	Fundamentals of Chemistry Laboratory II	(0-3)	1
ECON 202	Principles of Economics	(3-0)	3
HIST	American History Requirement **.	(3-0)	3
MARS 210	Marine Geography	(3-0)	3
MGMT 211	Legal and Social Environment of Business	(3-0)	3
Total Hours			16

JUNIOR YEAR

Fall Semester

ECON 323	Microeconomic Theory	(3-0)	3
or AGECE 350	Environmental and Natural Resource Economics	(3-0)	
HIST	American History Requirement**	(3-0)	3
MARS 350	Advanced Computer Applications†	(1-2)	2
OCNG 420	Introduction to Biological Oceanography†.	(3-0)	3
Professional Elective ‡	. . . . .		3
Total Hours			14

Spring Semester

ENGL 301	Technical Writing	(3-0)	3
MARS 310	Field Methods in Marine Sciences§†	(1-6)	3
STAT 303	Statistical Methods	(2-2)	3
Professional Elective ‡	. . . . .		3
Elective	. . . . .		3
Total Hours			15

SENIOR YEAR

Fall Semester

MARS 325	Introduction to GIS†	(2-2)	3
MARS 425	Coastal Wetlands Management (3-0) Credit 3†		4
and MARS 426	Coastal Wetlands Delineation Laboratory (0-3) Credit 1†		
or MARB 430	Coastal Plant Ecology (3-3) Credit 4†		
MARS 481	Seminar†	(1-0)	1
MARS 485	Directed Studies		1
POLS 347	Politics of Energy and the Environment	(3-0)	3
Professional Elective ‡	. . . . .		3
Total Hours			15

Spring Semester

MARS 430	Introduction to Geological Oceanography †	(3-0)	3
PHIL 314	Environmental Ethics.	(3-0)	3
Professional Elective ‡	. . . . .		3
Humanities Elective	. . . . .		3
Elective	. . . . .		3
Total Hours			15

Total Curriculum Hours□ 120

* - Must be taken S/U.

** The American history requirement may be fulfilled by American history courses offered at TAMUG, including HIST 370, 442 or 444. See Core Curriculum.

†-Indicates required courses in the Ocean and Coastal Resources 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.

‡ Recommended professional electives are:

CHEM 316 Quantitative Analysis
 CHEM 318 Quantitative Analysis Laboratory
 CHEM 383 Chemistry of Environmental Pollution
 MARA 470 Environmental Law
 MARB 320 Fisheries Techniques
 MARB 340 Tropical Marine Ecology
 MARB 345 Introduction to Scientific Diving
 MARB 423 Mariculture
 MARB 432 GIS Use in Coastal Resources
 MARB 438 Field Ornithology
 MARB 445 Marine Fisheries Management
 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 484 Undergraduate Internship
 MARS 485 Problems in Marine Sciences
 MARS 488 Writing Intensive Directed Studies in Marine Sciences

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

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

□-The total hours may be increased if the student is required to take remedial math, remedial English, foreign language or international and diverse cultures courses.

- Students may choose to take MARS 460 and gain credit for MARS 310 and two hours of professional electives.

- Designated writing intensive course. May also include MARS 488 or MART 301

Note: The 6-hour University Core Curriculum requirement for international and cultural diversity may be met with courses used to satisfy other degree requirements. Please consult with your academic advisor.

Curriculum in University Studies (USGA)

Students who are currently enrolled at Texas A&M University or Texas A&M University at Galveston may submit proposals to enroll as University Studies majors. The University Studies Degree format was created to provide students the flexibility to combine areas of study within either or both campuses that are of special interest. This flexibility may be attractive to students who have particular career paths or post-baccalaureate degree paths in mind.

All University Studies degree plans require at least 120 hours for completion. A University Studies Degree consists of a concentration of 21-24 hours and two minors of 15-18 hours each. Specific courses may be required for the completion of the hours in the concentrations and minors. Some concentrations and minors contain required courses that have additional prerequisites. One of the two minors must be completed in a college outside of the college that provides the concentration for the student's degree.

Students must submit a Proposed Course Form that lists the courses for the individual degree plan the student hopes to complete to the University Studies admissions committee. The application includes a required 2-3 page essay in which the student can explain how the degree will help the student meet the desired educational and personal goals. Once it is determined that the Proposed Course Form has been completed with appropriate information, it will be reviewed by the department that offers the concentration. Students must be in good academic standing, and they must have good academic standing in previous courses that count toward the area of concentration or minors.

A University Studies major will be considered a student in the department that offers the concentration. The student's diploma will list Bachelor of Arts or Bachelor of Science in the same place it is currently listed, and University Studies will be listed in the place the major is currently listed. The student's area of concentration and the two minors will be indicated on the student's transcript.

Concentration in Marine Environmental Law and Policy

The Galveston campus currently offers one area of concentration in Marine Environmental Law and Policy. The concentration requires 21 to 24 hours in coursework such as business law, admiralty law, environmental law, environmental ethics and politics of energy and the environment. Students can choose from a wide variety of combinations to position his or herself for graduate studies in environmental law, employment in environmental regulatory areas and/or industry interested in environmental protection especially in a near shore environment.

The student must complete a minimum of 6 hours at the 400-level and 36 hours of 300-400 level coursework in residence at Texas A&M University at Galveston.

- A. The student must select 21-24 hours from among the following courses for the area of concentration. If there will be more than 24 hours in the area of concentration, the student should include a justification.

Two approved writing courses will be required for the University Studies degree. The writing courses may be in the area of concentration or the minors. Please indicate writing courses in the area of concentration, if any, with a W following the course number (TAMU 400 W). If courses required for the area of concentration include a course or courses from outside the department of the area of concentration, please include a letter of support from the department(s) offering the course(s). Courses listed as part of the University Core Curriculum do not need a letter of support.

1. The following 15 hours of coursework are required:*

MARA 212	Business Law	3 credit hours
MARA 421	Admiralty Law	3 credit hours
MARA 470	Environmental Law	3 credit hours
PHIL 314	Environmental Ethics	3 credit hours
POLS 347	Politics of Energy and the Environment	3 credit hours

2. Select 6-9 hours from the following courses:*

MARA 304	Ocean Transportation II.	3 credit hours
MARA 435	Labor Law and Policy.	3 credit hours
MARS 491	Research in Marine Sciences	1-4 credit hours
MGMT 211 or MARA 363	Legal and Social Environment of Business or The Management Process	3 credit hours
RPTS 340	Recreation, Parks and Diverse Populations	3 credit hours
WFSC 303	Fish and Wildlife Laws and Administration	3 credit hours
WFSC 420	Ecology for Teachers	3 credit hours

* If the area of concentration requires students to select courses from a list of pre-selected combinations, please duplicate this table; e.g. two courses from column A, two courses from column B.

- B. Students will select two minors (30-36 hours). One must be from outside the college offering the area of concentration.
- C. Free electives (17-26 hours). If there will be fewer than 17 hours of free electives, please include a justification in the preceding 2-3 page statement.
- D. Courses in the University Core Curriculum will be required for this area of concentration (43 hours). There is a graduation requirement which includes 6 hours of international and cultural diversity courses. Refer to the International and Cultural Diversity table for a list of acceptable courses. A course satisfying a University Core Curriculum category, a college/departamental requirement, or a course used as a free elective may be used to satisfy this requirement.
- E. Completion in high school of two units of the same foreign language or one year of college work is required for graduation.

UNDERGRADUATE MINOR PROGRAMS

A minor is a concentration of courses that focus on a single area or an interdisciplinary perspective as developed by the department or program that offers the minor. The department or program offering the minor is responsible for setting enrollment limits and deciding which courses are used to meet the minor. Course work consists of 15–18 hours with a minimum of 6 in residence at the 300–400 level.

If a minor is offered by a department or academic unit, then the minor is considered to be available to all students as resources permit. The academic advisor in the major-granting department will add the minor for the student on SIMS. In some cases, approval by the advisor of the minor-granting department is required before the minor is added by the advisor in the student's major. Substitutions in a minor can be initiated by either the major- or minor- granting department, but must be approved by both departments. Students must declare a minor no later than the date on which they apply for graduation. A maximum of two minors can be completed by students. A minor is displayed on the transcript after graduation but not displayed on the diploma.

Minor in Marine Biology

Students in other majors may establish a minor field of study in Marine Biology through completing 16 credits in any 300 or 400 level MARB course selected in consultation with a Marine Biology advisor. The student must have earned a C or better in BIOL 111 and BIOL 112. Only one of the two MARB scientific diving courses (either 345 or 350) can be used for the minor.

Minor in Maritime Administration

Students in other majors may establish a minor field of study in Maritime Administration through completing 18 credits in the following courses. A minimum GPR of 2.25 for the 18 credit hours is required.

Required Courses (total 9 required credits):

ACCT 229	Introduction to Accounting
MARA 363	Managerial Process
MARA 416	Port Operations, Administration and Economics

Elective Courses (total 9 required credits):

ACCT 230	Introduction to Accounting
ECON 452	International Trade Theory and Policy
FINC 341	Business Finance
INFO 336	Decision Support Systems
INFO 364	Operations Management
MARA 342	Managerial Maritime Finance
MARA 401	Brokerage and Chartering
MARA 402	Inland Waterways
MARA 424	Economics of Transportation
MARA 450	Maritime Supply Chain Management
MARA 460	Management Systems and Control
MARA 466	Strategic Management
MKTG 321	Marketing

Substitutions may be authorized by the Head, Department of Maritime Administration.

Minor in Ocean and Coastal Resources

Students in other majors may establish a minor field of study in Ocean and Coastal Resources through the completion of at least 16 hours of the following courses:

Required Courses (total 7 required credits):

MARS 280	Coastal and Ocean Resources
GEOL 104	Physical Geology
or OCNG 251/252	Oceanography/Oceanography Laboratory

Select 3-6 hours from the following courses:

MARS 410	Introduction to Physical Oceanography
MARS 430	Introduction to Geological Oceanography
MARS 440	Introduction to Chemical Oceanography
OCNG 420	Introduction to Biological Oceanography

Select 3-6 hours from the following courses:

POLS 347	Politics of Energy and the Environment
PHIL 314	Environmental Ethics
MARA 470	Environmental Law

Minors offered at the TAMUG Campus through TAMU-College Station academic departments

Students may elect to earn a number of majors that are taught at the Galveston campus through TAMU-College Station academic departments. A complete list of minors is at the website: <http://www.tamug.edu/academics/Minors.html>.

TEACHER CERTIFICATION OPTIONS

Students may now complete teacher certification while attending Texas A&M University at Galveston through a collaborative program with Texas A&M University. Education courses will be offered via distance education. Student teaching will be completed at a Galveston secondary school.

Students majoring in Marine Biology can be eligible for a secondary teaching field in Life Sciences and students majoring in Marine Sciences or Ocean and Coastal Resources can be eligible for a secondary teaching field in Physical Sciences, pending a passing score on the state certification test (ExCET).

Students may begin one of two teacher certification programs offered by Texas A&M University-College Station during their final year at Texas A&M University at Galveston. These options include:

1. Accelerate Online, a No Child Left Behind approach program, provides those pursuing science, mathematics, social science, and language arts related degrees a highly structured online program followed by entry into a paid teaching position (internship) in a secondary (grades 8 – 12) classroom. This continuing education program can be completed in 12 – 18 months. For additional information on Accelerate Online, please visit the website: <http://accelerate.tamu.edu>
2. The Secondary Graduate Certification Program leads to initial secondary (grades 8 – 12) certification in the areas of science, mathematics, social science, language arts (including modern languages), computer science, theater arts and communication. The potential for a paid internship and the opportunity to apply all course work toward the Master of Education degree in Curriculum & Instruction are unique features of this program. For additional information on the Secondary Graduate Certification Program, please visit the website: <http://post-bacc.coe.tamu.edu>

Master of Education in Curriculum and Instruction | Online

Texas A&M University – College Station is offering a Master of Education in Curriculum and Instruction via Distance Education. This program will enable certification candidates in the Secondary Graduate Certification Program to complete their Master of Education degree at a distance.

This program enables educators in schools who cannot come to campus for classes, to complete their instruction while remaining employed. Because of the flexible degree program that the Master of Education in Curriculum and Instruction affords, this degree may be earned through residential courses, using a combination of residential and distance courses, or on-line distance education entirely.

This M.Ed. degree distance education option in Curriculum and Instruction provides a sound combination of theory, methodology, and a substantive content area, with some flexibility within the program emphasis, supporting areas. This 36-semester hour graduate degree option in Curriculum and Instruction is designed to assist teachers to develop effective teaching and research tools that increase educational opportunity and workplace access. For additional information contact Kerri Smith at ksmith@coe.tamu.edu

UNIVERSITY HONORS PROGRAM

The emphasis of Texas A&M University at Galveston Honors Program is to promote undergraduate scholarship by providing academically talented students with the opportunities to participate in specially designed courses that prepare them to conduct independent research and/or scholarly activity under the oversight of a faculty mentor. The honors program, characterized by small class sizes, interdisciplinary topics, and professors dedicated to teaching, creates an atmosphere encouraging open discussion of ideas and active learning. Completion of an acceptable honors project, with focus in marine and maritime disciplines, is the capstone experience of all honors graduates. Honors students have the benefits of graduation from Texas A&M with honors, small participatory class sizes, early registration, faculty mentors, hands-on learning, individualized study, and competitive scholarships.

Eligibility

Incoming freshman with a minimum of 1250 on the SAT or (28 ACT) and top 10% of his/her High School class are automatically admitted to the University Honors Program. National Merit Finalists, National Achievement Finalists, or National Hispanic Scholars also are automatically admitted to enroll as first-time freshmen. Second semester freshmen, sophomores, juniors and seniors may enroll if they have achieved a cumulative Grade Point Ratio (GPR) at Texas A&M of 3.5 or higher. All students must maintain a 3.5 cumulative GPR to remain eligible and must maintain a 3.25 in all honors courses with no grades below a C. Transferring and returning students are considered for participation on a case-by-case basis, usually with a minimum 3.5 GPR.

Curriculum

Honors coursework may lead to an honors designation upon graduation at the university level. Students receive honors designations on their official Texas A&M University transcript and those students receive special recognition at their graduation ceremonies. A student will develop an individualized honors plan including either a capstone experience, independent study, or senior thesis. If the student chooses to pursue a senior thesis, the student will also be designated as a University Undergraduate Research Fellow. Students interested in pursuing these plans should consult with an Honors Academic Advisor early and often. Students are also advised to begin taking honors courses as early as possible and consistently enroll in at least one honors course per semester.

The requirements for the Galveston Honors distinction are directly tied to the unique perspective of the marine and maritime industry and the mission of Texas A&M University at Galveston. The program is designed to utilize the interdisciplinary capabilities and character of the campus. Completion of Galveston Honors requires a minimum of 18 honor credit hours.

Freshman and Sophomore Semester Core Curriculum: Students who complete at least 9 credit hours of honors coursework in residence at Texas A&M University at Galveston during their freshman and sophomore years will be considered Honor Candidates. Designated Honor Candidates have the opportunity to participate in colloquiums, contract for honors courses, or pursue honors independent study.

Junior Fall Semester: English 301H (3 credits) and Fall Colloquium (1 credit).

During the fall of the junior year and concurrently with ENGL 301H, students should identify a faculty member mentor in consultation with their department head and Honors Director. This faculty member will help shape the student's focus for future study and then serve as the faculty of record for the Contract for Honors, Independent Study or Senior Thesis. An early relationship will promote more in-depth thought as well as sufficient time to prepare. ENGL 301 Honors will prepare students for in-depth research including primary sources, research questions, format, analysis, and literature searches.

Colloquium: Honors students are required to complete a one-credit hour course each term for a minimum of three semesters. This seminar will approach a different topic each semester related to the marine and maritime environment and will fully explore the topic from multiple dimensions including engineering, business, transportation, science, ecology, ethics, socio-political thought, economics, and policy.

Junior Spring Semester: Spring Colloquium (1 credit)

Senior Fall Semester: Begin Contract for Honors, Independent Study, or Honors Senior Thesis 485 (3 credits), and Fall Colloquium (1 credit).

Senior Spring Semester: Completion of Contract for Honors, Independent Study, or Honors Senior Thesis 491 (2 credits).

Contract for Honors

An Honors Contract is a method for adding an "honors dimension" to a course. The contract permits honors students to turn a regular University course into an Honors Course by contracting with the instructor to complete extra work and receive Honors Credit. The contract involves an agreement between the honors student, a Galveston faculty member, and the Honors Director. The Honors Contract should add an academic dimension to the course by introducing new material or by allowing the student to go into greater depth in some aspect of the course other than what is normally required. It should be made clear on the Honors Contract how this work exceeds

regular course requirements. Since the contract must be supervised by a faculty member, students should select faculty who have the time to oversee their projects to completion. Contract for honors can also include internships and study abroad courses.

Independent Study

During the senior year, students will enroll in a minimum of 3 semester credit hours of Independent Study (485), Undergraduate Research (491), or appropriate Capstone Experience with their faculty mentor in their major. While projects may vary greatly depending on the interests of the student and the faculty member, the experience should culminate in a final project that could be presented as a poster, reflection paper, article, or oral presentation. Students will be encouraged to present these projects with at Colloquium, TAMUG Research Week, NCHC (National Collegiate Honors Council) yearly convention, and other appropriate venues.

Honors Senior Thesis

The University Undergraduate Research Fellows Program at Texas A&M University at Galveston provides exceptional seniors with the chance to sample graduate school. Each Research Fellow works under the supervision of a faculty member (a “Fellows Advisor”) as the student conducts her or his own independent research project over the course of an academic year (Fall and Spring Semesters). Research Fellow students must complete an Honors Independent Study 485 (3 credits), an Undergraduate Research 491 (2 credits), plus a Colloquium (1 credit) during their senior semesters. The program culminates with a student’s senior honors thesis. Honors Senior thesis participants are eligible for the TIO (Texas Institute of Oceanography)/ Undergraduate Student Fellowship Award.

Note: Students should consult with their academic department head regarding substitutions for their degree plan. Many departments will use colloquium hours and/or independent study hours as professional or technical electives for the degree plan.

GRADUATE STUDIES

Texas A&M University at Galveston, a branch campus of Texas A&M University, offers ocean-oriented graduate studies with a Master of Marine Resources Management (MMR) degree, Master of Science (M.S.) in Marine Biology, and Doctor of Philosophy (Ph.D.) in Marine Biology. The Master of Marine Resources Management degree is a professional degree offered on the Texas A&M University at Galveston campus. The Master of Science and Doctor of Philosophy degrees in Marine Biology are offered as part of the Marine Biology Interdisciplinary program through the collaboration of the Texas A&M University, Texas A&M University at Galveston, and Texas A&M University-Corpus Christi campuses. The University has facilities at three separate campus locations in Galveston. Most instructional programs are taught at the 130-acre Mitchell campus on Pelican Island.

Graduate Admissions

A formal application is required from a person seeking admission or readmission to graduate studies. A statewide application can be used to apply to any public university in the state of Texas and can be accessed at www.applytexas.org.

An application fee of \$50 for U.S. citizens and permanent residents or \$75 for international applicants is required to process an application for admission. Application fees are nonrefundable. Checks or money orders (U.S. currency) should be made payable to Texas A&M. All financial dealings with Texas A&M may be done by check or money order provided it displays an agency bank in the U.S. and has magnetic ink character recognition (MICR) routing numbers at the bottom of the check. The \$50 fee required of U.S. citizens or permanent residents may be waived, but only in exceptional cases, for low-income applicants. In such cases, an applicant should include with the application for admission a letter from his/her financial aid officer or other knowledgeable officer verifying the need for a waiver. Waiver of the \$75 international application fee is not available.

With the approval from the degree granting unit providing admission, admission to graduate studies normally remains valid for one year from the term of acceptance with one \$50 or \$75 (as appropriate) application fee. An extension to the one-year time limit may be granted, if requested by the applicant in writing and approved by the degree granting unit.

The normal requirement for admission to graduate studies is a scholastic record which, over at least the last two years of full-time academic study in a degree program, gives evidence of the applicant's ability to do successful graduate level work.

An applicant whose academic record is not satisfactory, or who is changing fields of study, may be required to take additional work in preparation for graduate study. Such work will normally be arranged in conference with the graduate advisor or the head of the student's major department. Before accepting a student for graduate study, a department may require that the student pass a comprehensive examination covering the basic undergraduate work in that field.

To allow time for processing, application forms should be filed at least six weeks prior to the opening of the semester (international applicants should refer to the deadlines under that heading). Admission to graduate studies cannot be completed until all the credentials requested in the application form have been received and evaluated.

In addition to the records sent to the Office of Admissions and Records, a student should have in his/her possession a copy of his/her record for use in conferences with the graduate advisor or graduate faculty in his/her department. An applicant, otherwise qualified for admission to graduate studies, may not be approved in instances where the facilities and staff available in the particular field are not adequate to take care of the needs of the student.

Students interested in applying for admission to this program should visit the website www.applytexas.org to obtain an online graduate admission application for Texas A&M University at Galveston. Students interested in receiving additional information on these programs should mail requests to:

Coordinator of Graduate Programs
Research and Graduate Studies Office
Texas A&M University at Galveston
P.O. Box 1675
Galveston, Texas 77553-1675
or email: GradStudies@tamug.edu

Residence

In partial fulfillment of the residence requirement for the degree of Master of Marine Resources Management or Masters of Science or Doctor of Philosophy in Marine Biology, the student must complete 9 resident credit hours during one regular semester, one 10-week summer semester or in combination during the two five-week summer sessions (e.g., 3 hours first session, 6 hours second session.). Upon recommendation of the student's advisory committee and with approval of the Office of Graduate Studies, a student may be granted exemption from this requirement. However, such a petition must be approved prior to the student's registration for the final 9 credit hours of required course work. Full-time staff members of the University or of closely affiliated organizations stationed at the campus at Galveston or College Station may fulfill total residence requirements by completion of less-than-full course loads. Specific

authorization for such programs must be granted in advance by the employing agency. Employees should submit verification of their employment at the time they submit their degree plan.

Student's Advisory Committee (SAC)

After being granted admission to graduate study and prior to enrollment in course work, the student will meet with the departmental graduate advisor regarding the selection of a committee chair and the development of the student's advisory committee. The student's advisory committee for the master's degree will consist of no fewer than three members and no more than five members of the graduate faculty representative of the student's fields of study and research. Two members must be members of the graduate faculty of Texas A&M Galveston, one of whom should be the chair of the student's advisory committee. At least one of the members must be from another department in Galveston or College Station. The chair, in consultation with the student, will select the remainder of the student's advisory committee. The chair will then notify the tentative members of the advisory committee, giving the student's name and field of study, and request that they consider serving on this student's advisory committee. The student will interview each prospective committee member to determine whether he or she is willing to serve. Only graduate faculty members may serve as chair of a student's advisory committee. The chair of the committee, who usually has immediate supervision of the student's degree program, has the responsibility for calling required meetings of the committee, and for calling meetings at any other time considered desirable.

If the chair of the student's advisory committee is unavailable for an extended time during any academic period during which the student is involved in activities relating to an internship or professional study and is registered for 684 or 693 courses, the student may request in writing that the program chair appoint an alternate advisory committee chair during the interim period. The duties of the student's advisory committee include responsibility for the proposed degree plan.

In addition, the committee as a group, and as individual members, is responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Office of Graduate Studies. The committee members' signatures on the degree plan indicate their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although individual committee members may be replaced by petition for valid reasons, a student's advisory committee cannot resign *en masse*.

Other specific requirements of the student's advisory committee (SAC) for students in the Marine Biology Interdisciplinary program are detailed in the Marine Biology (MARB-IDP) section to follow.

Degree Plan

Each graduate student must submit an official degree plan to the Office of Graduate Studies (OGS) for approval. The degree plan formally declares your degree objective, the membership of your advisory committee, and the specific courses that you will be required to complete as part of your degree program. You will develop your proposed degree plan in consultation with your advisory committee. The degree plan must be approved by your advisory committee members, your department head and, if applicable, your intercollegiate faculty chairperson.

Completed degree plans must be submitted to OGS according to the following regulation with the student meeting whichever of these deadlines falls earliest:

- Following the deadline imposed by the student's college or interdisciplinary degree program.
- No later than 90 days prior to the date of the final oral examination or thesis defense for master's students or 90 days prior to the date of the preliminary examination for doctoral students
- According to deadlines published in the OGS calendar each semester for graduation that semester. The calendar may be found at: <<http://ogs.tamu.edu/calendar>>.

Specific rules and limitations on course work and committee membership can be found in the Texas A&M University *Graduate Catalog*. Once a degree plan is approved by OGS, changes in course work or committee membership may be requested by petition to OGS. "Petition Forms" may be downloaded from the OGS homepage. Changes of major, degree or department must be requested by submitting a petition and/or a new degree plan/course work petition.

Credit Requirement for Masters Level Programs

There is a credit requirement of a minimum of 36 credit hours of courses, as approved on the degree plan. Students may elect to pursue either a thesis or a non-thesis degree in Marine Resources Management or Marine Biology. Student pursuing a course of study in Marine Biology will create their degree plan with the supervision of their faculty advisor. For the non-thesis degree in Masters of Marine Resources Management, of the total 36 hours of curriculum, 24 are required courses of study. The required courses include 6 hours of science, 8 hours of management, 2 hours of Geographic Information Systems (GIS) and 8 hours of law/policy courses. The student in the non-thesis option will choose electives for the remaining 12 credit hours, 3 hours of which will be additional science, and 3 hours of which will be additional law/policy/management. The remaining 6 hours can be in an appropriate supporting field, if desired. Students in the Master of Marine Resources Management thesis-option degree program will choose electives for 6 hours, 3 of which will be additional science and 3 hours of which will be additional law/policy/management. The remaining 6 hours will be in 691 research hours.

Additional flexibility to replace required courses with courses targeted to their area of research is available to thesis option students upon recommendation and approval by their committee and the department.

Limitations on the Use of Transfer, Extension and Certain Other Courses

Some departments may have more restrictive requirements for transfer work. If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master's degree under the following limitations.

1. The total of any combination of A and B below may not exceed the greater of either 12 hours or one-third (1/3) of the total hours on the degree plan. The following restrictions apply.

A. Courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University, or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for students in degree-seeking status at the host institution. Courses previously used for another degree are not acceptable for degree plan credit.

B. A maximum of 12 credit hours of 489 and/or 689 (Special Topics).

2. A maximum of 8 hours of 691 (Research), 4 hours of 684 (Professional Internship), or 9 hours of 485 and/or 685 (Directed Studies), and up to 3 hours of 690 (Theory of Research) or 695 (Frontiers in Research)-any combination of 684, 685, 690, 691 and 695 may not exceed one-fourth (1/4) of the total credit hour requirement shown on the individual degree plan.
3. A maximum of 2 hours of Seminar (481/681).
4. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).
5. No credit may be obtained by correspondence study.
6. For graduate courses of three weeks' duration or less, up to 1 hour of credit may be obtained for each five-day week of course work. Each week of course work must include at least 15 contact hours.
7. Continuing education courses may not be used for graduate credit.
8. Extension courses are not acceptable for credit.

Exceptions will only be permitted in unusual cases and when petitioned by the student's advisory committee and approved by the Office of Graduate Studies.

Transfer of Credit

Students may transfer a maximum of 12 hours of courses or one-third of the total hours of the degree plan, whichever number is greater, from an approved institution upon the advice of their advisory committee. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or better might be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University at Galveston or at the institution at which the courses were taken, and if the courses would be accepted for credit toward a similar degree for students in degree-seeking status at the host institution.

Course work in which no formal grades are given or in which grades other than letter grades (A, B, C, etc.) are given (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Courses appearing on the degree plan with grades of D, F or U may not be absolved by transfer work. Credit for thesis research or the equivalent is not transferable. Credit for course work submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. Students must have an official transcript sent directly from the university in which the transfer course work was taken to the Texas A&M at Galveston Office of Admissions and Records. Courses completed at other institutions are not included in computing the GPR.

Scholarship

Graduate students must maintain a grade point ratio (GPR) of 3.000 (B average based on a 4.000 scale) for all courses which are listed on the degree plan and for all graded graduate and advanced undergraduate course work (300- and 400-level) completed at Texas A&M University at College Station and/or Texas A&M University at Galveston and eligible to be applied toward a graduate degree. Graduate students will not receive graduate degree credit for undergraduate courses taken on a satisfactory/unsatisfactory (S/U) basis. Graduate students may not receive grades other than satisfactory (S) or unsatisfactory (U) in graduate courses bearing the numbers 681, 684, 690, 691, 692, 693 and 695. Any other graduate course taken on an S/U basis may not be used on a graduate degree plan. Graduate courses not on the degree plan may be taken on an S/U basis. Only grades of A, B, C and S are acceptable for graduate credit. Grades of D, F or Unsatisfactory (U) for courses on the degree plan must be absolved by repeating the courses at Texas A&M University at College Station and/or Texas A&M University at Galveston and achieving grades of C or above or Satisfactory (S). A course in which the final grade is C or lower may be repeated for a higher grade. The original grade will remain on the student's permanent record, and the most recent grade will be used in computing the cumulative and degree plan GPRs. The cumulative GPR for a graduate student is com-

puted by using all graded graduate (600-level) and advanced undergraduate (300- and 400-level) course work completed at Texas A&M University at College Station and/or Texas A&M University at Galveston and eligible to be applied toward a graduate degree. Semester credit hours to which grades of Withdraw Failing (WF) are assigned shall be included in computing the GPR. Those involving grades of Withdraw Passing (WP), Satisfactory (S), Unsatisfactory (U) and Q-drop (Q) shall be excluded. If either of a student's cumulative GPR or the GPR for courses listed on the degree plan falls below the minimum of 3.000, he or she will be considered to be scholastically deficient. If the minimum cumulative GPR is not attained in a reasonable length of time, the student may be dropped from graduate studies. The procedures for dismissal are explained in the Texas A&M University Student Rules. Departments or colleges may adopt specific guidelines pertaining to scholastic deficiency or dismissal.

Continuous Registration

Students in the thesis option of the Master of Marine Resources Management program who have completed all course work on their degree plans other than 691 (Research) are required to be in continuous registration until all requirements for the degree have been completed. See Continuous Registration Requirements in the Texas A&M University-College Station Graduate Catalog.

Foreign Language

There are no specific language requirements for either the Master of Marine Resources Management or Master of Science or Doctor of Philosophy in Marine Biology degrees.

Thesis Proposal

For the thesis option, the student must prepare a thesis proposal for approval by the advisory committee and the head of the major department or chair of the intercollegiate faculty, if applicable. This proposal must be submitted to the Office of Graduate Studies at least 15 working days prior to the submission of the request for the final examination.

There are compliance issues that must be addressed if graduate students are performing research involving human subjects, animals, infectious biohazards and recombinant DNA. Students involved in these types of research must check with the Office of Research Compliance, Office of the Vice President for Research at (979) 845-8585 to ensure that they have met all compliance responsibilities.

Additional information can also be obtained on the website

http://www.tamu.edu/admissions/catalogs/GRAD_catalog09_10/degree_info/index.htm.

Time Limit

All degree requirements for a master's degree must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for course work which is more than seven calendar years old may not be used to satisfy degree requirements.

Application for Degree

Graduate degrees are conferred at the close of each regular semester and 10-week summer semester. Candidates for advanced degrees who expect to complete their work at the end of a given semester must apply for graduation by submitting the electronic application for a degree to the Admissions and Records Office and by paying the required graduation fee at Financial Management Services no later than the Friday of the second week of the fall or spring semester or the Friday of the first week of the first summer term. The electronic application for degree can be accessed via the website <https://howdy.tamu.edu/>.

Thesis Defense/Final Examination

The candidate must pass a final examination by dates announced each semester or summer term in the Office of Graduate Studies Calendar. To be eligible to take the final examination, a student's GPR must be at least 3.000 for courses on the degree plan and for all courses completed at Texas A&M which are eligible to be applied to a graduate degree, and there must be no unabsolved grades of D, F or U for any course listed on the degree plan.

To absolve a deficient grade, the student must have repeated the course at Texas A&M University and have achieved a grade of C or better. All course work on the degree plan must have been completed with the exception of those hours for which the student is registered. Additionally, all English Language Proficiency requirements must be satisfied prior to scheduling the examination. An approved thesis proposal must be on file in the Office of Graduate Studies according to published deadlines.

The final examination covers the thesis and all work taken on the degree plan and at the option of the committee may be written or oral or both. The final examination may not be administered before the thesis is available to all members of the student's advisory committee in substantially final form, and all members have had adequate time to review the document. The examination is conducted by the student's advisory committee as finally constituted. Thesis option students must be registered in the University in the semester or summer term in which the final examination is taken. Persons other than members of the graduate faculty may, with mutual consent of

the candidate and the major professor, attend final examinations for advanced degrees. Upon completion of the questioning of the candidate, all visitors must excuse themselves from the proceedings. A positive vote by all members of the graduate committee with at most one dissension is required to pass a student on his or her exam. A department, or interdisciplinary degree program, may have a stricter requirement provided there is consistency within all degree programs within a department or interdisciplinary program.

A request for permission to hold and announce the final examination must be submitted to the Office of Graduate Studies a minimum of 10 working days in advance of the scheduled date for the examination. Examinations which are not completed and reported as satisfactory to the Office of Graduate Studies within 10 working days of the scheduled examination date will be recorded as failures. A student may be given only one opportunity to repeat the final examination for the master's degree and that must be within a time period that does not extend beyond the end of the next regular semester (summer terms are excluded).

Thesis option candidates may petition to be exempt from their final examination provided their degree plan GPR is 3.500 or greater and they have the approval of the advisory committee, the head of the student's major department, or intercollegiate faculty, if appropriate, and the Office of Graduate Studies. It is recommended that the petition for exemption be submitted the same semester the student intends to submit the thesis. Non-thesis option students cannot be exempted from their final examination.

Master of Marine Resources Management (MARM)

The Master of Marine Resources Management (MARM) degree provides students with a broad understanding of coastal and ocean policy and management. The demand for graduates from this program in industry, government, academia and non-governmental organizations (NGO's) has never been stronger. Federal agencies employing graduates include the U.S. Coast Guard, the U.S. Army Corps of Engineers, and the Environmental Protection Agency. State agencies include the Texas General Land Office and the Texas Commission on Environmental Quality. Industries employing graduates include oil and natural gas, environmental consulting companies, ports, and tourism. These organizations have identified the need for a degree which focuses on national and international ocean resource law and policy; coastal zone management; physical and geochemical marine resources management strategies; and fisheries management. This degree program views marine natural resources management and policy development from both an ecological and policy perspective.

The degree may be viewed as a degree comparable to an MBA as an alternative terminal degree for people working in marine/ocean/coastal organizations. In addition, the degree program may address the needs of some public school science teachers seeking a degree outside the field of education.

Non-thesis option

A thesis is not required for the Master of Marine Resources Management degree for students who select the non-thesis option program. Students pursuing the non-thesis option are not allowed to enroll in 691 (Research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Marine Resources Management degree

The 36-hour non-thesis option curriculum is structured with 24 hours of required courses and 12 hours of optional elective courses, of which three hours are in additional science, three hours are in law, policy, management, and six hours are of the student's choice.

Required Courses (24 hours required)

MARS 625	GIS Based Modeling for Coastal Resources
MARS 615	Physical and Geochemical Marine Resources
MARS 635	Environmental Impact Statements and NRDA
MARS 676	Environmental Policy
MARA 604	Marine Natural Resource Economics
MARB 620	Marine Biological Resources
MARS 675	Environmental Mgmt Strategies for Scientists
MARS 680	Integrative Analyses in Marine Resources
MARS 652	Sustainable Management of Coastal Margins

Suggested Optional Courses (12 hours required)

GEOG 666	Coastal Geomorphology*
MARS 602	Environmental Economics and Oceanography
MARS 610	Environmental Law
MARS 620	Int'l Env. Business Transactions
MARS 638	Avian Diversity and Habitats as Coastal Resources
MARS 640	Environmental Administrative Law
MARS 645	Wildlife Law and Ethics
MARS 650	Geochemical Marine Resources Management
MARS 655	Wetlands Management
MARS 660	Environmental Alternative Dispute Resolution
MARS 670	Eco-Environmental Modeling
MARS 684	Internship in Marine Resources Management
MARS 685	Directed Studies
MARS 689	Special Topics in Marine Resources Management
OCNG 620	Biological Oceanography*
OCNG 627	Ecology of the Continental Shelf*
OCNG 630	Geological Oceanography*
OCNG 647	Chemical Contamination of the Marine Environment*
WFSC 628	Wetlands Ecology*
WFSC 640	Human Dimensions of Wildlife and Fisheries Management*

*Courses offered by Texas A&M University. Please refer to the respective academic department for complete course descriptions. In general, these courses are offered by distance education for students based at Galveston.

Thesis Option

The thesis option is designed to allow the student to demonstrate research capabilities through developing an independent and thorough investigation of a particular problem of interest. This would also prepare the student for further graduate studies.

An acceptable thesis is required for the Master of Marine Resources Management degree for students who select the thesis option program. The finished work must reflect a comprehensive understanding of the pertinent literature and express in clear English, the problem(s) for study, the method, significance and results of the student's original research. Guidelines for the preparation of the thesis are available in the Thesis Manual which is available online at <http://thesis.tamu.edu/thesis-manual>.

After successful defense (or exemption from) and approval by the student's advisory committee and the head of the student's major department, students must submit their thesis to the Thesis Office. Students must submit their thesis in electronic format as a single PDF file. The PDF file must be uploaded to the Thesis Office website <http://thesis.tamu.edu>. Additionally, a signed approval page must be brought or mailed to the Thesis Office. Both the PDF file and the signed approval page are required by the deadline day.

Deadline dates for submitting are announced each semester or summer term in the Office of Graduate Studies Calendar (see Time Limit statement).

Before a student can be "cleared" by the Thesis Office, a processing fee must be paid at Financial Management Services. After commencement, theses are digitally stored and made available through the Texas A&M Libraries.

A thesis that, because of excessive corrections, is deemed unacceptable by the Thesis Office, will be returned to the student's department head. The manuscript must be resubmitted as a new document, and the entire review process must begin anew. All original submittal deadlines must be met during the resubmittal process in order to graduate that semester.

No credit hours of 684 (Professional Internship) may be used for the thesis option Master of Marine Resources Management degree. A maximum of 8 credit hours of 691 (Research) or 485 and/or 685 (Directed Studies), and up to 3 credit hours of 690 (Theory of Research) or 695 (Frontiers in Research) may be used toward the thesis option Master of Marine Resources Management degree. In addition, any combination of 685, 690, 691 and 695 may not exceed 12 credit hours.

The 36-hour thesis-option curriculum is structured with 22 hours of the required courses (MARS 680 is not taken by thesis-option students) and 14 hours of optional elective courses of which at least 3 hours are in additional science, at least 3 hours are in law/policy/management and up to 6 hours may be of 691 courses. Additional flexibility to replace required courses targeted to their area of research is available to thesis-option students upon recommendation and approval by their committees and the department.

The Degree of Master of Science in Marine Biology and Doctor of Philosophy in Marine Biology: Marine Biology Interdisciplinary Degree Program (MARB-IDP)

The M.S. and Ph.D. degrees in Marine Biology are taught by marine biologists within the Texas A&M University System (TAMUS). The program is interdisciplinary, involving courses and linking faculty from the TAMU Colleges of Science (SCI), Agriculture and Life Sciences (COALS), Geosciences (GEOS), TAMU at Galveston (TAMUG) and TAMU-Corpus Christi (TAMUCC). The need for this program is based on the expansion of the field of marine biology with the beginning of the environmental movement and the popularization of marine biology in the media.

The principal strengths of the program lie in the international recognition, scholarly productivity and extramural funding of its diverse faculty, as well as the strategic location of two of the campuses on the Gulf of Mexico. Students have access to a variety of marine habitats on the upper Texas coast at the Galveston facility, including the Galveston Bay system, with its open bay, oyster reefs and wetlands, and the open Gulf with its barrier islands, beaches and offshore habitats. The Corpus Christi campus, on the other hand, accesses the distinctly different habitats of the South Texas coast, including Padre Island, a barrier island enclosing the hyper saline but fertile Laguna Madre. The popular undergraduate Marine Biology program in Galveston has been designed to complement a typical contemporary biology department by placing emphasis on the level of the organism and ecosystem. The Galveston researchers assembled to study marine mammals are, as a group, arguably the best in the world, participating in numerous international research projects in diverse and distant locations. The participating graduate faculty also includes a sizeable group of invertebrate ecologists who contribute to on-going, highly-funded studies of coastal ecosystems, the deep sea, the hypoxic zones of the continental shelf, oyster reefs, offshore rigs and natural coral banks, and the saline caves of the Bahamas and Yucatan, as well as mariculture and regional fisheries. The fisheries faculty uses the latest in molecular and geochemical approaches to explore the recruitment and production of economically important species of both coastal and pelagic open-ocean populations. Plant biologists focus on the plankton, harmful algal blooms and wetlands restoration.

A number of associated institutions outside of the TAMUS universities academic departments listed will also add to the diversity of the program. Research projects and undergraduate teaching are already supplemented by University of Texas Medical Branch (UTMB) and National Marine Fisheries Service (NOAA/NMFS) professionals in Galveston and by cooperating research centers in College Station. The Texas Institute of Oceanography (TIO) supplements graduate student research support directly through additional facilities provided through the Institute of Marine Life Sciences (IMLS) and the Laboratory for Ocean and Environmental Research (LOER), both in Galveston. The Corpus campus houses the Center for Coastal Studies, The Conrad Blucher Institute and Harte Research Institute for the Gulf of Mexico Studies. In College Station, the Geochemical and Environmental Research Group (GERG), the Sustainable Coastal Margins Program (SCMP) and the Integrated Ocean Drilling Project (IODP) provide opportunities for graduate students to work with prestigious research scientists within interdisciplinary programs with international scope. Research professionals with the US Geological Survey and Texas Parks and Wildlife are co-located on the Corpus Christi campus and also participate in graduate education and research.

The goal of the Marine Biology Interdisciplinary graduate program is to attract high-quality students interested in one or a combination of the sub-disciplines of marine biology who wish to pursue careers in higher education, government, or private industry. The structure of the education provided by the program will ensure that highly qualified individuals will be sent into the job market or on to further education. Employment of graduates will be related to environmental and living resource regulation and management within all levels of government; industries related to or affected by resource utilization and management; and within all levels of academia, including teaching and conducting both basic and applied research. For the M.S. degree, this will be accomplished by providing strong curriculum, hands-on research experience in most courses and a rigorous program of field and/or laboratory research for thesis option students. Both thesis and non-thesis students will be supervised by graduate advisory committees responsible for development of their final degree plan. For the Ph.D. degree, in addition to coursework, a dissertation based on rigorous scholarly research will be required.

The degree program will focus on independently supervised research complemented by formal coursework. Essential components of the program include the following:

- a highly diverse curriculum available on all three campuses;
- original, supervised scholarly research, to be written and formally defended as a paper, thesis or dissertation;
- efficiencies obtained by sharing the diversity of courses already offered at the three participating entities facilitated by distance learning technologies;
- students pursuing the M.S. non-thesis option will be able to complete a majority of degree requirements “by distance;” M.S. thesis-option and Ph.D. students will also benefit from distance technologies by having access to various courses offered at the alternative campuses and the ability to interact with members of their committees and others from whom they are separated by distance.

Students will earn one of the following degrees:

- Master of Science, non-thesis option, with 36 total semester credit hours;
- Master of Science, thesis option, with 32 total semester credit hours including thesis; or,

- Doctor of Philosophy, with a minimum of 64 total semester hours beyond the M.S. degree or a minimum of 96 total semester hours beyond the B.S. degree, including dissertation.

Degree Requirements

Credit Hours Required for Master of Science Degree

	Thesis	Non-thesis
Courses	22	34
Seminar	2	2
Research hours	<u>8</u>	<u>0</u>
Total	32	36

Credit Hours Required for Doctor of Philosophy Degree

	With M.S.	Without M.S.
Courses	17-23	39-55
Seminar	2	2
Research hours	<u>39-45</u>	<u>39-55</u>
Total	64	96

Foundation (Leveling) Courses (0 credit hours to as many hours as needed).

Students entering the program will be expected to have a strong background in the biological sciences, as well as a good foundation in chemistry, physics, earth sciences, and mathematics. Students lacking preparation in a particular subject area, but who are otherwise well-qualified to enter the graduate program, will be required to take appropriate leveling course work in addition to that specified for the M.S. or Ph.D. degrees. These courses will not be credited as part of the degree plan. A full complement of undergraduate leveling courses is already available on each of the three campus units participating (TAMU, TAMUCC, and TAMUG). The need for leveling courses will be decided upon by the MB IDP GRAC in consultation with the prospective committee chair.

Additional courses available to all students in the proposed program.

All students will be required to demonstrate competence in, and understanding of, general principles of marine biology and ecology, including biological processes at the level of the cell up to the functioning of whole ecosystems; broad knowledge of marine biodiversity, including fundamentals of genetics, and relationships of biodiversity to biological and ecological processes; broad knowledge of the characteristics of the marine environment; accompanied by understanding of, and skills in, the analysis of biological and environmental data (experimental design and statistics). Assessment of this body of knowledge on an individual-student basis will be through course work completed, the thesis and dissertation proposal, the Preliminary Examination for the PhD student, the written thesis and dissertation on the student's original research, and the thesis and dissertation defense. For the student enrolled in the 36-hour non-thesis option, competency of the above mentioned principles will be accomplished through an oral final examination.

The courses available at each of the three participating campuses, in each of the different departments and colleges, are listed below. Other courses may be substituted for one or more of the courses in the lists, if the student has previously completed upper division or graduate-level courses with content deemed adequate by the student's GAC. If a student advances from the M.S. in MB directly to the Ph.D., and has already taken these courses, the student will still need to demonstrate competence in the subject areas on the Preliminary Examination. The courses in each student's degree plan will be determined by the student, the student's thesis or dissertation advisory committee, and the student's Chair. The total number of hours for the degree sought must still be met.

Courses elected by the student.

1. For the M.S. degree:

Courses totaling 24 hours for the thesis option, or 36 hours for the non-thesis option, will be chosen by students in consultation with their chairs and committee members. These courses may be drawn from any set, within or outside the participating departments, deemed appropriate and necessary by the student and committee. Thesis option students will take 8 hours of research courses in addition to traditional course work.

2. For the Ph.D. degree:

The students in consultation with their chairs and committee members will choose all elective courses, except as prescribed below.

Prescribed courses

1. For the M.S. degree:

MARB/OCNG/WFSC/BIOL/CVM 681, Seminar, 2 credit hours total (thesis and non-thesis options).

2. For the Ph.D. degree:

MARB/OCNG/WFSC/BIOL/CVM 681, Seminar, 2 credit hours total.

Other required courses

1. For the M.S. degree – thesis:

MARB/OCNG/WFSC/BIOL/CVM 691, Research, 8 credit hours maximum (thesis only).

2. For the Ph.D. degree:

No specific requirements.

Residence

1. For the M.S. degree:

M.S. students, both thesis and non-thesis option, are expected to devote most of their time and energy to graduate studies under the direction of the students' major professors and the advisory committees. Although there is no specific requirement that the student be in residence on any of the three campuses, a student's chair and committee will be the ultimate arbiter of the time in residence at any one of the participating facilities. In addition, students enrolled through the TAMU or TAMUG campuses will have to meet the degree residency requirements as stated in the TAMU Graduate Catalog and students enrolled through the TAMUCC campus will have to meet the graduate degree residency requirements as stated in the TAMUCC Graduate Catalog.

The MB IDP offers the M.S. degree (non-thesis) as both a residential and as a distance degree. Many courses will be offered by distance to meet the needs of students who want to pursue the M.S. non-thesis option, or M.S. thesis option, but who are employed and are unable to be on a particular campus.

2. For the Ph.D. degree:

Students entering the program with a baccalaureate degree must spend two academic years in residence at one or a combination of the three campus facilities. Students entering with a M.S. degree must spend at least 1 year in residence. The residency requirement may be met at any of the three participating locations, or any combination of months on all campuses, totaling either one or two years, as required. Registration on-campus for 9 credit hours per long-term shall satisfy the technical requirement for residency. The student's committee chair, along with the committee, will be the ultimate arbiter of the amount of time to be spent working in the mentor's facility or otherwise working closely with the mentor.

Student's Advisory Committee (SAC)

1. For the M.S. degree:

The Committee consists of at least three members, each of whom must have a graduate faculty appointment at TAMUCC or TAMU or TAMUS Participating Graduate Faculty. The Chair of the Committee must be a faculty member in one of the participating departments and be a formal member of the MB IDPs PGF. At least one member must be from a different academic department than those departments participating in the program.

2. For the Ph.D. degree:

The Committee consists of at least four members, each of whom must have a graduate faculty appointment at TAMUCC or TAMU. The Chair (or co-Chair) of the Committee must be a faculty member of one of the participating departments and be a formal member of the MB IDPs PGF. At least one member must be from a different academic department other than the participating departments.

3. External Committee Members:

Committee members outside the University, e.g., qualified scientists at other academic institutions, governmental agencies, or industries, will be authorized as Associate Graduate Faculty, for both M.S. and Ph.D. committee service, if they have expertise beneficial to the guidance and/or completion of the student's research. The external member may not constitute one of the three (M.S.) or four (Ph.D.) required committee members. The OGS, TAMU, must approve all external committee members before they may serve on a committee. Categories and requirements of graduate faculty members are described in the TAMU Graduate Catalog.

The Degree Plan

Students, in conjunction with their committee chairs and committee members, will choose courses in the degree plan. The limitations on certain courses are described in the TAMU or TAMUCC Graduate Catalogs. Guidelines for the use of transfer and certain other courses in the Ph.D. program can be found in TAMU Graduate Catalog.

Time Limit

All degree requirements for the M.S. and Ph.D. must be completed within 7 and 10 years, respectively, of entering the degree program, in accordance with provisions contained in the TAMU Graduate Catalog.

Applications and Deadlines

All applications and deadlines will be in accordance with provisions of the OGS, TAMU and the TAMUCC OGS.

Examinations

1. For the M.S. degree:

A final examination will be required of both thesis option and non-thesis option students. The examination will cover all fields of general biology, as well as the specific research topic in the case of thesis option students. Thesis option students may schedule the final examination after completion of all course work and after at least the first draft of the thesis has been submitted to their committee for review. Non-thesis option students may schedule the final examination after completion of all course work. Both thesis option and non-thesis option students must have a GPR of 3.0 or higher for courses on the degree plan completed within the participating colleges, and there must be no unresolved grades of D, F or U for any course listed on the degree plan.

2. For the Ph.D. degree:

A preliminary examination, written and oral, is required, and shall be administered in accordance with the rules outlined in the Graduate Catalog of the respective institution. It will be given no earlier than a date at which the student is within approximately 6 credit hours of completion of the formal course work on the degree plan, or no later than the end of the semester following completion of the formal course work on the degree plan. The written portion of the exam shall cover all fields of study included in the student's degree plan. The written examinations must be completed and reported as satisfactory before the oral portion of the examination may be held. Upon successful completion of the examination, the student will be admitted to candidacy.

Students enrolled through TAMU or TAMUG must pass the final examination/dissertation defense by deadline dates published in the TAMU OGS calendar and students enrolled through TAMUCC must pass the final examination/dissertation defense by deadline dates published in the TAMUCC OGS calendar. No student may be given a final examination unless their GPR is 3.0 or above, they have been admitted to candidacy, and there are no grades of D, F or U for any course listed on the degree plan.

Special requirements for the program,

1. For the M.S. degree:

The M.S. student will be encouraged to teach undergraduate laboratory courses for at least one semester, especially if the student has not already had teaching experience as a graduate student or teaching professional. All teaching assistants will comply with Southern Association of Colleges and Schools (SACS) requirements that they have either 18 graduate credit hours in the subject matter or will be under the direct supervision of a faculty member.

Research experience and writing a thesis are considered normal requirements for thesis option programs leading to M.S. degrees in the marine biological field.

2. For the Ph.D. degree:

The Ph.D. student will be encouraged to teach undergraduate laboratory courses for at least two semesters, especially if the student has not already had teaching experience as a graduate student or teaching professional. All GATs will comply with SACS requirements that they have either 18 graduate credit hours in the subject matter or will be under the direct supervision of a faculty member.

The Ph.D. dissertation is required and shall demonstrate the ability to perform independent research. The dissertation must be the original work of the candidate.

No specific internships are required, although individual faculty mentors may recommend an internship as a means of expanding the student's knowledge and understanding of his or her chosen field.

Texas A&M University System Graduate Faculty

The Texas A&M University System has established a System Graduate Faculty which enables and facilitates the collaborative research and teaching among faculty members of the nine universities and the Health Science Center within the System. By acquiring status through the System Graduate Faculty, a member of the Texas A&M University System Graduate Faculty may teach graduate courses and serve as member or co-chair (but not as chair) with a member of the Texas A&M University Graduate Faculty.

System Graduate Faculty Guidelines

I. Purpose. The Texas A&M University System Graduate Faculty has been developed for the following purposes:

- A. To facilitate participation in graduate education for a student in The Texas A&M University System.
- B. To provide a graduate student access to the expertise of faculty members throughout the System.
- C. To increase inter-institutional faculty collaboration throughout The Texas A&M University System.
- D. To promote the development of multi-disciplinary educational and research programs and the capacity to study complex scientific and social issues.

II. Membership Background

1. Membership on The Texas A&M University System Graduate Faculty provides the opportunity to participate in graduate education at The Texas A&M University System universities through serving on graduate committees, advising a graduate student, and teaching graduate courses.

A. Appointment to membership on The Texas A&M University System Graduate Faculty is designed to assure rigor in the directing, counseling, and teaching of a graduate student.

B. All of The Texas A&M University System Graduate Faculty members can serve as members of any graduate committee.

C. The chair, or co-chair, of a graduate committee must be from the institution that is conferring the graduate degree.

III. Membership Qualifications. Consideration for membership on The Texas A&M University System Graduate Faculty requires meeting the following qualifications.

2. The individual must hold the terminal degree, usually an earned doctorate. Exceptions will be considered only if justified in accordance with the Commission on Colleges of the Southern Association of Colleges and Schools.

A. The individual must be a tenured or a tenure-track faculty member of a Texas A&M University System university and hold a professorial rank.

B. A person holding the title of instructor or lecturer may not be considered for membership on The Texas A&M University System Graduate Faculty.

C. Individuals holding professorial rank at an agency of The Texas A&M University System are eligible for membership.

D. The individual must be a member of the graduate faculty at his/her home institution.

E. The individual must be an active participant in his/her graduate program through teaching, directing or administering graduate work.

F. The individual must show evidence of active research and scholarly work within the past five years. This should include publication as primary author of scholarly works in peer-reviewed journals, publication of scholarly books, presentations at professional meetings, or creative works, such as performances, work in juried exhibitions, or other creative works appropriate to the individual's discipline.

G. A graduate student at any Texas A&M University System institution may not be a member of The Texas A&M University System Graduate Faculty. Membership on The Texas A&M University System Graduate Faculty is forfeited upon a faculty or staff member's admission to a graduate program at any institution in The Texas A&M University System.

IV. Nomination, Appointment and Review Process

3. Nomination for membership to The Texas A&M University System Graduate Faculty is made by submission of an official application by a faculty member and an accompanying letter of endorsement from the individual's department head or chair and college dean. The application and letter of endorsement are sent to the graduate dean, who certifies institutional graduate

faculty appointment status, and forwards the nomination to the Texas A&M University System Council of Graduate Deans for consideration and action.

A. The application from the faculty member must identify the institutional graduate faculty of which he or she is a member, specify the graduate degree(s) that he or she is qualified to supervise under the conditions of the institutional appointment, and specify the graduate program(s) in which he or she wishes to participate as a System graduate faculty member. The application should be accompanied by a current curriculum vitae.

B. The Council of Graduate Deans will appoint faculty from member institutions as needed to a Graduate Faculty Review Advisory Committee to consider applications and reappointments and to make recommendations to the Council of Graduate Deans.

C. A Graduate Faculty member of The Texas A&M University System is appointed for a five-year term. At the end of the five-year term, the member will be re-evaluated for reappointment by the Council of Graduate Deans. Failure to maintain membership criteria will result in removal from The Texas A&M University System Graduate Faculty. The Council of Graduate Deans will notify by letter a faculty member who is non-voluntarily removed from membership on The Texas A&M University System Graduate Faculty. The faculty member's department head, dean, provost and graduate dean will also receive notification.

V. Graduate Faculty Membership List. A list of the current membership of The Texas A&M System Graduate Faculty will be maintained in the Office of the Vice Chancellor for Academic and Student Affairs, the graduate office at each System university and on The Texas A&M University System Graduate Education website at <http://www.tamus.edu/pathways/gradfaculty>.

COURSE DESCRIPTIONS

All 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; and 600 to 699, courses limited to graduate students or undergraduate students with special approval.

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. (TCCNS ACCT 2301). Analysis, recording and reporting of business transactions; partnership and corporation accounting; analysis and use of financial statements.

230. INTRODUCTORY ACCOUNTING. (3-0). Credit 3. (TCCNS ACCT 2302). Continuation of ACCT 229. Use of budgets; introduction to cost accounting; cost control techniques and methods of measuring performance. Prerequisites: ACCT 229.

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

316. INTERMEDIATE ACCOUNTING FOR NON-ACCOUNTING MAJORS II. (3-0). Credit 3. Includes the measurement and disclosure requirements for liabilities and stockholders' equity, SEC registration statements, and cash flow reporting; focus on the analysis and interpretation of financial statements rather than their preparation. Does not qualify as a directed or free elective for accounting majors and does not count towards the accounting requirement for the CPA exam. Prerequisite: ACCT 315 or 327.

Agricultural Economics (AGEC)

350. ENVIRONMENTAL AND NATURAL RESOURCE ECONOMICS. (3-0). Credit 3. Inspection of issues such as environmental degradation, population growth, recycling, water use and depletion, natural habitat protection, water and air pollution, acid deposition, fishery management, and global warming using economically derived principles and tools. Prerequisite: Junior or senior classification or approval of instructor.

Anthropology (ANTH)

202. INTRODUCTION TO ARCHAEOLOGY. (3-0). Credit 3. (TCCNS ANTH 2302). 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. (TCCNS ANTH 2351). Evolution of cultures; differences, similarities and effects of material and non-material culture on economic, social and political organization.

225. BIOLOGICAL ANTHROPOLOGY. (3-3). Credit 4. Human biology to include examination of evolutionary processes acting on human populations; human genetics; non-human primate anatomy, classification and ecology of primates; the primate paleontological record, and human variation and adaptation. Prerequisite: BIOL 111.

316. 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. Prerequisite: Junior or senior classification.

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. Prerequisite: Junior or senior classification or approval of instructor.

350. ARCHAEOLOGY OF THE OLD WORLD. (3-0). Credit 3. Overview of archaeology and prehistory of Europe, Africa and Asia from the evolution of the hominids to the development of agriculture and the rise of civilization. Prerequisite: Junior or senior classification or approval of instructor.

351. CLASSICAL ARCHAEOLOGY. (3-0). Credit 3. Origins and spread of Western civilization through the material remains of Minoan, Mycenaean, Etruscan, and early Greek and Roman cultures. Prerequisite: Junior or senior classification or approval of instructor.

423. BIOARCHAEOLOGY. (3-0). Credit 3. Role of human skeletal studies in reconstructing the biological and cultural past of humans; evidence gleaned from human skeletal remains recovered from archaeological sites such as data regarding diet, health, genetics and migration. Prerequisites: ANTH 225 or BIOL 225; junior or senior classification.

485. DIRECTED STUDIES. Credit 1-9. Individual research in anthropology on subjects not included in established courses. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

Biology (BIOL)

111. INTRODUCTORY BIOLOGY I. (3-3). Credit 4. (TCCNS BIOL 1306 and TCCNS 1106). First half of an introductory two-semester survey of contemporary biology that covers the chemical basis of life, structure and biology of the cell, molecular biology and genetics.

112. INTRODUCTORY BIOLOGY II. (3-3). Credit 4. (TCCNS BIOL 1307 and TCCNS 1107). The second half of an introductory two-semester survey of contemporary biology that covers evolution, history of life, diversity and form and function of organisms. Prerequisite: BIOL 111, except MARS, MARS-LO and OCRE majors.

351. FUNDAMENTALS OF MICROBIOLOGY. (3-4). Credit 4. Basic microbiology; comparative morphology, taxonomy, pathogenesis, ecology, variation and physiology of microorganisms. Prerequisites: CHEM 227, 237; BIOL 111, 112; or approval of instructor. Junior or senior classification.

Center for Academic Enhancement (CAEN)

101. APPLICATION OF LEARNING THEORY. (2-0). Credit 2. A seminar course designed to introduce students to the resources, skills, and strategies needed to succeed in college.

102. CAREER AWARENESS. (2-0). Credit 2. Introduction to the concepts of career planning, employment trends, and methods of researching and preparing for the job market.

Chemistry (CHEM)

101. FUNDAMENTALS OF CHEMISTRY I. (3-0). Credit 3. (TCCNS CHEM 1311, 1411). Introduction to modern theories of atomic structure and chemical bonding; chemical reactions; stoichiometry; states of matter; solutions; equilibrium; acids and bases; coordination chemistry. Prerequisite: Concurrent registration in CHEM 111 is suggested.

102. FUNDAMENTALS OF CHEMISTRY II. (3-0). Credit 3. (TCCNS CHEM 1312, 1412). Theory and applications of oxidation-reduction systems; thermodynamics and kinetics; complex equilibria and solubility product; nuclear chemistry; descriptive inorganic and organic chemistry. Prerequisites: CHEM 101, CHEM 111 or their equivalent.

107. GENERAL CHEMISTRY FOR ENGINEERING STUDENTS. (3-0). Credit 3. I, II Introduction to important concepts and principles of chemistry; emphasis on areas considered most relevant in an engineering context; practical applications of chemical principles in engineering and technology. Students completing CHEM 107 and changing majors to curricula requiring CHEM 101 and CHEM 102 may substitute CHEM 107 for CHEM 101. Students may not receive credit for both CHEM 107 and CHEM 101.

111. FUNDAMENTALS OF CHEMISTRY LABORATORY I. (0-3). Credit 1. (TCCNS CHEM 1111). Introduction to methods and techniques of chemical experimentation; qualitative and semiquantitative procedures applied to investigative situations. Prerequisite: CHEM 101 or registration therein.

112. FUNDAMENTALS OF CHEMISTRY LABORATORY II. (0-3). Credit 1. (TCCNS CHEM 1112). Introduction to analytical and synthetic methods and to quantitative techniques to both inorganic and organic compounds. Prerequisites: CHEM 101, 111; CHEM 102 or registration therein.

117. GENERAL CHEMISTRY FOR ENGINEERING STUDENTS LABORATORY. (0-3). Credit 1. Introduction to important concepts and principles of chemistry in the laboratory; emphasis on areas considered most relevant in an engineering context; practical applications of chemical principles in engineering and technology. Students completing CHEM 117 and changing majors to curricula requiring CHEM 111 and CHEM 112 may substitute CHEM 117 for CHEM 111. Students may not receive credit for both CHEM 117 and CHEM 111. Prerequisites: CHEM 107 or registration therein.

227. ORGANIC CHEMISTRY I. (3-0). Credit 3. (TCCNS CHEM 2323). Introduction to chemistry of compounds of carbon. General principles and their application to industrial and biological processes. Concurrent registration in CHEM 237 is suggested. Prerequisite: CHEM 102/112 or 104.

228. ORGANIC CHEMISTRY II. (3-0). Credit 3. (TCCNS CHEM 2325). Continuation of CHEM 227. Concurrent registration in CHEM 238 is suggested. Prerequisite: CHEM 227.

237. ORGANIC CHEMISTRY LABORATORY. (0-3). Credit 1. (TCCNS CHEM 2123). Operations and techniques of elementary organic chemistry laboratory. Preparation, reactions and properties of representative organic compounds. Prerequisites: CHEM 112 or 114; CHEM 227 or concurrent registration.

238. ORGANIC CHEMISTRY LABORATORY. (0-3). Credit 1. (TCCNS CHEM 2125). 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. Prerequisites: CHEM 102/112 or 104. Junior or senior classification or approval of instructor.

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 102/112 or 114; CHEM 315 or 316 or concurrent registration. Junior or senior classification or approval of instructor.

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. Prerequisites: CHEM 228 or equivalent. Junior or senior classification or approval of instructor.

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

Civil Engineering (CVEN)

221. ENGINEERING MECHANICS: STATICS. (2-2). Credit 3. I, II General principles of mechanics; concurrent force systems; statics of particles; equivalent force/moment systems; centroids and center of gravity; equilibrium of rigid bodies; trusses, frames, and machines; internal forces in structural members; friction; second moments of areas. Prerequisites: MATH 251 or 253 or registration therein; PHYS 218.

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. Prerequisites: ENGR 211 or 221. Junior or senior classification or approval of instructor.

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. Prerequisites: CVEN 311 or registration therein. Junior or senior classification or approval of instructor.

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. Prerequisites: ENGR 211 or 221, MASE 214. Junior or senior classification or approval of instructor.

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. Prerequisites: ENGR 211 or 221. Junior or senior classification or approval of instructor.

446. STRUCTURAL STEEL DESIGN. (3-0). Credit 3. Design of structural steel elements found in bridges and building structures, including plate girders, other build-up members, composite beams and slender columns; frame stability, tubular members and connections. Prerequisites: CVEN 345. Junior or senior classification or approval of instructor.

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. Junior or senior classification or approval of instructor.

Classics (CLAS)

371. IN SEARCH OF HOMER AND THE TROJAN WAR. (3-0). Credit 3. The nature, background, authorship, and historically of the Iliad and the Odyssey, Aegean culture in the Stone, Bronze, and early Iron ages; the value of Greek epics as historical documents; oral poetry; the Trojan War in Greek literature, readings in English. Prerequisites: Junior or senior classification or approval of instructor.

Communications (COMM)

203. PUBLIC SPEAKING. (3-0). Credit 3. (TCCNS SPCH 1321). 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.

Computer Science (CSCE)

203. INTRODUCTION TO COMPUTING. (3-0). Credit 3. (TCCNS COSC 1317, 1417) Algorithms, programs and computers; basic programming and program structure; data representation; computer solution of numerical and non-numerical problems using 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 proof-reading, 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. (TCCNS ECON 2302). 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.

203. PRINCIPLES OF ECONOMICS. (3-0). Credit 3. (TCCNS ECON 2301). 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.

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.

323. MICROECONOMIC THEORY. (3-0). Credit 3. Determination of prices and their role in directing consumption, production, and distribution under both competitive and non-competitive market situations. Prerequisites: ECON 202 and MATH 142.

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. Prerequisite: 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: Cumulative GPA of 2.5 or higher or approval of MARA department head.

Engineering Design Graphics (ENDG)

105. ENGINEERING GRAPHICS. (0-6). Credit 2. (TCCNS ENGR 1204). 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.

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 and design. Other topics included, depending on the major, are: emphasis on computer applications and programming, visualization and CAD tools, introduction to electrical circuits, semiconductor devices, digital logic, communications and their applications in systems; Newton's laws, unit conversions, statistics, computers, Excel; basic graphics skills; visualization and orthographic drawings. Co-requisite: MATH 151.

112. FOUNDATIONS OF ENGINEERING II. (1-3). Credit 2. Continuation of ENGR 111. Topics include, depending on the major: emphasis on computer applications and programming and solids modeling using CAD tools or other software; fundamentals of engineering science. advanced graphic skills. Prerequisite: ENGR 111, MATH 151.

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. Prerequisites: ENGR 112, MATH 251 or 253 or concurrent registration, PHYS 218.

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 concurrent registration; ENGR 211 or concurrent registration.

221. STATICS AND PARTICLE DYNAMICS. (2-2). Credit 3. Application of the fundamental principles of Newtonian mechanics to the statics and dynamics of particles and the equilibrium of trusses, frames, beams and other rigid bodies. Prerequisites: Admission to a major sequence in engineering; ENGR 112 or instructor approval; MATH 251 or 253 or concurrent registration; PHYS 218.

English (ENGL)

104. COMPOSITION AND RHETORIC. (3-0). Credit 3. (TCCNS ENGL 1301). 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. (TCCNS ENGL 1302). 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. (TCCNS ENGL 2333). Representative works in translation of major authors from A.D. 1500 to present from various cultures, including such authors as Cervantes, Molière, Goethe, Tolstoy, Mahfouz, Munif, Achebe, Tolstaya, Vargas Llosa, and Duras. Prerequisite: ENGL 104.

228. AMERICAN LITERATURE: CIVIL WAR TO PRESENT. (3-0). Credit 3. (TCCNS ENGL 2328). 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.

236. INTRODUCTION TO CREATIVE WRITING: POETRY. (3-0). Credit 3. (TCCNS ENGL 2308). Initiation into the craft of poetry writing; extensive reading in the genre; peer workshops. 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.

253. INTRODUCTION TO CULTURAL STUDIES AND POPULAR CULTURE. (3-0). Credit 3. An introduction to the history, theories and methods of contemporary cultural studies. The course will explore key concepts in cultural theory to examine specific aspects of popular culture as well as cultural sites and practices so as to expand upon the analytical and critical thinking skills learned in ENGL 104 and 203. 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. Prerequisites: ENGL 104. Junior or senior classification or approval of instructor.

330. ARTHURIAN LITERATURE. (3-0) Credit 3. Legend of King Arthur in English and American literature from its Medieval origins to the present. Prerequisites: ENGL 104. Junior or senior classification 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. Prerequisites: ENGL 104. Junior or senior classification or approval of instructor.

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. Prerequisites: Three credits of literature at 200 level or above. Junior or senior classification or approval of instructor.

338. AMERICAN ETHNIC LITERATURE. (3-0). Credit 3. Multi-ethnic study of American Literature, the writings of Black Americans, American Indians, Mexican-Americans, Jewish Americans, as well as Euro-American ethnic groups. Prerequisite: ENGL 104.

339. AFRICAN-AMERICAN LITERATURE POST 1930. (3-0). Credit 3. Major works of the African-American literary tradition studied in their cultural and historical context, including such authors as Douglass, Du Bois, Hurston, Wright and Morrison. Prerequisite: Three 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. Prerequisites: ENGL 104. Junior or senior classification or approval of instructor.

415. STUDIES IN A MAJOR AUTHOR. (3-0). Credit 3. Exploration of a major author as a vehicle for emphasizing intensive analysis, scholarship and literary criticism. Prerequisite: Three credits of literature at 300-level or above.

485. DIRECTED STUDIES. Credit 1-3. Readings selected for specific need of major or minor in English. Prerequisite: Junior or senior classification or approval of instructor.

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: ACCT 229. Junior or senior classification.

Galveston Study Abroad (GALV)

301. TAMUG STUDY ABROAD. (1-18). For students in approved study abroad programs, may be repeated for credit.

Geography (GEOG)

201. INTRODUCTION TO HUMAN GEOGRAPHY. (3-0). Credit 3. (TCCNS GEOG 1302). 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.

202. GEOGRAPHY OF THE GLOBAL VILLAGE. (3-0). Credit 3. (TCCNS GEOG 1303). Uses of resources; identification of problems pertaining to poverty, hunger, overpopulation; relations between nations and races, environmental destruction and violence within the major geographic regions of the world.

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. Prerequisite: Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit (1-4) each semester. Individually supervised research or advanced study on restricted area not covered in regular courses. Prerequisite: Junior or senior classification or approval of instructor.

History (HIST)

105. HISTORY OF THE UNITED STATES. (3-0). Credit 3. (TCCNS HIST 1301). Colonial Heritage; revolution; adoption of Constitution; growth of nationalism and sectionalism; Civil War; reconstruction.

106. HISTORY OF THE UNITED STATES. (3-0). Credit 3. (TCCNS HIST 1302). 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. (TCCNS HIST 2301). 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.

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. Prerequisite: Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

405. HISTORY OF THE HOLOCAUST. (3-0). Credit 3. History of the Nazi Holocaust; Third Reich; Jewish ghetto life and concentration camps; role of the military, S.S. and German business; lessons and legacies. Prerequisite: Junior or senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit 1-3. Selected fields of history not covered in depth by other courses. Reports and extensive reading required. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

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 142. Junior or senior 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. Prerequisite: INFO 364 or concurrent registration.

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 or concurrent registration.

485. DIRECTED STUDIES. Credit 1-4 each semester. Directed study of selected problems in an area of business analysis not covered in other courses. Prerequisites: Cumulative GPA of 2.5 or higher. Approval of instructor and MARA department head.

Kinesiology (KINE)

198. HEALTH AND FITNESS ACTIVITY. (0-2). Credit 1. Half lecture; half activity; student choice of designated fitness or strength related activities; lecture portion covers current health topics.

199. REQUIRED PHYSICAL ACTIVITY. (0-2). Credit 1. (TCCNS PHED 1151, 1152, 1164, 1251, 1252, 1253, 2155, 2255). Selection from a wide variety of activities designed to increase fitness and/or encourage the pursuit of lifetime activity.

Land Development (LDEV)

671. SUSTAINABLE DEVELOPMENT. (3-0). Credit 3. Sustainability perspectives about values, rights, property and what constitutes an optimum human environment; sustainability principles and case studies emphasizing on-the ground, incentive-based land development that balances economic growth with environmental quality. Prerequisite: Graduate classification.

Management (MGMT)

105. INTRODUCTION TO BUSINESS. (3-0). Credit 3. (TCCNS BUSI 1301). 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. (TCCNS BUSI 2302). 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. Prerequisite: MARA 466 or concurrent registration. Senior classification.

Marine Biology (MARB)

101. SUCCEEDING IN SCIENCE. (1-0). Credit 1. An orientation of the biological sciences including the nature of science, functions of scientists, and a better understanding of the fundamentals of science. Students receive hands-on experiences that provide opportunities to work with faculty, graduate and other undergraduate students.

200. INTRODUCTION TO MARINE BIOLOGY: THE SEA WORLD EXPERIENCE. (3-3). Credit 4. Exploration of marine organisms, survey topics in vertebrate marine biology, and introduction to the role that aquatic oriented parks play in education, research and conservation. Students will have hands-on experiences by participating in aspects of maintaining aquatic organisms in captivity including animal care and nutrition, physiology, behavior, animal training and water quality. Exposure to marine organismal taxonomy, natural history, anatomy and ecology. Prerequisites: BIOL 111 with a >C average; GPA >2.0; freshman or sophomore status or instructor permission.

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 112. Curriculum sophomore, junior or senior classification 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: CHEM 227, 228, 237 and 238. Curriculum junior or senior classification 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 151, three credit hours of computer science. Curriculum sophomore, junior or senior classification 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 112, CHEM 228, MARB 301, MARS 360. Junior or senior classification 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 112 and MARB 315. Curriculum sophomore, junior or senior classification 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. Prerequisites: MARB 311. Curriculum sophomore, junior or senior classification 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 112. Curriculum sophomore, junior or senior classification 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 112, MARB 311. Junior or senior classification 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 112, CHEM 101. Junior or senior classification 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 112. Junior or senior classification or approval of instructor.

334. BIOLOGY OF SEA TURTLES. (3-3). Credit 4. Living sea turtles of the world, with emphasis on species in the Atlantic, Gulf and Caribbean basins. Emphasis includes phylogeny, population biology, ecology, life history, behavior, social and economic aspects and their impact on sea turtle conservation and recovery. Prerequisites: BIOL 112, MARB 315 or instructor approval.

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. Prerequisites: BIOL 112 or MARB 311. Junior or senior classification or approval of instructor.

340. TROPICAL MARINE ECOLOGY. (1-9). Credit 4. This course provides for field-oriented experience in coral reef, mangrove, sea grass and other tropical marine ecosystems. Special emphasis will be placed on biodiversity, ecology and conservation issues specific to Yucatan Peninsula of Mexico. Prerequisites: BIOL 112. All students who dive must either be a current AAUS scientific diver or present a current medical examination (which will be provided by the Diving Safety Officer or instructor) completed within the past 12 months and signed by a doctor, to the instructor before class participation in the pool will be allowed. Prior to using scuba equipment, all students must provide proof of open water certification or equivalent diving experience (advanced certification recommended). Permission of the instructor and the Diving Safety Officer is required before any pool activity takes place. Divers Alert Network insurance, or equivalent, is required.

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 111, PHYS 201, advanced scuba certification. Junior or senior classification or approval of instructor. All students must present a current medical examination (which will be provided by the Diving Safety Officer or instructor) completed within the past 12 months, to the instructor before class participation in the pool will be allowed. Prior to using scuba equipment, all students must provide proof of basic certification. Permission of the instructor and the Diving Safety Officer is required before any pool activity takes place. Divers Alert Network insurance, or equivalent, is required.

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: MARB 345. Junior or senior classification or approval of instructor. All students must present a completed medical examination (Appendices 1-4 in the TAMUG diving manual) signed by a doctor, to the instructor before class participation in the pool will be allowed. Prior to using scuba equipment, all students must provide proof of advanced open water certification or equivalent diving experience. Permission of the instructor and the Diving Safety Officer is required before any pool activity takes place. Divers Alert Network insurance, or equivalent, is required.

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: Junior or senior classification 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 112, MARB 315. Junior or senior classification or approval of instructor.

401. PHYSIOLOGICAL ECOLOGY OF MARINE MAMMALS. (3-0). Credit 3. Anatomy, taxonomy, phylogeny and physiological adaptations of marine mammals. Prerequisites: BIOL 112, and MARB 315. Junior or senior classification or approval of instructor.

402. GENERAL MAMMALOGY. (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. Prerequisites: MARB 315. Junior or senior classification or approval of instructor.

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: MARB 315. Junior or senior classification or approval of instructor.

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 112. Junior or senior classification 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 112. Curriculum sophomore, junior or senior classification 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 112. Curriculum sophomore, junior or senior classification 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 112, MARB 301 or equivalent, or concurrent registration. Curriculum sophomore, junior or senior classification or approval of instructor.

414. TOXICOLOGY (3-0). Credit 3. This course presents the history and scope of toxicology as it applies to mammals. Where possible, marine species will be used for examples and assigned papers. Prerequisites: BIOL 112, CHEM 227, CHEM 228.

415. COASTAL MARINE BIOLOGY AND GEOLOGY OF ALASKA. (3-0). Credit 3. This field course will be conducted in south-central Alaska for two weeks. Students will work at the remote Alice Cove Research Station, located in Prince William Sound. They will conduct research on marine mammals behavior and ecology, and time will be spent exploring the geology and glaciology. Prerequisites: BIOL 112.

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 112, CHEM 228, MARB 310, MARS 360. Junior or senior classification 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. Mariculture practices used worldwide in the production of algae, mollusks, crustaceans, and fishes will be discussed. Prerequisite: Junior or senior classification 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, absorption 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. Prerequisites: CHEM 227. Junior or senior classification 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. Prerequisites: BIOL 112. Junior or senior classification 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 111 and 112. Junior or senior classification or approval of instructor.
432. GIS 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 or senior classification or approval of instructor.
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 112. Junior or senior classification 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. Identification, distribution and biology of commercially important species will also be addressed. Prerequisites: BIOL 112. Junior or senior classification 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 or senior classification 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 senior classification or approval of instructor.
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: Junior or senior classification or approval of instructor.
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. Junior or senior classification or approval of instructor.
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. Prerequisites: MATH 151. Senior classification or approval of instructor.
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 112. Junior or senior classification or approval of instructor. MARB 301 is recommended but not required.
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. Prerequisite: Junior or senior classification or approval of instructor.
484. UNDERGRADUATE INTERNSHIP. Credit 1-9. Supervised study in a research or teaching laboratory remote from TAMUG. Student involvement is to consist of real-life learning or marine biological research, teaching, management, or a combination of these. Prerequisite: Junior or senior 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, junior or senior classification or approval of instructor.
489. SPECIAL TOPICS IN MARINE BIOLOGY. Credit 1-4. Study of selected topics in an identified area of marine biology. Prerequisite: Junior or senior classification or approval of instructor.
491. RESEARCH IN MARINE BIOLOGY. Credit 1 to 4. Research conducted under the direction of faculty member in Marine Biology. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.
603. CETACEAN BEHAVIOR AND BEHAVIORAL ECOLOGY. (3-3). Credit 4. Consists of lectures, readings and discussion sessions on the social, calf rearing, foraging and migrating strategies of whales, dolphins and porpoises. Emphasis is on the recent literature of animals in

nature, although results from aquaria are also presented with comparisons to social strategies in the wild. Prerequisite: Undergraduate or graduate level vertebrate biology course.

606. ADVANCED CONCEPTS IN MARINE POPULATION BIOLOGY. (3-0). Credit 3. Novel Approaches and concepts employed studying factors affecting recruitment, determining trophic relationships (e.g., stable isotopes), and the consequences, at various levels, of changes in abundance of marine populations, including ecological (community), population (Allee effects) and genetic (effective population size). Inference of population connectivity determined through the use of electronic tags and molecular techniques is also examined. Prerequisite: B.S. Marine Biology or Marine Science or approval of instructor

616. INTRODUCTION TO METHODS IN SCIENTIFIC DIVING. (2-3). Credit 3. This course prepares students to use SCUBA as a research tool for the marine sciences in compliance with University, American Academy of Underwater Sciences and Federal OSHA standards. Practical work in pool and open waters will complement academic experience and provide training towards scientific diver status. Prerequisite: Advanced scuba certification.

617. RESEARCH DIVING METHODS. (0-6). Credit 2. Field experience in a wide range of research diving environments stressing dive planning and safety, buoyancy control, equipment configuration and scientific methodology in biological, physical, chemical, archaeological and geological sciences. Students will design, supervise and conduct independently developed scientific diving projects. Prerequisite: MARB 616 or equivalent.

620. MARINE BIOLOGICAL RESOURCES. (3-0). Credit 3. An introduction to biological resources which can be recovered from the marine environment to provide food, biomass and materials, recreation, and employment to the coastal United States and other regions. With emphasis on fisheries and hatcheries, in: oceanic resources, coastal and estuarine resources, and mariculture. Natural and societal limitations to resource recovery are investigated, and environmental impacts are analyzed. Prerequisites: (at least 3 of these) CHEM 102, BIOL 112, GEOL 104 and/or OCNG 251; graduate status or special approval.

651. SHORE AND ESTUARINE FISHES OF THE GULF OF MEXICO. (2-6) Credit 4. Taxonomy, ecology and zoogeography of fishes inhabiting estuarine and marine ecosystems of the northwestern Gulf of Mexico. Particular emphasis on community structure and factors affecting spatial and temporal abundance of fishes found along the Texas coast. Prerequisites: MARB 311 or equivalent; approval of instructor.

654. COASTAL PLANT ECOLOGY. (3-3). Credit 4. Study of estuarine, coastal and dune plant communities and associated environmental factors affecting plants including the identification, distribution, ecological importance and management techniques of vascular plants in these communities. Prerequisites: Graduate standing; permission of instructor.

655. WETLANDS ECOLOGY, MONITORING AND DELINEATION. (2-3). Credit 4. Study of the characteristics and importance of wetlands, and methods of delineating, monitoring and evaluating wetlands. Students will learn wetland plants, soils, hydrology, ecology, inhabiting animals, delineation techniques, laws, permits required for impacts, mitigation and management techniques. Prerequisite: Graduate standing.

656. TROPICAL MARINE ECOLOGY. (1-6). Credit 3. Field oriented experience in coral reef, mangrove, sea grass, cave and other tropical marine ecosystems. Special emphasis will be placed on biodiversity, ecology and conservation issues specific to the Yucatan Peninsula of Mexico. This course will involve one week of course work in Galveston and a two-week field trip to Akumal on the Caribbean coast of Yucatan. Students will design, supervise and conduct an independently developed research project. Prerequisite: Scuba Certification.

662. BIOLOGY OF THE MOLLUSCA. (3-3). Credit 3. Survey of mollusks including their morphology, ecology, physiology and reproduction. Emphasis on marine species of ecological and commercial importance. Prerequisite: MARB 435 or MARB 665 or equivalent.

665. BIOLOGY OF INVERTEBRATES. (3-3). Credit 4. Morphology, biology and phylogeny of invertebrates. Topics may be either detailed discussions/dissections of specific organisms or comparative information on a process. Prerequisites: MARM 435 or ZOOL 335 or equivalent; approval of instructor.

667. BIOLOGY OF MARINE ANNELIDA. (3-3). Credit 4. Survey of Marine Annelids including their behavior, organ systems physiology and reproduction. Emphasis on morphology and taxonomy of polychaetous annelids to enable students to move more rapidly and accurately analyze benthic assemblage data. Prerequisites: MARM 435 or ZOOL 335 or equivalent; approval of instructor.

681. SEMINAR IN MARINE BIOLOGY. (1-0). Credit 1. Detailed reports on specific topics within the field of marine biology. Students may register in no more than two sections of this course in a given semester. Prerequisite: Graduate Standing.

684. PROFESSIONAL INTERNSHIP. Credit 1-9. On the job training in the field of marine biology. Prerequisites: Graduate standing; approval of instructor.

685. DIRECTED STUDIES. Credit 1-6. Limited investigations in fields other than those chosen for the thesis or dissertation topic. May be repeated for credit. Prerequisites: Graduate standing; approval of instructor.

689 SPECIAL TOPICS IN. Credit 1-3. Selected topics in an identified area of marine biology. Prerequisites: Graduate standing; approval of instructor.

691 RESEARCH FOR THESIS OR DISSERTATION. Credit 1-9. MARB 691 is the designated field and/or laboratory research leading to the M.S. or Ph.D. degree. MARB 691 may be offered by any faculty member in MARB and may be offered as many times as necessary in a given semester. MARB 691 may be repeated for credit by a student. Prerequisites: Graduate standing; 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.

102. INTRODUCTION TO MECHATRONICS. (0-6). Credit 2. Use of word processing, spreadsheet, CAD, and data acquisition. Engineering ethics. Presentation of engineering data. The design process; generation of ideas, analysis of alternatives, prototype construction, testing and presentation. Writing proposals and progress report. VI construction applied to marine engineering field. Voltage, current, power. Prerequisites: ENDG 105, MARE 100.

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. Prerequisites: 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. (2-3). Credit 3. Application of circuit analysis principles to DC and AC circuits having sources and passive inductors, resistors and capacitors; electrical instrumentation; power and voltage/current phase relationships in AC circuits; balanced three-phase AC power circuits; cable sizing. Prerequisites: MATH 151 and PHYS 208.
209. MECHANICS OF MATERIALS. (2-3). 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.
242. MANUFACTURING METHODS I. (0-3). Credit 1. Introduction to manufacturing methods used in marine industries emphasizing fabrication techniques including oxy-acetylene cutting and welding, brazing, arc welding, pipe welding and sheet metal fabrication. Laboratory exercises will develop the knowledge and skills needed to perform fabrication operations, routine maintenance and emergency repairs of marine engineering structures and systems.
243. MANUFACTURING METHODS II. (1-3). Credit 2. Continued introduction to manufacturing methods used in marine industries including machine, foundry and forge work and other manufacturing technologies. Laboratory emphasizes machine shop practices including safety, use and care of machine and hand tools; measuring instruments, layout, gauging, cutting speeds and feeds, drilling, tapping, threading, turning and milling. Prerequisite: Approval of Instructor.
261. ENGINEERING ANALYSIS. (3-0). Credit 3. Review of mathematical concepts previously studied (e.g., complex quantities, vectors and calculus), coupled with study of advanced concepts (e.g., differential equations, Laplace Transforms, statistics and numerical methods) with a view to emphasize applications in nuclear engineering, electrical engineering, thermodynamics, heat transfer and turbine theory. Prerequisite: MATH 152 or 161.
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 152 and PHYS 218; PHYS 208 or concurrent registration.
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. Prerequisite: Junior or senior classification or approval of instructor.
303. MARINE THERMODYNAMICS. (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. Prerequisites: MATH 161. Junior or senior classification or approval of instructor.
304. MARINE THERMODYNAMICS AND 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. Prerequisites: MASE 303. Junior or senior classification or approval of instructor.
305. FLUID MECHANICS THEORY. (3-3). 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. Prerequisite: Junior or senior classification or approval of instructor.
306. ELECTRICAL POWER II. (2-3). Credit 3. Electrical power generation and distribution; AC and DC rotating machinery; transformers; controllers and safety devices; operation, maintenance and repair procedures and practices; static converters AC/DC and DC/AC that are used in modern electric propulsion systems. Prerequisite: MARE 207.
307. MARINE ELECTRONICS. (2-3). 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 analog integrated circuits. Application in automation, motor controllers, battery-charging systems, communications; and propulsion plant monitoring systems. Prerequisite: MARE 207.
309. MARINE CONSTRUCTION MATERIALS. (2-3). Credit 3. Introduction to materials science and engineering, structural, property relationships; advanced manufacturing techniques from the point of view of marine applications such as subsea pipelines, ship hulls, etc.; corrosion and biofouling. Laboratory includes experimental testing of materials properties, materials syntheses and heat treatment techniques. Prerequisite: MARE 209.
311. STEAM PROPULSION PLANTS. (2-3). 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/reduc-

tion gear lubrication. Laboratory includes computer-aided heat balance and parametric analysis of plant performance. Prerequisites: MARE 303. Sophomore, junior or senior classification or approval of instructor.

312. DIESEL PROPULSION PLANTS. (2-3). 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. Prerequisites: MARE 305, 313. Junior or senior classification or approval of instructor.

313. HEAT TRANSFER. (2-3). Credit 3. Introduction to heat transfer; basic heat transfer modes and different solution techniques; introduction to 1-D and 2-D heat conduction in transient and steady state conditions; fundamentals of convection heat transfer under different flow conditions; forced convection in internal and external flows; analysis and selection of heat exchangers; introduction to thermal radiation heat transfer. Prerequisites: MARE 261 and MARE 305 or concurrent enrollment.

395. ELECTROMECHANICAL SYSTEMS FOR TECHNOLOGISTS. (3-0). Credit 3. Practical solutions of physical models of electro-mechanical 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 152, PHYS 218, 219 or 208. Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

401. MARINE AUXILIARY SYSTEMS. (2-3). 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 305, 313. Junior or senior classification or approval of instructor.

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. Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

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. Prerequisites: MARE 313. Junior or senior classification or approval of instructor.

405. FUNDAMENTALS OF NAVAL ARCHITECTURE. (2-3). Credit 3. Ship geometry and arrangement; ship-form calculations; intact and damaged stability; ships' structure; fundamentals of resistance and propulsion; ship motion, maneuverability, and control; introduction to ship design, construction, and overhaul. Prerequisites: Junior or senior classification or approval of instructor.

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. Junior or senior classification or approval of instructor.

441. ENGINEERING ECONOMICS AND PROJECT MANAGEMENT. (3-0). Credit 3. Analysis of engineering economics and management, using costs and benefits of various engineering options. Topics include time value of money, cash flows, analysis techniques, interests rates, inflation, depreciation, optimization, statistics, network analysis and critical path programming. Prerequisite: Junior or senior classification or advisor approval.

451. SENIOR DESIGN PROJECT I. (1-3). Credit 2. Introduction to design, modeling, testing and validation processes. Design of equipment, components or systems for marine and related power generation applications. Complete design process including: definition of the problem, research for existing designs and related technologies, conceptualization and evaluation of alternatives, development of preliminary design, refining and generation of final design and documents. Prerequisites: Senior classification and approval of instructor.

452. SENIOR DESIGN PROJECT II. (1-3). Credit 2. This course is a continuation of MARE 451. Development of theoretical, computational or experimental models using the design developed in MARE 451. Formulation, construction and/or fabrication work. Refining, experimenting and testing of models considering alternatives. Analyzing results and preparing and submitting design documents including a project report. Prerequisite: MARE 451.

484. UNDERGRADUATE INTERNSHIP. Credit 1-6. Supervised study with an approved power generator, either electrical, mechanical, or thermal power. Alternatively, studies can be with a research, manufacturing or repair facility whose primary mission is to support power generation. Prerequisites: 2.5 GPR and completion of 300 level courses.

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. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

489. SPECIAL TOPICS. Credit 1-4 each semester. Selected topics in an identified area of marine engineering technology. May be repeated for credit. Prerequisites: Junior or senior classification or approval of instructor.

491. RESEARCH IN MARINE ENGINEERING TECHNOLOGY. Credit 1 to 4. Research conducted under the direction of faculty member in Marine Engineering Technology. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and 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.
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.
250. COMPUTER APPLICATIONS. (2-2). Credit 3. Introduction to microcomputer business and data applications. Fundamental concepts of information technology and algorithm development. Use of integrated word processing, 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.
281. SOPHOMORE SEMINAR IN MARINE SCIENCES. (1-0). Credit 1. Compilation and discussions of literature pertaining to topics in marine sciences. Emphasis placed upon preparation and presentation of a written report. Prerequisite: Sophomore standing or approval of instructor.
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.
303. INTRODUCTION TO COMPUTING AND DATA DISPLAY. (2-2). Credit 3. The purpose of this course is to introduce the student to the elements of computer programming and data display primarily through the MATLAB computing environment. Students will also be exposed to the FORTRAN programming language and the UNIX operating system. Prerequisite: Junior or senior classification or 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. Prerequisites: GEOL 104. Junior or senior classification or approval of instructor.
306. COASTAL SEDIMENTARY GEOLOGY. (3-3). Credit 4. A survey of modern coastal sedimentary systems, including principles of sedimentology and sediment analysis. The laboratory includes a large group field projects. Local field trips required. Prerequisites: GEOL 104. Junior or senior classification or approval of 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 or senior classification or approval of instructor.
325. INTRODUCTION TO GIS FOR MARINE SCIENCES. (2-2). Credit 3. Geographic Information Systems (GIS) are introduced for marine sciences and management. Basic use of software including creation of GIS models is covered. Creating, editing and querying GIS shape files is treated utilizing one of the standard GIS software packages such as ArcGis. Prerequisite: Junior or senior classification or approval of instructor.
330. PETROLEUM GEOLOGY. (3-0). Credit 3. Origin, migration and accumulation of petroleum. Reservoir rock, traps, accumulation and conditions, and subsurface methods. Prerequisites: GEOL 104. Junior or senior classification or approval of 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 or senior classification or approval of instructor.
350. ADVANCED COMPUTER APPLICATIONS. (1-2). Credit 2. Data manipulation, merging, selection, filtering and querying in Microsoft Office primarily using large real data sets. Introduction to GIS, MatLab and other software relevant to science and/or business applications. Discussion of algorithm development in structured and object oriented programming languages.
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 112, CHEM 228. Junior or senior classification or approval of instructor.
361. MARINE BIOCHEMISTRY LABORATORY. (0-3). Credit 1. Selected methods used to characterize, purify, identify and isolate biomolecules. The laboratory is designed to complement the MARS 360 lecture. Prerequisite: MARS 360 or concurrent enrollment.
362. BIOCHEMICAL ADAPTATIONS. (1-0). Credit 1. A seminar on biochemical adaptations and contemporary biochemical methodology emphasizing marine life; an examination of how marine organisms, based on a common set of biochemical structures and processes and subject to a common set of physical-chemical laws, adapt to marine environmental conditions. Prerequisite: MARS 360 or concurrent enrollment.
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. Cross-listed with GEOG 370.
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 or senior classification or approval of 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 or senior classification or approval of 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 or senior classification or approval of 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. Prerequisites: CHEM 101. Junior or senior classification or approval of 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 or senior classification or approval of instructor.
412. REMOTE FIELD INVESTIGATIONS IN MARINE SCIENCES. (6-0). Credit 6. An overview of marine sciences in remote locations varying by instructor and selected topics; lectures on recent scientific papers, methods and concepts related to field area; individual projects; data collection; data analysis and presentation. Prerequisite: Junior or senior classification or approval of 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 112. Junior or senior classification or approval of instructor.
425. COASTAL WETLANDS MANAGEMENT. ((3-0). Credit 3. Wetlands management laws, regulations, wetland delineation and applications of Geographic Information System (GIS) to wetlands management. Biological species in wetlands delineation. Basic biogeochemical cycles and interactions in wetlands. Prerequisites: BIOL 112, GEOL 104 and concurrent enrollment in MARS 426 or approval of instructor.
426. COASTAL WETLANDS DELINEATION LABORATORY. (0-3). Credit 1. Coastal wetlands delineation, including mapping techniques, Geographic Information System (GIS) and theodolite. Biological species and biogeochemical factors in wetlands delineation. Prerequisites: BIOL 112, GEOL 104 and concurrent registration in MARS 425 or approval of instructor.
430. GEOLOGICAL OCEANOGRAPHY - PLATE TECTONICS. (3-0). Credit 3. Understanding the complex interactions of the earth system and the critical role that geological oceanography plays in these interactions, specifically the plate tectonic aspects of geological oceanography. Prerequisites: GEOL 104. Junior or senior classification or approval of instructor.
431. GEOLOGICAL OCEANOGRAPHY - EARTH'S CLIMATE. (3-0). Credit 3. Understanding the complex interactions of the earth system and the critical role that geological oceanography plays in these interactions, specifically the paleoceanographic/climate change aspects of geological oceanography. Prerequisites: GEOL 104. Junior or senior classification or approval of instructor.
432. PEAK OIL, GLOBAL WARMING AND RESOURCE SCARCITY. (3-0). Credit 3. The concept of peak oil, resource depletion, and human-induced climate change and the broad consequences for food and water supplies, mortality rates, conflict, migration, and political stability; scientific/social/political debates surrounding these issues, and the individual/local/national/global options for living in a globally-warmed world with declining natural resources. Prerequisites: Any two from GEOL 104, OCNG 251, MARS 280 or approval of instructor. Junior or senior classification.
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. Junior or senior classification 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. Prerequisites: CHEM 102. Junior or senior classification or approval of instructor.
450. PRINCIPLES OF MARINE INSTRUMENTAL ANALYSIS. (2-3). Credit 3. Fundamental principles and practical applications for state-of-the-art analytical instrumentation applied to marine and environmental science. Topics include atomic and molecular spectroscopy, gas and liquid chromatography, radiochemistry, x-ray spectroscopy, mass spectrometry and field instrumentation. Students work with instruments and make presentation on them to the class. Prerequisites: CHEM 102 and 228, PHYS 202, MATH 131 or 151. Junior or senior classification or approval of instructor.
460. MODERN OCEANOGRAPHIC METHODS. (3-6). Credit 5. This course will provide students with hands-on experience with modern oceanographic observational tools and data analysis techniques. Focus is on the four major oceanographic disciplines, i.e. geology, chemistry, physics and biology. Students will receive the necessary theoretical background, collect and analyze their own data and learn how to prepare scientific reports summarizing their work. Prerequisite: Junior or senior classification or approval of instructor.
470. ECO-ENVIRONMENTAL MODELING. (3-0). Credit 3. Biological components are in chemical and physical environments which are influenced by the bio-system and flows of energy, water and chemical species. Coupling to the complex atmospheric, aquatic and terrestrial systems is important. Modeling entails mathematical tools and the underlying science, focusing on scientific models, from the simplest to the elaborate. Prerequisites: CHEM 102, BIOL 112 and MATH 151 or approval of 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 or senior classification or approval of 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 or senior classification or approval of instructor. 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 or senior classification or approval of instructor. Approval of department head.
488. WRITING INTENSIVE DIRECTED STUDIES IN MARINE SCIENCES. Credit 1 to 6. A writing-intensive course leading to the equivalent of a mini thesis in an area of interest to the faculty and student; introduces students to the rigors of writing for publication in professional journals in their major. Prerequisite: Junior or senior classification.
489. SPECIAL TOPICS IN MARINE SCIENCES. Credit 1-4. Study of selected topics in an identified area of marine sciences. Prerequisite: Junior or senior classification or approval of instructor.

491. RESEARCH IN MARINE SCIENCES. Credit 1 to 4. Research conducted under the direction of faculty member in Marine Sciences. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

601. TEACHING ENVIRONMENTAL SCIENCES. (2-4). Credit 3. This course will concentrate on the basic principles of environmental education using a hands-on approach to learn environmental principles and how to teach them. This course will have a special emphasis on coastal issues. Prerequisite: Graduate status or approval of instructor.

602. ENVIRONMENTAL ECONOMICS AND OCEANOGRAPHY. (3-0). Credit 3. An introductory fundamentals course for Marine Resources Management students; primary concepts of economics and oceanography with emphasis on their applications to physical and living resources. Writing assignments and case studies. Prerequisite: Graduate status or approval of instructor.

610. ENVIRONMENTAL LAW. (3-0) Credit 3. This course is designed to provide a broad overview of basic environmental laws including statutes, regulations, and cases. It also focuses on the both economic and ethical issues within the context of environmental law and policy. Prerequisite: Approval of instructor; graduate status or special approval.

615. PHYSICAL AND GEOCHEMICAL MARINE RESOURCES. (3-0). Credit 3. Location, identification, extraction and exploitation of non-fisheries marine resources, including: water, salt, hydrocarbons, minerals, energy from the thermal, wave, tidal, current and wind fields, chemical compounds, pharmaceuticals, and construction materials in estuarine, coastal and open ocean areas. Prerequisites: CHEM 102, GEOL 104, OCNG 251 or equivalent. Graduate status or approval of instructor.

620. INTERNATIONAL ENVIRONMENTAL BUSINESS TRANSACTIONS. (3-0) Credit 3. This course is designed to provide an overview of those laws, regulations, and regimes involved in international environmental business transactions; and to identify those environmental regimes which are triggered when business is conducted internationally. The course includes topics in international law, regional law, and U.S. federal law. Prerequisite: Approval of instructor; graduate status or special approval.

625. GIS USE IN COASTAL RESOURCES. (1-3). Credit 2. Basic concepts of design, planning, and implementation of Geographical Information Systems; computer hardware and software evaluation; practical experience in data entry, analysis and update of spatial and characteristic data; use of maps and remotely sensed data as data. Prerequisite: Any computer science course or equivalent; graduate status or special approval.

635. ENVIRONMENTAL IMPACT STATEMENTS AND NATURAL RESOURCE DAMAGE ASSESSMENT. (3-0). Credit 3. The course presents an overview of: a) environmental impact statements (EIS) under the National Environmental Policy Act (NEPA); and b) natural resource damage assessment (NRDA) under the Oil Pollution Act of 1990 (OPA 90) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). It is designed to cover requirements for a wide variety of EISs. NRDA hypothetical cases will be presented in which students are asked to calculate assessments. Prerequisite: Approval of instructor; graduate status or special approval.

638. AVIAN DIVERSITY AND HABITATS AS COASTAL RESOURCES. (2-3). Credit 3. The lecture and readings will emphasize field identification, habitat requirements for native and migrant species and birds as bioindicators of habitat health and environmental stress. We will apply the study of bird diversity to environmental monitoring of coastal ecosystems and migrant stopover habitats. Labs will be conducted primarily in the field. Prerequisites: BIOL 112, MARM 315 or WFSC 302 or ZOOL 318 or approval of instructor; graduate status.

640. ENVIRONMENTAL ADMINISTRATIVE LAW. (3-0) Credit 3. Environmental law is governed, in large part, by administrative law. This course covers the processes involved in administrative environmental law. The primary focus of this course will be on: the Environmental Protection Agency, the U.S. Coast Guard, the Corps of Engineer; and NOAA. A review of international administrative bodies will also be included. Prerequisites: Approval of instructor; graduate status or special approval.

645. WILDLIFE LAW AND ETHICS. (3-0) Credit 3. This course provides an overview of the basic wildlife laws including international regimes, bilateral and multilateral treaties, conventions, and cases dealing with conservation, preservation, and management of non-Homo sapien species; federal law, regulations, and cases; and a sampling of state law. It also focuses on the ethical issues of species management. Prerequisites: Approval of instructor; graduate status or special approval.

648. INVASIVE SPECIES. (3-0). Credit 3. The science and management of biological invasions, history and success rates including vectors and theories with positive and negative biological, ecological, economical and societal impacts. Invasive species as threats to natural areas and communities. Management theories and regulatory strategies and their effectiveness. Emphasis on marine invasive species. Prerequisite: Graduate status.

650. GEOCHEMICAL MARINE RESOURCES MANAGEMENT. (3-0) Credit 3. The purpose of this course is to provide an overview of the issues involved in geochemical marine resources management. This course explores the management of exploration, production, and protection of the geochemical marine resources of the earth and the interface of the many players. Prerequisites: Approval of instructor; graduate status or special approval.

652. SUSTAINABLE MANAGEMENT OF COASTAL MARGINS. (3-0). Credit 3. The class will study federal, state, and local laws, regulations, ordinances and programs pertaining to management of coastal margins, visit the Texas General Land Office, attend meetings of the Coastal Coordinating Council, the Texas Legislature when a coastal-related bill is being debated, or attend the Galveston County Commissioner's Court or Galveston City Council when a coastal ordinance is being considered. Prerequisite: Approval of Instructor.

655. WETLANDS MANAGEMENT. (3-3). Credit 4. This course surveys the interrelationship of chemistry, physics, geology and biology of coastal wetland systems and explores and defines the context of wetlands sustainability and management. Field exercises are an integral component providing students "hands on" experiences. Guest lectures, seminars and field trips lead by agency personnel who are experts in these fields of research are included. Prerequisite: Background in chemistry, physics, geology and biology.

660. ENVIRONMENTAL ALTERNATIVE DISPUTE RESOLUTION. (3-0) Credit 3. Because environmental issues and law were born and raised in the arena of adversarial combat, the traditional adversarial litigative process is far from ideal. This course first explores the traditional method of settling disputes: the court system. It then reviews the increasingly visible dispute resolution alternatives. Finally, it provides certification in mediation. Prerequisites: Approval of instructor; graduate status or special approval.

670. ECO-ENVIRONMENTAL MODELING. (3-0). Credit 3. Biological organisms are surrounded by chemical and physical environments which are influenced by the bio-system and flows of energy, water, and chemical species. Coupling to atmospheric, aquatic, and terrestrial systems is important. Modeling entails both mathematical tools and the underlying science. This course focuses on scientific models, from the simplest to more elaborate. Prerequisites: BIOL 111, 112; CHEM. 101, 102; MATH 151, and 161 or 166; graduate status or special approval.

675. ENVIRONMENTAL MANAGEMENT STRATEGIES FOR SCIENTISTS. (2-0). Credit 2. The course is designed to provide a scientist with EMS strategies' skills. This includes knowing: what environmental laws may be triggered by activities; the fundamental structure of an EMS; EMS alternatives; concepts in an audit; Alternative Dispute Resolution; and how an effective EMS can reduce costs and increase profits. Prerequisite: Approval of instructor; graduate status or special approval.

676. ENVIRONMENTAL POLICY. (3-0). Credit 3. This course will provide a general introduction to the basic concepts and mechanisms of international and U.S. federal environmental law and policy. It will survey the field and its development as well as focus on case studies that illustrate the basic types of environmental problems. Prerequisites: Approval of instructor; graduate status or special approval.

680. INTEGRATIVE ANALYSES IN MARINE RESOURCES. (2-0). Credit 2. Review of public policy change mechanisms in marine resources management, including Congressional testimony, agency recommendations and structure, and NGO reports. Students propose and defend a public policy change with detailed documentation and an oral presentation demonstrating a professional understanding of marine resources issues within the context of current law. Prerequisites: 24 hours of MARM course credits completed, or in concurrent enrollment, approval of instructor.

681. SEMINAR. (1-0). Credit 1. Presentation of recent research by students, faculty and visiting faculty. Prerequisite: None.

683. Field Practicum in Marine Sciences (4-4) Credit 1-4. An overview of marine sciences in remote locations varying by instructor and selected topics. Lectures on recent scientific papers, methods, and concepts related to field area. Individual projects and data collection including data analysis and presentation of results in a formal seminar and paper based on the research and findings. Prerequisite: Enrollment in graduate program.

684. INTERNSHIP IN MARINE RESOURCES MANAGEMENT. Credit 1-9. This is a faculty supervised study with an agency or other position within or outside the Texas A&M University System. Student involvement consists of real-life learning of marine resources management issues. It is a full-immersion course that provides students with hands-on experience in marine resources management. Prerequisites: Approval of faculty sponsor; graduate status or special approval.

685. DIRECTED STUDIES. Credit 1-6. Selected Topics in an identified area of science, law policy or management of marine natural resources not covered in any other courses in the curriculum. Prerequisite: Approval of instructor.

689. SPECIAL TOPICS IN MARINE RESOURCES MANAGEMENT. Credit 1-4. Selected topics in an identified area of marine resources management. May be repeated for credit. Prerequisites: Approval of instructor; graduate status or special approval.

691. Research in Marine Sciences. Credit 1 or more each semester. For thesis or dissertation.

Marine Transportation (MART)

103. BASIC SAFETY AND LIFEBOATMAN TRAINING. (2-3). Credit 3. Introduction to the maritime industry, ship types, nomenclature, cargoes and recent trends in the maritime 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. Prerequisites: MART 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: MART 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: MART 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: MART 103 or concurrent registration.

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. Prerequisites: Algebra and trigonometry recommended.

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.

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. Prerequisites: MART 200, 301, 303, METR 302, or permission of MART department head. Junior or senior classification or approval of instructor.

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. Prerequisites: MART 203 or concurrent registration or approval of instructor.

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: Junior or Senior classification. MART 200, 204 or permission of MART department head.

304. ELECTRONIC NAVIGATION. (1-3). Credit 2. 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. Prerequisites: MART 303 or approval of instructor.

305. SHIP CONSTRUCTION AND STABILITY. (2-3). Credit 3. Shipbuilding nomenclature, dimensions, construction and classification. Classification societies, shipbuilding materials and methods, structural components. Ship's line drawing and form calculations; principles

of flotation and buoyancy; inclining experiments; free surface; transverse stability; trim and longitudinal stability; motion of ship in waves, sea-ways and dynamic loads; ship's structure tests and propulsion. Prerequisites: Junior or Senior classification. MART 103, PHYS 201 or 218 or approval of instructor.

306. RADAR/ARPA/ECDIS. (3-3). Credit 4. Introduction to the theory, operation and interpretation of marine radar and automatic radar plotting aids (ARPA) and Electronic Chart Display Systems (ECDIS). Student examined for U.S. Coast Guard Certification as "RADAR Observer" and for Standards of Training, Certification and Watchkeeping (STCW) Radar and ARPA endorsements. Minimum grade of 70% required for USCG and STCW endorsements. Prerequisites: Junior or Senior classification. MART 200, PHYS 202 or 208 or approval of instructor.

307. GLOBAL MARITIME DISTRESS SAFETY SYSTEM. (2-3). Credit 3. Requirements, regulations, equipment, principles and hands-on operating procedures of each Global Maritime Distress Safety System subsystem, including: SARTS, EPIRBs NAVTEX, INMARSAT, SAFETYNET, VHF Survival Craft Transceivers, DSC, and HF Radiotelephone. USCG and FCC certification as GMDSS Operator and Maintainer. Minimum passing grade 75%. Prerequisites: Junior or Senior classification. MART 300, PHYS 202 or 208 or approval of instructor.

309. ADVANCED TOPICS IN SHIPBOARD OPERATIONS. (2-0). Credit 2. Advanced concepts and techniques related to navigation and cargo watch responsibilities on container, dry and liquid bulk and gas tank vessels, focusing on professional licensing. Prerequisites: Junior or Senior classification. MART 300.

312. 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. Cargo loss prevention, safety and related documentation, log book entries, modern cargo concepts-containerization, roll-on roll-off, and others. Maximum cargo efficiency with relation to space, cargo gear, crew and labor costs. Prerequisites: Junior or Senior classification. MART 200, 301 or concurrent registration or approval of instructor.

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. Prerequisites: MART 200. Junior or senior classification.

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: Junior or Senior classification. MART 300, 321, 406 or permission of MART department head.

404. THE NAVIGATOR. (1-3). Credit 2. 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: Junior or Senior classification. MART 400, or approval of instructor.

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: Junior or Senior classification. MART 312, 400 or approval of instructor.

407. LIQUEFIED GAS TANKERS. (2-3). Credit 3. Preparation as cargo officer for loading, discharging and transit of liquefied gas cargoes. Emphasis on physical and chemical properties, operations, safety, firefighting and pollution prevention. Prerequisites: Junior or Senior classification. MART 300, 406, PHYS 201.

410. BRIDGE WATCHSTANDING. (1-3). Credit 2. Bridge Watchstanding. Integration of navigation, communications and seamanship in Bridge Resource Management (BRM) training required under the International Convention on the Standards for Training and Certification of Watchkeepers, using simulator-based teaching techniques. Prerequisites: MART 304, 306, 321, 400. Junior or senior classification or approval of instructor.

422. 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. Prerequisites: Junior or Senior classification. MART 301 or concurrent registration or approval of instructor.

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 1-4. Study of selected topics in an identified area of marine transportation or nautical science. Prerequisites: Approval of MART department head. Junior or senior classification or approval of instructor.

491. RESEARCH IN MARINE TRANSPORTATION. Credit 1 to 4. Research conducted under the direction of faculty member in Marine Transportation. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

Maritime Administration (MARA)

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.

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.

250. MANAGEMENT INFORMATION SYSTEMS. (2-0). Credit 2. Introduction to the concepts and applications of management information systems, including information technology concepts, computer hardware, common business software, software selection and development, management information systems (MIS), decision support systems (DSS), and working in a digital world.

281. SEMINAR IN UNDERGRADUATE RESEARCH METHODS. (1-0). Credit 1. An introduction to necessary undergraduate research methods in economics and business, to prepare students for investigative writing requirements in upper division courses in maritime business administration. Prerequisite: Sophomore standing.

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. Prerequisite: Approval of MARA department head.

301. OCEAN TRANSPORTATION I. (3-0). Credit 3. 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, ECON 202 or ECON 203. MARA students - MARA 205, ECON 202 or ECON 203.

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 officers' and insurers' points of view. Introduction to Admiralty Law and the court process for seamen's rights and ship owners' privileges. Actual hearings and trials are observed to complete the background. Prerequisite for MART and MARA students: MARA 301.

342. MANAGERIAL MARITIME FINANCE. (3-0). Credit 3. Continuation of topics introduced in Business Finance (FINC 341) including risk and return, investment valuation, the selection of risky investment projects, capital structure, dividend policy, and methods of raising long-term capital; applications to the maritime industry are made where appropriate. Prerequisite: FINC 341.

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 or senior 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. Prerequisite: MARA 363.

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: MARA 205, MARA 301. Senior classification.

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. Senior classification.

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. Prerequisites: MARA 301. Junior or senior classification.

421. ADMIRALTY LAW. (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: MARA 301, MARA 304.

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. Prerequisites: ECON 203 and senior classification.

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. Prerequisites: MARA 363. Senior classification.

440. Global Economy and Enterprise Management. (3-0). Credit 3. Introduction to the economic, political, social and ethical environments of international business including the determinants of trade and investment patterns and the logic of government interventions in both trade and capital markets; also discussed are the structure, strategy and operations of the international firm. Prerequisites: ECON 203. Junior or senior classification.

450. Maritime Supply Chain Management. (3-0). Credit 3. Introduction to the concepts involved in supply chain management (SCM); SCM encompasses the functional areas of procurement, operations management, inbound/outbound transportation, customer service, and information technologies; emphasizes how these functional areas are integrated to achieve the firm's overall objectives. Prerequisites: INFO 303 and INFO 364.

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: INFO 364, MARA 363. Junior classification.

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, INFO 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: MARA 212, MARA 421. Senior classification.

484. MANAGEMENT INTERNSHIP. Credit 3-4. Internship in management; staffing, planning, organizing, leading and controlling. Enrollment is limited to those who have managerial responsibilities for the resources used by a business, non-profit, or other organization. Prerequisites: ACCT 229, ACCT 230, FINC 341, MKTG 321, MARA 363. Approval of department head.

485. DIRECTED STUDIES. Credit 1-4. Directed study on selected problems in the area of maritime administration not covered in other courses. Prerequisites: Cumulative GPA of 2.5 or higher. Approval of instructor and MARA department head.

489. SPECIAL TOPICS. Credit 1-3. Study of selected topics in an identified area of maritime administration. Prerequisite: Approval of instructor.

491. RESEARCH IN MARITIME ADMINISTRATION. Credit 1 to 4. Research conducted under the direction of faculty member in Maritime Administration. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

604. MARINE NATURAL RESOURCE ECONOMICS. (3-0) Credit 3. Critical evaluation of policies and procedures in the development and use of natural resources relevant to marine and maritime markets; identification of problems in resource exploration, development, and transportation; the political /economic decision-making processes; analytical tools used to make economic decisions in resource markets. Prerequisite: Graduate status or special approval.

610. INTERNATIONAL STRATEGIC PLANNING AND IMPLEMENTATION (3-0) Credit 3. An introduction to the strategic management process, with an emphasis on the maritime industry in the domestic and international context. The formulation of strategy in the context of environmental opportunities and threats, how to analyze industry competition, and how to implement strategies and build competitive advantage. Students will select a company engaged in domestic or international waterborne commerce and analyze the strategic planning processes of the firm using the standard techniques such as SWOT analysis, the Five Forces model and the Value Chain analysis. Prerequisite: Approval of instructor, graduate status or special approval.

616. MANAGEMENT OF PORT FACILITIES AND INFRASTRUCTURE (3-0) CREDIT 3. Problems associated with the management of buildings, piers, bulkheads and associated structures and connecting waterways focusing on corrosion, adverse affects of climate, tide and current affects, dredging cycles and related facilities access issues associated with structures in the coastal zone. Particular attention is paid to the requirements of state and federal agencies regarding equipment and facilities used in the safe loading, discharge, and storage of cargoes, including hazardous materials. Prerequisite: Approval of instructor, graduate status or special approval.

623. ECONOMIC ISSUES IN SHIPPING (3-0) Credit 3. The role of domestic and international shipping in the American economy; discussion of the economic characteristics of waterborne transportation, including the nature of transport demand and cost functions; economic dimension of transport service; transport market structures; and transport pricing theory and practice. Emphasis on managerial implications of transport economic principles for domestic and international shipping. Prerequisite: Approval of instructor, graduate status or special approval.

624. INTERMODAL TRANSPORTATION OPERATIONS (3-0) Credit 3. Survey of economic and operational characteristics of intermodal transportation. rail, trucking, air, shipping, and pipelines. Emphasis on the interface of surface transportation with the maritime industry; pricing strategies, cost structures, and regulatory issues. Prerequisite: Approval of instructor, graduate status or special approval.

627. MARKETING OF TRANSPORTATION SERVICES (3-0) Credit 3. Marketing planning and analysis applicable to the service firm; assessment of customer needs; quality control; competitive strategies; applications of marketing principles and practices to the maritime industry. Prerequisite: Approval of instructor, graduate status or special approval.

636. MANAGERIAL DECISION MAKING (3-0) Credit 3. Construction of mathematical models of business environments; linear programming techniques; planning, analysis and control of operations in complex organizations through mathematical techniques. Prerequisite: Approval of instructor, graduate status or special approval.

640. GLOBAL LOGISTICS (3-0) Credit 3. Transportation and logistic activities of multinational firms with an emphasis on transportation, customer service, inventory control facility location, global sourcing, customs documentation, and the role of government in importing and exporting. Attention is given to current events and their effects on the marketing and logistics activities of U.S. based organizations. Prerequisite: Approval of instructor, graduate status or special approval.

641. FINANCIAL MANAGEMENT IN MARINE TRANSPORTATION (3-0) Credit 3. Management of the corporation's sources and uses of funds with emphasis on risk and return, investment valuation, the selection of risky investment projects, capital structure, dividend policy, and methods of raising long-term capital; applications to the maritime industry are made where appropriate. Prerequisite: Approval of instructor, graduate status or special approval.

650. DISTRIBUTION LOGISTICS (3-0) Credit 3. Distribution logistics and the basic management of businesses; systems engineering techniques used to optimize profit and quality customer service; transportation modes, intermodal connections, inventory policies, warehousing, order processing, network design and facility management. Prerequisite: Approval of instructor, graduate status or special approval.

652. MARINE TRANSPORTATION SYSTEM DESIGN AND POLICY (3-0) Credit 3. Course Description: Interaction between shipping policy and design of marine transportation and port systems; effects of market structure on economics and finance; port performance and performance Measures. Prerequisite: Approval of instructor, graduate status or special approval.

658. PORT DESIGN, PLANNING AND SECURITY (3-0) Credit 3. Ground-level issues, tasks, and responsibilities that must be managed by the security manager in concert with the port director and federal and local law enforcement agencies; multiuse port facilities for recreation, hospitality, and external business and commercial interests; design of marine structures for the berthing, mooring, and repair of vessels. Prerequisite: Approval of instructor, graduate status or special approval.

660. RISK ASSESSMENT AND MARINE INSURANCE (3-0) Credit 3. Theory, techniques, participants and background of risk assessment and management with emphasis given to contemporary issues in marine insurance law; marine liability overage, cause of loss, additional perils, exclusions, warranties, duration of risk, adjustment clauses, operating clauses, civil commotions, war insurance, and project risk management techniques. Prerequisite: Approval of instructor, graduate status or special approval.

664. PRODUCTION, OPERATIONS AND LOGISTICS MANAGEMENT (3-0) Credit 3. Types of decisions to be made at varying levels and where appropriate; quantitative models and techniques that can be used in decision making areas of the firm; analysis of how the operations function fits in with other functional areas of the firm; interrelationships with firms' strategies. Prerequisite: Approval of instructor, graduate status or special approval.

670. COASTAL AND INLAND WATERWAYS TRANSPORTATION (3-0) Credit 3. Policy, strategy and management, port and terminal development, competition with other modes of transportation, manpower, rates, environmental concerns, the impact of waterway systems on regional economies and national economic development; commercial aspects of the inland waterways with emphasis on operations, freight rate structures and applied cash flow methods. Prerequisite: Approval of instructor, graduate status or special approval.

672. THE MARITIME GLOBAL TRADING SYSTEM (3-0) Credit 3. Introduction to the theory of international waterborne trade; provides a basis for examining American foreign trade policy, and regional and world trade institutions such as the WTO, ASEAN, the EU, GATT, and NAFTA. Topics include: International trade theory and policy, open-economy macroeconomic policy, tariffs, non-tariff barriers and enhancements, multinational enterprises and foreign direct investment, global competition and integration. Prerequisite: Approval of instructor, graduate status or special approval.

689. SPECIAL TOPICS IN MARITIME ADMINISTRATION. (4-0). Credit 4. Selected topics in identified area of Maritime Administration. Prerequisites: Graduate classification and instructor permission.

691. RESEARCH IN MARITIME ADMINISTRATION (3-0) Credit 3. For thesis or dissertation. Prerequisite: Approval of instructor, graduate status or special approval.

Maritime Systems Engineering (MASE)

100. INTRODUCTION TO OFFSHORE AND COASTAL ENGINEERING. (2-0). Credit 2. Introduction to offshore and coastal engineering principles with emphasis on offshore structures, underwater pipelines, floating production systems, current advances in offshore technologies; coastal structures, coastal processes, port and harbor design, and advances in ocean/wind energy technologies. Prerequisite: MATH 151 or registration therein.

210. PROPERTIES OF ENGINEERING MATERIALS. (0-3). Credit 1. Atomic and crystalline structures of materials; mechanical properties, failure, corrosion and thermal processes of metallic materials; tensile, hardness, impact and torsion testing of metal alloys. Prerequisites: ENGR 212, 221 and PHYS 208.

212. ENGINEERING SCIENCE IN THERMODYNAMICS. (2-3). Credit 3. Theory and application of thermodynamics as an engineering science; applications of the laws of thermodynamics and energy equations to heat transfer and flow. Prerequisites: ENGR 221 and MATH 251 or concurrent enrollment.

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, microstructure, interface structure, and phase diagrams for materials; develop bulk properties and characteristics of metals, polymers, and ceramics; mechanical, electrical, magnetic, thermal, and optical properties for these materials. Prerequisites: ENGR 212, 221; PHYS 208; MATH 308 or concurrent registration.

214. MECHANICS OF DEFORMABLE BODIES. (3-0). Credit 3. Concepts of stress, strain and deformation. Factor of safety. Stress-strain relationships and material properties. Stress concentrations. Area moments of inertia. Axially loaded members, torsionally loaded members, bending of beams. Shear and moment diagrams. Stresses due to combined loading. Thin-walled pressure vessels. Transformation of stress including Mohr's circle. Beam deflections and buckling stability. Prerequisites: ENGR 221; MATH 308 or concurrent registration.

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 212, 221; PHYS 208, MATH 308 or concurrent registration.

216. PRINCIPLES OF THERMODYNAMICS. (2-0). Credit 2. Theory and application of thermodynamics as an engineering science; study of work, heat and energy as applied to open and closed systems; introduction to entropy, reversible and irreversible processes; intended as a terminal course in these areas for MASE students. Prerequisites: ENGR 221 and MATH 251 or registration therein.

217. ELECTRICAL ENGINEERING: CIRCUITS. (2-0). Credit 2. Fundamental principles of electric circuit analysis, DC and AC electricity, electric power; designed to prepare students for topical questions from the P.E. exam; intended as a terminal course in these areas for MASE students. Prerequisite: 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. HYDRODYNAMICS OF OFFSHORE STRUCTURES. (3-0). Credit 3. Introduction to offshore structures, wave force formulation; wave forces on small structures, floating structure dynamics, modeling dynamics systems of rigid body motion, structure response statistics. Prerequisites: CVEN 345; MASE 310; OCEN 300 or concurrent registration. Junior or senior classification or approval of instructor.

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 111, 112 and MATH 308. Junior or senior classification or approval of instructor.

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). Prerequisites: CVEN 311, 345; ENGR 221, MASE 214. Junior or senior classification or approval of instructor.

336. FLOW MEASUREMENT FUNDAMENTALS. (2-2). Credit 3. Introduction to fundamental principles of measuring fluctuating fluid velocities in open channels, simple pipe flow systems and surface waves. Laboratory includes experimental investigation of classic fluid dynamics and introduction to PIV systems. Prerequisites: PHYS 208, CVEN 311 or concurrent registration. Junior or senior classification or approval of instructor.

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.

400. INTRODUCTION TO COASTAL ENGINEERING. (3-0). Credit 3. Mechanics of shallow water wave motion; wave diffraction, refraction and reflection; wave forecasting; water level fluctuations; coastal processes and geomorphology; erosion control and shoreline stabilization; coastal structures; beach nourishment; dredging; introduction to physical and computer models and modeling techniques; design in coastal engineering. Prerequisites: OCEN 300; senior classification or approval of instructor.

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, MASE 336. Junior or senior classification or approval of instructor.

402. APPLIED UNDERWATER ACOUSTICS. (1-0). Credit 1. Theory and applications of underwater sound generation and propagation, SONAR equations, and acoustics transducers and arrays; application including design and prediction of SONAR systems, acoustical

oceanography measurements, positioning of offshore marine equipment and environmental impact issues. Prerequisites: CVEN 311, OCEN 300 or instructor approval.

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: CVEN 345, MASE 214, 310. Junior or senior classification or approval of instructor.

406. **CAPSTONE DESIGN I.** (1-0). Credit 1. Part one of a two-course sequence; development and presentation of detailed proposals for offshore or coastal engineering projects, which will form the basis for MASE 407 design projects; includes formulation of project objectives, design constraints, delineation of alternatives, scheduling and analysis of economic and environmental impact. Prerequisites: ENGL 301 or concurrent enrollment. Students must have successfully completed all required junior-level MASE courses and be in their final academic year prior to graduation.

407. **CAPSTONE DESIGN II.** (0-6). Credit 3. Design of a major engineered system based on a proposal developed in MASE 406 completed as a group project; realistic application of engineering skills and tools, experience managing a significant engineering-design effort. This is a writing-intensive course including a major report and weekly one-page written reports. Prerequisites: ENGL 301, MASE 406.

410. **MEASUREMENTS IN THE OCEAN LABORATORY.** (0-3). Credit 1. Fundamental techniques and instrumentation for field and laboratory measurements pertaining to coastal and ocean engineering (e.g., currents, wave height, wave/sediment interaction, mass transport, surveying, etc.); experiment planning; data analysis and presentation; written reports on methodology, analysis, and results of experiments. Prerequisites: OCEN 300, MASE 400. Junior or senior classification or approval of instructor.

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. Prerequisites: OCEN 300. Junior or senior classification or approval of instructor.

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. Prerequisites: MASE 301. Junior or senior classification or approval of instructor.

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. Junior or senior classification or approval of instructor.

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. Prerequisites: MASE 214, 221, 310. Junior or senior classification or approval of instructor.

461. **OCEAN INSTRUMENTATION AND CONTROL THEORY.** (3-0). Credit 3. Electrical systems components; analog and digital filters-amplifiers; network analysis; instrument behavior and displacement, velocity, acceleration, force, and flow measurements; simple feedback and control theory for linear electromechanical systems; digital data acquisition. Prerequisites: PHYS 208 and ENGR 215. Junior or senior classification or approval of instructor.

467. **OFFSHORE RANDOM PROCESSES.** (3-0). Credit 3. Basic probability theory and engineering statistics; irregular structural excitation and response; random vibration theory with application to offshore processes and structures; development of extreme values used in design of ocean structures. Prerequisites: MASE 301, 310 and 459; or approval of instructor.

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 or senior classification or approval of instructor.

483. **MARINE FOUNDATION ANALYSIS AND DESIGN.** (2-3). Credit 3. 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 345, 346, 365. Junior or senior classification or approval of instructor.

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. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

489. **SPECIAL TOPICS.** Credit (1-4). Selected topics in a identified area of maritime systems engineering. May be repeated for credit. Prerequisite: Junior or senior classification or approval of instructor.

491. **RESEARCH IN MARITIME SYSTEMS ENGINEERING.** Credit 1 to 4. Research conducted under the direction of faculty member in Maritime Systems Engineering. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

Maritime Studies (MAST)

110. **SCUBA I LECTURE.** (2-0). Credit 2. Scuba I is entry level SCUBA training course. Upon successful completion of this course and the corresponding laboratory class, the student will have the basic academic knowledge and skills development needed to safely conduct Scuba dives. The student will also have acquired the First Aid/CPR skills necessary to provide basic life support in the event of an emergency. Prerequisite: Must complete a medical statement showing no contraindications to diving, or have a recreational Scuba diver's physical examination.

120. **SCUBA II LECTURE.** (2-0). Credit 2. Scuba II is the second course in the hierarchy of scuba training. The lecture and laboratory course objectives are to promote safe, self-reliant diving and to improve the diver's comfort, coordination, and strength in the water; to increase the diver proficiency and confidence through introductory training in a variety of practical topics; to build competency in dive planning and organization; to understand basic diver stress management and recognition; to be trained in basic surface and underwater dive rescue and life-saving skills. Prerequisite: Must complete a medical statement showing no contraindications to diving, or have a recreational SCUBA diver's

physical examination; co-enrollment in KINE 199 (Scuba II Lab) and MAST 120 (Scuba II Lecture), NAUI Scuba Diver certification or equivalent.

265. ELISSA SAIL TRAINING I. (1-7). Credit 3. Fundamentals of seamanship on a late 19th century square-rigged sailing vessel. Students will learn to both sail and care for the 1877 barque ELISSA, operated by the Texas Seaport Museum. Lectures on maritime life supplement physical activity. Prerequisite: Department approval.

266. ELISSA SAIL TRAINING II. (1-7). Credit 3. Sailing and crewmanship on the 1877 barque ELISSA, operated by the Texas Seaport Museum. Includes sail training at sea. Prerequisite: MAST 265.

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.

320. INTRODUCTION TO MUSEUMS AND CONSERVATION. (2-3). Credit 3. Introduction to basic issues related to the conservation, curation, management and presentation of museum collections. Emphasis placed on archaeology and historical collections, or other collections with cultural significance. Basic conservation techniques for materials as well as proper care and store of collections. Museum planning and exhibit design will be discussed. Prerequisite: Junior or senior classification or approval of instructor.

345. TEXAS MARITIME CULTURE AND HISTORY. (3-0). Credit 3. The coastal peoples, maritime history and culture of the Texas Gulf Coast ranging from pre-historic times to the present day; geography's influence on exploration, resources utilization, development and inland access; Texas ports historic and modern; shipwreck sites and historical texts; La Salle's La Belle, Texas Navy, Mexican War logistics; Civil War Naval actions, Texas Fisheries, tourism and recreation. Prerequisite: Junior or senior classification.

350. A HISTORY OF WOODEN SHIP CONSTRUCTION. (3-0). Credit 3. This course is designed to give undergraduate students an overview of ship construction and possible cultural factors that may influence how a shipwright builds a vessel. Prerequisites: Junior or senior classification and ANTH 316 or ANTH 318.

371. ARCHAEOLOGY OF THE PACIFIC. (3-0). Credit 3. Overview of the archaeology, history and cultures of the Pacific Rim; emphasizing the cultures of Polynesia, Melanesia, and Micronesia. Prerequisite: Junior or senior classification or approval of instructor.

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. Prerequisites: ANTH 210 or GEOG 201. Senior classification or approval of instructor.

425. THESIS AND TECHNICAL WRITING. (3-0). Credit 3. Rhetorical techniques for professional expository prose; intertextual argumentation and analysis. Prerequisite: Junior classification.

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. Prerequisite: This one-credit hour course is open to senior maritime studies majors or approval of instructor.

484. UNDERGRADUATE INTERNSHIP. Credit 1-6. Supervised study in a research or teaching laboratory remote from TAMUG. Student involvement is to consist of real-life learning or research, teaching, management, or a combination of these. Prerequisite: Junior or senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit (1-6). Individually supervised research or advanced study on restricted area not covered in regular courses. Prerequisite: Junior or senior classification or approval of instructor.

489. SPECIAL TOPICS. Credit (1-4). Selected topics in a identified area of maritime studies. May be repeated for credit. Prerequisite: Junior or senior classification or approval of instructor.

491. RESEARCH IN MARITIME STUDIES. Credit 1 to 4. Research conducted under the direction of faculty member in Maritime Studies. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

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: Junior or senior classification.

Mathematics (MATH)

102. ALGEBRA. (3-0). Credit 3. (TCCNS MATH 1314). Sets, structure of number system. Absolute values, solution sets of equations of second and higher degree, systems of equations, and 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.

141. BUSINESS MATHEMATICS I. (3-0). Credit 3. (TCCNS MATH 1324). Linear equations and applications, systems of linear equations, matrix algebra and applications, linear programming (graphical and simplex methods), probability and applications, statistics. Prerequisites: High school algebra I and II and geometry or MATH 102. Credit will not be given for more than one of MATH 141 and 166.

142. BUSINESS MATHEMATICS II. (3-0). Credit 3. (TCCNS MATH 1325). Derivatives, curve sketching and optimization, techniques of derivatives, logarithms and exponential functions with applications, integrals, techniques and applications of integrals, multivariate calculus. Prerequisites: High school algebra I and II and geometry or satisfactory performance on a qualifying examination. Credit will not be given for more than one of MATH 131, 142, 151 and 171.

150. FUNCTIONS, TRIGONOMETRY, AND LINEAR SYSTEMS. (3-2). Credit 4. (TCCNS MATH 2412) I, II, S Graphs, functions, college algebra and trigonometry, linear systems and vectors. Prerequisite: MATH 102 or equivalent.

151. ENGINEERING MATHEMATICS I. (3-2). Credit 4. (TCCNS MATH 2413) I, II, S Rectangular coordinates, vectors, analytic geometry, functions, limits, derivatives of functions, applications, integration, computer algebra (Maple). Prerequisite: MATH 150 or equivalent. Credit will not be given for more than one of MATH 131, 142, 147, 151 and 171.

152. ENGINEERING MATHEMATICS II. (3-2). Credit 4. (TCCNS MATH 2414). Differentiation and integration techniques and their applications (area, volumes, work), improper integrals, approximate integration, analytic geometry, vectors, infinite series, power series, Taylor series, computer algebra (Maple). Prerequisite: MATH 151 or equivalent. Credit will not be given for more than one of MATH 152, 161 and 172.

161. ENGINEERING MATHEMATICS II. (3-0). Credit 3. Differentiation and integration techniques and their applications (area, volumes, work), improper integrals, approximate integration, analytic geometry, vectors, infinite series, power series, Taylor series. Prerequisite: MATH 151 or equivalent. Credit will not be given for more than one of MATH 152, 161 and 172.

166. TOPICS IN CONTEMPORARY MATHEMATICS II. (3-0). Credit 3. Finite mathematics, matrix theory, probability theory, game theory. Prerequisites: High school algebra I, algebra 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. Junior or senior classification or approval of instructor.

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. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

489. SPECIAL TOPICS. Credit (1-4). Selected topics in a identified area of mathematics. May be repeated for credit. Prerequisite: Junior or senior classification or approval of instructor.

Mechanical Engineering (MEEN)

363. DYNAMICS AND VIBRATION. (2-2). Credit 3. Application of Newtonian and energy methods to model dynamic systems (particles and rigid bodies) with ordinary differential equations; solutions of models using analytical and numerical approaches; interpreting solutions; linear vibrations. Prerequisites: ENGR 211, MATH 308. Junior or senior classification or approval of instructor.

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. Prerequisite: Junior or senior classification or approval of instructor.

Naval Science (NVSC)

101. INTRODUCTION TO NAVAL SCIENCE. (2-1). Credit 2. Seapower 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.

200. NAVAL SCIENCE FOR THE MERCHANT MARINE OFFICER. (3-0). Credit 3. Organization of the U.S. Navy (including the U.S. Navy 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. 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.

285. DIRECTED STUDIES. Credit 1-3. Directed study in problems in the field of naval science not covered by other courses in department. Prerequisites: 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/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. Prerequisites: NVSC 301. Junior or senior classification or approval of instructor.

401. 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 ordinance. Prerequisites: NVSC 102 or approval of department head. Junior or senior classification or approval of instructor.

402. LEADERSHIP AND ETHICS. (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. Prerequisites: NVSC 102 or approval of department head. Junior or senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit 1-3. Directed study in problems in the field of naval science not covered by other courses in department. Prerequisites: 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. Junior or senior classification or approval of instructor.

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. Off-shore pipelines. dredging. control of oil spills in estuaries and at sea. Prerequisites: CVEN 311; OCEN 300. Junior or senior classification or approval of instructor.

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. Junior or senior classification or approval of instructor.

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 concurrent registration.

285. DIRECTED STUDIES. Credit 1-4. 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: MATH 131 or equivalent and CHEM 101. Junior or senior classification or approval of instructor.

420. INTRODUCTION TO BIOLOGICAL OCEANOGRAPHY. (3-0). Credit 3. Biological aspects of the marine environment. Use of the sea and problems of productivity, pollution, fouling and boring organisms. Prerequisites: BIOL 112. Junior or senior classification or approval of instructor.

485. DIRECTED STUDIES. Credit 1-4. Individually supervised research or advanced study on restricted area not covered in regular courses. Prerequisite: Junior or senior classification or approval of instructor.

Ocean and Coastal Resources (OCRE)

491. RESEARCH IN OCEAN AND COASTAL RESOURCES. Credit 1 to 4. Research conducted under the direction of faculty member in Ocean and Coastal Resources. May be repeated 2 times for credit. Please see academic advisor in department. Registration in multiple sections of this course is possible within a given semester provided that the per semester credit hour limit is not exceeded. Prerequisites: Junior or senior classification and approval of instructor.

Philosophy (PHIL)

240. INTRODUCTION TO LOGIC. (3-0). Credit 3. (TCCNS PHIL 2303). 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.

381. ETHICAL THEORY. (3-0). Credit 3. Values and conduct such as moral relativism, self-interest, utilitarianism, rules, nature of valuation, ethical language and argumentation. Prerequisite: 3 hours of Philosophy other than PHIL 240.

Physics (PHYS)

201. COLLEGE PHYSICS. (3-3). Credit 4. (TCCNS PHYS 1401). Fundamentals of classical mechanics, heat, and sound. Prerequisite: MATH 103 or equivalent.

202. COLLEGE PHYSICS. (3-3). Credit 4. (TCCNS PHYS 1402). 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: PHYS 218; MATH 152 or 172 or registration therein.

218. MECHANICS. (3-3). Credit 4. (TCCNS PHYS 2545). Mechanics for students in science and engineering. Prerequisite: MATH 151 or concurrent registration.

219. ELECTRICITY. (3-3). Credit 4. Continuation of PHYS 218. (TCCNS PHYS 2426). Electricity, magnetism and introduction to optics. Prerequisites: 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. Prerequisites: Approval of department head. Junior or senior classification or approval of instructor.

Political Science (POLS)

206. AMERICAN NATIONAL GOVERNMENT. (3-0). Credit 3. (TCCNS GOVT 2305). Survey of American national government, politics, and constitutional development.

207. STATE AND LOCAL GOVERNMENT. (3-0). Credit 3. (TCCNS GOVT 2306). 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. Prerequisites: POLS 206 or approval of department head. Junior or senior classification or approval of instructor.

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. Prerequisites: POLS 206 or approval of department head. Junior or senior classification or approval of instructor.

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. Prerequisites: POLS 206 or approval of department head. Junior or senior classification or approval of instructor.

366. POLITICAL CONFLICTS OF THE MIDDLE EAST. (3-0). Credit 3. This course seeks to provide students with an understanding of the internal, regional and international politics of the Middle East; with a focus on selected political conflicts and the influence of the region's cultures, religions and natural resources, as well as outside political forces. Prerequisites: POLS 206. Junior or senior classification or approval of instructor.

Psychology (PSYC)

107. INTRODUCTION TO PSYCHOLOGY. (3-0). Credit 3. (TCCNS PSYC 2301). 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. Prerequisites: PSYC 203 and 204. Junior or senior classification or approval of instructor.

Recreation, Park and Tourism Sciences (RPTS)

301. LEISURE AND OUTDOOR RECREATION. (3-0) Credit 3. Introduction to the fundamental concepts of leisure and outdoor recreation and how they influence us as individuals, groups and society; critical factors such as self, family, lifespan, ecology, health, work patterns, communications, diversity, popular culture, and consumption are studied in relationship to past, present and future leisure patterns. Prerequisite: Junior or senior classification or approval of instructor.

340. RECREATION, PARKS AND DIVERSE POPULATIONS. (3-0). Credit 3. Review of major judicial decisions and civil rights laws on provision and distribution of recreation and park services in society; the influence of age, disability, ethnicity, national origin, race, religion and gender on individual's preferences for particular recreation opportunities and experiences; implications of individual differences for the provision of recreation services. Prerequisite: Junior or senior classification or approval of instructor.

Spanish (SPAN)

101. BEGINNING SPANISH I. (3-2). Credit 4. (TCCNS SPAN 1411). 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. (TCCNS SPAN 1412). 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. (TCCNS SPAN 2311). 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. (TCCNS SPAN 2312). 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.

Statistics (STAT)

201. ELEMENTARY STATISTICAL INFERENCE. (3-0). (TCCNS STAT 1342). 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.

303. STATISTICAL METHODS. (3-0). Credit 3. Intended for undergraduate students in the social sciences. Introduction to concepts of random sampling and statistical inference, estimation and testing hypotheses of means and variances, analysis of variance, regression analysis, chi-square tests. Credit will not be allowed for more than one of STAT 301, 302 or 303. Prerequisite: MATH 141 or 166 or equivalent.

Urban Planning (PLAN)

641. PROBLEMS OF ENVIRONMENTAL PLANNING ADMINISTRATION. (3-0). Credit 3. State and federal legislation pertaining to environmental consumer protective aspects of urban planning; review of administrative procedures; major judicial decisions.

Veterinary Pathobiology (VTPB)

409. INTRODUCTION TO IMMUNOLOGY. (3-0) Credit 3. Diverse concepts relative to immunologic mechanisms inherent to domestic and laboratory animals. Prerequisites: VTPB 405 or junior or senior classification or approval of instructor.

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 or approval of instructor.

THE FACULTY

The faculty and administrative positions are current as of Spring, 2010. Figures in parentheses indicate date of first appointment at the University and date of appointment to present positions, respectively. An asterisk indicates a graduate faculty appointment. Two asterisks indicates a pending graduate faculty appointment.

- Alexander, Erin M., Lecturer in Maritime Administration (2004). B.A., Business Administration, University of St. Thomas, 1977; B.A., Economics, University of St. Thomas, 1977; M.B.A., Southern Methodist University, 1978.
- Alexander, Steve, Lecturer in Marine Sciences (2008). B.S., University of Houston, 1972; M.S. Louisiana State University, 1973; Ph. D., Louisiana State University, 1976
- Alexander, William B., Lecturer in Maritime Administration (2003). B.A., University of St. Thomas, 1976; M.A., University of Notre Dame, 1977.
- Alvarado-Bremer, Jaime R., Associate Professor of Marine Biology, Wildlife and Fisheries Sciences* and Marine Sciences*(1999, 2006). B.S., Universidad, Autonoma Metropolitana, Mexico, 1985; M.S., University of Toronto, 1988; Ph.D., University of Toronto, 1994.
- Amon, Rainer, Associate Professor of Marine Sciences* and Oceanography* (2003, 2007). B.S., University of Vienna, Austria, 1986; M.S., University of Vienna, Austria, 1990; Ph.D., University of Texas, Austin, 1995.
- Anis, Ayal, Associate Professor of Marine Sciences* and Oceanography* (2000, 2007). B.S., Tel-Aviv University, 1982; M.S., Hebrew University, 1984; Ph.D., Oregon State University, 1993.
- Armitage Chan, Anna R., Assistant Professor of Marine Biology, Marine Sciences*, and EcoSystem Science and Management* (2006) (2007). B.S., University of California, Los Angeles, 1995; Ph.D., University of California, Los Angeles, 2003.
- Baker, Robert K., Lecturer in Maritime Administration (1983) (2002). B.S., Texas A&M University, 1977; M.B.A., University of Houston, 1983. Chief Mate Steam and Motor Vessels Any Gross Tons Upon Oceans, Master of Steam and Motor Vessels of Not More Than 1600 Gross Tons Upon Oceans.
- Balaban, Alexandru, Professor of Marine Sciences* (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, 1969; M.S., Texas A&M University, 1980.
- Barousse, Candice U., Lecturer in General Academics (Kinesiology) (2003). B.S., University of Houston at Clear Lake, 2000.
- Bell, Janice S., Lecturer in General Academics (Spanish) (2002). B.A., University of Houston, 1970; M.A., University of Northern Iowa, 1995.
- Bodson, Bruce, Lecturer in Marine Sciences (2002). B.S., University of Arizona, 1980; M.S., University of Texas at Dallas, 1987; J.D., South Texas College of Law, 1993.
- Boudreaux, Lowell A., Lecturer in Maritime Administration (2003). B.B.A., Lamar University, 1993; M.B.A., Lamar University, 1996.
- Brinkmeyer, Robin L., Assistant Professor of Marine Sciences* (2003, 2006). B.S., University of Texas, 1988; B.S., University of Texas, 1988; M.A., University of Texas, 1993; Ph.D., University of Bremen, Germany, 2003.
- Brody, Samuel D., Associate Professor of Marine Sciences (2009). B.A., Bowdoin College 1992; Graduate Diploma, University of Adelaide, Australia, 1994; M.S., University of Michigan, 1996; Ph. D., University of North Carolina, 2002.
- Brown, Philip R., Associate Professor of General Academics, (Mathematics) (2001, 2007). B.S., University of Witwatersrand, Johannesburg, South Africa, 1991; M.S., University of Witwatersrand, Johannesburg, South Africa, 1993; Ph.D., Texas A&M University, 2000.
- Brumbaugh, Fred R., Lecturer in Marine Sciences (2002). B.S., Shippensburg University, 1972; M.S., University of Houston at Clear Lake, 1978.
- Buch, Kevin, Lecturer in General Academics (Scuba Diving) (2005). B.S., University of Texas at Arlington, 1998; M.S., University of Texas at Arlington, 2000.
- Bunch-Davis, Carol A., Assistant Professor in General Academics (English) (2003). B.A., Trinity University, 1990; M.A., University of Houston at Clear Lake, 1998.
- Caine Boudreaux, Tiffany M., Lecturer in General Academics (English) (2008). B.A., Southeastern Louisiana University, 1995; M.A., Southeastern Louisiana University, 1998.
- Calvert, Jeffrey A., Lecturer in Maritime Administration (2006). B.S., Ashland University, 1963; M.S., University of Washington, 1970.
- Carhart, John W., Senior Lecturer in General Academics (Political Science) and Assistant Department Head (1988) (2002). B.A., Southwest Texas State University, 1981; M.A., Southwest Texas State University, 1988.

- Carnahan, Jerry D., Machinist Mate Chief U.S. Navy, Senior Lecturer, Department of Naval Science (2007).
- Carroll, Matthew C., Assistant Professor in Marine Engineering Technology (2009), B.S., Lafayette College, 1974; M.S., University of Illinois at Urbana-Champaign, 1982; Ph.D., University of Illinois at Urbana-Champaign, 1986.
- Ciminello Jr., Vito J., C.P.A., Senior Lecturer in Maritime Administration (1994). B.A., Brown University, 1977; M.S., Northwestern University, 1979.
- Cleary, James P., Lecturer in Marine Transportation (2008). B.S., Texas A&M University Galveston, 1980; Master of Steam or Motor Vessels of Any Gross Tons upon Oceans.
- Cole, Collier M., Lecturer in General Academics (Psychology) (1983). B.A., University of California at Los Angeles, 1971; M.A., University of Houston, 1973; Ph.D., University of Houston, 1976.
- Coleman Jr., Charles H., Senior Lecturer in Marine Sciences and Director of the Geology Laboratory (1981, 1992). B.S., Texas A&M University, 1975; M.S., University of Houston at 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., P.E., Senior Lecturer in Marine Engineering Technology (1996). B.S., U.S. Naval Academy, 1980; M.S., George Washington University, 1996.
- Conway, Steven M., Senior Lecturer in Maritime Administration (2007). B.S., U.S. Coast Guard Academy, 1975; M.S., University of Bridgeport, 1980; M.P.P.M., Yale School of Management, 1982.
- Curley, Stephen J., Regents Professor of General Academics (English) (1973, 1996). B.A., Fordham University, 1968; Ph.D., Rice University, 1974.
- Davis, Randall W., Professor of Marine Biology and Wildlife and Fisheries Sciences* (1990, 1994). B.S., University of California, Riverside, 1974; Ph.D., University of California, San Diego, 1980.
- Davison, Don F., C.P.A., Lecturer in Maritime Administration (2002). B.S., Southern Methodist University, 1975; M.A., University of Texas, 1977; M.B.A., Southern Methodist University, 1989.
- Dellapenna, Timothy M., Associate Professor of Marine Sciences* and Oceanography* (Geology) (1999). B.S., Michigan State University, 1986; M.S. Western Michigan University, 1993; Ph.D., College of William and Mary, 1999.
- Domsky, Darren, Assistant Professor of General Academics (Philosophy) (2007). B.A., University of Alberta, 1996; M.A., University of Alberta, 1998; Ph.D., York University, 2006.
- Dudley-Scott, Katherine, Lab Instructor of Marine Sciences (2005). A.A.S., Lamar Community College, 1983; B.S., Texas A&M University Galveston, 1992.
- Edwards, Patricia, Lecturer in Marine Biology (2005). B.S., Texas A&M University at Galveston, 2001; MARM, Texas A&M University at Galveston, 2004.
- Estes III, Ernest L., Professor and Interim Department Head of Marine Sciences* (1976, 1987, 2006). B.S., Lawrence University, 1965; M.A., Duke University, 1967; Ph.D., University of North Carolina, 1971.
- Fieglein, J. Michael, Lecturer in Maritime Administration (1999). B.S.M.E., University of Houston, 1970; J.D., Villanova School of Law, 1974.
- 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 Marine Sciences (1980). B.S., California State University, Long Beach, 1975; M.A., Governors State University, 1979.
- Fredrickson, Henry W., Lecturer in Marine Engineering Technology (2005). B.S., Texas A&M University at Galveston, 1968.
- Frentz, Gerald, Lecturer in Maritime Administration (2009), B.S., Texas A & M University.
- Glenn Jr., William P., Lecturer in Maritime Administration and Marine Transportation (1997). B.S., Texas A&M University, 1981; J.D., Franklin Pierce Law Center, 1992.
- Gonzales, Raquel, Lecturer in General Academics (Spanish) (2004). B.S., University of Houston, 1968; M.A., University of Houston at Clear Lake, 1977.
- Gracia, Pete A., Lecturer in General Academics (Mathematics) (1993). B.S., Lamar University, 1959; M.S., University of Houston at Clear Lake, 1991.
- Griffin, Lawrence L., Professor of Marine Sciences* and Oceanography* (1976, 2007). B.A., University of Texas, 1962; M.S., University of Texas, 1965; Ph.D., University of Texas, 1972.
- Hark, John F., Lecturer in Maritime Administration (2002). B.S., Texas A&M University, 1989.
- Harper Jr., Donald E., Professor Emeritus of Marine Biology and Wildlife and Fisheries Sciences * (1975, 1997). B.S., University of Miami, 1963; M.S., Texas A&M University, 1996; Ph. D., Texas A&M University, 1970.

Haupt, Karl H., Lecturer in Marine Transportation (1995). B.S., Texas A&M University, 1981. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans.

Haymes, William E., Lecturer in Marine Sciences and Director of the Physics Laboratory (1989, 1992). B.S., University of Missouri-Rolla, 1964; M.S., University of Missouri-Rolla, 1971; Ph.D., University of Manchester, England, 1976.

Hite, Gerald E., Professor of Marine Sciences* (1980, 1998). B.S., Case Western Reserve, 1962; M.S., University of Illinois, 1965; Ph.D., University of Illinois, 1967; Habilitation, Universität Kaiserslautern, 1974.

Horriilo, Juan J., Assistant Professor in Maritime Systems Engineering (2008). B.S., University of Cartagena, Columbia, 1984; M.S., University of Rhode Island, 1997; Ph.D., University of Alaska-Fairbanks, 2006.

Hufton, Amie J., Lecturer in General Academics (Kinesiology) (2006). B.S., Texas A&M University at Galveston, 2002.

Iliffe, Thomas M., Professor of Marine Biology, Wildlife and Fisheries Sciences* and Oceanography* (1989, 1997). B.S., Penn State University, 1970; M.S., Florida State University, 1973; Ph.D., University of Texas Medical Branch, 1977.

Ingole, Sudeep P., Assistant Professor in Marine Engineering Technology (2005, 2009). B.E., Nagpur University, Nagpur, India, 1999; M.E., Indian Institute of Science, Bangalore, India, 2001; Ph.D., Texas A&M University, 2005.

Jin, Jun, Assistant Professor of Maritime Systems Engineering and Civil Engineering* (2003). B.S., Harbin Engineering University, Harbin, China, 1991; M.S., Tianjin University, Tianjin, China, 1994; Ph.D., University of Central Florida, 2002.

Johnson, Thomas S., Associate Professor of 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, 1973.

Jones, Glenn A., Professor of Marine Sciences* and Oceanography* (1996). B.A., University of Rhode Island, 1977; M.S., Columbia University, 1979; Ph.D., Columbia University, 1983.

Kang, Cong X., Assistant Professor in General Academics (Mathematics) (2004). B.S., Carnegie Mellon University, 1992; Ph.D., University of Texas, 1999.

Kanz, James E., Associate Professor of Marine Biology and Biology* (1978, 1985). B.A., University of Washington, 1966; Ph.D., Tufts University, 1973.

Klein, Douglas J., Professor of Marine Sciences* and Oceanography* (1979, 1987). B.S., Oregon State University, 1965; M.A., University of Texas, 1967; Ph.D., University of Texas, 1969.

Knock, Susan L., Senior Lecturer in Marine Sciences* and Director of Chemistry Laboratories (1996, 2003). B.A., Colorado State College, 1975; Ph.D., University of Texas Medical Branch, 1988.

Knox, Kris J., C.P.A., Senior Lecturer in Maritime Administration and Assistant Department Head (1984). B.B.A., University of Houston, 1979; M.B.A., University of Houston, 1984; Ph.D., University of Texas Health Science Center at Houston, 1992.

Ko, Jae-Young, Assistant Professor of Marine Sciences* (2005). B.A., Hankuk University, Seoul, Korea, 1983; M.A., Hankuk University, Seoul, Korea, 1987; M.A., Syracuse University, 1994; Ph.D., State University of New York, 2000.

Landry Jr., André M., Professor of Marine Biology, Wildlife and Fisheries Sciences* and Marine Sciences* (1977, 1991). B.S., Tulane University, 1968; M.S., Texas A&M University, 1971; Ph.D., Texas A&M University, 1977.

Lane, John M., Lecturer in Maritime Administration (2002). B.S., State University of New York Maritime College, 1965; M.S., University of Houston at Clear Lake, 1978. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans. First Class Pilot of Vessels of Any Gross Tons (Houston, Bolivar, Texas City).

Lang, Donna C., Associate Vice President for Enrollment Management and Educational Outreach (1996, 2007). B.S., Texas A&M University, 1988; M.A. University of Houston at Clear Lake, 1992; Ed.D., University of Houston, 2000.

Lang Jr., Victor J., Lecturer in General Academics (Speech) (1997). B.A., University of Texas, 1960.

Lawhon, David R., Lecturer in General Academics (History) and Director, Honors Program (2003, 2007). B.A., University of Houston at Clear Lake, 1995; M.A., University of Houston at Clear Lake, 2000.

Lesko, Melanie J., Senior Lecturer in Marine Sciences* (Chemistry) (1983, 1996). Associate Department Head (1996). B.S., Lamar University, 1972; Ph.D., University of Houston, 1977.

Linton, Thomas L., Senior Lecturer in Marine Sciences* and Wildlife and Fisheries Sciences*. (1981, 1989) B.S., Lamar University, 1959; M.S., University of Oklahoma, 1961; Ph.D., University of Michigan, 1965.

Loftin, R. Bowen, Professor of Maritime Systems Engineering, Vice President and Chief Executive Officer (2005). B.S., Texas A&M University, 1970; M.A., Rice University, 1973; Ph.D., Rice University, 1975.

Louchouart, Patrick, Associate Professor of Marine Sciences* (2006). B.S., McGill University, Montreal, Quebec, Canada, 1989; M.S., Université du Québec à Montréal, 1992; Ph.D., Université du Québec à Montréal, 1997.

Luxemburg, Leon A., Assistant Professor of General Academics (Mathematics) (1990, 2005). Ph.D., Texas A&M University, 1987.

Maack, Pamela A., Lecturer in General Academics (Anthropology) (2008). B.A., University of Virginia, 1982; Ph.D., Northwestern University, 1992.

- Maceo, Debra A., Senior Lecturer in General Academics (Kinesiology) (1994, 2003). B.S., Lamar University, 1975; M.A., University of Houston, 1995.
- Mahanna, Jarad W., Lieutenant US Navy, Assistant Officer-in-Charge, Senior Lecturer, Department of Naval Science (2009), B.S. Mechanical Engineering, US Naval Academy, 2003.
- Maloney, Bridget, Lecturer in General Academics (Kinesiology). B.S., University of Arizona, 2005; M.S., Texas A&M University, 2008.
- Mark, Samuel E., Associate Professor of General Academics (Anthropology*/Archeology) (2001, 2006). B.S., Ball State University, 1980; M.A., Texas A&M University, 1993; Ph.D., Texas A&M University, 2000.
- Marshall, Christopher D., Associate Professor of Marine Biology and Wildlife and Fisheries Science* (2001, 2008). B.S., Virginia Polytechnic Institute and State University, 1990; M.S., Nova Southeast University Oceanographic Center, 1992; Ph.D., University of Florida, 1997.
- Martinez, Rudy D., P.E., Lecturer in Marine Engineering Technology (2006). B.B.A., Sam Houston State University, 1972; B.S., Lamar University, 1984; M.S., University of South Carolina, 1996; Ph.D., University of South Carolina, 2004.
- McGonagle, W. Brad, Lecturer in Maritime Administration (2001). B.B.A. Texas A&M University, 1990; B.B.A., Texas A&M University, 1992; M.S., Texas A&M University, 1993; Ph.D., Texas A&M University, 1996.
- McMullen, Peggy L., Lecturer and Library Archivist (2004). B.Mus., St. Olaf College, 1963; M.Mus., University of Houston, 1979; M.S.L.S., Long Island University, 1987.
- McMullen, William T., Professor and Department Head of Maritime Administration, Professor of Marine Sciences* and Interim Department Head of Marine Transportation, (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. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans.
- Merrell, Jr., William J., Professor of Marine Sciences,* (1987, 1992), B.S., Sam Houston State University, 1965; M.A., Sam Houston State University, 1967; Ph.D. Texas A&M University, 1971.
- Metz, Tasha L., Lecturer in Marine Biology (2006). B.S., Texas Christian University, 1995; M.S., Texas Christian University, 1997; Ph.D., Texas A&M University, 2004.
- Mileski, Joan P., C.P.A., Associate Professor of Maritime Administration and Marine Sciences* (2004). B.B.A., University of Notre Dame, 1979; M.S., Pace University, 1983; Ph.D., University of Texas at Dallas, 2000.
- Miller, Martin C., Visiting Associate Professor in Maritime Systems Engineering (2007). B.S., U.S. Coast Guard Academy, 1964; MALS, Wesleyan University, 1969; M.S., The George Washington University, 1970; Ph.D. Oregon State University, 1977.
- Miller, Michael B., Lecturer in Marine Transportation (2001). B.S. Texas A&M University, 1981. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans. First Class Pilot of Vessels of Any Gross Tons (Freeport).
- Mills, Cantrelle, Lecturer and Technical Services Librarian (2009). B. S. University of New Orleans, 2001; M.L.S., Drexel University 2009.
- Mohler, Robert R., Lecturer in Marine Sciences (2001). B.S., University of Toledo, 1975; M.A., University of Toledo, 1977; M.S. University of Nevada at Reno, 1979; M.S., University of Houston at Clear Lake, 1981; Ph.D., Texas A&M University, 1994.
- Oertling, Thomas J., Lecturer in General Academics (Nautical Archaeology) (2000). B.S., Tulane University, 1977; M.A., Texas A&M University, 1984.
- O'Neal, Clifford C., Lecturer in Marine Biology (2007). B.S., Texas A&M University at Galveston, 1996; M.S., Louisiana State University, 2000; Ph.D., Southern Illinois University at Carbondale, 2005.
- Panchang, Vijaykumar G., Department Head and Regents Professor of Maritime Systems Engineering. Department Head of Marine Engineering Technology. Professor of Civil Engineering.* (2002,2009). B.S., University of Poona, India, 1980; M.S., University of Maine, 1982; Ph.D., University of Maine, 1985.
- Pangemanan, Adelaide P., Lecturer in General Academics (Mathematics) (2007). B.S., University of Southern California, 1998; M.S., State University of New York at Stony Brook, 2002.
- Pearl, Frederic B., Associate Professor of General Academics and Marine Sciences* (Anthropology) (2000, 2007). B.A., San Diego State University, 1991; M.A., Texas A&M University, 1997; Ph.D., Texas A&M University, 2001.
- Penuel, Victor B., Lecturer in General Academics (English) (1994). B.A., University of Houston at Clear Lake, 1989; M.A., University of Houston at Clear Lake, 1994.
- Perrigo, James, Lab Instructor of Marine Sciences (1996). B.S., Texas A&M University, 1981; M.S., Texas A&M University Galveston, 2004
- Qiu, Lin, Lecturer in General Academics (Mathematics) (2007), B.S., Tongji University, 2002; M.A., University of Alabama, Tuscaloosa, 2005.
- Quigg, Antonietta S., Associate Professor of Marine Biology, Oceanography* and Marine Sciences.* (2003,2009). B.S., Chemistry, La Trobe University, Australia, 1989; B.S., Biochemistry, La Trobe University, Australia, 1990; Ph.D., Monash University, Australia, 2000.

- Ray, Sammy M., Professor Emeritus of Marine Biology and Wildlife and Fisheries Sciences* (1959)(1990). B.S., Louisiana State University, 1942; M.S., Rice University, 1952; Ph.D., Rice University, 1954.
- Rooker, Jay R., Professor of Marine Biology, Wildlife and Fisheries Sciences* and Marine Sciences* (1998,2009). B.A., Gustavus Adolphus College, 1985; M.S., University of Puerto Rico, 1991; Ph.D., University of Texas, 1997.
- Roth, Augusta D., Lecturer in Marine Transportation (2000). B.S., Texas A&M University, 1996. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans.
- Rowe, Gilbert T., Regents Professor of Marine Biology and Oceanography* and Associate Vice President of Academic Affairs and Chief Academic Officer (2003, 2007). B.S., Texas A&M University, 1964; M.S., Texas A&M University, 1966; Ph.D., Duke University, 1968.
- Ryan, James G., Professor of General Academics (History) (1990, 1996). B.A., University of Delaware, 1970; M.A., University of Delaware, 1973; M.A., University of Notre Dame, 1975; Ph.D., University of Notre Dame, 1981.
- Santschi, Peter H., Professor of Marine Sciences* and Oceanography*(1988). B.S., Gymnasium Berne, Switzerland, Matura, 1963; M.S., University of Berne, 1971; Ph.D., University of Berne, 1975; Privatdozent, Switzerland Federal Institute of Technology, 1984.
- Schlemmer II, Frederick C., Associate Professor of Marine Sciences* and 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 Marine Sciences* and Oceanography* (1981, 1996). B.S., Montana State University, 1970; Ph.D., University of Illinois, 1975.
- Schulze, Anja, Assistant Professor of Marine Biology and Oceanography.* (2006). Diplom, University of Bielefeld, Germany, 1995; Ph.D., University of Victoria, Canada, 2001.
- Schwarz, John R., Interim Department Head and Professor of Marine Biology and Oceanography,* (1976, 1986). B.S., Rensselaer Polytechnic Institute, 1967; Ph.D., Rensselaer Polytechnic Institute, 1972.
- Seitz, William A., Regents Professor of Marine Sciences* and Oceanography* (1977, 2002), Associate Vice President for Research and Graduate Studies (2006). B.A., Rice University, 1970; Ph.D., University of Texas at Austin, 1973.
- Shepherd, Beth, Lecturer in General Academics (Kinesiology) (2005). B.S., Slippery Rock University, 1982; M.A., Southwest Texas State University, 1989.
- Shodavaram, Bhaskar Raju, Lecturer in Marine Sciences and General Academics (Mathematics) (2009). B.S., SriVenkateswara University, 1959; M.S., Andhra University, 1960; M.S., North Carolina State University, 1969; Ph.D., Texas A&M University, 1973.
- Sindylek, Robert A., Lecturer in General Academics (Psychology) (2006). B.S., Excelsior College-The University of the State of New York, 1993; M.A., University of Houston at Clear Lake, 1995; Ed.D., Argosy-University of Sarasota, 2000.
- Slabaugh, Leticia A., Lecturer in General Academics (English) (2008). B.A., Texas A&M University-Corpus Christi, 1997; M.A., Texas A&M University-Corpus Christi, 2001.
- Slatton, Katie, J., Lecturer in General Academics (Kinesiology) (2003). B.S., University of Montevallo, 1999; M.A., University of Montevallo, 2003.
- Smith, Jack H., Senior Lecturer in Marine Transportation (2003). B.S., Texas A&M University at Galveston, 1966. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans. First Class Pilot of Vessels of Any Gross Tons (Houston, Bolivar, Texas City).
- Suen, Ching Y., Professor of General Academics (Mathematics) (1984, 1998). M.S., Tsing Hua University, 1978; Ph.D., University of Houston, 1983.
- Sweetman, John A., P.E., Assistant Professor of Maritime Systems Engineering and Civil Engineering* (2003). B.S., University of Michigan, 1986; M.E., Texas A&M University, 1987; Ph.D., Stanford University, 2001.
- Szuics, Joseph M., Professor and Interim Department Head of General Academics (Mathematics) (1980, 1991, 2006). M.S., Szeged University, 1965; Ph.D., Szeged University, 1967.
- Theis, William D., Lecturer in General Academics (English) (2005). B.A., University of Texas, 1978; M.A., University of Houston, 1988.
- Thrailkill, Robert L., Lecturer in Marine Transportation and Assistant Department Head (2006). B.S., Texas A&M University at Galveston, 1969. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans.
- Townsend, Grace L., Senior Lecturer in Marine Sciences (2001). B.S., Texas A&M University, 1981; M.S., University of Houston at Clear Lake, 1983.
- Traber, Daniel S., Associate Professor of General Academics, (English) (2001, 2007). B.A., University of Texas, Austin, 1991; M.A., University of Texas, El Paso, 1995, Ph.D., University of Houston, 2000.
- Treglia, Vincent A., P.E., Lecturer in Marine Engineering Technology (2001). B.S., State University of New York Maritime College, 1966. First Assistant Engineer of Steam Vessels of Any Horsepower.
- Udoetuk, Mayen, Lecturer in Marine Sciences (2009). B.S., Norfolk State University, 2006; Graduate education towards M.S. University of Arkansas, 2009.

- Varadarjan, Nadathur, Lecturer in Maritime Systems Engineering (2008). B.E., Birla Institute of Technology and Science, 1989; M.S., Birla Institute of Technology and Science, 1991; Ph.D., Rice University, 2004.
- von Zharen, Wyndlyn M., Professor of Maritime Administration and Marine Sciences*, Wildlife and Fisheries Sciences* and Oceanography* (1990, 2000). B.A., University of Florida, 1970; M.Ed., University of Florida, 1971; Ed.D., University of Florida, 1976; J.D., University of South Carolina Law School, 1987; L.L.M., University of Texas, 1998.
- Waddell Jr., Mathis T., Lecturer in General Academics (Political Science) (1995). B.A., University of Texas, 1962; M.A., University of Texas, 1963.
- Wang, Wen-Yao "Grace", Assistant Professor of Maritime Administration (2008). B.A., National Taipei University, 1999; M.A., National Taipei University, 2001; Ph.D., Texas A&M University, 2008.
- Wardle, William J., Lecturer in Marine Biology (1973, 2003). B.S., Lynchburg College, 1963; M.S., Texas A&M University, 1970; Ph.D., Texas A&M University, 1974.
- Warnakulasuriya, Frank S. K., Assistant Professor of Marine Engineering Technology and Assistant Department Head (2003, 2009). B.S., University of Moratuwa, Sri Lanka, 1987; M.S., University of Illinois at Chicago, 1997; Ph.D., University of Illinois at Chicago, 1999.
- Weeks, Kelly O., Assistant Professor of Maritime Administration (2008). B.B.A., Delta State University, 2001; M.B.A., Delta State University, 2003; Ph.D., Jackson State University, 2007.
- Weibel, Wesley D., Lieutenant US Navy, Officer-in-Charge, Department Head, Senior Lecturer, Department of Naval Science (2008), B.S. Electrical Engineering, Texas A&M University, 2001.
- Wiest, Natalie H., Lecturer and Head Librarian (1982). B.A., Pennsylvania State University, 1971; M.S., Drexel University, 1973; M.S., University of Tennessee, 1980.
- Willett, Donald E., Professor of 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.
- Withoff, Alan B., Lecturer and Public Services Librarian (2003). B.A., Southern Methodist University, 1979; M.L.S., University of North Texas, 1989.
- Wood, Amanda L., Lecturer in Maritime Systems Engineering (2010). M.S., University of Houston, 2000.
- Würsig, Bernd G., Regents Professor of Marine Biology and Wildlife and Fisheries Sciences* (1989, 2006). B.S., Ohio State University, 1971; Ph.D., State University of New York, Stony Brook, 1978.
- Yalamanchili, Rattaya, Lecturer in Maritime Systems Engineering (2008). B. Tech., Anna University, 1984; M.S., University of Pittsburgh, 1987; Ph.D., University of Pittsburgh, 1992.
- Yi, Eunjeong, Assistant Professor in General Academics (Mathematics) (2003, 2006). B.S., Pusan National University, Pusan, South Korea, 1995; M.S., University of Houston, 2000; Ph.D., University of Houston, 2003.

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 that 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 at Galveston has identified as common and their TCCNS equivalents, correct as of Spring 2010. Before using this table students should be sure that the institution they attend employs the TCCNS.

This information changes often. The most current information can be researched at www.tccns.org.

TCCNS Course	Texas A&M Course
ACCT 2301	ACCT 229
ACCT 2302	ACCT 230
ANTH 2302	ANTH 202
ANTH 2351	ANTH 210
BCIS 1331	MARS 350
BIOL 1306 and BIOL 1106	BIOL 111
BIOL 1307 and BIOL 1107	BIOL 112
BIOL 1106	BIOL 123
BIOL 1107	BIOL 124
BIOL 1306	BIOL 113
BIOL 1307	BIOL 114
BIOL 1406	BIOL 111
BIOL 1407	BIOL 112
BIOL 1411	BOTN 101
BIOL 1413	ZOOL 107
BUSI 1301	MGMT 105
BUSI 2301	MARA 212
BUSI 2302	MGMT 211
CHEM 1311 or 1411	CHEM 101
CHEM 1312 or 1412	CHEM 102
CHEM 2123	CHEM 237
CHEM 2125	CHEM 238
CHEM 2323	CHEM 227
CHEM 2325	CHEM 228
COSC 1317	CPSC 203
ECON 2301	ECON 203
ECON 2302	ECON 202
ENGL 1301	ENGL 104
ENGL 1302	ENGL 203
ENGL 2308	ENGL 236
ENGL 2328	ENGL 228
ENGL 2333	ENGL 222
ENGR 1204	ENDG 105
ENGR 2301	MARE 205
GEOG 1302	GEOG 201
GEOG 1303	GEOG 202
GEOL 1145	OCNG 252
GEOL 1345	OCNG 252

GEOL 1403	GEOL 104
GOVT 2305	POLS 206
GOVT 2306	POLS 207
HIST 1301	HIST 105
HIST 1302	HIST 106
HIST 2301	HIST 226
MATH 1314	MATH 102
MATH 1316	MATH 106
MATH 1324	MATH 141
MATH 1325	MATH 142
MATH 1342	STAT 201
MATH 2314	MATH 161
MATH 2315	MATH 251
MATH 2412	MATH 150
MATH 2413	MATH 151
MATH 2414	MATH 152
PHED 1151	KINE 199
PHED 1152	KINE 199
PHED 1164	KINE 199
PHED 2155	KINE 199
PHIL 2303	PHIL 240
PHYS 1401	PHYS 201
PHYS 1402	PHYS 202
PHYS 2425	PHYS 218
PHYS 2426	PHYS 219
PSYC 2301	PSYC 107
SPAN 1411	SPAN 101
SPAN 1412	SPAN 102
SPAN 2311	SPAN 201
SPAN 2312	SPAN 202
SPCH 1315	SCOM 203