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# TEXAS A&M UNIVERSITY AT GALVESTON

## 2014 - 2015 CATALOG NO. 137

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### Purpose of Catalog

The purpose of this catalog is to provide information about the academic programs of Texas A&M University at Galveston to faculty, staff, students and prospective students. Included is information concerning admissions, academic regulations and requirements, services available to students, academic offerings, a list of the administrative officers and the 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 [Howdy.tamu.edu](http://Howdy.tamu.edu) for course offerings in any given semester. For administrative reasons, 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.

### Accreditation

Texas A&M University is fully accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). As a branch campus, Texas A&M University at Galveston is included in that process. Offshore and Coastal Systems Engineering (OCSE) is accredited by the Engineering Accreditation Commission and Marine Engineering Technology (MARR) is accredited by the Engineering Technology Accreditation Commission, both of the Accreditation Board for Engineering and Technology. Documents certifying accreditation may be viewed in the Office of the CEO.

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# ACADEMIC CALENDAR

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## 2014 Summer Term I\*

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|         |   |
|---------|---|
| May 14  | Graduation application opens for all students planning to graduate in August 2014.  |
| May 26  | Memorial Day. Faculty and staff holiday.  |
| May 30  | Last day to register for first term semester classes, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| June 2  | First day of first term classes.  |
| June 5  | Last day for adding/dropping courses for 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.<br>Last day to change Kinesiology 198/199 grade type for the first term, 5 p.m.<br>Last day to officially withdraw from the University for the first term, 5 p.m. |
| July 3  | Last day of first term classes.   |
| July 4  | Independence Day. Faculty and staff holiday.  |
| July 7  | First term final examinations.  |
| July 10 | First term final grades due, 10 a.m.  |
| July 11 | Last day to apply for degrees to be awarded in August without a late fee.   |

## 2014 Summer Term II\*

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|              |  |
|--------------|--|
| May 14       | Graduation application opens for all students planning to graduate in August 2014.   |
| July 7       | Last day to register for the second term semester classes, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| July 8       | First day of second term classes.  |
| July 11      | Last day for adding/dropping courses for the second term, 5 p.m.<br>Last day to apply for degrees to be awarded in August without a late fee.  |
| July 28      | Last day for all students to drop courses with no penalty for the second term (Q-drop), 5 p.m.<br>Last day to change Kinesiology 198/199 grade type for the second term, 5 p.m.<br>Last day to officially withdraw from the University for the second term, 5 p.m. |
| August 11    | Last day of second term classes.<br>Last day to apply for all degrees awarded in August.   |
| August 12–13 | Second term final examinations for all students.   |
| August 14    | Grades for degree candidates due, 10 a.m.  |
| August 15    | Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.  |
| August 16    | Commencement and Commissioning.  |
| August 18    | Final grades for second term due, 10 a.m.  |

## 2014 10-Week Summer Semester\*

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|              |   |
|--------------|---|
| May 14       | Graduation application opens for all students planning to graduate in August 2014.  |
| May 26       | Memorial Day. Faculty and staff holiday.  |
| May 30       | Last day to register for 10-week semester classes, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.                         |
| June 2       | First day of 10-week semester classes.  |
| June 5       | Last day for adding/dropping courses for the 10-week semester, 5 p.m.   |
| July 4       | Independence Day. Faculty and staff holiday.  |
| July 7       | No 10-week semester classes.  |
| July 11      | Last day to apply for degrees to be awarded in August without a late fee.   |
| July 22      | Last day for all students to drop courses with no penalty for the 10-week semester (Q-drop), 5 p.m.<br>Last day to officially withdraw from the University for the 10-week semester, 5 p.m. |
| August 11    | Last day of 10-week semester classes.<br>Last day to apply for all degrees awarded in August.   |
| August 12–13 | 10-week semester final examinations for all students.   |
| August 14    | Grades for degree candidates due, 10 a.m.   |
| August 15    | Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.   |
| August 16    | Commencement and Commissioning.   |
| August 18    | Final grades for second term due, 10 a.m.   |

\*All dates and times are subject to change.

## 2014 Fall Semester\*

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|                |  |
|----------------|--|
| August 20      | Graduation application opens for all students planning to graduate in December 2014.   |
| August 29      | Last day to register for fall semester classes, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.   |
| September 1    | First day of fall semester classes.  |
| September 5    | Last day for adding/dropping courses for the fall semester, 5 p.m.   |
| October 3      | Last day to apply for degrees to be awarded in December without a late fee.  |
| October 20     | Mid-semester grades due in Enrollment Services, 10 a.m.  |
| November 10    | Preregistration begins for 2015 spring semester.   |
| November 18    | Bonfire 1999 Remembrance Day.  |
| November 21    | Last day for all students to drop courses with no penalty (Q-drop), 5 p.m.<br>Last day to change Kinesiology 198/199 grade type, 5 p.m.<br>Last day to officially withdraw from the University, 5 p.m.   |
| November 27-28 | Thanksgiving holiday.  |
| December 8     | Redefined day, students attend their Friday classes.<br>Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) on these days.  |
| December 9     | Last day of fall semester classes.<br>Last day to apply for all degrees to be awarded in December.<br>Redefined day, students attend their Thursday classes.<br>Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) shall be given on these days. |
| December 10-11 | Reading days, no classes.  |
| Dec 12, 15–17  | Fall semester final examinations for all students.   |
| December 18    | Grades for degree candidates due, 10 a.m.  |
| December 19    | Last day for December undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.  |
| December 20    | Commencement and Commissioning, 9 a.m.   |
| December 22    | Final grades for all students due, 10 a.m.   |
| Dec. 24–Jan 2  | Faculty and staff holiday.   |

## 2015 Spring Semester\*

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|              |  |
|--------------|--|
| January 7    | Graduation application opens for all students planning to graduate in May 2015.  |
| January 16   | Last day to register for spring semester classes and pay fees, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| January 19   | Martin Luther King Jr. Day. Faculty and staff holiday.   |
| January 20   | First day of spring semester classes.  |
| January 26   | Last day for adding/dropping courses for the spring semester, 5 p.m.   |
| February 20  | Last day to apply for degrees to be awarded in May without a late fee.   |
| March 9      | Mid-semester grades due in Enrollment Services, 10 a.m.  |
| March 16–20  | Spring Break.  |
| March 18–20  | Faculty and staff holiday.   |
| April 3      | Reading days, no classes.  |
| April 6      | Preregistration begins for 2015 first term, second term, 10-week summer semester and fall semester.  |
| April 21     | Last day for all students to drop courses with no penalty (Q-drop), 5 p.m.<br>Last day to change Kinesiology 198/199 grade type, 5 p.m.<br>Last day to officially withdraw from the University, 5 p.m.   |
| April 21     | Muster. Campus ceremony.   |
| May 4        | Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) on these days.  |
| May 5        | Last day of spring semester classes.<br>Last day to apply for all degrees to be awarded in May.<br>Redefined day, students attend their Friday classes.<br>Prep day, classes meet. No regular course exams (except for laboratory and one-hour classes) on these days. |
| May 6-7      | Reading days, no classes.  |
| May 8, 11–13 | Spring semester final examinations for all students.   |
| May 14       | Grades for degree candidates due, 10 a.m.  |
| May 15       | Last day for May undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.   |
| May 16       | Commencement and Commissioning, 9 a.m.   |
| May 18       | Final grades for all students due, 10 a.m.   |

\*All dates and times are subject to change.

## 2015 Summer Term I\*

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|         |   |
|---------|---|
| May 20  | Graduation application opens for all students planning to graduate in August 2015.  |
| May 25  | Memorial Day. Faculty and staff holiday.  |
| May 29  | Last day to register for first term classes and pay fees, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| June 2  | First day of first term classes.  |
| June 5  | Last day for adding/dropping courses for the first term, 5 p.m.   |
| June 22 | Last day for all students to drop courses with no penalty for the first term (Q-drop), 5 p.m.<br>Last day to change Kinesiology 198/199 grade type for the first term, 5 p.m.<br>Last day to officially withdraw from the University for the first term, 5 p.m. |
| July 3  | Last day of first term classes.   |
| July 4  | Independence Day.   |
| July 6  | First term final examinations.  |
| July 9  | First term final grades due, 10 a.m.  |
| July 10 | Last day to apply for degrees to be awarded in August without a late fee, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |

## 2015 Summer Term II\*

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|              |  |
|--------------|--|
| May 20       | Graduation application opens for all students planning to graduate in August 2015.   |
| May 25       | Memorial Day. Faculty and staff holiday.   |
| July 4       | Independence Day.  |
| July 6       | Last day to register for the second term and pay fees, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| July 7       | First day of second term classes.  |
| July 10      | Last day for adding/dropping courses for the second term, 5 p.m.<br>Last day to apply for degrees to be awarded in August without a late fee, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.     |
| July 27      | Last day for all students to drop courses with no penalty for the second term (Q-drop), 5 p.m.<br>Last day to change Kinesiology 198/199 grade type for the second term, 5 p.m.<br>Last day to officially withdraw from the University for the second term, 5 p.m. |
| August 10    | Last day of second term classes.<br>Last day to apply for all degrees awarded in August.   |
| August 11–12 | Second term final examinations for all students.   |
| August 13    | Grades for degree candidates, 10 a.m.  |
| August 14    | Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.  |
| August 15    | Commencement and Commissioning, 9 a.m.   |
| August 17    | Final grades for second term due, 10 a.m.  |

## 2015 10-Week Summer Semester\*

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|              |   |
|--------------|---|
| May 20       | Graduation application opens for all students planning to graduate in August 2015.  |
| May 25       | Memorial Day. Faculty and staff holiday.  |
| May 29       | Last day to register for 10-week semester classes and pay fees, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.            |
| June 2       | First day of 10-week semester classes.  |
| June 5       | Last day for adding/dropping courses for the 10-week semester, 5 p.m.   |
| July 4       | Independence Day.   |
| July 6       | No 10-week semester classes.  |
| July 10      | Last day to apply for degrees to be awarded in August without a late fee, 5 p.m.<br>Refer to <a href="http://Finance.tamu.edu/sbs">Finance.tamu.edu/sbs</a> for tuition and fee due dates.  |
| July 21      | Last day for all students to drop courses with no penalty for the 10-week semester (Q-drop), 5 p.m.<br>Last day to officially withdraw from the University for the 10-week semester, 5 p.m. |
| August 10    | Last day of 10-week semester classes.<br>Last day to apply for all degrees awarded in August.   |
| August 11–12 | 10-week semester final examinations for all students.   |
| August 13    | Grades for degree candidates, 10 a.m.   |
| August 14    | Last day for August undergraduate degree candidates to apply for Tuition Rebate, 5 p.m.   |
| August 15    | Commencement and Commissioning, 9 a.m.  |
| August 17    | Final grades for 10-week semester due, 10 a.m.  |

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# ADMINISTRATION

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## Board of Regents

|  |                              |
|--|------------------------------|
| Phil Adams, Chairman . . . . .             | Bryan/College Station, Texas |
| Cliff Thomas, Vice Chairman . . . . .      | Victoria, Texas              |
| Anthony G. Buzbee . . . . .                | Friendswood, Texas           |
| Morris E. Foster . . . . .                 | Austin, Texas                |
| Elaine Mendoza . . . . .                   | San Antonio, Texas           |
| Judy Morgan . . . . .                      | Texarkana, Texas             |
| Charles W. Schwartz . . . . .              | Houston, Texas               |
| Jim Schwertner . . . . .                   | Austin, Texas                |
| John D. White . . . . .                    | Houston, Texas               |
| Nicholas Madere (Student Regent) . . . . . | Austin, Texas                |

## The Texas A&M University System Administrative Officers\*

|   |                     |
|---|---------------------|
| Chancellor . . . . .  | John Sharp          |
| Executive Vice Chancellor and CFO . . . . .                                       | Billy Hamilton      |
| General Counsel . . . . .   | Ray Bonilla         |
| Vice Chancellor for Federal and State Relations . . . . .                         | Tommy Williams      |
| Vice Chancellor for Academic Affairs . . . . .                                    | James Hallmark      |
| Acting Vice Chancellor and Acting Dean of Agriculture and Life Sciences . . . . . | Bill Dugas          |
| Vice Chancellor and Dean of Engineering . . . . .                                 | M. Katherine Banks  |
| Vice Chancellor for Marketing and Communications . . . . .                        | Steve Moore         |
| Vice Chancellor for Research . . . . .  | Jon Mogford         |
| Chief Business Development Officer . . . . .                                      | Phillip Ray         |
| Chief Information Officer . . . . .   | Mark Stone          |
| Treasurer . . . . .   | Maria L. Robinson   |
| Chief Auditor . . . . .   | Catherine A. Smock  |
| Vice Chancellor Emeritus . . . . .  | Frank B. Ashley III |
| Vice Chancellor Emeritus . . . . .  | Stanton C. Calvert  |

|  |                         |
|--|-------------------------|
| Interim President, Texas A&M University . . . . .        | Mark A. Hussey          |
| President, Prairie View A&M University . . . . .         | George C. Wright        |
| President, Tarleton State University . . . . .           | F. Dominic Dottavio     |
| President, Texas A&M International University . . . . .  | Ray M. Keck             |
| President, Texas A&M University-Corpus Christi . . . . . | Flavius C. Killebrew    |
| President, Texas A&M University-Kingsville . . . . .     | Steven H. Tallant       |
| President, West Texas A&M University . . . . .           | J. Patrick O'Brien      |
| President, Texas A&M University-Commerce . . . . .       | Dan R. Jones            |
| President, Texas A&M University-Texarkana . . . . .      | Emily F. Cutrer         |
| President, Texas A&M University-Central Texas . . . . .  | Marc A. Nigliazzo       |
| President, Texas A&M University-San Antonio . . . . .    | Maria Hernandez Ferrier |

|  |                        |
|--|------------------------|
| Director, Texas AgriLife Research . . . . .                        | Craig L. Nessler       |
| Director, Texas AgriLife Extension Service . . . . .               | Douglas Steele         |
| Director, Texas Engineering Experiment Station . . . . .           | M. Katherine Banks     |
| Director, Texas Engineering Extension Service . . . . .            | Gary F. Sera           |
| Director, Texas Forest Service . . . . .                           | Thomas G. Boggus       |
| Director, Texas Transportation Institute . . . . .                 | Dennis L. Christiansen |
| Director, Texas Veterinary Medical Diagnostic Laboratory . . . . . | Tammy Beckham          |

**Board of Visitors**

|                                    |                                   |
|------------------------------------|-----------------------------------|
| Dennis E. Murphree (Chairman)      | Houston, Texas                    |
| Robert A. Fry, Jr. (Vice Chairman) | Pasadena, Texas                   |
| Wade Battles                       | Houston, Texas                    |
| Greg Binion                        | Houston, Texas                    |
| Christopher S. Cahill              | Galveston, Texas                  |
| James C. Card                      | Houston, Texas                    |
| Michael Cokinos                    | Houston, Texas                    |
| Robb Erickson                      | Houston, Texas                    |
| Thomas E. Farmer                   | Galveston, Texas                  |
| G. Allen Flynt                     | Houston, Texas                    |
| Arthur Damon Gowan                 | Galveston, Texas                  |
| Paul Hill                          | League City, Texas                |
| Mike Hopkins                       | Brenham, Texas                    |
| Randolph W. House                  | College Station, Texas            |
| Peter D. Huddleston                | Houston, Texas                    |
| Charlie Jenkins                    | Houston, Texas                    |
| William E. Jenkins                 | Houston, Texas                    |
| Mark Lyons                         | Texas City, Texas                 |
| Ross D. Margraves, Jr.             | Houston, Texas                    |
| Betty Massey                       | Galveston, Texas                  |
| Keith McFatrige, Jr.               | Galveston, Texas                  |
| James P. McGregor                  | Houston, Texas                    |
| John J. Michael                    | Houston, Texas                    |
| Phyllis Milstein                   | Galveston, Texas                  |
| B. Greg Mitchell                   | La Jolla, California              |
| Frank M. Muller, Jr.               | Houston, Texas                    |
| L.C. Neely                         | San Antonio, Texas                |
| Brandon Hal Neff                   | San Antonio, Texas                |
| Bruce Nichols                      | Austin, Texas                     |
| Chris Orth                         | Houston, Texas                    |
| Victor R. Pierson                  | Jamaica Beach, Texas              |
| James E. Pozzi                     | Galveston, Texas                  |
| Wayne H. Prescott                  | Austin, Texas                     |
| Terry Ray                          | Brownsville, Texas                |
| Brian Roy, Jr.                     | Spring, Texas                     |
| Robert T. Sakowitz                 | Houston, Texas                    |
| William G. Schubert                | Pinehurst, Texas                  |
| Albert P. Shannon                  | Galveston, Texas                  |
| Kelley Sullivan                    | Houston, Texas                    |
| Kelly Teichman                     | Galveston, Texas                  |
| Tyson T. Voelkel                   | Houston, Texas                    |
| Kris Anne Vogelpohl                | Galveston, Texas                  |
| Jonathan Whitworth                 | North Vancouver, British Columbia |

**Administrative Officers**

|                        |   |
|------------------------|---|
| Robert Smith III       | Chief Executive Officer<br>Superintendent, Texas A&M Maritime Academy<br>Vice President, Texas A&M University |
| Patrick Louchouart     | Vice President for Academic Affairs<br>and Chief Academic Officer<br>Associate Provost, Texas A&M University  |
| Donna C. Lang          | Vice President for Academic Operations  |
| Susan Hernandez Lee    | Vice President for Finance and Compliance Officer   |
| Grant W. Shallenberger | Associate Vice President<br>for Administration and Auxiliary Services   |
| Tammy L. Holliday      | Associate Vice President<br>for Research Operations   |
| Antonietta S. Quigg    | Associate Vice President<br>for Research and Graduate Studies   |
| Todd Sutherland        | Assistant Vice President for Student Affairs  |



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## University Statement on Harassment and Discrimination

Texas A&M University at Galveston is committed to providing an educational and work climate that is conducive to the personal and professional development of each individual. To fulfill its multiple missions as an institution of higher learning, Texas A&M encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our State, nation and world. The University also strives to protect the rights and privileges, and to enhance the self-esteem of all its members. Faculty, staff and students should be aware that any form of harassment and any form of illegal discrimination against any individual is inconsistent with the values and ideals of the University community. Any questions or complaints relative to discrimination should be referred to the Human Resources Office.

## Admission Statement and Policy on Individuals with Disabling Conditions

Texas A&M University at Galveston has a strong institutional commitment to the principle of diversity in all areas. In that spirit, admission to Texas A&M University and any of its sponsored programs is open to all qualified individuals. Texas A&M does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended in its admissions, accessibility, treatment and employment of students in its programs and activities. 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.

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# GENERAL INFORMATION

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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 (TAMU) in College Station, students receive their degrees from Texas A&M University. TAMUG includes the Texas A&M 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. Most instructional programs are taught at the 130-acre Mitchell Campus on Pelican Island (with housing for 1,388 students). 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 Vice President for Academic Operations or designee.

*This catalog was prepared in advance of its effective date; therefore, the course descriptions may vary from actual course content. 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 University 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 Administration (MARA), Maritime Studies (MAST), Offshore and Coastal Systems Engineering (OCSE), Ocean and Coastal Resources (OCRE) and University Studies (USGA). A 5-year program is offered to allow OCRE majors to enter the Master of Marine Resources Management (MARM) degree, combining their senior year of OCRE with the first year of MARM. Another 5-year program is offered to allow MARA majors to enter the Master of Maritime Administration and Logistics (MMAL) degree program, also combining their senior year of undergraduate courses with masters level courses to reduce the overall course load. 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, a Master and Doctorate in Marine Biology and a Master of Maritime Administration and Logistics (MMAL). 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 A&M Maritime Academy is headquartered on the Galveston Campus.

## **Academic Facilities**

Classrooms, laboratories and meeting spaces are housed within 18 major buildings on the Mitchell Campus. There are seven 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. Research is conducted under the direction of more than 30 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 Institutes of Health, U.S. Department of Transportation, National Undersea Research Program, Department of Energy, Environmental Protection Agency, Texas General Land Office, Texas Parks and Wildlife, Texas Department of State Health Services, Welch Foundation, CONACYT, McDaniel Foundation, National Speleological Society, Texas Institute of Oceanography and Research Development Fund. Externally funded research expenditures were about \$4.3 million. Total research expenditures were over \$5.3 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, both a thesis and non-thesis Master of Marine Resource Management degree and a thesis and non-thesis Master of Maritime Administration and Logistics degree. There are over 90 students participating in these programs. Many of the faculty researchers also have graduate appointments in TAMUG and/or TAMU departments. Approximately 40 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.

## **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.

## **Academic Year**

The academic year is divided into the fall and spring semesters and the summer session which consists of two terms of five weeks each or one 10-week summer semester.



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# University Core Curriculum

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The Texas A&M Core Curriculum, in compliance with the Texas Core Curriculum, provides students with a foundation of knowledge of human cultures and the physical and natural world, develops principles of personal and social responsibility for living in a diverse world, and advances intellectual and practical skills that are essential for all learning. The Core Curriculum enhances the individual degree program and university graduation requirements, and all three areas must be met by every student.

Given the rapid evolution of necessary knowledge and skills and the need to take into account global, national, state, and local cultures, the core curriculum ensures that students will develop the essential knowledge and skills they need to be successful in college, in a career, in their communities, and in life. The core curriculum acts to enrich and broaden the University's tradition of providing thorough preparation in each student's academic major and preparing students for a lifetime of learning.

The University Core Curriculum requirements are described in the section that follows. These requirements must be met by every student entering Texas A&M University on or after the 2014 fall semester. Students entering earlier will be guided by the core curriculum in the catalog upon which they entered the university. Individual degree programs may require that specific courses from the core curriculum be used to satisfy core curriculum requirements. Please check with individual program advisors for details. Students transferring course credit to satisfy the Core Curriculum requirements should refer to the Texas Common Course Numbering System (see last page of this catalog).

The core curriculum focuses on the development of six skills that have been shown to be effective in preparing students for the job market and their role in a diverse world and democratic society.

- *Critical Thinking Skills* – to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
- *Communication Skills* – to include effective development, interpretation and expression of ideas through written, oral and visual communication.
- *Empirical and Quantitative Skills* – to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.
- *Teamwork* – to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.
- *Personal Responsibility* – to include the ability to connect choices, actions and consequences to ethical decision-making.
- *Social Responsibility* – to include intercultural competence, knowledge of civic responsibility, and the ability to engage effectively in regional, national, and global communities.

Students develop and practice these skills in the context of 42 semester credit hours assigned to eight Foundational Component Areas, each made up of a selection of courses that meet the definition provided by the Texas Core Curriculum. The courses that comprise each of these Foundational Component Areas can be found at [core.tamu.edu](http://core.tamu.edu).

## Communication – 6 SCH

Courses in this category focus on developing ideas and expressing them clearly, considering the effective of the message, fostering understanding, and building the skills needed to communicate persuasively. Courses involve the command of oral, aural, written, and visual literacy skills that enable people to exchange messages appropriate to the subject, occasion, and audience. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, team work, and personal responsibility.

**Mathematics – 6 SCH** (Note: Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Mathematics or the Component Area Option Foundational Component Area.)

Courses in this category focus on quantitative literacy in logic, patterns, and relationships. Courses involve the understanding of key mathematical concepts and the application of appropriate quantitative tools to everyday experiences. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, and empirical and quantitative.

**Life and Physical Sciences – 9 SCH** (Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Life and Physical Sciences or the Component Area Option Foundational Component Area.)

Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, empirical and quantitative, and team work.

## Language, Philosophy and Culture – 3 SCH

Courses in this category focus on how ideas, values, beliefs, and other aspects of culture express and affect human experience. Courses involve the exploration of ideas that foster aesthetic and intellectual creation in order to understand the human condition across cultures. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

### **Creative Arts – 3 SCH**

Courses in this category focus on the appreciation and analysis of creative artifacts and works of the human imagination. Courses involve the synthesis and interpretation of artistic expression and enable critical, creative, and innovative communication about works of art. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, team work, and social responsibility.

### **American History – 6 SCH**

Courses in this category focus on the consideration of past events and ideas relative to the United States, with the option of including Texas History for a portion of this component area. Courses involve the interaction among individuals, communities, states, the nation, and the world, considering how these interactions have contributed to the development of the United States and its global role. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

### **Government/Political Science – 6 SCH**

Courses in this category focus on consideration of the Constitution of the United States and the constitutions of the states, with special emphasis on that of Texas. Courses involve the analysis of governmental institutions, political behavior, civic engagement, and their political and philosophical foundations. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, social responsibility, and personal responsibility.

### **Social and Behavioral Sciences – 3 SCH**

Courses in this category focus on the application of empirical and scientific methods that contribute to the understanding of what makes us human. Courses involve the exploration of behavior and interactions among individuals, groups, institutions, and events, examining their impact on the individual, society, and culture. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, empirical and quantitative, and social responsibility.

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# Student Learning Outcomes

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Student learning outcomes articulate the results we expect students to gain during their educational experiences. Sometimes these results or outcomes are identified by a particular course, sometimes by a degree program, and sometimes by the institution. A course-level learning outcome, for example, might ask that students genuinely understand a mathematical concept or a physiological process. A degree program-level outcome may be more abstract, such as having students demonstrate that they can solve real-world problems by using an approach typical of their field or discipline.

The institutional-level student learning outcomes ask students to connect their course- and degree-level learning to overall goals determined to be critically important to a university's graduates as they make their way in the world after graduation.

First and foremost, of course, we expect students to have learned the material presented in their individual courses. From entry-level general education courses required of all undergraduates, to capstone courses restricted to seniors in a major, to specialized graduate seminars, by the time of graduation students are expected to have learned the material assigned in all of their courses. We call this "content knowledge."

The broader institutional student learning outcomes are at a higher order of thinking that asks students to connect the pieces of their education into a whole that synthesizes what they have learned. By not only knowing facts and understanding basic concepts but demonstrating an ability to apply those facts and concepts creatively in new situations, students gain the flexible thinking and effective communication that allows them to thrive in today's complex world.

## Baccalaureate

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A student who graduates from Texas A&M University with a baccalaureate degree will have acquired the knowledge and skills necessary to:

**Master the depth of knowledge required for a degree**, including the ability to:

- Articulate disciplinary and interdisciplinary theories, concepts, principles, skills, and practices;
- Synthesize knowledge across courses and other experiences; and
- Apply knowledge from core curriculum courses, discipline-based courses, and other experiences in a range of contexts to solve problems and make decisions.

**Demonstrate critical thinking**, including the ability to:

- Evaluate, analyze, and integrate information from a variety of sources;
- Use appropriate strategies and tools to represent, analyze, and integrate information; and
- Develop critical, reasoned positions.

**Communicate effectively**, including the ability to:

- Demonstrate effective oral communication skills (which could include the use of languages such as American Sign Language for those who do not communicate orally);
- Demonstrate effective writing skills;
- Demonstrate effective nonverbal communication skills (which could include appropriate use of performance, design, or representations such as maps, tables, and graphs);
- Listen actively and critically;
- Present work effectively to a range of audiences; and
- Effectively communicate original and creative ideas.

**Practice personal and social responsibility**, including the ability to:

- Practice ethical leadership;
- Recognize an ethical dilemma and apply rational decision-making in order to address it;
- Choose ethical courses of action in research and practice;
- Acknowledge and address the consequences of one's own actions; and
- Engage in local and global civic activities.

**Demonstrate social, cultural, and global competence**, including the ability to

- Live and work effectively in a diverse and global society;
- Articulate the value of a diverse and global perspective; and
- Recognize diverse economic, political, cultural, and religious opinions and practices.

**Prepare to engage in lifelong learning**, including the ability to:

- Exhibit the skills necessary to acquire, organize, reorganize, and interpret new knowledge;
- Show proficiency in current technologies and the ability to adapt to emerging technologies;
- Recognize and participate in activities that enhance wellness of body, mind, and spirit;
- Formulate a plan of personal goals for continued professional growth; and
- Demonstrate intellectual curiosity.

**Work collaboratively**, including the ability to:

- Participate effectively in teams;
- Consider different points of view; and
- Work with others to support a shared purpose or goal.

# DEGREE INFORMATION

## Which Catalog to Follow

To meet the requirements for a baccalaureate degree, a student is 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](http://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 Vice President for Academic Operations, 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 Vice President for Academic Operations.

## 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:

|   | Baccalaureate | Masters | Doctorate |
|---|---------------|---------|-----------|
| Department of General Academics                 |               |         |           |
| Maritime Studies                                | B.A.          |         |           |
| Department of Marine Biology                    |               |         |           |
| Marine Biology                                  | B.S.          | M.S.*   | Ph.D.*    |
| Marine Fisheries                                | B.S.          |         |           |
| Department of Marine Engineering Technology     |               |         |           |
| Marine Engineering Technology                   | B.S.          |         |           |
| Department of Marine Sciences                   |               |         |           |
| Marine Resources Management                     |               | MARM    |           |
| Marine Sciences                                 | B.S.          |         |           |
| Ocean and Coastal Resources                     | B.S.          |         |           |
| University Studies                              | B.A., B.S.    |         |           |
| Emphasis in Oceans and One Health               |               |         |           |
| Emphasis in Marine Environmental Law and Policy |               |         |           |
| Department of Maritime Administration           |               |         |           |
| Maritime Administration                         | B.S.          |         |           |
| Maritime Administration and Logistics           |               | MMAL    |           |
| Department of Maritime Systems Engineering      |               |         |           |
| Offshore and Coastal Systems Engineering        | B.S.          |         |           |
| Department of Maritime Transportation           |               |         |           |
| Marine Transportation                           | B.S.          |         |           |

\* Joint program between Texas A&M University, Texas A&M University at Galveston and Texas A&M University-Corpus Christi.

Two 5-year programs are offered allowing students to earn their bachelor's and master's degrees in a 3+2 format, combining the senior year of undergraduate with the first year of graduate studies. The Ocean and Coastal Resources degree is combined with the Masters of Marine Resources Management; and the Maritime Administration degree is combined with the Masters of Maritime Administration and Logistics.

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.

## Requirements for a Baccalaureate Degree

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To be a candidate for a degree at the end of the semester, a student must:

1. Be registered for or have completed all degree requirements by the 60th class day of the fall or spring semester, or the 15th class day of the second summer term either in residence or at another college or university. Proof of enrollment in any courses taken at another college or university must be provided to the Office of Enrollment Services, by the above deadlines.
2. Complete a minimum of 120 credit hours.
3. Complete, with at least a 2.0 grade point average, all undergraduate coursework attempted at Texas A&M University.
4. Complete, with at least a 2.0 grade point average, all courses included in the major field of study.
5. Meet the 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. A student participating in Texas A&M University off-campus study programs approved by the student's college may apply upper division credits earned in the programs toward the residence requirement up to a maximum of 18 semester hours, including hours transferred from another institution as part of one of these programs. These Texas A&M University off-campus study programs may involve domestic or international institutions and may be taught by Texas A&M University faculty or faculty from other institutions. Students choosing to participate in such programs and wishing to apply credits earned from the programs toward the residence requirement must receive college approval prior to the student's participation in the off-campus study program. Students participating in international programs must contact the Study Abroad Programs Office for details on how to obtain approval for courses taken outside the United States. Students participating in domestic off-campus programs must contact their department for approval procedures.
6. Complete the University Core Curriculum. Core Curriculum Courses are listed at [core.tamu.edu](http://core.tamu.edu).
7. Complete the citizenship requirement, which includes 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 dean of the appropriate college, students successfully completing the required 12 hours of upper-level ROTC courses will be deemed to have completed the equivalent of POLS 206 or POLS 207 plus HIST 105 or HIST 106 (or another appropriate course) for a total of 6 hours.

8. Complete the Foreign Language requirement. A minimum of one year of foreign language is required in many degree programs at 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 the same language at the college level.
  - a. International students are not permitted to enroll in courses to satisfy this degree requirement.
  - b. Bachelor of Arts degrees may 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 the 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.)
9. Complete the Writing requirement. 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 Vice President of Academic Affairs. Upon request, students will provide their dean with a course description, syllabus or writing sample from the course being transferred.



10. Complete the International and Cultural Diversity requirement (6 credit hours). 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 list available at [icd.tamu.edu](http://icd.tamu.edu) are to be taken by the student. If a course listed also satisfies a Core Curriculum requirement, it can be used to satisfy both requirements if the student wishes to do so.
11. Be formally recommended for graduation by the Faculty Senate after consideration of his or her complete record.
12. Fulfill any other requirements stipulated by Student Rule 14 ([student-rules.tamu.edu/rule14](http://student-rules.tamu.edu/rule14)).

### **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.

### **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.

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

### **Graduation Application, Diploma and Commencement**

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. The student must apply online at [Howdy.tamu.edu](http://Howdy.tamu.edu).

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 the Office of 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 all degree requirements.

All students must have settled all financial obligations to the university prior to receiving a diploma.

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.

### **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.
- Credit for remedial education courses, technical courses, workforce education courses funded according to contact hours, or other courses that would not generate academic credit that could be applied toward a degree program at Texas A&M University.
- Semester credit hours earned by the student at a private or an out-of-state institution.
- Semester credit hours earned by the student before graduating from high school and used to satisfy high school graduation requirements.

### **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://registrar.tamu.edu/general/threeppeat.aspx>.
- 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.

## **ADMISSION**

Both Texas and non-Texas students can apply for undergraduate admission in the year 2015 to any Texas Public University for freshman, transfer and international admission by using the ApplyTexas application. You may access the appropriate application from the website [ApplyTexas.org](http://ApplyTexas.org) or the Texas A&M University at Galveston website ([www.tamug.edu](http://www.tamug.edu)).

Acceptance to Texas A&M University at Galveston does not constitute admission to the U.S. Maritime Service Corps of Cadets (separate application required, see the Texas A&M Maritime Academy website at [www.tamug.edu/corps](http://www.tamug.edu/corps)).

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

The admission guidelines presented here are for admission to the Spring, Summer or Fall 2015 semesters. While they are the best guide available, admission criteria are subject to change. The Office of Enrollment Services website [Tamug.edu/admrc](http://Tamug.edu/admrc) contains the admission policies and procedures most current for 2015 admission.

### **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 2015, Summer 2015 and Fall 2015 are not available online at [ApplyTexas.org](http://ApplyTexas.org) until August 1, 2014.

### **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, 2014. The completed application must be in the Office of Enrollment Services by 5 p.m., July 31, 2015 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, 2014. The completed application must be in the Office of Enrollment Services by 5 p.m., July 31, 2015 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).

International Freshman students:

- To apply for Spring 2015 - April 1, 2014 to August 1, 2014.
- To apply for Fall 2015 - August 1, 2014 to December 1, 2014.
- To apply for Spring 2016 - April 1, 2015 to August 1, 2015.

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 Transfer students:

- To apply for Spring 2015 - April 1, 2014 to August 1, 2014.
- To apply for Summer I 2015 - August 1, 2014 to November 1, 2014
- To apply for Fall 2015 - September 1, 2014 to March 1, 2015.
- To apply for Spring 2016 - April 1, 2015 to August 1, 2015.

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. The application for Readmission will be available August 1, 2014 for Fall 2015. The completed application must be in the Office of Enrollment Services by 5 p.m., July 31, 2015 to be considered.

A Postbaccalaureate Undergraduate student is an applicant who has a bachelor's degree and wishes to pursue a second undergraduate degree. The application for Postbaccalaureate admission will be available August 1, 2014. The completed application must be in the Office of Enrollment Services no later than 5 p.m., July 31, 2015 to be considered.

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. The application for Non-degree Seeking admission will be available August 1, 2014. The completed application must be in the Office of Enrollment Services by 5 p.m., July 31, 2015 to be considered.

### **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. The items must be received by the appropriate closing date to assure consideration. In addition, applicants must show proof of meeting the State of Texas Uniform Admission Policy.

#### **Texas Common Application, submitted electronically via ApplyTexas**

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

- Domestic - Nonrefundable \$75
- International - Nonrefundable \$90
- Domestic Graduate - Nonrefundable \$50
- Checks or money orders should be made out to Texas A&M University at Galveston. International checks must be backed by a U.S. Bank and be issued in U.S. Dollars. The student's name and date of birth should be written on the face of checks and money orders.

##### **Guidelines for Requesting Application Fee Waivers:**

- Fee waivers are not available for international students.
- Freshman Waivers: Applicants requesting a fee waiver must submit an SAT/ACT fee waiver request form (must have an original signature from both the applicant and the counselor issuing the waiver), or submit documentation of need via a memo on school letterhead signed by the high school counselor. Typically, need is defined by qualification for free lunch programs. Copies or faxes of these forms will not be accepted. The original document is required. Checking the fee waiver box on the application does not satisfy the fee waiver requirement. You must provide documentation of need as noted above. Fee waiver request documents should be mailed to the following address:

Texas A&M University at Galveston  
Office of Enrollment Services  
P. O. Box 1675  
Galveston, TX 77553-1675

- Transfer or Readmit Waivers: To request a fee waiver, please provide a letter from your current financial aid advisor documenting your need. A copy of an award letter from your current institution or your Student Aid Report (SAR) provided by FAFSA will also be accepted. **Checking the fee waiver box on the application will not satisfy the fee waiver requirement.**

### 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, graduation plan/diploma type and a numerical 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 provide transcripts from all schools attended may be considered a fraudulent admissions application. A college transcript for dual credit coursework earned in high school must also be provided.
- 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 ad-

mitted to the University. There are certain requirements that International Students must fulfill upon enrollment. Please contact International Student Services at <http://iss.tamu.edu/> for more information about these requirements.

### **Required Immunizations**

Texas Education Code 51.9192 requires all entering students (under the age of 22) to provide evidence of the vaccination against bacterial meningitis received within the last 5 years or a signed affidavit declining the vaccine at least 10 days prior to the start of classes for any given semester. Learn more about bacterial meningitis at [www.tamug.edu/admrc/AttendingTAMUG/BacterialMeningitis.html](http://www.tamug.edu/admrc/AttendingTAMUG/BacterialMeningitis.html).

### **Notification of Application Status**

Check the Applicant Information System (AIS) website 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. Please visit <http://www.tamug.edu/admrc/Admissions/FreshmanAdmission.htm> for a complete description of coursework including information for home-schooled and out-of-state applicants.

### **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

### **Additional Information for Freshman Applicants**

#### **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. Those applying for Terry Foundation Scholarship Program are required to complete Essay Topic C.

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# Freshman Admissions

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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 if they have successfully met the State of Texas Uniform Admission Policy. These applicants must submit all required credentials to qualify for automatic admission.

## 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 have successfully met the state of Texas Uniform Admission Policy 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.

## Information for all Freshman Applicants

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- 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 strong academic credentials may be offered provisional admission that requires the successful completion of a summer school program at Texas A&M University at Galveston.

## Notice of Admission Decision

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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. S.A.I.L. Program admissions decisions are made throughout the year.

## Suspected Fraudulent Admission Applications

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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.

All students applying to Texas A&M University are expected to follow the Aggie Code of Honor which states "An Aggie does not lie, cheat or steal nor tolerate those who do." Applicants found to have misrepresented themselves or submitted false information on the application will receive appropriate disciplinary action which may include rejection of the application, withdrawal of any offer of acceptance, cancellation of enrollment or any other appropriate disciplinary action deemed necessary. In all instances of disciplinary action, the application fee is non-refundable.

Pursuant to the 2014-2015 undergraduate catalog and Texas A&M student rules, acts of dishonesty include but are not limited to:

- Withholding material information from the University, misrepresenting the truth during a University investigation or student conduct conference, and/or making false statements to any University official.
- Furnishing false information to and/or withholding information from any University official, faculty member, or office.
- Forgery, alteration, or misuse of any University document, record, or instrument of identification.

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 Vice President for Academic Operations.

For enrolled students, the initial determination of whether a student submitted a fraudulent application will be made by the Executive Director of Enrollment Services, with a final right of appeal to the Vice President of 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.



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# Transfer Admissions

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

## Admission Criteria

- 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.
- 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 A&M Maritime Academy 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 University at Galveston, 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.aspx>.

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.

## Automatic Transfer Admission through SB 175

A transfer applicant who graduated from a Texas high school and ranked in the top 10% of the student's high school qualifies for automatic transfer admission to a 4-year university under the provisions of SB 175 if they meet the following guidelines:

1. The applicant must have graduated in the top 10% of his or her high school graduating class from a Texas high school not more than 4 years prior to the semester for which the student is applying. The top 10% ranking must be stated on the final high school transcript, or,
2. The applicant must have been previously offered admission under the top 10% rule to the institution to which the applicant seeks admission as a transfer student.
3. The applicant must complete the core curriculum at a public junior college or other public or private lower-division institution with a 2.5 GPA on a four-point scale or equivalent.
4. Transcript should note core completion.
5. The applicant must expressly and clearly claim in the application that he or she is seeking admission under the transfer top 10% rule (SB 175).
6. The applicant must provide all of the documents required for transfer admission to Texas A&M by the posted deadline. Transfer requirements can be found at <http://www.tamug.edu/admrc/NoShow/Transfer.html>.

Students qualifying for transfer top 10% admission under SB 175 will be admitted to Texas A&M University at Galveston.

## Notification of Transfer Admission Decisions

Transfer admission decisions are made through a competitive review process. For those applicants submitting spring grades for fall consideration, decisions should be announced in early July.

## Information for Transfer Applicants

1. At least a 2.5 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 for admissions decisions. 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 103           | 3     | All majors                               |
| ENGL 1302                             | 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<br>or MATH 2413, 1324 | MATH 141, 142      | 6     | MARA, MARB, MARF, MART majors            |
|                                       | MATH 151, 166      | 7     | MARB, MARF or OCRE majors                |
| MATH 2412, 2413                       | MATH 150, 151      | 8     | MARR majors                              |
| MATH 2413, 2414                       | MATH 151, 152      | 8     | OCSE majors                              |
| MATH 2413, 2314                       | MATH 151, 161      | 7     | MARS, MARS-LO majors                     |
| BIOL 1406, 1407                       | BIOL 111, BIOL 112 | 8     | MARB, MARF, MARS majors                  |
| PHYS 1401, 1402                       | PHYS 201 and 202   | 8     | MART majors                              |
| PHYS 2425, 2426                       | PHYS 218, 208      | 8     | OCSE and MARR majors                     |
| Social science electives              |                    | 3     | 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 classified by the number of credits transferred. Depending on the number of transferred credits used in the student's degree plan, a student could be classified as a senior but be a curriculum sophomore.

### 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 U.S. Maritime Service 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 some undergraduate degrees at two branch campuses in addition to the main campus. While enrolled as a student in residence at any Texas A&M location of admission, students may apply for a change of curriculum to another campus for the next future semester. Students must comply with the established change of major procedures and requirements of their desired college and department, and space must be available. Final approval is granted by the academic dean or departmental advisor for that major.

### 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 the academic department head 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 Marine Engineering Technology or that the student's department head approves 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, the academic department head 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 chief academic officer of TAMUG.

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 average on the first 30 hours of residence work at TAMUG.

### **Credit from Foreign Institutions**

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 Pre-Approval Form. Courses must be equivalent in character and content to courses offered at Texas A&M. Credit will not be awarded from international institutions which are not academically accredited by the Ministry of Education or other appropriate authority in the home country.

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. The credentials of all language centers and language institutes are carefully checked.

### **Credit for Military Experience**

State law (Texas Education Code Section 51.3042) and Texas A&M University policy awards credit for military experience to eligible veterans. To receive credit, student veterans must submit proof of eligibility to the Enrollment Services and a request form through an academic advisor. Texas A&M University awards one credit hour each for physical education core curriculum courses KINE 198 and KINE 199, and up to 12 credit hours for general electives, as needed for the student's degree. Credit earned under this policy does not prohibit Texas A&M University from awarding additional credit for military experience based on military transcripts and recommendations contained within *Guide to the Evaluation of Educational Experiences in the Armed Services* published by the American Council on Education (ACE).

Proof of eligibility includes:

- Documentation of military service
- DD Form 214 showing 1 year active duty and an honorable discharge OR
- Military orders OR
- Disability discharge documentation
- Documentation of high school completion (final high school transcript or General Educational Development certificate)

**Military Service Credits are irrevocable once awarded.** Potential consequences should be identified and understood before a request is submitted. Students must consult their academic advisor for advice on the number of credits from military service that can be used in their degree program to avoid excessive credit accumulation and possible negative effects.

### **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 at <http://catalog.tamu.edu/> 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](mailto: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. 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 21 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 [Howdy.tamu.edu](http://Howdy.tamu.edu) 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://iss.tamu.edu/>.

### 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 21;
- 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://iss.tamu.edu/>. 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](mailto: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](mailto:international-admission@tamu.edu).

## Admissions Criteria for Other Application Types

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### 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 the SAIL summer school program at Texas A&M University at Galveston. This program requires attendance on campus 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:

| <b>If desired Readmission Term is</b> | <b>Must have transcripts through</b>           |
|---------------------------------------|--|
| 2015 Spring semester                  | 2014 Summer session;                           |
| 2015 Summer semester                  | 2014 Fall semester;                            |
| 2015 Fall semester                    | 2015 Spring semester if applying after June 1. |

### Postbaccalaureate Undergraduate Criteria

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**

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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 TSI 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 or [www.tamug.edu/acen](http://www.tamug.edu/acen). 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, the student has officially enrolled in the University and the student has accepted the credit. For information regarding current procedures for accepting credit, please visit the Office of Academic Enhancement website at [www.tamug.edu/acen](http://www.tamug.edu/acen).
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 he or she is currently registered. If a student has acquired a grade or exercised First-Year Grade Exclusion on a course, then the student will not be eligible to take the equivalent departmental exam. Eligibility will not be affected if a student has a Q, W or NG in a course.

## 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. The minimum scores listed below are based on the current version of CLEP CBT Examinations. Students will need to contact the Office of Academic Enhancement to determine the eligibility of credit earned by CLEP tests. The TAMUG Code is 6835.

| 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            |
| Calculus with Elementary Functions                         | 50                     | MATH 151 or MATH 171    | 4            |
| Chemistry  | 45                     | CHEM 101, 111           | 4            |
|  | 50                     | CHEM 101, 102, 111, 112 | 8            |
| Financial Accounting                                       | 50                     | ACCT 209                | 3            |
| History of the United States I: Early Colonization to 1877 | 60                     | HIST 105                | 3            |
| History of the United States II: 1865 to the Present       | 60                     | 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            |
| Western Civilization I: Ancient Near East to 1648          | 60                     | HIST 101                | 3            |
| Western Civilization II: 1648 to Present                   | 60                     | HIST 102                | 3            |

## Dantes Subject Standardized Tests (DSST) Program

The DSST Program is available to all interested persons. 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            |
| 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. Students should have the College Board forward their scores to TAMUG, institution code: 6835. Advanced Placement scores of entering freshmen are generally received in late July. Students will need to log onto their Howdy portal (under My Records and then Credit by Exam) to accept the credit earned by AP tests. The Office of Academic Enhancement suggests visiting with your academic department before you accept credit.

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, 111           | 4            |
|                                | 4                      | CHEM 101, 102, 111, 112 | 8            |
| Chinese                        | 3                      | CHIN 101, 102           | 8            |
|                                | 4                      | CHIN 101, 102, 201, 201 | 14           |
| Comparative Governments        | 4                      | POLS 229                | 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, 202 | 14           |
| German Language                | 3                      | GERM 101, 102           | 8            |
|                                | 4                      | GERM 101, 102, 201, 202 | 14           |
| Human Geography                | 3                      | GEOG 201                | 3            |
| Italian Language               | 3                      | ITAL 101, 102           | 8            |
|                                | 4                      | ITAL 101, 102, 201, 202 | 14           |
| Japanese Language              | 3                      | JAPN 101, 102           | 8            |
|                                | 4                      | JAPN 101, 102, 201, 202 | 14           |
| Latin Literature               | 3                      | CLAS 121, 122           | 8            |
|                                | 4                      | CLAS 121, 122, 221, 222 | 14           |
| Latin: Vergil                  | 3                      | CLAS 121, 122           | 8            |
|                                | 4                      | 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         | 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           | 6            |
| 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.

For information for accepting AP credit, please visit the Office of Academic Enhancement website at [www.tamug.edu/acen](http://www.tamug.edu/acen).

## 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 at Galveston, score recipient code: 002210, 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 log onto their Howdy portal (under MyRecords tab and then select Credit by Exam to accept the credit earned via IB tests. The Office of Academic Enhancement suggests visiting with your academic department before you accept credit. Texas A&M University will notify IB applicants of their eligibility to receive credit by posting information on the website [www.tamu.edu/mars/testing/index.htm](http://www.tamu.edu/mars/testing/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 |
|-----------------------------|------------------------|-------------------------|--------------|
| Arabic: Language A or B SL  | 4                      | ARAB 101                | 4            |
|                             | 5                      | ARAB 101, 102           | 8            |
|                             | 6                      | ARAB 101, 102, 201      | 11           |
|                             | 7                      | ARAB 101, 102, 201, 202 | 14           |
| Arabic: Language A or B HL  | 3                      | ARAB 101                | 4            |
|                             | 4                      | ARAB 101, 102           | 8            |
|                             | 5                      | ARAB 101, 102, 201      | 11           |
|                             | 6                      | ARAB 101, 102, 201, 202 | 14           |
| 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, 111           | 4            |
|                             | 5                      | CHEM 101, 102, 111, 112 | 8            |
|                             | 6                      | CHEM 101, 102, 201, 202 | 14           |
| Chinese: Language A or B SL | 4                      | CHIN 101                | 4            |
|                             | 5                      | CHIN 101, 102           | 8            |
|                             | 6                      | CHIN 101, 102, 201      | 11           |
|                             | 7                      | CHIN 101, 102, 201, 202 | 14           |
| Chinese: Language A or B HL | 3                      | CHIN 101                | 4            |
|                             | 4                      | CHIN 101, 102,          | 8            |
|                             | 5                      | CHIN 101, 102, 201      | 11           |
|                             | 6                      | CHIN 101, 102, 201, 202 | 14           |
| Classical Greek SL          | 4                      | CLAS 101                | 4            |
|                             | 5                      | CLAS 101, 102           | 8            |
|                             | 6                      | CLAS 101, 102, 211      | 11           |
| Classical Greek HL          | 3                      | CLAS 101                | 4            |
|                             | 4                      | CLAS 101, 102           | 8            |
|                             | 5                      | CLAS 101, 102, 211      | 11           |
| 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            |
|                             | 6                      | ENGL 104, 222           | 6            |
| Environmental Systems       | 4                      | GEOS 105                | 3            |
| French: Lang. A or B SL     | 4                      | FREN 101                | 4            |
|                             | 5                      | FREN 101, 102           | 8            |
|                             | 6                      | FREN 101, 102, 201      | 11           |
|                             | 7                      | FREN 101, 102, 201, 202 | 14           |
| French: Lang. A or B HL     | 3                      | FREN 101                | 4            |
|                             | 4                      | FREN 101, 102           | 8            |
|                             | 5                      | FREN 101, 102, 201      | 11           |
|                             | 6                      | FREN 101, 102, 201, 202 | 14           |
| Fundamentals of Music       | 5                      | MUSC 102, 202           | 6            |
| Further Mathematics SL      | 4 w/diploma            | MATH 102                | 3            |
|                             | 5 w/diploma            | MATH 150                | 4            |
| Geography SL                | 4 w/diploma            | GEOG 201                | 3            |
| Geography HL                | 4                      | GEOG 201                | 3            |
| German: Lang. A or B SL     | 4                      | GERM 101                | 4            |
|                             | 5                      | GERM 101, 102           | 8            |
|                             | 6                      | GERM 101, 102, 201      | 11           |
|                             | 7                      | GERM 101, 102, 201, 202 | 14           |
| German: Lang. A or B HL     | 3                      | GERM 101                | 4            |
|                             | 4                      | GERM 101, 102           | 8            |
|                             | 5                      | GERM 101, 102, 201      | 11           |
|                             | 6                      | GERM 101, 102, 201, 202 | 14           |

|                                     |             |                         |    |
|-------------------------------------|-------------|-------------------------|----|
| History HL                          |             |                         |    |
| Africa                              | 4 w/diploma | HIST 104                | 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 104                | 3  |
| Europe                              | 4 w/diploma | HIST 102                | 3  |
| South Asia and Middle East          | 4 w/diploma | HIST 104                | 3  |
| History SL                          |             |                         |    |
| Islamic History                     | 4 w/diploma | HIST 221                | 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           | ITAL 101                | 4  |
|                                     | 5           | ITAL 101, 102           | 8  |
|                                     | 6           | ITAL 101, 102, 201      | 11 |
|                                     | 7           | ITAL 101, 102, 201, 202 | 14 |
| Italian: Lang. A or B HL            | 3           | ITAL 101                | 4  |
|                                     | 4           | ITAL 101, 102           | 8  |
|                                     | 5           | ITAL 101, 102, 201      | 11 |
|                                     | 6           | ITAL 101, 102, 201, 202 | 14 |
| Japanese: Lang. A or B SL           | 4           | JAPN 101                | 4  |
|                                     | 5           | JAPN 101, 102           | 8  |
|                                     | 6           | JAPN 101, 102, 201      | 11 |
|                                     | 7           | JAPN 101, 102, 201, 202 | 14 |
| Japanese: Language A or B HL        | 3           | JAPN 101                | 4  |
|                                     | 4           | JAPN 101, 102           | 8  |
|                                     | 5           | JAPN 101, 102, 201      | 11 |
|                                     | 6           | JAPN 101, 102, 201, 202 | 14 |
| Latin SL                            | 4           | CLAS 121                | 4  |
|                                     | 5           | CLAS 121, 122           | 8  |
|                                     | 6           | CLAS 121, 122, 221      | 11 |
|                                     | 7           | CLAS 121, 122, 221, 222 | 14 |
| Latin HL                            | 3           | CLAS 121                | 4  |
|                                     | 4           | CLAS 121, 122           | 8  |
|                                     | 5           | CLAS 121, 122, 221      | 11 |
|                                     | 6           | CLAS 121, 122, 221, 222 | 14 |
| Mathematics SL                      | 4 w/diploma | MATH 150                | 4  |
| Mathematics HL                      | 4           | MATH 150                | 4  |
|                                     | 5           | MATH 150, 151           | 8  |
| Mathematical Methods SL             | 4 w/diploma | MATH 102                | 3  |
|                                     | 5 w/diploma | 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           | MODL 289                | 4  |
|                                     | 5           | MODL 289                | 8  |
|                                     | 6           | MODL 289                | 11 |
|                                     | 7           | MODL 289                | 14 |
| Other Languages HL                  | 3           | MODL 289                | 4  |
|                                     | 4           | MODL 289                | 8  |
|                                     | 5           | MODL 289                | 11 |
|                                     | 6           | 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  |
| Russian: Lang. A or B SL            | 4           | RUSS 101                | 4  |
|                                     | 5           | RUSS 101, 102           | 8  |
|                                     | 6           | RUSS 101, 102, 201      | 11 |
|                                     | 7           | RUSS 101, 102, 201, 202 | 14 |
| Russian: Lang. A or B HL            | 3           | RUSS 101                | 4  |
|                                     | 4           | RUSS 101, 102           | 8  |
|                                     | 5           | RUSS 101, 102, 201      | 11 |
|                                     | 6           | RUSS 101, 102, 201, 202 | 14 |
| 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           | SPAN 101                | 4  |
|                                     | 5           | SPAN 101, 102           | 8  |
|                                     | 6           | SPAN 101, 102, 201      | 11 |
|                                     | 7           | SPAN 101, 102, 201, 202 | 14 |
| Spanish: Language A or B HL         | 3           | SPAN 101                | 4  |
|                                     | 4           | SPAN 101, 102           | 8  |
|                                     | 5           | SPAN 101, 102, 201      | 11 |
|                                     | 6/7         | 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.

For information about accepting IB credit, please visit the Office of Academic Enhancement website at [www.tamug.edu/acen](http://www.tamug.edu/acen).

## 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. The TAMUG code is 6835.

| Subject Test | Minimum Score Required* | Texas A&M Course(s) | Credit Hours |
|--------------|-------------------------|---------------------|--------------|
| Chemistry    | 630                     | CHEM 101/111        | 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.

For information about accepting credit, please visit the Office of Academic Enhancement website at [www.tamug.edu/acen](http://www.tamug.edu/acen).

## Departmental Examinations for Currently Enrolled Students

Currently enrolled students that meet all eligibility requirements may take exams throughout the year. Contact the Office of Academic Enhancement or check the website at [www.tamug.edu/acen](http://www.tamug.edu/acen) for registration requirements and information. The tests are prepared by participating Texas A&M departments. Current offerings include:

CHEM 101 102

PHYS 201, 202, 208, 218

POLS 206, 207

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

## 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 approved TSI Assessment test.

Students who do not meet established cutoff scores or other approved exemptions for the TSI 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 TSI 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:

The Texas Higher Education Coordinating Board

P. O. Box 12788

Austin, TX 78711-2788

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 and with the permission of the instructor, may 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.

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# REGISTRATION AND ACADEMIC STATUS

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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](http://www.tamug.edu) (available shortly before pre-registration periods).

## 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; MARR 200, 300, 400; or MARE 200, 300, 400) will be considered a full-time student. Please note that Federal Financial Aid may have different rules to classify 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 Vice President for Academic Operations.

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 Vice President for Academic Operations. 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:

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### Code Classification Definition

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#### U0 Undergraduate Non-degree

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:

- a. Summer session only students.
- b. Local residents or University employees taking courses on a part-time basis.
- c. 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.

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.

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.

An undergraduate non-degree student may not take graduate-level coursework.

Undergraduate non-degree students are subject to TSI and English proficiency requirements.



An undergraduate non-degree student does not qualify for financial aid through the University.  
With few exceptions, undergraduate non-degree status is not available to international students.

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| <b>Code</b> | <b>Classification Definition</b> |
|-------------|----------------------------------|
|-------------|----------------------------------|

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|    |                     |
|----|---------------------|
| 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 |
|----|---------------------------------|

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## Academic Status

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### 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. 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 used a First Year Grade Exclusion prior to Fall 2013 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

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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 Vice President for Academic Operations 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 [Howdy.tamu.edu](http://Howdy.tamu.edu). 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.

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## GRADING SYSTEM

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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.

### 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 Vice President for Academic Operations. 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 begin-

ning 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 12 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 60th 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 four 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 four 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. After the Q-drop period has elapsed, a grade of W may be recorded by the Vice President for Academic Operations 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.
  - 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.
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.
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.

The State of Texas defines a semester credit hour in Rule 4.6 of the Texas Administrative Code, “Minimum Length of Courses and Limitation on the Amount of Credit that a Student May Earn in a Given Time Period”. For more information on Rule 4.6, please visit the State of Texas [webpage](#).

### **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**

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#### **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 [Howdy.tamu.edu](http://Howdy.tamu.edu).

#### **Final Grade Report**

End of semester final grades are available at [Howdy.tamu.edu](http://Howdy.tamu.edu). No student grade may be posted in a manner that is personally identifiable unless the student has given written consent in advance.

#### **Parent/Guardian Access to Grades**

A parent or guardian may access midterm and final grades at [Howdy.tamu.edu](http://Howdy.tamu.edu) after the student sets the parent access password. The Enrollment Services Office cannot see the passwords created by students for parental access.

#### **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 tab 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.

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# TUITION, FEES AND OTHER FINANCIAL INFORMATION

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## 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 (Marine Transportation, Marine Engineering Technology, Marine Biology-License Option or Marine Sciences-License Option).

The tuition rate also differs according to the date of entry into Texas A&M University. In order to determine your tuition and fees, go to <http://fms-galveston.tamu.edu/sbs-galveston/tuition/>.

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.

## Payment of Tuition and Fees

Students must meet all financial obligations to the University by their due dates to avoid late penalties, regardless of timing of payment assistance (scholarships, loans, tuition assistance, etc). 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. Students who wish to pay fees in installments can select the option on the My Finances tab at [Howdy.tamu.edu](http://Howdy.tamu.edu).

- Payments to Financial Management Services may be in the form of 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. Debit cards are also accepted in person.
- Discover, Mastercard and American Express credit cards and E-checks are accepted for tuition and fee payments over the website at [Howdy.tamu.edu](http://Howdy.tamu.edu). Convenience fees will be charged for online credit card transactions, with a minimum \$3 charge. Visa cannot be used for payment.
- Credit card payments in person cannot be accepted by the Financial Management Office.

No tuition and fee statements will be mailed. Notices of amounts owed should be obtained through [Howdy.tamu.edu](http://Howdy.tamu.edu). An email will be sent to a student's University email address (neo.tamu.edu) when the tuition and fee statement is available to view on line. Students must use their Howdy 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 University email address (neo.tamu.edu) that the fee statement is available to view online and when tuition is due and payable.

Students may choose to pay tuition and fees in installments which is explained below. Students on the installment plan will receive notification through their University email 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 available. All financial aid or loans must be accepted before being applied toward the student's account.

## 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 under 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. If you wish to try and qualify for this program, please see the website <http://registrar.tamu.edu/> for a complete set of student and institutional responsibilities and other criteria.

## Obligation to Pay Tuition, Required Fees, Other Fees and Charges for Optional Services

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.

## Financial Obligation for Graduating Students

According to Texas A&M University Student Rules and the Texas Education Code, all financial obligations to the University must be paid by the end of the semester. Failure to settle all financial obligations will result in withholding a student's diploma at graduation. Additionally, a block will be placed on the student's account which will prohibit registration in subsequent semesters and receipt of official transcripts.



## Installment Plan

Tuition, most fees, and room and board may be paid in four installments with 25% payable at the time of enrollment in Payment Plan 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 each semester. For full details on the installment plan and directions how to sign up, go to:

<http://finance.tamu.edu/sbs/tuition/installments.asp>.

## One Time Only Fees

|   |          |
|---|----------|
| Room Deposit (refundable)                   | \$300.00 |
| New Student Conference Fee (not refundable) | \$100.00 |
| General Property Deposit (refundable)       | \$100.00 |

## Housing and Meal Plans

All undergraduate students under the age of 21 and 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. Information concerning a request to live off-campus can be obtained at <http://www.tamug.edu/reslife/Forms.html>. 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 at <http://fms-galveston.tamu.edu/sbs-galveston/tuition/>. In certain cases, single room housing is offered. The fee for that room is the normal rate plus 50%.

## Housing

| On Campus Residence Halls    | Fall/Spring | Summer (5 weeks) |
|------------------------------|-------------|------------------|
| Oceans, Hullabaloo & Mariner | \$2,310.00  | \$ 907.37        |
| Atlantic, Pacific            | \$2,940.00  | \$1,154.83       |
| Albatros and Polaris         | \$2,625.00  | \$1,031.10       |

Note: These fees include state and city tax of 8.25%. The fees for one summer session will be doubled if a student enrolls for both sessions.

## 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 at (409-740-4591).

### Fall and Spring

|                             |  |
|-----------------------------|--|
| 19 Meal Plan - Mon. - Sun., | \$1,727.00 + \$142.48 tax = \$1,869.48 |
| 15 Meal Plan - Mon. - Sun., | \$1,612.00 + \$132.99 tax = \$1,744.99 |

### Fall and Spring (Optional meal plan)

|                       |  |
|-----------------------|--|
| Any 10 meals per week | \$1,244.00 + \$102.63 tax = \$1,346.63 |
| Any 5 meals per week  | \$ 717.00 + \$ 59.15 tax = \$ 776.15   |

### 5-Week Summer Session

|                             |                                     |
|-----------------------------|-------------------------------------|
| 19 Meal Plan - Mon. - Sun., | \$ 576.00 + \$47.52 tax = \$ 623.52 |
| 15 Meal Plan - Mon. - Sun., | \$ 527.00 + \$43.48 tax = \$ 570.48 |

### 5-Week Summer Session (Optional meal plan)

|              |                                     |
|--------------|-------------------------------------|
| Any 10 meals | \$ 355.00 + \$29.29 tax = \$ 384.29 |
| Any 5 meals  | \$ 160.00 + \$13.20 tax = \$ 173.20 |

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

### 10-Week Summer Session

|                             |                                       |
|-----------------------------|---------------------------------------|
| 19 Meal Plan - Mon. - Sun., | \$1,152.00 + \$95.04 tax = \$1,247.04 |
| 15 Meal Plan - Mon. - Sun., | \$1,055.00 + \$87.04 tax = \$1,142.04 |

### 10-Week Summer Session (Optional meal plan)

|              |                                     |
|--------------|-------------------------------------|
| Any 10 meals | \$ 711.00 + \$58.66 tax = \$ 769.66 |
| Any 5 meals  | \$ 319.00 + \$26.32 tax = \$ 345.32 |

## **Tuition and Fees: Texas Resident and Non-Texas Resident (Both undergraduate and graduate)**

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Tuition and fees can be found at <http://fms-galveston.tamu.edu/sbs-galveston/>, Tuition Information. The student will need to know his/her cohort (his group of students who are paying tuition and fees based on their entry semester into Texas A&M) for determination of his/her tuition and fees.

## **Tuition and Fees: License Option Cadets (not NROTC)**

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These students are enrolled in MARB-LO, MARS-LO, MART or MARR curriculum. All Cadets enrolled in License Option curricula pay a special tuition rate regardless of their state residency status (in-state or out-of-state).

Tuition and fees can be found at <http://fms-galveston.tamu.edu/sbs-galveston/>. The student will need his cohort for determination of his Tuition and Fees. Cadets who are NROTC, Drill and Ceremonies or International are not eligible for this special License Option tuition and pay normal Texas Resident or Non-Resident as applicable.

Summer Cruise – Cadets may sail on the Texas A&M Maritime Academy training ship (General Rudder) or they may sail aboard another maritime academy's training ship, all depending on capacity and timing issues. There may be additional costs associated with travel to the ports of departure and arrival.

Cadets in the License Option Program must take a total of three cruises within four summers. In order to obtain federal financial aid, students must enroll in a minimum of six semester credit hours during the summer term. Cadets may meet this requirement by completing two additional semester credit hours while on cruise or by completing an additional course on campus. Either of these options will result in additional tuition expenses.

The Summer Cruise expense aboard the Training Ship General Rudder includes a cruise fee, room and meal plan. Summer cruise fees for students sailing with alternate schools will incur fees as charged by those schools (estimated to be between \$7,500 to \$9,000). The Summer Cruise meal plan expense includes state and city tax of 8.25%. In addition, summer cruise expenses may be increased to cover travel to and from the ports.

Other Expenses – This may include uniforms with an initial outlay of \$1500, special training such as Fire Fighting School and incidentals.

In order to receive federal financial aid, students must enroll in a minimum of six semester credit hours during the summer term. Cadets may meet this requirement by completing an additional two semester credit hours while on cruise or by completing an additional course on campus. Either of these options will result in additional tuition expenses.

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.

## **Late Fees and Penalties**

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Penalties include:

- \$25 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.

## **Student Financial Responsibility**

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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 reserves 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.

## **Cancelling Registration**

Once students have registered for classes, they must select one course of action from the following to remain in good standing with the University:

- pay all amounts due by the specified due date;
- use the online registration to drop all classes prior to the first day of classes; or
- contact the Enrollment Services Office to begin the withdrawal process from the University after the first day of classes.

Following this procedure is especially important for students who have been awarded scholarships or financial aid since the aid may automatically pay tuition and fees and cause the registration to be held even though the student has decided not to attend. Failure to request cancellation of an unwanted registration may result in grades of F or I in all courses for the semester. The student will be required to reimburse the University for scholarships and other financial aid applied to his or her account and will be held responsible for paying all fees for the semester, regardless of whether he or she attended classes.

## **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 assessed a \$100 late registration fee 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 assessed a \$100 late registration fee 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 fees 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>.

Short term loans are available at [Howdy.tamu.edu](http://Howdy.tamu.edu) and are to pay optional fees, such as residence hall fees, meal plans, parking, etc. They can be repaid up to 12 months. To qualify you must be registered for 6 hours in the fall or spring semester and 3 hours in the summer term and be clear of all past due loans and blocks.

## **Unpaid Check**

If a check or ACH payment 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 or ACH payment 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 or ACH payment. If Financial Management Services receives three returned checks or ACH payments from one student, the University will no longer accept this payment type for the student.

## **Mandatory Fees**

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### **General Property Deposit**

Every student, unless registered in absentia, must make a \$100 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.

## 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.

## Graduate New Student Conference Fee

The New Graduate Student Conference fee is required of all new graduate students enrolling in the fall or spring semesters and selected summer terms at the rate of \$50 per student. This fee supports the provision of advanced materials to accepted students and the activities and food during the orientation.

## 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 \$100 per student. This fee supports the provision of advanced materials to accepted students, the conduct of new student conferences (including some meals) and student activities.

## Housing Deposit

A deposit of \$300 is required as part of a completed housing application. Exact stipulations and details regarding the use and return of that deposit are listed within the contract signed with the application.

## University Authorized Tuition

This variable fee 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.

## 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:

- A course is subject to the fee if a student has completed it twice at Texas A&M University 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), F# (Freshmen Grade Exclusion) 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 [admissions.tamu.edu/registrar/general/threepeat.aspx](http://admissions.tamu.edu/registrar/general/threepeat.aspx).
- 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 University and is subject to the supplementary fee.

## University Advancement Fee

The variable University Advancement Fee is a required fee charged to all Texas A&M University students. The Advancement fee funds services such as advising, technology, library and administrative services such as ID services, utilities, access to discounted software and many services provided through Student Services.

## Fees for other Services

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### 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 \$75 fee. Students who submit an application for graduate studies pay a \$50 fee. International students pay a \$90 application fee.

### Cadet Drug Test Fee

The Cadet Drug Test Fee is \$35 per semester and is required for all license option students.

### **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. This fee is optional if the student desires to access career services through Texas A&M University in College Station.

### **Commercial Cruise Fee**

A fee of \$600 will be charged for all license option students sailing on a commercial cruise.

### **Distance Education Fee**

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

### **Field Trip Fees**

A field trip fee ranging from \$15 to \$5,740 may be charged for courses that include field trips.

### **Graduation Fee**

A non-refundable fee of \$47.50 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.

### **Independent Study Abroad Fee**

This fee of \$100 is to cover services provided by the TAMU Study Abroad Office.

### **International Student Health Insurance**

International students (students who are not U.S. Citizens or Lawful Permanent Residents of the United States) enrolled at Texas A&M are required to have health insurance. International students will be automatically enrolled in and charged for the System Student Health Insurance Plan (SSHIP) unless they apply for and are granted a waiver. Individually-purchased plans from vendors other than the Texas A&M University System provider will not be eligible for a waiver of automatic enrollment in the SSHIP. This is to ensure that medical treatment will be available in the event of injury or illness during enrollment at the University. This requirement includes students enrolled in extensive English language programs. Full-time English Language Institute (ELI) students should contact ELI for information. All other international students can receive more detailed information about this requirement by visiting <http://iss.tamu.edu/insurance/insurance.asp>. Specific questions may be directed to International Student Services by emailing [healthinsurance@tamu.edu](mailto:healthinsurance@tamu.edu).

### **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 \$175 for the academic year (Fall, Spring, Summer). By request, prorated refunds can be issued for terms not used.

### **Sailing Course Fee**

A \$130 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**

A \$175 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**

A \$50 per test fee will be used to pay for personnel to proctor credit-by-exams and TSI tests and to pay shipping costs to send tests to testing centers.

### **Texas A&M Maritime Academy O-Week Fee**

The Texas A&M Maritime Academy O-Week Fee is \$38 and covers equipment and supplies needed during the Corps of Cadets O-Week. Meals for O-Week will be added to the semester bill following O-Week.



## Other 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 about \$800 for each fall and spring semester. 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 \$1,500. 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.

## Refunds and Adjustments

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### Withdrawal from the University

Once the University has accepted a fee payment, a student is considered officially enrolled unless otherwise restricted from enrolling. 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 Office of Enrollment Services. Failure to follow procedures for withdrawing from the University may result in financial penalties and difficulty with future enrollment in the University.

International students must contact the International Student Services Office before withdrawing to determine if doing so will affect their visa status.

Refunds of fees shall be made to students officially withdrawing according to the following schedule: Tuition, University Authorized Tuition, Designated Tuition, Mandatory Fees, Differential Tuition, Laboratory Fees, Residence Hall Rent and Meal Plans:

#### **Fall or Spring Semester or a 10-week Summer Term:**

|                                   |             |
|-----------------------------------|-------------|
| 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 or less**

|                              |             |
|------------------------------|-------------|
| Prior to the first class day | 100 percent |
| During the first class day   | 80 percent  |
| During the second class day  | 50 percent  |
| After the second class day   | 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-rated 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.

### Fee Adjustments for Courses Added and Dropped

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/department head between the 6th and 12th class days. Full refunds will be given for courses dropped during these periods. For a summer term, 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. 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 Office of Enrollment Services.

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.

## Waivers and Exemptions

Students are responsible for applying for the waiver and/or exemption, and ensuring the waiver and/or exemption has been applied towards his/her tuition and fees for the current semester. All waivers and exemptions must be processed and entered onto the student's account each fall/spring by the 12th class day and 4th class day during the summer semesters. Students are responsible for payment of tuition and fees not covered under the waiver and/or exemption, and are subject to late payment penalties and late registration charges if tuition and fees are not paid. Students who have waivers and/or exemptions will be verified for eligibility per semester. Those students who are in Excess Credit Hours status or do not have satisfactory academic progress will not be eligible for the waiver or exemption.

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

1. A student must register at the institution with the lower minimum tuition and pay the full tuition charge.
2. Generally, only the hourly rate is paid at the second institution. However, if the minimum amount is less at the first institution, then the student must pay the difference in the two minimums to the second institution, but not less than the hourly rate.

## Student Fiscal Appeals

If a student finds themselves in an issue related to the application of University Student Fiscal Policy, such as excess hours, please access the information under <http://fms-galveston.tamu.edu/sbs-galveston> for an explanation of the Student Fiscal Appeal Process and an application for appeal.

## 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 including the commercial cruises.

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       |
| Vessel Use Fee                      | No        | No        | Yes       | No        | Yes       |

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# FINANCIAL AID AND SCHOLARSHIPS

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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 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) at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). 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  
Fax: 979.847.9061

Alternatively, these documents may be submitted online at [Howdy.tamu.edu](http://Howdy.tamu.edu) under the My Finances tab, within the Financial Aid Portal.

## General Information

The Office of 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 <http://financialaid.tamu.edu/>. Information specific to TAMUG may be found at [www.tamug.edu/finaid](http://www.tamug.edu/finaid). For information, call 409-740-4500 or email [4finaid@tamug.edu](mailto:4finaid@tamug.edu).

## General Priority

Texas A&M University's packaging philosophy for need-based financial aid is to provide the greatest amount of gift aid to those students with the highest demonstrated need and to keep loan liability to a minimum. Financial aid is awarded on a first-come, first-served basis with a published priority date of March 1st prior to the following summer or fall semester and October 1st for the following spring semester for which the student is seeking 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 if appropriate supporting documentation is provided. 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

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Financial aid has two forms: gift aid and self help. Gift aid is considered "free money" and the student is not required to repay. Self help aid includes loans and student employment. Student loans require repayment after a student becomes enrolled less than half time or graduates. Financial aid in the form of student employment requires the student to earn funding by working on campus.

### **Gift Aid consists of:**

Grants (Federal, State, Institutional)  
Scholarships  
Waivers

### **Self Help Aid consists of:**

Loans (Federal, State, Institutional, Alternative)  
Student Employment (Work Study, Part-time  
Employment, Internships, Assistantships)

## Gift Aid

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

- The Federal Pell Grant is available to undergraduate students who have not received a baccalaureate degree and have demonstrated financial need as determined by the FAFSA. The Federal Pell Grant provides a foundation of financial assistance to which assistance from other sources may be added.
- The Federal Supplemental Educational Opportunity Grant (FSEOG) and the Texas Public Education Grant (TPEG) are available to students, provided the results of their financial aid application show evidence of financial need and the availability of funds. These funds are awarded on a first-come, first-served basis. The TEXAS grant (Towards EXcellence, Access and Success) is available to Texas residents who have financial need according to the FAFSA and have completed the recommended or distinguished curriculum from an accredited public or private high school; it is also subject to the availability of funds.

**Scholarships:** Scholarships are generally based on academic achievement and leadership. A TAMUG Scholarship and Awards Committee evaluates applicants and makes awards in the spring for the following academic year. The Committee uses the scholarship application, which is part of the admission application, for freshman awards.

A limited number of non-resident students awarded a competitive TAMUG scholarship valued at \$1,000 or more may be eligible to pay resident tuition for the duration of the academic year. 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.

## Self Help

**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. Interested students may seek on-campus jobs with the Human Resources Office at:

<http://www.tamug.edu/hrd/Student%20Employment/Index.html>.

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 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: Federal Direct Subsidized and Unsubsidized Student Loans, the Federal Perkins Loan, the Federal PLUS Loan and the Grad PLUS loans. All loans require an application and a promissory note. Credit reviews will be performed on Federal Direct PLUS loans. New borrowers are required to complete entrance loan counseling online 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 half-time enrollment.

- The Federal Direct Loan Programs are available to students who have submitted a FAFSA. Students will be notified of their eligibility for the Direct Loan program(s) through a financial aid offer.
- The Texas B-On-Time Loan program is available to Texas residents having completed the recommended or distinguished curriculum from an accredited public high school. Application information and/or promissory notes will be furnished with the financial aid offer, if applicable, and as funds are available.
- Students and parents seeking the Parent Loan for Undergraduate Students (PLUS) may obtain information from the financial aid website <http://www.tamug.edu/finaid/>. This program requires submission of the FAFSA.
- Graduate students may apply for the Graduate PLUS loan to assist with educational costs. This program requires submission of the FAFSA.
- Short-term loans are available to provide assistance to students who experience temporary financial difficulties with education-related expenses. This program is not meant to provide long-term assistance or to replace other assistance available through financial aid. Students must be degree seeking and enrolled at least half-time to be eligible for short-term loans. To apply, visit [Howdy.tamu.edu](http://Howdy.tamu.edu) under the My Finances tab.
- The Emergency Tuition Fee loan program is available to help students pay their TAMUG tuition and required fees. The loan is applied directly to the student's tuition and fee account. To apply, visit [Howdy.tamu.edu](http://Howdy.tamu.edu) under the My Finances tab.

**Disbursement of Student Aid Funds:** Student employees are paid biweekly. Upon completion of all associated requirements, federal, state and institutional financial aid disburses 10 days prior to the start of each term. Outside scholarship checks must indicate the recipient name 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.

Veterans' benefits may be added to the student's billing account or may be paid directly to the student, depending on the benefit program.

Students should come to campus prepared to pay for deposits, books, supplies, sundries, and Cadet uniforms (if applicable). Payment arrangements for tuition and fees should also be made in advance.

### **Scholarship Recipients and Non-Resident Tuition Waivers**

A student who is awarded a competitive University scholarship of at least \$1,000 for the academic year or summer for which the student is enrolled and who is either a non-resident or a citizen of a country other than the United States of America may be entitled to pay the fees and charges required of Texas residents without regard to the length of time the student has resided in Texas. This scholarship must be awarded by a scholarship committee officially recognized by the Texas A&M University administration, and each waiver must be approved.

### **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 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 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 ratio, completion of classes and number of credit hours obtained, may lose their eligibility for all types of federal, state, and university aid administered by the Office of 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) as determined by the Office of Financial Aid:
  - 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 undergraduate student must complete at least 75% of all credit hours attempted, and each graduate student must complete at least 67%. 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. 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 degree. Therefore, undergraduate students must not exceed 160 attempted credit hours in order to remain eligible for financial aid. Graduate students must receive their degree within 150% of the minimum required hours for their degree.



## **Withdrawing from the University-Financial Aid**

Federal law specifies how Texas A&M University must determine the amount of 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 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-rated 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 at Galveston 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 financial aid website at <http://financialaid.tamu.edu/>.

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# STUDENT SERVICES

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## 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. Programs administered by the Office of Academic Enhancement include tutoring, supplemental instruction, peer assisted study sessions, developmental education, academic curriculum advising, advising assessment (credit by exam, Math Placement exam, Texas Success Initiative assessment), learning communities, The Last Lecture and a summer provisional admission program (SAIL). Programs are designed to provide support to maximize interactions between students and faculty. To learn more about the programs administered by the Office of Academic Enhancement, please visit our web site at [www.tamug.edu/acen](http://www.tamug.edu/acen).

## Veterans' Benefits

The Office of Financial Aid files claims for Veterans' Benefits by verifying student enrollment at TAMUG. Students are asked to submit the following documents to validate their claim: copy of DD Form 214 showing an honorable discharge from service, a degree plan indicating all courses necessary to complete the degree program, a VA certificate of eligibility and to indicate a transfer of eligibility. Other documentation may be required. Adjudication may take four to six weeks; therefore, VA education beneficiaries should be prepared to pay initial costs of enrollment when entering TAMUG.

VA education program beneficiaries are held to standards of progress and conduct congruent with the Texas A&M University at Galveston policy concerning scholastic deficiency and scholastic probation. For University policy regarding scholastic deficiency and scholastic probation, see Student Rules at <http://www.tamug.edu/studentlife/>.

Inquiries regarding Veterans' Benefits may be addressed to Office of Financial Aid, Texas A&M University at Galveston, P.O. Box 1675, Galveston, TX 77553-1675. Phone: 409-740-4500. Email [Veterans@tamug.edu](mailto:Veterans@tamug.edu).

## 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. Information about 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:** 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.

Graduate school preparation software including LSAT, GRE and GMAT is available for upperclassmen.

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.

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# STUDENT LIFE

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## 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 on-line application for campus housing, which is separate from the application for admission to the University, is available from the Office of Student Life website at <http://www.tamug.edu/reslife/index.html>. 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.

In certain cases, single room housing is offered. The fee for that room is the normal rate plus 50% (Oceans/Hullabaloo and Mariner are \$3,300 per semester, Atlantic and Pacific are \$4,200 per semester and Pelican Island is \$3,250).

A waiver for the \$300 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. The waiver request can be emailed to [Reslife@tamug.edu](mailto:Reslife@tamug.edu) or mailed to TAMUG Residence Life, P.O. Box 1675, Galveston, TX, 77553-1675.

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 Seibel Building. Adjacent to the Seibel Building are the P. E. facility, swimming pool, tennis courts, and other outdoor recreational facilities..

Clubs on campus include the American Society of Mechanical Engineers, the Animal Husbandry Association, Gulf Coast Aggie Fishermen at Galveston, the Sail Club, the Dive Club, the Propeller Club, the Society of Naval Architects and Mechanical Engineers, the Circle K Service Organization, the Residence Hall Association, the Student Veterans 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, dodge ball, kickball, ultimate Frisbee, sand and indoor volleyball, indoor soccer and a golf tournament. 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. 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.

### **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.

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## **Texas A&M Maritime Academy**

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### **Mission and Purpose**

The Texas A&M 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. The mission of TMA is to provide the maritime industries of the State of Texas and the United States with highly trained and professional licensed Merchant Marine Officers (deck/engine) to serve on ocean-going and inland waterway vessels. The Academy includes:

- Cadets who are in the U. S. Coast Guard licensing program (called License Option) leading to a Merchant Marine Officer's unlimited license as a deck or engineering officer.
- The Naval Reserve Officer Training Corps (NROTC) leading to an officer's commissioning in the U.S. Navy.
- The Drill and Ceremony Cadets who desire the leadership training in the Corps of Cadets, but choose to not participate in either of the above programs.

Additionally, License Option Cadets who volunteer and meet the qualifications, may join the Strategic Sealift Officers (SSO) Program administered through the Naval Science Department/NROTC program, which provides the opportunity for License Option Cadets to receive a commission as an Ensign and serve in the Naval Reserve. These Cadets are also eligible to receive funding (\$8,000 per year) through the Student Incentive Program sponsored by the U. S. Navy and administered by the Maritime Administration. Cadets in this program also have the option to request active duty in the U.S. Navy or a direct commission in the U.S. Coast Guard.

### **Application**

Admittance to the Texas A&M Maritime Academy is granted by special application which can be obtained at the Texas A&M Maritime Academy website. You must also gain admittance to Texas A&M University at Galveston as outlined in the Admission section of this catalog. License Option Cadets may only major in Marine Transportation, Marine Engineering Technology, Marine Biology License Option, or Marine Sciences License Option. On-campus housing is required for all cadets, except those in Victor Company.

### **Background**

The Texas A&M Maritime Academy (TMA) is over 50-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 and the war on terror. Our graduates have gone in harm's way and served honorably and with great distinction. Undoubtedly, future graduates will also go in harm's way and face many of the same challenges. Our graduates have distinguished themselves as outstanding ship handlers, engineers, and ashore corporate officers throughout the United States and the world. TMA provides the tools to deal with those professional challenges at sea and ashore. The Texas A&M 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 Mari-



ners 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, of high moral character, and willing to sacrifice to meet the necessary regimentation found in the Corps of Cadets.

### **Training Cruise Requirements**

License Option Cadets, regardless of age or status, are required by federal law to be in the Cadet Corps for a minimum of 3 years as a full-time student, and participate in three summer cruises. A minimum of two cruises will be aboard a training ship (first and third cruises).

The second cruise between the sophomore/junior years may be on a commercial vessel, depending on the Cadet's grades (requiring an overall GPR of 2.5 or higher to go commercial) and the availability of commercial vessels. If a Cadet is unable to qualify for a commercial cruise or if none are available, they will take their second cruise on a training vessel. The commercial cruise is competitive, not a requirement, and not all Cadets will be able to sail commercial. In those cases, a Cadet may:

- Sail his/her second cruise on a training ship;
- They may sail on a commercial vessel during the next Fall or Spring semester (subject to availability and competitively based).

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 maintain a cumulative GPR of 2.25 or above in their major and a 2.0 GPR overall to attend cruise. Cadets must also complete all practical training and work 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 on 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 Corps 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 Corps, Cadets learn to develop and hone a myriad of skills but particularly the leadership skills needed upon graduation in the very demanding environment of a professional Merchant Marine Officer or Military Officer. The regimentation found in the Corps instills leadership, honor, self discipline, trust, character and a sense of moral responsibility which enables each Cadet to easily face the challenges of a seafaring life. The Corps of Cadets follows many of the traditions and customs found in the Corps of Cadets at TAMU in College Station. However, after over 50 years as a maritime academy, some seafaring traditions and customs have developed.

Finally, after meeting all the academic and training requirements (which includes passing the USCG administered license exam) and based upon the recommendation of the Superintendent and the Academic Department Head, 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 they will also receive a Commission as an Ensign in the U.S. Navy Reserve. Cadets may also apply for active duty in the U.S. Navy and a direct Commission in the U.S. Coast Guard. Cadets who don't complete both requirements, will not be allowed to receive their diploma in the TMA uniform.

### **The Corps of Cadets**

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 Corps of Cadets. The Corps provides Cadets a regimented environment that is designed to develop leadership skills required to be a Merchant Marine or military officer. Leadership development is the ultimate goal of the Corps. 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 Corps. 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 should be ordered upon acceptance to the Texas A&M Maritime Academy and will be issued during Orientation Week which takes place prior to Fall semester.

All Cadets will be required to stand watches on the training ship. Additionally, Cadets are required to perform practical training on the ship as required by the U.S. Coast Guard Standards of Training, Certification and Watchkeeping (STCW). Cadets are also required to attend formations, drill (including "march ins" at Kyle Field in College Station), stand announced and unannounced personnel and room inspections, participate in physical fitness activities and perform other duties as required by the Corps Rules. Cadets are encouraged to participate in numerous on campus sports, clubs and educational activities. Finally, Cadets

can also compete to be members of the Hearn Honor Guard, the Drill Team, the Sea Aggie Band and the Flag Color Guard, who perform at events throughout Texas and other bordering states.

### **Six Categories of Cadets**

1. 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).
2. U.S. Merchant Marine Licensing Program with Navy Reserve (SSO): The second category is the Merchant Marine License Cadets who choose to join the Strategic Sealift Officer's (SSO) 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 SSO program receive a Commission as an Ensign, USNR upon completion of their degree, and successfully passing the USCG license exam. For SSO Cadets who meet the academic requirements, there is an opportunity to compete for the Student Incentive Program (SIP) which provides \$8,000 per SSO Cadet per year. After commissioning as an Ensign, USNR, SSO (SIP) Cadets must agree to remain in the Reserves for 8 years. All SSO Cadets may choose to apply for Active Duty.
3. 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. Greater detail on NROTC will be found below.
4. Drill and Ceremony: The fourth category is the "Drill and Ceremony" (D&C) Cadets. These Cadets are not in a license option (LO) curriculum nor NROTC but desire to be exposed to the leadership training, and the spirit and camaraderie of Corps 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 Corps, must purchase all required uniforms, stand watches, perform drill, stand formation, room inspections, and receive practical training on the 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.
5. Victor Company: The fifth category is the "V Company" Cadets. These Cadets are individuals who are married, over the age of 25 at the time of entry 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 practical training on the ship. As stated above, they are permitted to live off campus.
6. International: The sixth category is International Cadets who wish to participate in 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.

### **Orientation Week**

Prior to the beginning of the Fall academic semester, 4th Class Cadets (first year) are required to attend 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 Corps of Cadets, exposes new Cadets to the regimented Corps 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 Corps reassembles following the Summer Cruise.

### **Admission Requirements for License Option Applicants**

Applicants who meet the University admissions standards and pass the U.S. Coast Guard physical requirements are eligible to apply to the Texas A&M Maritime Academy and to be considered for admittance to one of the License Option courses and the Corps of Cadets in September of each year. License-option students must choose to major in either 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 A&M Maritime Academy rests with the Superintendent. 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. 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 initial Physical Form which must be submitted with the Texas A&M Maritime Academy application. Both the TMA application and the Physical Form are available at the website.

Examples of those requirements for Deck and Engineers license, as found in U.S. Code 46, Part 10, are:

- 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, original birth certificate, and a photo ID, preferably a driver's license. Most of this training and document costs 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 for both academic courses and STCW courses is mandatory. No unexcused absences allowed. Additionally, the law requires each Cadet, regardless of status, to attend TMA no fewer than three fall and spring semesters, as a full-time student, 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. Cadets must also have a 2.25 GPR in their major courses and a 2.0 GPR overall at TAMUG to be eligible for summer cruise. The Lifeboatman Training Certificate is not available until graduation per direction of the U.S. Coast Guard.

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 and/or a license can not be conferred until the test is successfully passed. International, non U.S. citizens are exceptions to this policy.

## 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 those who do. TMA Cadets are subject to Corps Rules and 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 Corps 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/Corps Commander. It is permissible to relax the uniform requirement on the weekends, but appropriate attire in the Student Center/Galley is required.

Demerits and practical training hours on the training ship are required to be completed before a Cadet can sit for license examinations or attend a summer cruise.

## **License Option/Strategic Sealift Officer's Program (LO/SSOP)**

The Department of Naval Science trains Cadets who desire to participate in the Strategic Sealift Officer's Program (SSOP), a voluntary joint program established in 1925 between the U. S. Navy and the U.S. Merchant Marine. The mission of the SSOP 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 SSOP during their first year. Cadets who possess the appropriate military aptitude/military bearing, academic standing, and motivation and receive 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 SSOP 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:**

- The Cadet must be under the age of 27 by the time they graduate.
- The Cadet must pass a Navy physical examination (to enter the program and another prior to Commissioning).
- The Cadet must pass the semi-annual Physical Readiness Test.
- The Cadet must be enrolled in a license option curriculum.
- The Cadet must maintain a 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 Corps of Cadets, and perform all the activities required of the Corps. 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 A&M Maritime Academy License Option Cadets, and are over and above the costs of attending TAMUG (see Tuition and Fees):

- Coast Guard Approved Fire Fighting School - \$800-\$1,000.
- TWIC - \$150.
- O-Week Fee - \$38.
- Merchant Mariner Credential - \$140.
- Drug testing - approx \$35 (each time).
- Uniforms - \$1,500-\$1,800 (for LO and Drill and Ceremonies Cadets).
- Training cruise - estimated about \$8000 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 2.5 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.

Students majoring in Marine Biology can be eligible for a secondary teaching field in Life Sciences pending the completion of a teaching certification program. For information about teaching certification, go to

<https://secure.sbec.state.tx.us/SBECOnline/approvedprograms.asp>.

### FRESHMAN YEAR

| <b>Fall Semester</b>                  |  | <b>(Th-Pr)</b> | <b>Cr</b> |
|---------------------------------------|--|----------------|-----------|
| 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         |
| Elective in American History. . . . . |  |                | 3         |
| Elective in Mathematics . . . . .     |  |                | 3         |
|                                       | Total Hours . . . . .                            |                | 14        |

### 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  |
| Elective in American History. . . . . |   |       | 3  |
| Elective in Mathematics . . . . .     |   |       | 3  |
|                                       | Total Hours . . . . .                             |       | 17 |

### SOPHOMORE YEAR

| <b>Fall Semester</b> |  |       |    |
|----------------------|--|-------|----|
| CHEM 227             | Organic Chemistry I . . . . .              | (3-0) | 3  |
| CHEM 237             | Organic Chemistry Lab I. . . . .           | (0-3) | 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 . . . . .                      |       | 15 |



**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 210                       | Technical and Business Writing . . . . . | (3-0) | 3  |
| MARB 310                       | Cell Biology † . . . . .                 | (2-2) | 4  |
| Electives in Marine Biology †§ | . . . . .                                |       | 8  |
| Total Hours . . . . .          |  |       | 15 |

**Spring Semester**

|  |   |       |    |
|--|---|-------|----|
| MARB 303                                   | Biostatistics †. . . . .                  | (2-2) | 3  |
| MARB 435                                   | Marine Invertebrate Zoology †***. . . . . | (3-3) | 4  |
| Elective in Marine Biology †§              | . . . . .                                 |       | 4  |
| Elective in Social and Behavioral Sciences | . . . . .                                 |       | 3  |
| Total Hours . . . . .                      |   |       | 14 |

**SENIOR YEAR****Fall Semester**

|                                |                                     |       |    |
|--------------------------------|-------------------------------------|-------|----|
| MARB 425                       | Marine Ecology † . . . . .          | (3-3) | 4  |
| MARB 430                       | Coastal Plant Ecology †***. . . . . | (3-3) | 4  |
| Elective in Earth Science **   | . . . . .                           |       | 3  |
| Electives in Marine Biology †§ | . . . . .                           |       | 4  |
| Total Hours . . . . .          |                                     |       | 15 |

**Spring Semester**

|   |  |       |    |
|---|--|-------|----|
| MARB 420                                      | Comparative Animal Physiology †. . . . . | (3-3) | 4  |
| MARB 482                                      | Seminar in Marine Biology †***. . . . .  | (1-0) | 1  |
| Elective in Language, Philosophy and Culture. | . . . . .                                |       | 3  |
| Elective in Marine Biology †§                 | . . . . .                                |       | 4  |
| Elective in Creative Arts                     | . . . . .                                |       | 3  |
| Total Hours . . . . .                         |  |       | 15 |

**Total Curriculum Hours** **120**

**Notes for Marine Biology**

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. 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.

\* - 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.

§§ - MARB 408, which is offered in the Spring semester, can be substituted for MARB 430. MARB 408 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 360, MARB 400, MARB 401, MARB 404, MARB 407, MARB 408, 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.

\*\*\* - 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 151 instead of MATH 142 will have 121 credit hours.

## Curriculum in Marine Biology License Option (MARB-LO)

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 or C of better is earned in BIOL 111.
- Transfer students must have a minimum GPR of 2.5 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 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 in this curriculum must pass the license examination for Third Mate in order to graduate from Texas A&M University. Certain USCG courses require a minimum grade of C (70%).

### 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  |
| MART 103                               | Basic Safety and Lifeboatman Training * . . . . . | (2-3)   | 3  |
| MATH 141                               | Business Mathematics I ‡ . . . . .                | (3-0)   | 3  |
| Elective in American History . . . . . |   |         | 3  |
| Total Hours . . . . .                  |   |         | 17 |

### 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 TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

|                                   |           |
|-----------------------------------|-----------|
| MART 200 or NAUT 200 *□ . . . . . | 4 (or 6)□ |
|-----------------------------------|-----------|

### SOPHOMORE YEAR

| Fall Semester                         |                                     |       |    |
|---------------------------------------|-------------------------------------|-------|----|
| CHEM 227                              | Organic Chemistry I . . . . .       | (3-0) | 3  |
| CHEM 237                              | Organic Chemistry Lab. . . . .      | (0-3) | 1  |
| MARB 300                              | Scientific Methods † . . . . .      | (1-3) | 2  |
| NVSC 200                              | Merchant Marine Officer I . . . . . | (3-0) | 3  |
| PHYS 201                              | College Physics. . . . .            | (3-3) | 4  |
| Elective in American History. . . . . |                                     |       | 3  |
| 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 TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

MART 300 or MART 350 or NAUT 300 \*□ . . . . . 4 (or 6)□

**JUNIOR YEAR**

**Fall Semester**

|                       |   |       |    |
|-----------------------|---|-------|----|
| MARB 303              | Biostatistics † . . . . .                   | (2-2) | 3  |
| 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  |
| <hr/>                 |   |       |    |
| Total Hours . . . . . |   |       | 16 |

**Spring Semester**

|                       |  |       |    |
|-----------------------|--|-------|----|
| MART 304              | Electronic Navigation * . . . . .                  | (1-3) | 2  |
| MART 306              | RADAR/ARPA/ECDIS * . . . . .                       | (3-3) | 4  |
| 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  |
| <hr/>                 |  |       |    |
| Total Hours . . . . . |  |       | 15 |

**Shoreside Summer**

|  |  |       |   |
|--|--|-------|---|
| ECON 203   | Principles of Economics . . . . .        | (3-0) | 3 |
| ENGL 210   | Technical and Business Writing . . . . . | (3-0) | 3 |
| Elective in Language, Philosophy and Culture . . . . . |  |       | 3 |
| <hr/>  |  |       |   |
| Total Hours . . . . .                                  |  |       | 9 |

**SENIOR YEAR**

**Fall Semester**

|                                     |                                      |       |    |
|-------------------------------------|--------------------------------------|-------|----|
| MARB 310                            | Cell Biology † . . . . .             | (3-3) | 4  |
| MARB 425                            | Marine Ecology † . . . . .           | (3-3) | 4  |
| MART 410                            | Bridge Watchstanding * . . . . .     | (1-3) | 2  |
| POLS 207                            | State and Local Government . . . . . | (3-0) | 3  |
| Elective in Creative Arts . . . . . |                                      |       | 3  |
| <hr/>                               |                                      |       |    |
| Total Hours . . . . .               |                                      |       | 16 |

**Spring Semester**

|                       |                                    |       |    |
|-----------------------|------------------------------------|-------|----|
| MARB 311              | Ichthyology † . . . . .            | (3-3) | 4  |
| MARB 435              | Invertebrate Zoology † § . . . . . | (3-3) | 4  |
| MART 498              | Maritime Medical Care* . . . . .   | (1-3) | 2  |
| NVSC 402              | Leadership and Ethics* . . . . .   | (3-1) | 3  |
| OCNG 251              | Oceanography . . . . .             | (3-0) | 3  |
| <hr/>                 |                                    |       |    |
| Total Hours . . . . . |                                    |       | 16 |

**SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

MART 400 or NAUT 400 \*□ . . . . . 4 (or 6)□

**Total Curriculum Hours□ 151**

**Notes for Marine Biology License Option**

Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

- 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.
- ‡- Other calculus or logic elective may be substituted with approval.
- \* - 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 requires a grade of 75% or better.
- § - 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, or any of the six-hour cruise options. The six-hour cruise options (NAUT 200, 300, and 400 or MARR 200, 300 and 400) do not add any required hours to the degree plan.

## Curriculum in Marine Fisheries (MARF)

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 2.5 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 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  |
| Elective in American History. . . . . |  |         | 3  |
| Elective in Mathematics . . . . .     |  |         | 3  |
| Total . . . . .                       |  |         | 14 |

#### 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  |
| Elective in American History. . . . . |   |       | 3  |
| Elective in Mathematics . . . . .     |   |       | 3  |
| Total . . . . .                       |   |       | 17 |

### SOPHOMORE YEAR

#### Fall Semester

|                 |  |       |    |
|-----------------|--|-------|----|
| CHEM 227        | Organic Chemistry I . . . . .              | (3-0) | 3  |
| CHEM 237        | Organic Chemistry Lab I . . . . .          | (0-3) | 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 . . . . . |  |       | 15 |

#### 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 207        | State and Local Government . . . . . | (3-0) | 3  |
| Total . . . . . |                                      |       | 15 |

**JUNIOR YEAR**

**Fall Semester**

|                 |  |       |    |
|-----------------|--|-------|----|
| MARB 301        | Genetics † . . . . .                   | (3-3) | 4  |
| MARB 303        | Biostatistics †. . . . .               | (2-2) | 3  |
| MARB 312        | Field Ichthyology †. . . . .           | (3-3) | 4  |
| MARB 435        | Marine Invertebrate Zoology †. . . . . | (3-3) | 4  |
| <hr/>           |  |       |    |
| Total . . . . . |  |       | 15 |

**Spring Semester**

|   |   |       |    |
|---|---|-------|----|
| OCNG 251  | Oceanography † . . . . .                | (3-0) | 3  |
| OCNG 252  | Oceanography Laboratory † . . . . .     | (0-3) | 1  |
| MARB 360  | Marine Conservation Biology † . . . . . | (3-3) | 4  |
| ECON 202  | Principles of Economics . . . . .       | (3-0) | 3  |
| Elective in Language, Philosophy and Culture. . . . . |   |       | 3  |
| <hr/>   |   |       |    |
| Total . . . . .                                       |   |       | 14 |

**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 Creative Arts . . . . . |   |       | 3  |
| <hr/>                               |   |       |    |
| Total . . . . .                     |   |       | 15 |

**Spring Semester**

|                                 |  |       |    |
|---------------------------------|--|-------|----|
| ENGL 210                        | Scientific and Technical Writing . . . . . | (3-0) | 3  |
| MARB 460                        | Fisheries Population Dynamics †. . . . .   | (3-3) | 4  |
| MARB 482                        | Seminar †. . . . .                         | (1-0) | 1  |
| Directed Electives †‡ . . . . . |  |       | 7  |
| <hr/>                           |  |       |    |
| Total . . . . .                 |  |       | 15 |

**Total Curriculum Hours** **120**

**Notes for Marine Fisheries**

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

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

\* - 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.

□-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 151 instead of MATH 142 will have 121 credit hours.



# Curriculum in Marine Engineering Technology (MARR)

Texas A&M University at Galveston is a special purpose institution for teaching, research, and public service of marine and maritime studies in science, engineering, and business, leading to a degree from Texas A&M University and an Aggie Ring. The University is also the home of the Texas A&M Maritime Academy. The goal of the Marine Engineering Technology (MARR) program is to produce graduates 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, and at shore 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 US Maritime Service Corps who can then appear for the U.S. Coast Guard license examination, enabling them to serve as engineering officers aboard sea-going vessels.

Our goal is to produce graduates with a strong background in engineering fundamentals, mathematics, and analytical methods, which is reinforced by practical machine-shop, welding, and laboratory experiences (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 educational objectives are to produce graduates 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, professional development, and continuous improvement.

Although they may count for university credit, grades from another institution below a C in engineering, mathematics and physics will not be accepted by the TAMUG engineering programs toward the degree.

## FRESHMAN YEAR

| <b>Fall Semester</b> |   | <b>(Th-Pr)</b> | <b>Cr</b> |
|----------------------|---|----------------|-----------|
| 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         |
| MARE 100             | Marine Engineering Fundamentals † . . . . .                     | (2-3)          | 3         |
| MATH 150             | Functions, Trigonometry and Linear Systems . . . . .            | (3-2)          | 4         |
|                      | Total . . . . .   |                | 14        |

## Spring Semester

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

## SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

|                         |           |
|-------------------------|-----------|
| MARE 200 or MARR 200 †* | 4 (or 6)□ |
|-------------------------|-----------|

**SOPHOMORE YEAR**

**Fall Semester**

|          |   |       |    |
|----------|---|-------|----|
| ENGR 112 | Foundations of Engineering II † . . . . . | (1-3) | 2  |
| MARE 202 | Marine Thermodynamics †* . . . . .        | (3-0) | 3  |
| MARE 205 | Engineering Mechanics I †* . . . . .      | (3-0) | 3  |
| MARE 242 | Manufacturing Methods I †* . . . . .      | (1-3) | 2  |
| MATH 152 | Engineering Mathematics II . . . . .      | (3-2) | 4  |
| PHYS 208 | Electricity and Optics . . . . .          | (3-3) | 4  |
| <hr/>    |   |       |    |
|          | Total Hours . . . . .                     |       | 18 |

**SOPHOMORE YEAR**

**Spring Semester**

|          |                                       |       |    |
|----------|---------------------------------------|-------|----|
| MARE 206 | Engineering Mechanics II †* . . . . . | (3-0) | 3  |
| MARE 207 | Electrical Power I †* . . . . .       | (2-3) | 3  |
| MARE 243 | Manufacturing Methods II †* . . . . . | (0-3) | 1  |
| MARE 261 | Engineering Analysis † . . . . .      | (3-0) | 3  |
| MARE 311 | Steam Propulsion Plants †* . . . . .  | (2-3) | 3  |
|          | Elective in American History. . . . . |       | 3  |
| <hr/>    |                                       |       |    |
|          | Total Hours . . . . .                 |       | 16 |

**SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

|   |           |
|---|-----------|
| MARE 300 or MARE 350 or MARR 300 †* . . . . . | 4 (or 6)□ |
|---|-----------|

**JUNIOR YEAR**

**Fall Semester**

|          |                                     |       |    |
|----------|-------------------------------------|-------|----|
| MARE 209 | Mechanics of Materials † . . . . .  | (2-3) | 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 Creative Arts . . . . . |       | 3  |
| <hr/>    |                                     |       |    |
|          | Total Hours . . . . .               |       | 16 |

**Spring Semester**

|          |   |       |    |
|----------|---|-------|----|
| 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 Communication. . . . .                    |       | 3  |
|          | Elective in Language, Philosophy and Culture. . . . . |       | 3  |
| <hr/>    |   |       |    |
|          | Total . . . . .                                       |       | 15 |

**SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

|                                   |           |
|-----------------------------------|-----------|
| MARE 400 or MARR 400 †* . . . . . | 4 (or 6)□ |
|-----------------------------------|-----------|

**SENIOR YEAR**

**Fall Semester**

|          |  |       |    |
|----------|--|-------|----|
| MART 498 | Maritime Medical Care * . . . . .      | (1-3) | 2  |
| 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  |
| <hr/>    |  |       |    |
|          | Total . . . . .                        |       | 16 |

**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 Social and Behavioral Sciences | . . . . .  |       | 3          |
|  | Total . . . . .  |       | 14         |
| <b>Total Hours</b> □                       |  |       | <b>137</b> |

**Notes for Marine Engineering Technology**

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All electives must be chosen in consultation with, and approved by, the student’s academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

- †-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/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. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.
- 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, or any of the six hour cruise options. The six-hour cruise options (NAUT 200, 300, and 400 or MARR 200, 300 and 400) do not add any required hours to the degree plan.
- § - Designated writing intensive course.
- MARR students are required to earn a grade of C or better in MATH 151, PHYS 218 and 208, MARE 202, 205, 206 and 207. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite. Although they may count for university credit, grades from another institution below a C in engineering, mathematics and physics will not be accepted by the TAMUG engineering programs toward the degree.

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

Texas A&M University at Galveston is a special purpose institution for teaching, research, and public service of marine and maritime studies in science, engineering, and business, leading to a degree from Texas A&M University. The goal of the Marine Engineering Technology (MARR) program is to produce graduates 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, and at shore 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 US Maritime Service Corps who can then appear for the U.S. Coast Guard license examination, enabling them to serve as engineering officers aboard sea-going vessels.

Our goal is to produce graduates with a strong background in engineering fundamentals, mathematics, and analytical methods, which is reinforced by practical machine-shop, welding, and laboratory experiences (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 educational objectives are to produce graduates 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, professional development, and continuous improvement.

## FRESHMAN YEAR

| <b>Fall Semester</b> |   | <b>(Th-Pr)</b> | <b>Cr</b> |
|----------------------|---|----------------|-----------|
| 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         |
| MARE 100             | Marine Engineering Fundamentals † . . . . .                     | (2-3)          | 3         |
| MATH 150             | Functions, Trigonometry and Linear Systems . . . . .            | (3-2)          | 4         |
|                      | Total . . . . .   |                | 14        |

## Spring Semester

|                              |   |       |    |
|------------------------------|---|-------|----|
| ENGR 111                     | Foundation of Engineering I † . . . . . | (1-3) | 2  |
| MATH 151                     | Engineering Mathematics I . . . . .     | (3-2) | 4  |
| PHYS 218                     | Mechanics . . . . .                     | (3-3) | 4  |
| Elective in Creative Arts    | . . . . .                               | 3     |    |
| Elective in American History | . . . . .                               |       | 3  |
|                              | Total . . . . .                         |       | 16 |

## SOPHOMORE YEAR

| <b>Fall Semester</b> |   |       |    |
|----------------------|---|-------|----|
| ENGR 112             | Foundations of Engineering II † . . . . . | (1-3) | 2  |
| MARE 202             | Marine Thermodynamics † . . . . .         | (3-0) | 3  |
| MARE 205             | Engineering Mechanics I † . . . . .       | (3-0) | 3  |
| MARE 242             | Manufacturing Methods I † . . . . .       | (1-3) | 2  |
| MATH 152             | Engineering Mathematics II . . . . .      | (3-2) | 4  |
| PHYS 208             | Electricity and Optics . . . . .          | (3-3) | 4  |
|                      | Total Hours . . . . .                     |       | 18 |

**Spring Semester**

|                              |                            |       |    |
|------------------------------|----------------------------|-------|----|
| MARE 206                     | Engineering Mechanics II † | (3-0) | 3  |
| MARE 207                     | Electrical Power I †       | (2-3) | 3  |
| MARE 243                     | Manufacturing Methods II † | (0-3) | 1  |
| MARE 261                     | Engineering Analysis †     | (3-0) | 3  |
| MARE 311                     | Steam Propulsion Plants †  | (2-3) | 3  |
| Elective in American History |                            |       | 3  |
| Total Hours                  |                            |       | 16 |

**JUNIOR YEAR**

**Fall Semester**

|  |                          |       |    |
|--|--------------------------|-------|----|
| MARE 209   | Mechanics of Materials † | (2-3) | 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**

|  |                                 |       |    |
|--|---------------------------------|-------|----|
| 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 Communication                    |                                 |       | 3  |
| Elective in Language, Philosophy and Culture |                                 |       | 3  |
| Total  |                                 |       | 15 |

**SENIOR YEAR**

**Fall Semester**

|                                    |                              |       |    |
|------------------------------------|------------------------------|-------|----|
| 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                              |                              |       | 14 |

**Spring Semester**

|  |  |       |    |
|--|--|-------|----|
| MARE 452                                   | Senior Design Project II †                     |       |    |
| MARE 441                                   | Engineering Economics and Project Management † | (3-0) | 3  |
| Elective in Marine Engineering †**         |  |       | 3  |
| Elective in Marine Engineering †**         |  |       | 3  |
| Elective in Social and Behavioral Sciences |  |       | 3  |
| Total                                      |  |       | 14 |

**Total Hours** 123

**Notes for Marine Engineering Technology Non-License Option**

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

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

\*- Directed electives are recommended to be MARS 306, MARS 330, MARS 370, MARS 410, MARS 430, MARS 431, MARS 435 or MARS 440.

\*\*-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 401,402 and 484, which are offered to license option students (except MARE 405).

□-The total hours may be increased if the student is required to take remedial math, remedial English, computer science, foreign language or if the Creative Arts, Language, Philosophy and Culture or social science requirements do not fulfill the International and Cultural Diversity requirement.

- MARR students are required to earn a grade of C or better in MATH 151, PHYS 218 and 208, MARE 202, 205, 206 and 207. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

Although they may count for university credit, grades from another institution below a C in engineering, mathematics and physics will not be accepted by the TAMUG engineering programs toward the degree.

- 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 can be eligible for a secondary teaching field in Physical Sciences, pending the completion of a teaching certification program. For information about teaching certification, go to <https://secure.sbec.state.tx.us/SBECOnline/approvedprograms.asp>.

Students may choose to pursue a minor in geology or chemistry through TAMU in College Station. To obtain a minor in geology, you must choose a minimum of 12 hours of geology electives beyond GEOL 104; to obtain a minor in chemistry, you must take 17 hours of chemister beyond general chemistry. An advisor in MARS can help you select courses and facilitate the approval process through the TAMU department.

### FRESHMAN YEAR

#### Fall Semester

|                 |  | (Th-Pr) | Cr |
|-----------------|--|---------|----|
| 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  |
| MATH 151        | Engineering Mathematics I . . . . .              | (3-2)   | 4  |
| Total . . . . . |  |         | 15 |

#### 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 152        | Engineering Mathematics II . . . . .              | (3-2) | 4  |
| OCNG 251        | Oceanography † . . . . .                          | (3-0) | 3  |
| OCNG 252        | Oceanography Laboratory† . . . . .                | (0-2) | 1  |
| Total . . . . . |   |       | 16 |

### SOPHOMORE YEAR

#### Fall Semester

|  |                                       |       |    |
|--|---------------------------------------|-------|----|
| CHEM 227                               | Organic Chemistry I . . . . .         | (3-0) | 3  |
| CHEM 237                               | Organic Chemistry I Lab . . . . .     | (0-3) | 1  |
| MARS 281                               | Sophomore Seminar † . . . . .         | (1-0) | 1  |
| MATH 251                               | Engineering Mathematics III . . . . . | (3-0) | 3  |
| PHYS 218                               | Mechanics . . . . .                   | (3-3) | 4  |
| Elective in American History . . . . . |                                       |       | 3  |
| Total . . . . .                        |                                       |       | 15 |

#### Spring Semester

|                 |  |       |    |
|-----------------|--|-------|----|
| CHEM 228        | Organic Chemistry II . . . . .         | (3-0) | 3  |
| CHEM 238        | Organic Chemistry II Lab . . . . .     | (0-3) | 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 . . . . . |  |       | 14 |

## JUNIOR YEAR

### Fall Semester

|          |  |       |           |
|----------|--|-------|-----------|
| 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         |
|          | Elective in American History. . . . .                  |       | 3         |
|          | Professional Elective § . . . . .                      |       | 3         |
|          | <b>Total . . . . .</b>                                 |       | <b>15</b> |

### Spring Semester

|          |  |       |           |
|----------|--|-------|-----------|
| ENGL 210 | Technical and Business Writing . . . . .         | (3-0) | 3         |
| MARS 440 | Introduction to Chemical Oceanography †. . . . . | (3-0) | 3         |
|          | Elective in Creative Arts . . . . .              |       | 3         |
|          | Professional Elective § . . . . .                |       | 3         |
|          | Professional Elective § . . . . .                |       | 3         |
|          | <b>Total . . . . .</b>                           |       | <b>15</b> |

## 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 Language, Philosophy and Culture. . . . .      |       | 3         |
|          | <b>Total . . . . .</b>                                     |       | <b>15</b> |

### Spring Semester

|          |   |       |           |
|----------|---|-------|-----------|
| MARS 430 | Geological Oceanography - Plate Tectonics †** . . . . .         | (3-0) | 3         |
|          | or MARS 431 Geological Oceanography - Earth's Climate †** (3-0) | 3     |           |
| MARS 460 | Modern Oceanographic Methods †. . . . .                         | (3-6) | 5         |
|          | Professional Elective § . . . . .                               |       | 3         |
|          | Elective . . . . .  |       | 4         |
|          | <b>Total . . . . .</b>  |       | <b>15</b> |

**Total Hours** 120

## Notes for Marine Sciences

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

† 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

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

\*\* - Designated writing intensive course.

## Curriculum in Marine Sciences 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%).

### FRESHMAN YEAR

#### Fall Semester

|                 |   | (Th-Pr) | Cr |
|-----------------|---|---------|----|
| GEOL 104        | Physical Geology . . . . .                        | (3-3)   | 4  |
| 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 . . . . . |   |         | 14 |

#### 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 152        | Engineering Mathematics II . . . . . | (3-2) | 4  |
| Total . . . . . |                                      |       | 17 |

#### SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

|                        |           |           |
|------------------------|-----------|-----------|
| MART 200 or NAUT 200 * | . . . . . | 4 (or 6)□ |
|------------------------|-----------|-----------|

### SOPHOMORE YEAR

#### Fall Semester

|                 |  |       |    |
|-----------------|--|-------|----|
| CHEM 101        | Fundamentals of Chemistry I. . . . .             | (3-0) | 3  |
| CHEM 111        | Fundamentals of Chemistry Laboratory I . . . . . | (0-3) | 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 . . . . . |  |       | 15 |

#### 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 TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

MART 300 or MART 350 or NAUT 300 \* . . . . . 4 (or 6)□

**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 Creative Arts | . . . . .  | 3  |
| <hr/>                     |  |    |
| Total                     | . . . . .  | 16 |

**Spring Semester**

|          |  |    |
|----------|--|----|
| ENGL 210 | Technical and Business Writing . . . . . (3-0)           | 3  |
| MARS     | Option †§ . . . . .                                      | 3  |
| MART 498 | Maritime Medical Care * . . . . . (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  |
| <hr/>    |  |    |
| Total    | . . . . .  | 17 |

**SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)**

MART 400 or NAUT 400 \* . . . . . 4 (or 6)□

**SENIOR YEAR**

**Fall Semester**

|                              |   |    |
|------------------------------|---|----|
| 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  |
| NVSC 402                     | Leadership and Ethics * . . . . . (3-0)         | 3  |
| Elective in American History | . . . . .                                       | 3  |
| <hr/>                        |   |    |
| Total                        | . . . . .                                       | 15 |

**Spring Semester**

|  |  |    |
|--|--|----|
| MARS 310                                     | Field Methods in Marine Sciences † . . . . . (1-6) | 3  |
| MARS   | Option †§ . . . . .                                | 3  |
| POLS 207                                     | State and Local Government . . . . . (3-0)         | 3  |
| Elective in American History                 | . . . . .  | 3  |
| Elective in Language, Philosophy and Culture | . . . . .  | 3  |
| <hr/>  |  |    |
| Total  | . . . . .  | 15 |

**Total Curriculum Hours □ 138**

**Notes for Marine Sciences License Option**

All electives must be chosen in consultation with, and approved by, the student’s academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

\* - 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.

†-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.

§-MARS option courses must be chosen from MARS 410, 430§§, 431§§, 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, or any of the six hour cruise options. The six-hour cruise options (NAUT 200, 300, and 400 or MARR 200, 300 and 400) do not add any required hours to the degree plan.

§§ - 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, 430, or 431.

## 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

| <b>Fall Semester</b>               |   | <b>(Th-Pr)</b> | <b>Cr</b> |
|------------------------------------|---|----------------|-----------|
| HIST 232                           | History of American Seapower. . . . .               | (3-0)          | 3         |
| KINE 120                           | The Science of Basic Health and Fitness . . . . .   | (1-1)          | 1         |
| MART 103                           | Basic Safety and Lifeboatman Training †** . . . . . | (2-3)          | 3         |
| MART 203                           | Seamanship I †** . . . . .                          | (2-3)          | 3         |
| MATH 141                           | Business Mathematics I . . . . .                    | (3-0)          | 3         |
| Elective in Communication. . . . . |   |                | 3         |
|                                    | Total . . . . .                                     |                | 16        |

|                                       |                                       |       |    |
|---------------------------------------|---------------------------------------|-------|----|
| <b>Spring Semester</b>                |                                       |       |    |
| MART 201                              | Naval Architecture †** . . . . .      |       | 3  |
| MART 204                              | Terrestrial Navigation †** . . . . .  | (2-2) | 3  |
| MATH 142                              | Business Mathematics II . . . . .     | (3-0) | 3  |
| NVSC 200                              | Merchant Marine Officer I † . . . . . | (3-0) | 3  |
| Elective in American History. . . . . |                                       |       | 3  |
|                                       | Total . . . . .                       |       | 15 |

#### SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

MART 200 or NAUT 200 †\*\* . . . . . 4 (or 6)□

### SOPHOMORE YEAR

| <b>Fall Semester</b> |  |       |    |
|----------------------|--|-------|----|
| MART 301             | Seamanship II †** . . . . .              | (2-3) | 3  |
| MART 303             | Celestial Navigation †** . . . . .       | (2-3) | 3  |
| HIST 242             | United States Maritime History . . . . . | (3-0) | 3  |
| MART 312             | Marine Cargo Operations I †** . . . . .  | (3-0) | 3  |
| PHYS 201             | College Physics. . . . .                 | (3-3) | 4  |
|                      | Total . . . . .                          |       | 16 |

|                                    |                                     |       |    |
|------------------------------------|-------------------------------------|-------|----|
| <b>Spring Semester</b>             |                                     |       |    |
| MART 306                           | Radar/ARPA/ECDIS †** . . . . .      | (3-3) | 4  |
| MART 321                           | Maritime Law I †** . . . . .        | (2-0) | 2  |
| MART 202                           | Naval Architecture II †** . . . . . | (3-0) | 3  |
| PHYS 202                           | College Physics. . . . .            | (3-3) | 4  |
| Elective in Communication. . . . . |                                     |       | 3  |
|                                    | Total . . . . .                     |       | 16 |

#### SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

MART 300 or MART 350 or NAUT 300 †\*\* . . . . . 4 (or 6)□



## JUNIOR YEAR

### Fall Semester

|                           |  |       |           |
|---------------------------|--|-------|-----------|
| 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         |
| MART 422                  | Seamanship III †** . . . . .                         | (1-3) | 2         |
| POLS 206                  | American National Government . . . . .               | (3-0) | 3         |
| Elective in Creative Arts | . . . . .  |       | 3         |
| <b>Total</b> . . . . .    |  |       | <b>16</b> |

### Spring Semester

|                        |  |       |           |
|------------------------|--|-------|-----------|
| ECON 203               | Principles of Economics . . . . .        | (3-0) | 3         |
| MARA 301               | Ocean Transportation I † . . . . .       | (3-0) | 3         |
| MART 406               | Marine Cargo Operations II †** . . . . . | (2-2) | 3         |
| MART 410               | Bridge Watchstanding †**§ . . . . .      | (1-3) | 2         |
| POLS 207               | State and Local Government . . . . .     | (3-0) | 3         |
| <b>Total</b> . . . . . |  |       | <b>14</b> |

### SUMMER TRAINING CRUISE (see Texas A&M Maritime Academy section for cruise requirements)

|                                    |           |
|------------------------------------|-----------|
| MART 400 or NAUT 400 †** . . . . . | 4 (or 6)□ |
|------------------------------------|-----------|

## SENIOR YEAR

### Fall Semester

|                         |   |       |           |
|-------------------------|---|-------|-----------|
| MARA 416                | Port Operations Administration and Economics† . . . . . | (3-0) | 3         |
| MART 404                | The Navigator †** . . . . .                             | (1-3) | 2         |
| MART 309                | Advanced Topics in Shipboard Operations †** . . . . .   | (2-0) | 2         |
| MART 498                | Maritime Medical Care †** . . . . .                     | (1-3) | 2         |
| Elective in Field * †** | . . . . .   |       | 3         |
| Elective in Field * †** | . . . . .   |       | 3         |
| <b>Total</b> . . . . .  |   |       | <b>15</b> |

### Spring Semester

|                         |                                     |       |           |
|-------------------------|-------------------------------------|-------|-----------|
| MART 401                | Maritime Security †** . . . . .     | (3-0) | 3         |
| MARA 421                | Admiralty Law † . . . . .           | (3-0) | 3         |
| NVSC 402                | Leadership and Ethics †** . . . . . | (3-0) | 3         |
| Elective in Field * †** | . . . . .                           |       | 3         |
| Elective in Field * †** | . . . . .                           |       | 3         |
| <b>Total</b> . . . . .  |                                     |       | <b>15</b> |

**Total Hours □ 135**

## Notes for Marine Transportation

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

\* - Approved Electives in Field include but are not limited to MART 308, 311, 407, 489; MARA 363, 401, 402.

†-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.

\*\* - 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.

§-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, or any of the six hour cruise options. The six-hour cruise options (NAUT 200, 300, and 400 or MARR 200, 300 and 400) do not add any required hours to the degree plan.

## 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.

### 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 |
|-----------------|--|---------|----|
| 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  |
|                 | Elective in American History. . . . .          |         | 3  |
| Total . . . . . |  |         | 13 |

#### Spring Semester

|                 |  |       |    |
|-----------------|--|-------|----|
| MARA 250        | Management Information Systems † . . . . .         | (2-0) | 2  |
| MATH 142        | Business Math II . . . . .                         | (3-0) | 3  |
|                 | Elective in American History. . . . .              |       | 3  |
|                 | Elective in Communication. . . . .                 |       | 3  |
|                 | Elective in Life and Physical Sciences § . . . . . |       | 5  |
| Total . . . . . |  |       | 16 |

#### SOPHOMORE YEAR

| Fall Semester   |  |       |    |
|-----------------|--|-------|----|
| ACCT 229        | Introduction to Accounting † . . . . .             | (3-0) | 3  |
| ECON 202        | Principles of Economics † . . . . .                | (3-0) | 3  |
| MARA 301        | Ocean Transportation I † . . . . .                 | (3-0) | 3  |
|                 | Elective in Communication . . . . .                |       | 3  |
|                 | Elective in Life and Physical Sciences § . . . . . |       | 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

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

### Spring Semester

|  |                                   |       |    |
|--|-----------------------------------|-------|----|
| FINC 341                                     | Business Finance † . . . . .      | (3-0) | 3  |
| SCMT 364                                     | Operations Management † . . . . . | (3-0) | 3  |
| Elective in Creative Arts                    | . . . . .                         |       | 3  |
| Elective in Language, Philosophy and Culture | . . . . .                         |       | 3  |
| Elective in MARA †                           | . . . . .                         |       | 3  |
| Total . . . . .                              |                                   |       | 15 |

## SENIOR YEAR

### Fall Semester

|                    |   |       |    |
|--------------------|---|-------|----|
| MARA 373           | Personnel 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

|                    |                                   |       |    |
|--------------------|-----------------------------------|-------|----|
| 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) | . . . . .                         |       | 4  |
| Total . . . . .    |                                   |       | 14 |

**Total Hours** **120**

## Notes for Maritime Administration

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

\* - 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  $\geq 2.25$  in their major. A MARA major must achieve a grade of "C" or better in ECON 202, ECON 203, ACCT 229, ACCT 230 and SCMT 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.

§- Students may satisfy the 9-credit hours of Life and Physical Science requirement through any combination of one, three or four credit hour courses.

□- 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. Students should choose 6 from the following courses: ACCT 315, ACCT 316, ECON 311, ECON 323, ECON 452, SCMT 336, MARA 342, MARA 401, MARA 402, MARA 416, MARA 424, MARA 435, MARA 450, MARA 460, MARA 470, MARA 484, MARA 485 or MARA 489.

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>.

## 5-Year Curriculum: Maritime Administration (MARA) and Master of Maritime Administration and Logistics (MMAL)

This program allows Maritime Administration (MARA) majors to enter the graduate program for a Master of Maritime Administration and Logistics the beginning of their senior year, enabling students to receive their MARA undergraduate degree (B.S.) and a Master of Maritime Administration and Logistics (MMAL) graduate degree in five years.

Students admitted to the 5-year degree program will have completed 92 of the 120 hours of course work required to receive a bachelor's degree. These courses must include the specific prerequisites for a Bachelor of Science degree in Maritime Administration, as well as the required Texas A&M University core curriculum courses.

Maritime Administration majors who have at least a 3.25 GPA and who have taken all of their prerequisite courses and otherwise completed 92 hours by the fall of their fourth year will be eligible to apply for the 5-year program during their junior year. Applicants to the 5-year program will submit the same materials (including GMAT scores) as other MMAL applicants, and those whose records are judged to be competitive by the mid-January deadline will be admitted. Admission criteria will be the same as for other MMAL students.

Students who choose not to finish the MMAL degree after being admitted to the 5-year program may exit the program at any time. Completed MMAL courses will be applied to their bachelor's degree in Maritime Administration, as appropriate. Failure to complete the MMAL program will in no way impede their ability to attain a bachelor's degree in Maritime Administration when the requirements for that degree are completed. Those who pursue the joint program will receive both degrees upon completion of the entire 5-year program. Students will not graduate with a bachelor's degree in year four, but rather will earn both their Bachelor of Science and Master of Maritime Administration and Logistics at the end of year five.

Admitted students will be enrolled in Maritime Administration and Logistics graduate courses with an undergraduate classification (U4) during the fall of their fourth year and will be re-classified as degree seeking master's students (G7) upon completing 107 credit hours. This will normally occur at the beginning of the spring semester of year four. Students will take 12 fewer undergraduate credit hours. Graduate courses taken in the fifth year program will be counted double, as credit towards their MMAL degree and as substitutes for MARA and free electives required for the bachelor's degree.

Students will be required to complete 36 graduate hours. The graduate hours will include 7 core courses (21 credits) in economics, management, operations and logistics with 15 credit hours of electives. The electives will be chosen according to the interest of the student in either the Maritime Policy and Law track or the Shipping and Port Management track. Students will also take 21 hours of undergraduate level MARA electives that must include MARA 416 in order to satisfy the TAMU intensive writing requirement.

### FRESHMAN YEAR

| Fall Semester                         |  | (Th-Pr) | Cr |
|---------------------------------------|--|---------|----|
| 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  |
| Elective in American History. . . . . |  |         | 3  |
| Total . . . . .                       |  |         | 13 |

### Spring Semester

|  |  |       |    |
|--|--|-------|----|
| MARA 250   | Management Information Systems † . . . . . | (2-0) | 2  |
| MATH 142   | Business Math II . . . . .                 | (3-0) | 3  |
| Elective in Communication. . . . .                 |  |       | 3  |
| Elective in American History. . . . .              |  |       | 3  |
| Elective in Life and Physical Sciences § . . . . . |  |       | 5  |
| Total . . . . .                                    |  |       | 16 |

### SOPHOMORE YEAR

| Fall Semester                                      |  |       |    |
|--|--|-------|----|
| ACCT 229   | Introduction to Accounting † . . . . . | (3-0) | 3  |
| ECON 202   | Principles of Economics † . . . . .    | (3-0) | 3  |
| MARA 301   | Ocean Transportation I † . . . . .     | (3-0) | 3  |
| Elective in Communication. . . . .                 |  |       | 3  |
| Elective in Life and Physical Sciences § . . . . . |  |       | 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  |
| <hr/>           |   |       |    |
| Total . . . . . |   |       | 16 |

**JUNIOR YEAR****Fall Semester**

|                    |                                  |       |    |
|--------------------|----------------------------------|-------|----|
| MARA 373           | Personnel Management † . . . . . | (3-0) | 3  |
| MARA 421           | Admiralty Law † . . . . .        | (3-0) | 3  |
| SCMT 303           | Statistical Methods † . . . . .  | (3-0) | 3  |
| Elective in MARA † | . . . . .                        |       | 3  |
| Elective in MARA † | . . . . .                        |       | 3  |
| <hr/>              |                                  |       |    |
| Total . . . . .    |                                  |       | 15 |

**Spring Semester**

|  |  |       |    |
|--|--|-------|----|
| MARA 440                                     | Global Economy and Enterprise Management †** . . . . . | (3-0) | 3  |
| MGMT 481                                     | Seminar in Management † . . . . .                      | (1-0) | 1  |
| Elective in Creative Arts                    | . . . . .  |       | 3  |
| Elective in Language, Philosophy and Culture | . . . . .  |       | 3  |
| Elective in MARA †                           | . . . . .  |       | 3  |
| Elective in MARA †                           | . . . . .  |       | 3  |
| <hr/>  |  |       |    |
| Total . . . . .                              |  |       | 16 |

**Total Hours to be completed prior to admission to the graduate courses 92**

**SENIOR YEAR/FIRST YEAR OF FIVE-YEAR PROGRAM****Fall Semester**

|                    |   |       |    |
|--------------------|---|-------|----|
| MARA 636           | Managerial Decision Making . . . . .                    | (3-0) | 3  |
| MARA 641           | Financial Management in Marine Transportation . . . . . | (3-0) | 3  |
| MARA 627           | Marketing of Transportation Services . . . . .          | (3-0) | 3  |
| Elective in MARA † | Undergraduate MARA Elective . . . . .                   |       | 3  |
| Elective in MARA † | Undergraduate MARA Elective . . . . .                   |       | 3  |
| <hr/>              |   |       |    |
| Total . . . . .    |   |       | 15 |

**Spring Semester**

|                    |   |       |    |
|--------------------|---|-------|----|
| MARA 623           | Economics Issues in Shipping . . . . .                        | (3-0) | 3  |
| MARA 664           | Production, Operations and Logistics Management . . . . .     | (3-0) | 3  |
| MARA 610           | International Strategic Planning and Implementation . . . . . | (3-0) | 3  |
| Elective in MARA † | Undergraduate MARA Elective . . . . .                         |       | 3  |
| <hr/>              |   |       |    |
| Total . . . . .    |   |       | 12 |

**SECOND YEAR OF FIVE-YEAR PROGRAM****Fall Semester**

|                    |  |       |    |
|--------------------|--|-------|----|
| MARA 624           | Intermodal Transportation Operations . . . . . | (3-0) | 3  |
| MMAL Elective *    | Graduate MMAL Elective . . . . .               |       | 3  |
| MMAL Elective *    | Graduate MMAL Elective . . . . .               |       | 3  |
| Elective (General) | . . . . .                                      |       | 4  |
| <hr/>              |  |       |    |
| Total . . . . .    |  |       | 13 |

**Spring Semester**

|                    |                                  |  |    |
|--------------------|----------------------------------|--|----|
| MMAL Elective *    | Graduate MMAL Elective . . . . . |  | 3  |
| MMAL Elective *    | Graduate MMAL Elective . . . . . |  | 3  |
| MMAL Elective *    | Graduate MMAL Elective . . . . . |  | 3  |
| Elective (General) | . . . . .                        |  | 3  |
| <hr/>              |                                  |  |    |
| Total . . . . .    |                                  |  | 12 |

**Total Hours 144**

## Notes for the MARA/MMAL 3+2 Program

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Note: All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

†- 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  $\geq 2.25$  in their major. A MARA major must achieve a grade of "C" or better in ECON 202, ECON 203, ACCT 229, ACCT 230 and SCMT 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.

§- Students may satisfy the 9-credit hours of Life and Physical Science requirement through any combination of one, three or four credit hour courses.

□- 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 21 credit hours of MARA electives that must include MARA 416 to satisfy the intensive writing requirement. Students should choose 6 from the following courses:

ACCT 315, ACCT 316, ECON 311, ECON 323, ECON 452, SCMT 336, MARA 342, MARA 401, MARA 402, MARA 416, MARA 424, MARA 435, MARA 450, MARA 460, MARA 470, MARA 484, MARA 485 or MARA 489.

\* - Choose 15 credit hours from the following graduate level MMAL elective courses: MARA 604, MARA 616, MARA 616, MARA 640, MARA 650, MARA 652, MARA 658, MARA 660, MARA 670, MARA 672; or MARS 620, MARS 640, MARS 660, MARS 676.



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## Curriculum in Maritime Studies (MAST)

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Maritime Studies is the study of maritime culture, archaeology and history, from ancient times to the present. 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. They will graduate with a comprehensive understanding of the varied ways that humans use and impact coastal and maritime environments. The program has a distinctive international emphasis.

All students study the history and archaeology of maritime cultural adaptations and the literary expression of mankind's experience with the sea, but students also tailor the program to meet their interests by selecting additional courses in anthropology, archaeology, history, literature, philosophy, language, public policy and kinesiology. All students are given the opportunity to train as a crewmember on a working 19th century tall ship.

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

Maritime Studies graduates are prepared for a diverse choice of fields including, but not limited to, environmental management, public service, museums, nautical archaeology, pre-law, and graduate studies in related fields.

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

All Maritime Studies majors may select a minor field of study in a particular area of interest. The minor will consist of 15-18 hours of coursework, no more than 6 of which may be at the lower-division level. A grade of C or higher is required if a course is to count in the minor.

A total of 120 hours are required for the degree. Of these, at least 36 hours of 300- or 400- level coursework must be taken at Texas A&M University (Galveston or College Station campus) to satisfy the residency requirement. At least six of the 120 hours must be courses approved for International and Cultural Diversity. At least two courses in the major must fulfill the University's graduation requirement for written and oral communication (designated as "w" or "c" courses).

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

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**Maritime Studies.** The student must complete 42 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) or HIST 242 (United States Maritime History)  |
| 3       | MAST 411 (International Maritime Culture)*  |
| 27      | Selected from <b>MAST Electives*</b> : MAST 320, MAST 333, MAST 345*, MAST 350, MAST 352, MAST 354, MAST 371, MAST 425*, MAST 441c, MAST 484, MAST 485, MAST 489, MAST 491**, ANTH 318; CLAS 371.   |
| 14      | Selected from <b>Directed Electives</b> : ANTH 202, ANTH 225, ANTH 313, ANTH 350, ANTH 351, ANTH 423, ANTH 485; ENGL 212, ENGL 222, ENGL 228, ENGL 236, ENGL 251, ENGL 330, ENGL 334, ENGL 338, ENGL 339, ENGL 374, ENGL 415, ENGL 485; HIST 226, HIST 242, HIST 370, HIST 373, HIST 374, HIST 405, HIST 485; KINE 199; MARA 470; MAST 265, MAST 266; PHIL 314, PHIL 381; POLS 231, POLS 340, POLS 347, POLS 366; SPAN 101, SPAN 102, SPAN 201, SPAN 202; any other course normally approved for inclusion in the Core Curriculum for Language, Philosophy and Culture. |
| 22      | Selected from <b>Free Electives</b>   |
| 42      | <b>Core Curriculum***.</b>  |

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**120 Total Hours**

## Notes for Maritime Studies

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\* Indicates a course that satisfies the writing intensive course requirements of the University.

\*\*A maximum of 6 hours of 484, 485, and/or 491 courses may be used as MAST major electives.

\*\*\*The Maritime Studies program allows students to use any courses approved for the inclusion in the University Core Curriculum as long as the course has not been used to satisfy another requirement in the major. All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements..

## Core Curriculum

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Students develop and practice these skills in the context of 42 semester credit hours assigned to eight Foundational Component Areas, each made up of a selection of courses that meet the definition provided by the Texas Core Curriculum. The courses that comprise each of these Foundational Component Areas can be found at [core.tamu.edu](http://core.tamu.edu).

Communication – 6 SCH

Mathematics – 6 SCH

Life and Physical Sciences – 9 SCH

Language, Philosophy and Culture – 3 SCH

Creative Arts – 3 SCH

American History – 6 SCH

Government/Political Science – 6 SCH

Social and Behavioral Sciences – 3 SCH

**All Maritime Studies degree plans require at least 120 hours for completion.**

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# Curriculum in Offshore and Coastal Systems Engineering (OCSE)

The goal of the Offshore and Coastal Systems Engineering program 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). Upon the recommendation of ABET, the name of this program was changed from Maritime Systems Engineering to Offshore and Coastal Systems Engineering in January, 2014.

Incoming Freshman Students who meet the University and college entrance requirements enter the Offshore and Coastal Systems Engineering program with a lower-division classification (COSL), as do transfer students, regardless of the number of transfer hours. Enrollment in junior- and senior-level engineering courses is restricted to students who have been moved from that lower division (OCSL) into the OCSE major degree sequence. Admission to the major degree sequence requires that the student be in good academic standing and

- (1) have earned a C or better in all CBK courses and in MASE 221;
- (2) have received credit for ENGR 111 and 112; PHYS 208 and 218; MASE 221 and MATH 151; MATH 152 and MATH 251, and
- (3) have achieved a cumulative GPR of 2.5 or above for all attempts on those courses listed in (2) that were taken at Texas A&M.

Students with a very large number of transfer credits will be handled on a case by case basis.

## FRESHMAN YEAR

### Fall Semester

|                 |  | (Th-Pr) | Cr |
|-----------------|--|---------|----|
| ENGL 104        | Composition and Rhetoric . . . . .                           | (3-0)   | 3  |
| ENGR 111        | Foundations of Engineering I . . . . .                       | (1-3)   | 2  |
| 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  |
| Total . . . . . |  |         | 15 |

### Spring Semester

|                 |   |       |    |
|-----------------|---|-------|----|
| CHEM 107        | General Chemistry for Engineering Students . . . . .            | (3-0) | 3  |
| CHEM 117        | General Chemistry for Engineering Students Laboratory . . . . . | (0-3) | 1  |
| ENGL 210        | Technical and Business Writing . . . . .                        | (3-0) | 3  |
| ENGR 112        | Foundations of Engineering II . . . . .                         | (1-3) | 2  |
| MATH 152        | Engineering Mathematics II . . . . .                            | (3-2) | 4  |
| PHYS 208        | Electricity and Optics . . . . .                                | (3-3) | 4  |
| Total . . . . . |   |       | 17 |

## SOPHOMORE YEAR

### Fall Semester

|                              |  |       |    |
|------------------------------|--|-------|----|
| MASE 221                     | Engineering Mechanics: Statics . . . . . | (2-2) | 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  |
| Elective in Creative Arts    | . . . . .                                |       | 3  |
| Elective in American History | . . . . .                                |       | 3  |
| Total . . . . .              |  |       | 17 |

**Spring Semester**

|                 |  |       |    |
|-----------------|--|-------|----|
| MASE 265        | Introduction to Geotechnical Engineering . . . . . | (2-2) | 3  |
| MASE 213        | Principles of Materials Engineering . . . . .      | (2-2) | 3  |
| MASE 214        | Mechanics of Deformable Bodies . . . . .           | (3-0) | 3  |
| MASE 217        | Electrical Engineering: Circuits . . . . .         | (2-0) | 2  |
| MASE 261        | Applied Numerical Methods † . . . . .              | (3-0) | 3  |
| MATH 308        | Differential Equations . . . . .                   | (3-0) | 3  |
| <hr/>           |  |       |    |
| Total . . . . . |  |       | 17 |

**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  |
| MASE 363   | Dynamics and Vibrations †** . . . . .                   | (2-2) | 3  |
| MASE 319   | Fundamentals of Naval Architecture Design I † . . . . . | (2-3) | 3  |
| Elective in Language, Philosophy and Culture . . . . . |   |       | 3  |
| <hr/>  |   |       |    |
| Total . . . . .  |   |       | 16 |

**Spring Semester**

|  |  |       |    |
|--|--|-------|----|
| CVEN 446                               | Structural Steel Design †** . . . . .                    | (3-0) | 3  |
| MASE 341                               | 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  |
| Elective in American History . . . . . |  |       | 3  |
| <hr/>                                  |  |       |    |
| Total . . . . .                        |  |       | 18 |

**SENIOR YEAR****Fall Semester**

|                                  |   |       |    |
|----------------------------------|---|-------|----|
| MASE 400                         | Introduction to Coastal Engineering †** . . . . .           | (3-0) | 3  |
| MASE 405                         | Finite Element Analysis in Engineering Design †** . . . . . | (3-0) | 3  |
| MASE 406                         | Capstone Design I † ** . . . . .                            | (1-0) | 1  |
| MASE 415                         | Marine Structures Design †** . . . . .                      | (3-0) | 3  |
| Technical Electives §† . . . . . |   |       | 6  |
| <hr/>                            |   |       |    |
| Total . . . . .                  |   |       | 16 |

**Spring Semester**

|   |  |       |    |
|---|--|-------|----|
| MASE 401  | Underwater Acoustics †** . . . . .                 | (3-0) | 3  |
| MASE 407  | Capstone Design II † . . . . .                     | (0-6) | 3  |
| MASE 410  | Measurements in the Ocean Laboratory †** . . . . . | (0-3) | 1  |
| POLS 207  | State and Local Government . . . . .               | (3-0) | 3  |
| General Science Elective *** . . . . .            |  |       | 3  |
| Social and Behavioral Sciences Elective . . . . . |  |       | 3  |
| <hr/>   |  |       |    |
| Total . . . . .                                   |  |       | 16 |

**Total Hours<sup>α</sup> 132**

## Notes for Offshore and Coastal Systems Engineering

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- Indicated courses in which the student must achieve a grade of C or better.
  - Designated writing intensive course.
  - †-Indicates required courses in the Offshore and Coastal Systems Engineering major. These courses will be used to compute the major GPR.
  - The total hours may be increased if the student is required to take coursework in remedial math, remedial English, foreign language or International and Cultural Diversity courses.
  - § - To be selected from MASE 411, MASE 421, MASE 465, MASE 467, MASE 474 and MASE 483. MASE 485 and MASE 489 may be applied with prior approval of the department head.
  - \* - Only students with a U1 or U2 status are eligible to take MASE 100. Students with U3 or U4 status may substitute any 300- or 400-level MASE technical elective.
  - \*\* - Must be accepted into the OCSE major degree sequence. Must make a 2.5 cumulative GPR for all attempts in ENGR 111, ENGR 112, PHYS 208, PHYS 218, MASE 221, MATH 151, MATH 152 and MATH 251.
  - \*\*\* - To be chosen from MARS 306, MARS 330, MARS 370, MARS 410, MARS 430, MARS 431 or MARS 435; or by prior approval of the MASE Department Head.
- Note 1: All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.
- Note 2: A grade of C or better will be required for the Common Body of Knowledge (CBK) Courses (MATH 151, MATH 152, MATH 251, PHYS 208, PHYS 218, CHEM 107, CHEM 117, ENGL 104, ENGR 111 and ENGR 112). Failure to meet this requirement will prevent the student from continuing in any sequence in which the course is a prerequisite.
- Note 3: OCSE students are required to earn a grade of C or better in MASE 221, CVEN 311, CVEN 345, OCEN 300, MATH 251 and MATH 308. Failure to meet this requirement will prevent the student from continuing any sequence in which the course is a prerequisite.

## 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.

Students 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 majors.

Students majoring in Ocean and Coastal Resources can be eligible for a secondary teaching field in Physical Sciences, pending the completion of a teaching certification program. For information about teaching certification, go to <https://secure.sbec.state.tx.us/SBECOnline/approvedprograms.asp>.

### FRESHMAN YEAR

#### Fall Semester

|                       |  | (Th-Pr) | Cr |
|-----------------------|--|---------|----|
| ENGL 104              | Composition and Rhetoric . . . . .     | (3-0)   | 3  |
| GEOL 104              | Physical Geology . . . . .             | (3-3)   | 4  |
| MATH                  | Mathematics Requirement * . . . . .    |         | 4  |
| POLS 206              | American National Government . . . . . | (3-0)   | 3  |
| Total Hours . . . . . |  |         | 14 |

#### Spring Semester

|                       |                                      |       |    |
|-----------------------|--------------------------------------|-------|----|
| BIOL 112              | Introductory Biology II. . . . .     | (3-3) | 4  |
| MATH                  | Mathematics Requirement * . . . . .  |       | 3  |
| OCNG 251              | Oceanography † . . . . .             | (3-0) | 3  |
| OCNG 252              | Oceanography Laboratory † . . . . .  | (0-3) | 1  |
| POLS 207              | State and Local Government . . . . . | (3-0) | 3  |
| Total Hours . . . . . |                                      |       | 14 |

### SOPHOMORE YEAR

#### Fall Semester

|                         |  |       |    |
|-------------------------|--|-------|----|
| CHEM 101                | Fundamentals of Chemistry I. . . . .             | (3-0) | 3  |
| CHEM 111                | Fundamentals of Chemistry Laboratory I . . . . . | (0-3) | 1  |
| ECON 202                | Principles of Economics . . . . .                | (3-0) | 3  |
| MARS 280                | Coastal and Ocean Resources † . . . . .          | (3-0) | 3  |
| MARS 281                | Sophomore Seminar in MARS † . . . . .            |       | 1  |
| PHYS 218<br>or PHYS 201 | Mechanics . . . . .<br>College Physics           | (3-3) | 4  |
| Total Hours . . . . .   |  |       | 15 |

#### Spring Semester

|  |   |       |    |
|--|---|-------|----|
| CHEM 102                               | Fundamentals of Chemistry II . . . . .            | (3-0) | 3  |
| CHEM 112                               | Fundamentals of Chemistry Laboratory II . . . . . | (0-3) | 1  |
| COMM 203                               | Public Speaking . . . . .                         | (3-0) | 3  |
| ECON 203                               | Principles of Economics . . . . .                 | (3-0) | 3  |
| MARS 210                               | Marine Geography . . . . .                        | (3-0) | 3  |
| Elective in American History . . . . . |   |       | 3  |
| Total Hours . . . . .                  |   |       | 16 |



## JUNIOR YEAR

### Fall Semester

|                       |   |       |    |
|-----------------------|---|-------|----|
| MARA 363              | The Management Process † . . . . .                  | (3-0) | 3  |
| MARS 350              | Advanced Computer Applications † . . . . .          | (1-2) | 2  |
| OCNG 420              | Introduction to Biological Oceanography † . . . . . | (3-0) | 3  |
|                       | Elective in American History. . . . .               |       | 3  |
|                       | Professional Elective ‡ . . . . .                   |       | 3  |
| Total Hours . . . . . |   |       | 14 |

### Spring Semester

|                       |   |       |    |
|-----------------------|---|-------|----|
| ENGL 210              | Technical and Business Writing . . . . .      | (3-0) | 3  |
| MARS 310              | Field Methods in Marine Sciences §† . . . . . | (1-6) | 3  |
| STAT 303              | Statistical Methods . . . . .                 | (2-2) | 3  |
|                       | Professional Elective ‡ . . . . .             |       | 3  |
|                       | Creative Arts 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  |
| or MARS 432           | Peak Oil, Global Warming and Resource Scarcity . . . . . |       |    |
|                       | Professional Elective ‡ . . . . .                        |       | 3  |
| Total Hours . . . . . |  |       | 15 |

### Spring Semester

|                       |   |       |    |
|-----------------------|---|-------|----|
| MARS 430              | Geological Oceanography - Plate Tectonics † . . . . . | (3-0) | 3  |
| or MARS 431           | Geological Oceanography - Earth's Climate             |       |    |
|                       | Elective . . . . .                                    |       | 5  |
|                       | Language, Philosophy and Culture Elective . . . . .   |       | 3  |
|                       | Professional Elective ‡ . . . . .                     |       | 3  |
|                       | Professional Elective ‡ . . . . .                     |       | 3  |
| Total Hours . . . . . |   |       | 17 |

**Total Curriculum Hours = 120**

## Notes for Ocean and Coastal Resources

All electives must be chosen in consultation with, and approved by, the student's academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.

\* Either MATH 151 (4 credits), which is preferred for a science-oriented career path, or MATH 142 (3 credits) may be taken. Credit will not be given for both MATH 151 and MATH 142. For the second math class, either MATH 152 (4 credits) or MATH 141 may be taken. Depending upon the math sequence selected, the number of credit hours will vary by 1 or 2 credits. The total number of hours for the degree must still be at least 120, so the difference can be made up with professional electives, MARS 484 or MARS 485.

† 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 include, but are not limited to:

CHEM 316, 318; MARA 470; MARB 320, 340, 345, 350, 423, 438, 445, MARS 306, 330, 370, 410, 412, 415, 423, 435, 440, 484, or 489.

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 Cultural Diversity courses.

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

- Designated writing intensive course.

## 5-Year Curriculum: Ocean and Coastal Resources (OCRE) and Master of Marine Resources Management (MARM)

This program allows Ocean and Coastal Resources (OCRE) majors to enter the graduate program for a Master of Marine Resources Management at the beginning of their senior year, enabling students to receive their OCRE undergraduate degree (B.S.) and a Master of Marine Resources Management (MARM) graduate degree in five years.

Students admitted to the 5-year degree program will have completed 102 of the 120 hours of course work required to receive a bachelor's degree. These courses must include the specific prerequisites for a Bachelor of Science degree in Ocean and Coastal Resources, as well as the required Texas A&M University core curriculum courses.

### Application to the 5-Year Program

Ocean and Coastal Resources majors who have at least a 3.25 GPA and who will have taken all of their prerequisite courses and otherwise completed 101 or 102 hours by the fall of their fourth year will be eligible to apply for the 5-year program during their junior year. Applicants to the 5-year program will submit the same materials (including GRE scores) as other MARM applicants, and those whose records are judged to be competitive by the mid-January deadline will be admitted. Admission criteria will be the same as for the other MARM students.

Admitted students will be enrolled in Marine Resources Management graduate courses with an undergraduate classification (U4) during the fall of their fourth year. They will then be reclassified as degree-seeking master's students (G7) upon completing 120 credit hours. This will normally occur at the beginning of the fall semester of the fifth year. Students will be required to complete the same 2-year, 36-hour curriculum as other students admitted to the MARM non-thesis program. This curriculum combines nine core courses (24 credit hours) in resources management, policy and economics with 12 credit hours of electives (see MARM curriculum). At least one elective must be a science elective and at least one must be additional law, policy, or management courses.

If students are interested in the MARM thesis option, then there is additional flexibility to replace required courses with up to six hours of 691 (research) courses and electives chosen with the approval of their thesis advisor and committee. To comply with the course and work requirements of the thesis option, this program may extend beyond the 5 year window. For specific requirements to comply with the thesis option curriculum, students are asked to consult the MARM section of the TAMUG catalog.

Students who choose not to finish the MARM degree after being admitted to the 5-year program may exit the program at any time. Completed MARM courses will be applied to their bachelor's degree in Ocean and Coastal Resources, as appropriate. Failure to complete the MARM program will in no way impede their ability to attain a bachelor's degree in Ocean and Coastal Resources when the requirements for that degree are completed.

Those who pursue the 5-year program will receive both degrees upon the completion of the 5-year program. Students will not graduate with a bachelor's degree in year four, but rather will earn both their Bachelor of Science and the Master of Marine Resources Management degrees at the end of year five.

### Advising

Advising for the 5-year program is a coordinated effort by the Department of Marine Sciences undergraduate and graduate advisors and by the Office of Graduate Studies. Advising will help ensure that interested students have satisfied the prerequisite course requirements for the bachelor's degree so that they may enter the 5-year program. OCRE students can speak to Dr. Melanie Lesko at [Leskom@tamug.edu](mailto:Leskom@tamug.edu) or phone 409.740.4517. The MARM advisor is Dr. Frederick Schlemmer at [Schlemme@tamug.edu](mailto:Schlemme@tamug.edu) or phone 409.740.4518.

#### FRESHMAN YEAR

| Fall Semester                |  | (Th-Pr) | Cr       |
|------------------------------|--|---------|----------|
| ENGL 104                     | Composition and Rhetoric . . . . .     | (3-0)   | 3        |
| GEOL 104                     | Physical Geology . . . . .             | (3-3)   | 4        |
| MATH                         | Mathematics Requirement ** . . . . .   | (3-2)   | 4        |
| POLS 206                     | American National Government . . . . . | (3-0)   | 3        |
| Elective in American History | . . . . .                              |         | 3        |
|                              | Total Hours . . . . .                  |         | 16 or 17 |

**Spring Semester**

|                       |                                      |       |    |
|-----------------------|--------------------------------------|-------|----|
| BIOL 112              | Introductory Biology II . . . . .    | (3-3) | 4  |
| MARS 210              | Marine Geography . . . . .           | (3-0) | 3  |
| MATH                  | Mathematics Requirement ** . . . . . | (3-0) | 3  |
| OCNG 251              | Oceanography † . . . . .             | (3-0) | 3  |
| OCNG 252              | Oceanography Laboratory † . . . . .  | (0-3) | 1  |
| POLS 207              | State and Local Government . . . . . | (3-0) | 3  |
| <hr/>                 |                                      |       |    |
| Total Hours . . . . . |                                      |       | 17 |

**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<br>or PHYS 201 | Mechanics . . . . .                              | (3-3) | 4  |
| Creative Arts Elective  | College Physics . . . . .                        |       | 3  |
| <hr/>                   |  |       |    |
| Total Hours . . . . .   |  |       | 18 |

**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  |
| MARA 363                                      | The Management Process . . . . .                  | (3-0) | 3  |
| Elective in American History.                 |   |       | 3  |
| Elective in Language, Philosophy and Culture. |   |       | 3  |
| <hr/>   |   |       |    |
| Total Hours . . . . .                         |   |       | 16 |

**JUNIOR YEAR****Fall Semester**

|   |  |       |    |
|---|--|-------|----|
| MARS 350                                | Advanced Computer Applications † . . . . .   | (1-2) | 2  |
| MARS 425<br>and MARS 426<br>or MARB 430 | Coastal Wetlands Management (3-0) Credit 3 † . . . . .<br>Coastal Wetlands Delineation Laboratory (0-3) Credit 1 †<br>Coastal Plant Ecology (3-3) Credit 4 † |       | 4  |
| MARS 481                                | Seminar † . . . . .  | (1-0) | 1  |
| OCNG 420                                | Introduction to Biological Oceanography † . . . . .  | (3-0) | 3  |
| POLS 347<br>or MARS 432                 | Politics of Energy and the Environment . . . . .<br>Peak Oil, Global Warming and Resource Scarcity   | (3-0) | 3  |
| Professional Elective ‡                 |  |       | 3  |
| General Elective                        |  |       | 2  |
| <hr/>                                   |  |       |    |
| Total Hours . . . . .                   |  |       | 18 |

**Spring Semester**

|                         |  |       |    |
|-------------------------|--|-------|----|
| ENGL 210                | Technical and Business Writing . . . . .   | (3-0) | 3  |
| MARS 310                | Field Methods in Marine Sciences §† . . . . .  | (1-6) | 3  |
| MARS 430<br>or MARS 431 | Geological Oceanography - Plate Tectonics † . . . . .<br>Geological Oceanography - Earth's Climate | (3-0) | 3  |
| MARS 485                | Directed Studies † . . . . .   |       | 1  |
| STAT 303                | Statistical Methods . . . . .  | (2-2) | 3  |
| Professional Elective ‡ |  |       | 3  |
| <hr/>                   |  |       |    |
| Total Hours . . . . .   |  |       | 16 |

**SENIOR YEAR OCRE and FIRST YEAR OF MARM****Fall Semester**

|                         |   |       |    |
|-------------------------|---|-------|----|
| MARS 615                | Physical and Geochemical Marine Resources † . . . . . | (2-2) | 3  |
| MARS 625                | GIS Use in Coastal Resources . . . . .                | (1-3) | 2  |
| MARS 676                | Environmental Policy . . . . .                        | (3-0) | 3  |
| Professional Elective ‡ |   |       | 3  |
| <hr/>                   |   |       |    |
| Total Hours . . . . .   |   |       | 11 |

**Spring Semester**

|                       |  |       |    |
|-----------------------|--|-------|----|
| MARA 604              | Marine Natural Resource Economics . . . . .                  | (3-0) | 3  |
| MARB 620              | Marine Biological Resources . . . . .                        | (3-0) | 3  |
| MARS 675              | Environmental Management Strategies for Scientists . . . . . | (2-0) | 2  |
| General Elective ‡    | . . . . .  |       | 3  |
| <hr/>                 |  |       |    |
| Total Hours . . . . . |  |       | 11 |

**SECOND YEAR OF MARM**

**Fall Semester**

|                         |   |  |   |
|-------------------------|---|--|---|
| MARS 635                | Environmental Impact Statements and Natural Resource Damage Assessment(3-0) |  | 3 |
| MARM elective ‡‡        |   |  |   |
| MARM elective ‡‡        |   |  |   |
| Professional Elective ‡ | . . . . .   |  | 3 |
| <hr/>                   |   |  |   |
| Total Hours . . . . .   |   |  | 9 |

**Spring Semester**

|                       |   |       |    |
|-----------------------|---|-------|----|
| MARS 652              | Sustainable Management of Coastal Margins . . . . . | (3-0) | 3  |
| MARS 680              | Integrative Analyses in Marine Resources . . . . .  | (2-0) | 2  |
| MARM Elective ‡‡      | . . . . .   |       | 3  |
| MARM Elective ‡‡      | . . . . .   |       | 3  |
| <hr/>                 |   |       |    |
| Total Hours . . . . . |   |       | 11 |

**Total Curriculum Hours for Combined OCRE/MARM 5-Year Program □ 144**

**Notes for OCRE/MARM 3+2 Program**

- All electives must be chosen in consultation with, and approved by, the student’s academic advisor. Unless courses are specifically listed, see University Core Curriculum at <http://core.tamu.edu/> for a listing of course options for Communication; Mathematics; Life and Physical Sciences; Language, Philosophy and Culture; Creative Arts; American History; Government and Political Sciences; and Social and Behavioral Sciences. The 6-hour University Core Curriculum requirement for International and Cultural Diversity may be met with courses used to satisfy other degree requirements.
- As indicated above, students in the 5-year program will take 12 fewer undergraduate credit hours than other OCRE students. Graduate courses taken in the fourth and fifth year will be counted as credit towards the OCRE degree.
- Credit by Exam credit will be awarded for ECON 203 and MARS 325 upon completion of examination in MARA 604 and MARS 625 respectively.
- Course adjustments will be allowed for 6 hours of undergraduate elective credit to use 6 hours of MARM elective credits.

\*\* - Depending upon the math sequence selected, the number of credit hours will vary by 1 or 2 credits. The Math Requirement may be met by the following:  
 1. Either MATH 151 (4 credits), which is preferred for a science-oriented career path, or MATH 142 (3 credits) may be taken. Credit will not be given for both MATH 151 and MATH 142.  
 2. Either MATH 152 (4 credits), MATH 141 or MATH 166 may be taken.

†-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 and 318; MARA 470; MARB 320, 340, 345, 370, 423, 432, 438, 445, MARS 305, 330, 370, 410, 415, 432, 435, 440, 484, 485 or 489.  
 Note: If you choose to take CHEM 316, then you must take CHEM 318 concurrently.

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

□- The total undergraduate hours prior to entering the 5-year program is 101 or 102, depending upon your math selection. After starting the 5-year program, 6 additional undergraduate hours will be taken for a total of 108 undergraduate hours. The total graduate credit hours is 36. Substituting 6 hours of MARM electives for one free and one professional elective and applying 6 hours of credit by exam results in a total of 150 hours. 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.

‡‡ - 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. See MARM curriculum pages of the catalog for additional requirements for the thesis option curriculum.

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## Curriculum in University Studies (USGA)

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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

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The concentration in Marine Environmental Law and Policy 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.

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<br>MARA 363                         | Legal and Social Environment of Business or<br>The Management Process . . . . . | 3 credit hours   |
| Any 3 or 4 credit hour ecology course . . . . . |   | 3-4 credit hours |

- 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 (42 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/departmental 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.

### **Concentration in Oceans and One Health**

The concentration in Oceans and One Health allows the student to explore human, animal or environmental health issues associated with the marine and coastal communities. Students may pursue this degree program as a pathway to medical, dental or veterinary school or as a stand-alone degree to address any of a number of health-related issues that result from urbanization of coastal areas or increased development of marine environments. The curriculum is designed to be flexible so that students can choose their focus from the diverse list of concentration electives. It is also rigorous enough to provide students headed for professional or graduate school a solid background in health-related disciplines and environmental sciences.

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 (Galveston or College Station campus).

- 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.

- 1. The following 14 hours of coursework are required:

|            |  |                |
|------------|--|----------------|
| OCNG 251   | Oceanography . . . . .   | 3 credit hours |
| OCNG 252   | Oceanography Lab . . . . .                                     | 1 credit hour  |
| MARS 360   | Biochemistry . . . . .   | 4 credit hours |
| MARS 428   | Coastal Development and Human Health . . . . .                 | 3 credit hours |
| Statistics | Choose from MARB 303, STAT 201, STAT 303 or SCMT 303 . . . . . | 3 credit hours |

- 2. Select 10 hours from the following courses:

|           |   |                |
|-----------|---|----------------|
| BIOL 351  | Fundamentals of Microbiology . . . . .            | 3 credit hours |
| CHEM 383  | Environmental Chemistry . . . . .                 | 3 credit hours |
| MARB 301  | Genetics . . . . .                                | 4 credit hours |
| MARB 414  | Toxicology . . . . .                              | 3 credit hours |
| MARB 430w | Coastal Plant Ecology . . . . .                   | 4 credit hours |
| MARS 325  | Introduction to GIS for Marine Sciences . . . . . | 3 credit hours |
| OCNG 420  | Introduction to Biological Oceanography . . . . . | 3 credit hours |

- 3. Prerequisite courses not included in the University Core Curriculum or listed above:

|          |  |                |
|----------|--|----------------|
| BIOL 112 | Introductory Biology II . . . . .      | 4 credit hours |
| CHEM 227 | Organic Chemistry I . . . . .          | 3 credit hours |
| CHEM 228 | Organic Chemistry II . . . . .         | 3 credit hours |
| CHEM 237 | Organic Chemistry Laboratory . . . . . | 1 credit hour  |
| CHEM 238 | Organic Chemistry Laboratory . . . . . | 1 credit hour  |

- 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. University Core Curriculum (42 hours). Courses in the University Core Curriculum will be required for this area of concentration. 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/departmental 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.

**All University Studies degree plans require at least 120 hours for completion.**



# 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 Diving Technology and Methods

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Students in other majors may establish a minor field of study in Diving Technology and Methods through completing 16 hours from the following courses. A minimum of 6 hours must be completed at the 300- to 400- level:

|                   |                                   |
|-------------------|-----------------------------------|
| MAST 110/KINE 199 | Scuba I                           |
| MAST 120/KINE 199 | Scuba II                          |
| MAST 321          | Industrial Diving Orientation     |
| MAST 330          | Rescue Diving                     |
| MARB 340          | Tropical Marine Ecology           |
| MARB 345          | Introduction to Scientific Diving |
| MARB 350          | Methods in Research Diving        |
| MAST 357          | Dive Leadership - Divemaster      |
| MAST 457          | Dive Leadership - Dive Instructor |

In addition to the course requirements listed above, students:

- Must complete a medical statement showing no contradictions to diving or have a recreational scuba diver's physical examination.
- Must have Divers Alert Network (DAN) insurance (or equivalent).
- Must maintain good health and fitness appropriate to the level of diving required. Adverse behaviors that put the diver or other participants at risk such as the use of alcohol or certain medicines may require the diver to be removed from the program.

## Minor in Marine Biology

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Students in other majors may establish a minor field of study in Marine Biology through completing 16 credits of MARB course selected in consultation with a Marine Biology advisor, choosing from the courses listed below. The student must have earned a C or better in BIOL 111 and BIOL 112.

|             |                                |
|-------------|--------------------------------|
| MARB 301    | Genetics                       |
| MARB 311    | Ichthyology                    |
| MARB 315    | Natural History of Vertebrates |
| MARB 360    | Marine Conservation Biology    |
| MARB 400    | Biology of Marine Mammals      |
| MARB 408    | Marine Botany                  |
| or MARB 430 | Coastal Plant Ecology          |
| MARB 425    | Marine Ecology                 |
| MARB 435    | Marine Invertebrate Zoology    |

## **Minor in Maritime Administration**

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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 12 required credits):

|          |   |
|----------|---|
| ACCT 229 | Introduction to Accounting                    |
| MARA 301 | Ocean Transportation I                        |
| MARA 363 | Managerial Process                            |
| MARA 416 | Port Operations, Administration and Economics |

Elective Courses (total 6 required credits):

|          |  |
|----------|--|
| MARA 304 | Ocean Transportation II                  |
| MARA 342 | Managerial Maritime Finance              |
| MARA 401 | Brokerage and Chartering                 |
| MARA 402 | Inland Waterways                         |
| MARA 421 | Admiralty Law                            |
| MARA 424 | Economics of Transportation              |
| MARA 435 | Labor Law                                |
| MARA 440 | Global Economy and Enterprise Management |
| MARA 450 | Maritime Supply Chain Management         |
| MARA 460 | Management Systems and Control           |
| MARA 470 | Environmental Law                        |
| MARA 484 | Management Internship                    |
| MARA 485 | Directed Studies                         |
| MARA 489 | Special Topics                           |

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

## **Minor in Ocean and Coastal Resources**

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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 431 | Geological Oceanography - Earth's Climate |
| MARS 440 | Introduction to Chemical Oceanography     |
| OCNG 420 | Introduction to Biological Oceanography   |

Select 3-7 hours from the following courses:

|              |  |
|--------------|--|
| MARS 370     | Coastal Processes                              |
| MARS 423     | Ecological Economics                           |
| MARS 425/426 | Coastal Wetlands Management (and Lab)          |
| MARS 432     | Peak Oil, Global Warming and Resource Scarcity |
| MARA 470     | Environmental Law                              |

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

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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>.

# 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

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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

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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**

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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**

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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**

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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.

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# GRADUATE STUDIES

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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 (MARM) degree, Master of Science (M.S.) in Marine Biology, Doctor of Philosophy (Ph.D.) in Marine Biology and Master of Maritime Administration and Logistics (MMAL). The Master of Marine Resources Management and Master of Maritime Administration and Logistics degrees are professional degrees 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 (MARB-IDP) through the collaboration of the Texas A&M University, Texas A&M University at Galveston, and the Texas A&M University–Corpus Christi campuses. Texas A&M University at Galveston is located on the shore of Galveston Bay with close access to the Gulf of Mexico.

## Graduate Admissions

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

An application fee of \$50 for U.S. citizens and permanent residents or \$90 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 \$90 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 \$90 (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.

Students should consult the Graduate Studies website for application deadlines for their program of interest. Admission to graduate studies cannot be completed until all application materials have been received.

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](http://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:

Director of Graduate Programs  
Office of Graduate Studies  
Texas A&M University at Galveston  
P.O. Box 1675  
Galveston, Texas 77553-1675  
or email: [GradStudies@tamug.edu](mailto:GradStudies@tamug.edu)

## Residence

In partial fulfillment of the residence requirement for all Texas A&M University at Galveston degrees, 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 Texas A&M Office of Graduate and Professional Studies (OGAPS) 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 OGAPS 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 OGAPS 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 OGAPS, changes in course work or committee membership may be requested by petition to OGAPS. "Petition Forms" may be downloaded from the OGAPS 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, Marine Biology or Master of Maritime Administration and Logistics. Student pursuing a course of study in Marine Biology will create their degree plan with the supervision of their faculty advisor.

## **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.
  - 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.
  - 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**

Courses for which transfer credits are sought must have been completed with a grade of B or greater and must be approved by the student's advisory committee and the Office of Graduate Studies. These courses must not have been used previously for another degree. Except for officially approved cooperative doctoral programs, credit for thesis or dissertation research or the equivalent is not transferable. Credit for "internship" coursework in any form is not transferable. 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 at the institution at which the courses were taken, and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Credit for coursework taken by extension is not transferable. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are given (for example, CR, P, S, U, H, C) is not accepted for transfer credit. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours, or equated to semester credit hours. Grades for courses completed at other institutions, except for the Texas A&M University System Health Science Center, are not included in computing the GPR. An official transcript from the university at which transfer courses are taken must be sent directly to the Office of Enrollment Services. Masters 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.

## 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 computed 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

A student in a graduate degree program requiring a thesis, dissertation, internship or record of study, who has completed all coursework on his/her degree plans other than 691 (Research), 684 (Internship) or 692 (Professional Study) is required to be in continuous registration until all requirements for the degree has been completed. The continuous registration requirement may be satisfied by registering either *In Absentia* or In Residence.

## Foreign Language

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

## Thesis/Dissertation Proposal

For the thesis option, the student must prepare a thesis/dissertation 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

## 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.

All requirements for doctoral degrees must be completed within a period of 10 consecutive calendar years for the degree to be granted. A course will be considered valid until 10 years after the end of the semester in which it is taken. Graduate credit for coursework more than 10 calendar years old at the time of the final oral examination 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.

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# Texas A&M Maritime Academy Licensing/Graduate Degree

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Through the Texas A&M Maritime Academy, TAMUG offers license training for Cadets leading to a Third Mates' License (Unlimited Tonnage, Unlimited Oceans). All graduate programs offered by TAMUG also may include this license training. Each of the degree plans will retain all of the curriculum as depicted in the following pages, as well as the U.S. Coast Guard requirements for licensing which include coursework, training and summer cruises. Each degree candidate will be required to fulfill the existing university degree requirements plus all License Option additional requirements plus the following additional courses to complete STCW Training Record Book:

## **Shoreside Courses:**

- MART 103 Basic Safety and Lifeboatman
- MART 203 Seamanship I
- MART 204 Terrestrial Navigation
- MART 301 Seamanship II
- MART 303 Celestial Navigation
- MART 304 Electronic Navigation
- MART 305 Construction and Stability
- MART 306 RADAR/ARPA
- MART 307 Global Marine Distress Safety System
- MART 321 Maritime Law I
- MART 406 Marine Cargo Operations II
- MART 410 Bridge Watchstanding
- NVSC 200 Naval Science for the Merchant Marine Officer

## **Cruise Coursework**

- MART 200 Basic Communications, Navigation and Seamanship
- MART 300 Intermediate Communications, Navigation and Seamanship
- MART 400 Advanced Communications, Navigation and Seamanship

Courses complete a Training Record Book which includes USCG required Basic Safety Training, Ratings Performing a Navigational Watch, First Aid Provider, and Officer in Charge of a Navigational Watch. Furthermore, the cadets are required to complete mandatory sea service, participate in the USCG approved Corps of Cadets License Option Program, complete a degree, and pass license examination administered by the USCG. Candidates will also have to follow all regulations set forth in 46 CFR 310, STCW 95 as amended, and USCG Texas Maritime Academy approved SOP and any other regulation required by Texas Maritime Academy License Option programs.

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# Master of Marine Resources Management (MARM)

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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

Of the total 36 hours of curriculum, 24 are required courses of study for the non-thesis degree in Masters of Marine Resources Management. 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. Additional flexibility to replace required courses with courses targeted to their area of research is available to non- thesis option students upon recommendation and approval by their committee and the department.

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.

## Curriculum in Master of Marine Resources Management

### 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    |

## Thesis Option

The MARM 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>.

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.

## **Ocean and Coastal Resources/Master of Marine Resources Management 3+2 Program**

This program allows Ocean and Coastal Resources (OCRE) undergraduate majors to enter the graduate program for a Master of Marine Resources Management at the beginning of their senior year, enabling students to receive their OCRE undergraduate degree (B.S.) and a Master of Marine Resources Management (MARM) graduate degree in five years.

Students admitted to the 5-year degree program will have completed 102 of the 120 hours of course work required to receive a bachelor's degree. These courses must include the specific prerequisites for a Bachelor of Science degree in Ocean and Coastal Resources, as well as the required Texas A&M University core curriculum courses. See the undergraduate section of this catalog for curriculum and enrollment information.



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

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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 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
- All students will 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          |
| <u>Research hours</u> | <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            |
| <u>Research hours</u> | <u>39-45</u> | <u>39-55</u> |
| Total                 | 64           | 96           |

## 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.

### 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 OGAPS, 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 OGAPS, 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 OGAPS 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.

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# Master of Maritime Administration and Logistics

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The Master of Maritime Administration and Logistics is a professional graduate management degree that helps the student develop an integrated understanding of the centrality of ports and interconnected transportation systems to the international and domestic commerce of the United States and to the general global trading system. Coursework in international trade, economics, finance, marketing, management, logistics, port management and environmental science will prepare graduates for senior management positions in a wide variety of industries associated with logistics and, most specifically, waterborne commerce.

Southeast Texas, from the Louisiana border to Freeport, includes the important ports of Beaumont-Port Arthur, Galveston, Houston and Freeport, an important segment of the Gulf Intracoastal Waterway (GIWW), and a significant portion of the oil refining capacity of the United States. This maritime complex contains a rich diversity of cargo handling facilities which connect to the main east-west and north-south rail and road arteries of the nation.

Port activity in the region is steadily expanding as world trade and the general globalization of business increases. The opening of the new locks of the Panama Canal in 2014 will dramatically increase regional port and logistics activity and the associated need for professionals with advanced degrees. Additionally, increased energy exploration and recovery activities in the Gulf of Mexico are expected to stimulate \$2-3 trillion of economic investment in the coastal zone of Texas in the next few decades. This investment will sustain continued economic growth for the foreseeable future. The combination of these two circumstances - the general increase in world trade and the expanding energy industry in the Gulf of Mexico - will provide exciting and challenging opportunities throughout the energy, maritime and all other transportation industries.

The graduate program in Maritime Administration and Logistics will attract dynamic and forward looking students who understand the implications of expanding regional and international trade. Some students will want to complete the thesis option, which requires preparation of a graduate thesis involving original research. This is strongly recommended for students who intend to continue their education at the doctoral level.

The non-thesis option does not preclude future work toward a doctorate but is most appropriate for students who see this graduate program as their final professional degree. Thesis students will be supervised by a graduate advisory committee that is responsible for development of their final degree plan.

Graduate programs in business typically are delivered by both full time and part-time/adjunct faculty who are active researchers and practitioners in their fields. Proximity to the Houston-Galveston port complex allows ready access to extremely well qualified faculty, to research opportunities, and to challenging and exciting professional career opportunities following graduation. The websites of the Department of Maritime Administration and the Department of Marine Sciences contain biographical summaries of all faculty who will teach in this program, and their research interests.

## Degree Requirements for the Master of Maritime Administration and Logistics

|                | Credit Hours Required |            |
|----------------|-----------------------|------------|
|                | Thesis                | Non-thesis |
| Courses        | 30                    | 36         |
| Research Hours | 6                     | 0          |
| Total          | 36                    | 36         |

It is recognized that students will come to this program from a variety of academic backgrounds. While there are no specific undergraduate courses or programmatic prerequisites, it is strongly recommended that students have a background in basic business principles and practices that are academically represented by the following, as described in the current on-line catalog at:

<http://www.tamug.edu/catalog/>:

SCMT 303 Statistical Methods  
ECON 202 Principles of Microeconomics  
MARA 363 The Management Process (Organizational Behavior)  
ACCT 229 & ACCT 230 Financial and Managerial Accounting Principles  
MARA 250 Management Information Systems

## Required Coursework

All students will complete seven (7) courses (21 credits) in the management of a maritime enterprise:

- MARA 610 – International Strategic Planning and Implementation
- MARA 623 – Economic Issues in Shipping
- MARA 624 – Intermodal Transportation Operations
- MARA 627 – Marketing of Transportation Services
- MARA 636 – Managerial Decision Making
- MARA 641 – Financial Management in Marine Transportation
- MARA 664 – Production, Operations and Logistics Management

## Elective Coursework

To complete the remaining 15 credits, students will select from two sets of elective courses that define modules in Shipping and Port Management and Maritime Policy and Law or a combination of courses from each module:

For the module in Shipping and Port Management, choose five (5) of the following:

- MARA 616 – Management of Port Facilities and Infrastructure
- MARA 640 – Global Logistics
- MARA 650 – Supply Chain Management
- MARA 652 – Marine Transportation System Design and Policy
- MARA 658 – Port Design, Planning and Security
- MARA 660 – Risk Assessment and Marine Insurance

For the module in Maritime Policy and Law, choose five (5) of the following:

- MARA 604 – Marine Natural Resources Economics
- MARA 670 – Coastal and Inland Waterways Transportation
- MARA 672 – The Maritime Global Trading System
- MARS 620 – International Environmental Business Transactions
- MARS 635 – Environmental Impact Statements and NRDA
- MARS 640 – Environmental Administrative Law
- MARS 660 – Environmental Alternative Dispute Resolution
- MARS 676 – Environmental Policy

Students choosing the thesis option to the degree will take 6 credits of MARA 691 – Research in Maritime Administration, and will take three (3) additional courses in one of the identified modules.

## 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 Maritime Administration and Logistics 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, and the 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>.

After successful defense (or exemption from) and approval by the student's advisory committee and the Head of the Department of Maritime Administration, students must submit their thesis to the Thesis Office of Texas A&M University. 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 date. Deadline dates for submitting are announced each semester or summer term in the Office of Graduate Studies Calendar (see Time Limit statement in the Graduate Studies section of this catalog.). 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 Head of the Department of Maritime Administration. 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 Maritime Administration and Logistics degree. A maximum of 8 credit hours of 691 (Research) 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 Maritime Administration and Logistics 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 21 hours of required courses and 15 hours of optional elective courses of which at least 6 hours are in 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 Head of the Department of Maritime Administration.

## **Residence**

In partial fulfillment of the University residence requirement for the degree of Master of Maritime Administration and Logistics, the student must complete 9 resident credit hours during the regular semester, one 10-week summer semester, or in combination during the two five-week summer sessions. Upon recommendation of the student's advisory committee, or advisor for non-thesis students, and with the approval of the Office of Graduate Studies, a student may be granted exemption from this requirement. Such a petition, however, 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 in 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 by the employing agency. An employee should submit verification of his/her employment at the time he/she submits a degree plan.

## **Student's Advisory Committee**

All MMAL non-thesis students' advisory committees will consist of the departmental graduate advisor for the MMAL program or the department head for the Maritime Administration department. The departmental graduate advisor or the department head has the responsibility of approving the proposed degree plan for all non-thesis MMAL students. When necessary, recommendations in cases of academic deficiency will be made to the Office of Graduate Studies.

After being granted admission to graduate study and prior to enrollment in course work, all thesis-option MMAL students 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 at 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.

## **Degree Plan**

Each graduate student must submit an official degree plan to the Office of Graduate and Professional Studies (OGAPS) for approval. The degree plan formally declares his/her degree objective, the membership of the advisory committee (if required), and the specific courses that she/he will be required to complete as part of the degree program. She/he will develop their proposed degree plan in consultation with their designated advisor or advisory committee. The Head of the Department of Maritime Administration must approve all degree plans. Completed degree plans must be submitted to OGAPS according to the following regulation with the student meeting which ever 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 – thesis students only.
- According to deadlines published in the Office of Graduate and Professional Studies 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 Office of Graduate and Professional Studies, changes in course work or committee membership may be requested by petition to OGAPS. "Petition Forms" may be downloaded from the Office of Graduate and Professional



Studies home page. Changes of major, degree or department must be requested by submitting a petition and/or a new degree plan/course work petition. 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 head.

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

If otherwise acceptable, certain courses may be used toward meeting credit-hour requirements for the master's degree under the following limitations. Exceptions will only be permitted in unusual cases and when petitioned by the student's advisory committee and approved by the Office of Graduate and Professional Studies.

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. (Courses in the student's degree plan which may be delivered in whole or in part by electronic means are not considered "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 coursework. 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.

### **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 absorbed 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 computed by using all graded graduate (600-level) and advanced under graduate (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 3.00, 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 Maritime Administration and Logistics 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 the degree Master of Maritime Administration and Logistics.

### **Thesis Proposal**

For the thesis option, the student must prepare a thesis proposal for approval by the advisory committee and the head of the Department of Maritime Administration. 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.

### **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 coursework 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**

This section applies to thesis students only. 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 stu-

dent'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 to be 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.

### **Maritime Administration/Master of Maritime Administration and Logistics 3+2 Program**

This program allows Maritime Administration (MARA) majors to enter the graduate program for a Master of Maritime Administration and Logistics the beginning of their senior year, enabling students to receive their MARA undergraduate degree (B.S.) and a Master of Maritime Administration and Logistics (MMAL) graduate degree in five years.

Students admitted to the 5-year degree program will have completed 92 of the 120 hours of course work required to receive a bachelor's degree. These courses must include the specific prerequisites for a Bachelor of Science degree in Maritime Administration, as well as the required Texas A&M University core curriculum courses. Refer to the Maritime Administration degree program in the undergraduate section of this catalog for curriculum information.

### **Master of Maritime Administration and Logistics On-line Program**

The master's degree for maritime administration and logistics is also offered on-line. The course consists of 36 hours (12 courses). Students may choose to concentrate in one of two modules: shipping and port management, or maritime policy and law. Prerequisites include courses common to most other graduate business degrees. Students are expected to enroll for 6 credit hours each semester (fall, spring, and summer), completing the program over a two-year period. There is a thesis option which allows for six credits of thesis registration.

The program will be delivered through the Texas A&M learning management system, eCampus. This on-line delivery system has ease of development with modular design, ability to access instructional materials, assignment submission capabilities, on-line testing features, and a variety of communication strategies. Content delivery will include streaming media, PowerPoint, video lectures, assignments, group projects, bulletin boards, chat rooms, reading assignments, virtual classrooms and pdf handouts.

For program and general course information, registration assistance, deadlines or general graduate information, please contact [gradstudies@tamug.edu](mailto:gradstudies@tamug.edu).

## **Admissions**

To apply, you will need to submit: (1) A web-based application ([www.applytexas.org](http://www.applytexas.org)), including the application fee and essay questions; (2) Official Graduate Management Admissions Test (GMAT) scores – see [www.gmat.org](http://www.gmat.org) for test information; (3) Two official transcripts from EACH college/university you have attended; (4) Two letters of recommendation submitted either electronically or by surface mail; (5) Your professional resume; and (6) TOEFL or IELTS scores, if applicable, for international students. (See below.)

Note that copies of transcripts may be submitted for preliminary review, but official transcripts are required before an application is regarded as complete. International students should consult the TAMUG website ([www.TAMUG.edu](http://www.TAMUG.edu)) under "Prospective Students" for additional requirements.

The following information will be helpful as you prepare your application:

1. If you are currently a graduate student enrolled at Texas A&M University at Galveston, and wish to change from your current enrollment in another graduate program, do not use the ApplyTexas application system. Contact the Maritime Administration department office for internal application instructions.
2. Do not submit documents not required in the application process, such as certificates, awards, visas/passports, writing/publication samples and so on.
3. Modifications cannot be made to an on-line application. Make sure that your application and documents are in the final and desired format before they are submitted electronically.
4. Information on the status of a submitted application is not available. Applicants will be contacted by the Maritime Administration Department if information is needed.

5. All applications are reviewed online; paper credentials are not assessed. Do not mail supplemental materials by surface mail. (Note that letters of reference from others may be submitted by surface mail, as noted above.) They will not be reviewed and will not be returned.
6. All uploaded materials are to be scanned and sent in PDF format. Do not use any other format.
7. Watch for spelling errors and use appropriate upper/lower case characters. Do not submit documents that are all upper case or all lower case.
8. Your professional resume should detail your academic background, professional work experience, and managerial responsibilities.

Questions regarding admissions and the program itself can be sent to [MMAL@tamug.edu](mailto:MMAL@tamug.edu). Materials that are mailed should be sent to:

Chair  
Graduate Admissions Committee  
Department of Maritime Administration  
Texas A&M University at Galveston  
Post Office Box 1675  
Galveston, Texas 77553

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## COURSE DESCRIPTIONS

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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.

**313. HISTORICAL ARCHAEOLOGY. (3-0). Credit 3.** Use and methods of historical archaeology in locating, documenting, restoring and preserving our historical resources. Prerequisites: ANTH 202; Junior or senior classification or approval of instructor.

**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.

### **Arts (ARTS)**

**150. ART HISTORY II. (3-0). Credit 3.** Survey of architecture, painting, sculpture and the minor arts from the 14th century to the end of the 19th century.

### **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.

**106. MOLECULAR SCIENCE FOR CITIZENS. (3-0). Credit 3.** Molecules that control daily life explored via a conceptual approach to molecular science; properties, synthesis, transformations and utility of important molecules and fuels, fibers, metals, pharmaceuticals, foods, biomolecules and structural materials; pollution, consumerism, energy production, disease, biotechnology and risk-benefit analysis considered.

**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.

**116. MOLECULAR SCIENCE FOR CITIZENS LABORATORY. (0-3). Credit 1.** The importance of molecular science to daily life illustrated by using experiments, demonstration and videos; designed to accompany CHEM 106. Prerequisite: CHEM 106 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.

**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.

**322. PHYSICAL CHEMISTRY FOR ENGINEERS. (3-0). Credit 3. I, II.** Quantum theory, spectroscopy, statistical mechanics, kinetic theory, reaction kinetics, electrochemistry and macromolecules. Prerequisites: CHEM 102 or 104; CHEN 205 and 354; MATH 152 or equivalent.

**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.

**483. GREEN CHEMISTRY. (3-0). Credit 3.** Environmentally benign chemistry; the design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances; twelve principles of Green Chemistry; atom economy; use of renewable re-



sources; catalysis for Green Chemistry; alternative solvents and reaction media; energy and the environment. Prerequisites: CHEM 228, CHEM 362 is recommended. 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.

**489. SPECIAL TOPICS IN... Credit 1-4.** Selected topics in an identified area of chemistry. May be repeated for credit.

### **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. Enrollment in MASE major degree sequence. 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. Enrollment in MASE major degree sequence. 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. Enrollment in MASE major degree sequence. 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. Enrollment in MASE major degree sequence. 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. Enrollment in MASE major degree sequence. 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. Enrollment in MASE major degree sequence. 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.

### **Communication (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.

**449. ACTIVISM AND COMMUNICATION. (3-0). Credit 3.** Examination of communicative behaviors used by individuals, grassroots and established organizations in strategic ways to advocate on behalf of issues, groups or actions perceived as pro-social or for the betterment of society.

### **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.

**004. READING/WRITING CONNECTION. (0-0). Credit 1.** Designed for students whose Texas Success Initiative requirements for reading and/or writing have not been met; develops additional reading and writing skills by emphasizing the interrelatedness between the two disciplines. 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 or approval of academic advisor.

**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 (ENGR)

**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. Prerequisites: MATH 151 or concurrent enrollment; admission to the MASE (MASL or MASE student) or MARE degree program.

**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.

**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. WRITING ABOUT 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.

**210. TECHNICAL BUSINESS WRITING. (3-0). Credit 3.** Focus on writing for professional settings: correspondence and researched reports fundamental to the technical and business workplace - memoranda, business letters, research proposals and presentations, use of graphical and document design; emphasis on audience awareness, clarity of communication and collaborative teamwork.

**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. INTRODUCTION TO FILM ANALYSIS. (3-0). 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.

**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)**

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**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)**

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**301. TAMUG STUDY ABROAD. (1-18).** For students in approved study abroad programs, may be repeated for credit.

#### **Geography (GEOG)**

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**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)**

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**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.

**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.** 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)**

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**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.

**242. UNITED STATES MARITIME HISTORY. (3-0). Credit 3.** Development of American maritime history from colonial times 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.

#### **Kinesiology (KINE)**

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**120. THE SCIENCE OF BASIC HEALTH AND FITNESS. (1-1). Credit 1.** Overview of the human body; scientific fundamentals of stress, fitness, nutrition, disease, and drug use; interdisciplinary focus on wellness and longevity; integrated physical activity experiences centering on principles and applications of the scientific basis of conditioning; not open to students who have taken KINE 223.

**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.

**210. THE ART OF MOVEMENT. (3-0). Credit 3.** Develop an awareness of personal space and group space while moving, changing speeds, directions and dynamics; encourage improvisation, creativity and spontaneity in responding to challenges posed; spatial designs and patterns in relation to others; performance of movement and dances in interconnected, flowing, meaningful presentations that will be critiqued by classmates, revised and recreated; attend and critique off-campus professional presentations to further enhance experience and appreciation of dance/movement.

**223. INTRODUCTION TO THE SCIENCE OF HEALTH AND FITNESS. (2-2). Credit 3.** Overview of the human body systems; interdisciplinary focus on wellness, fitness, nutrition, disease, drug use; integrated physical activity centering on principles and applications of conditioning; collect data, evaluate information, formulate plans based on findings; experience with pedometers, heart rate monitors, bioelectrical impedance devices, software and other technology.

#### **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)**

**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. 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. Junior or senior classification or approval of instructor. MARS 360 is recommended but not required.

**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. 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. (3-3). Credit 4.** Anatomy, taxonomy, phylogeny and physiological adaptations of marine mammals. Prerequisites: MARB 315. Junior or senior classification or approval of instructor.

**402. GENERAL MAMMALOLOGY. (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.

**404. BEHAVIORAL ECOLOGY OF MARINE MAMMALS AND SEABIRDS OF NEW ZEALAND. (3-3). Credit 4.** Ecology and behavior of marine birds and mammals of South Island, New Zealand; literature comparisons of marine vertebrates; emphasis is on animals in nature; laboratory experience of the animals from boats and shore; readings, videos, interpretation and peer-review of scientific papers and books. Prerequisites: MARB 315 or other vertebrate or chordate course. 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.

**407. RESEARCH AND CONSERVATION IN THE GULF OF CORINTH, GREECE: DOLPHINS, FISHERIES AND CULTURAL HERITAGE. (3-3). Credit 4.** Lectures, readings and labs on the ecology and behavior of the vertebrate fauna of the Gulf of Corinth, Greece. Laboratory hands-on experience of the marine environment from boats, readings, videos, interpretation, and select major peer-review scientific papers and books. Prerequisites: Junior or senior classification; MARB 315 or approval of instructor.

**408. MARINE BOTANY. (3-3). Credit 4.** Morphology, systematics, ecology, and biochemistry of representative algae, fungi, and sub-marine grasses. Prerequisites: BIOL 112. Curriculum sophomore, junior or senior classification or approval of instructor.

**410. ANIMAL BEHAVIOR. (3-0). 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. Junior or senior classification or approval of instructor. MARS 360 is recommended but not required.

**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; 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 warm water 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.

### **Marine Biology (MARB) Graduate Level**

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**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.

**604. BEHAVIORAL ECOLOGY OF MARINE MAMMALS AND SEABIRDS OF NEW ZEALAND. (3-3). Credit 4.** Ecology and behavior of marine birds and mammals of South Island, New Zealand; literature comparisons of marine vertebrates; emphasis is on animals in nature; laboratory experience of the animals from boats and shore; readings, videos, interpretation and peer-review of scientific papers and books. Prerequisites: Graduate standing and permission from instructor.

**605. AIR BREATHING MARINE VERTEBRATE RESEARCH TECHNIQUES. (3-0). Credit 3.** Introductory and advanced descriptions and hands-on learning of photo-identification, theodolite, radio, satellite and video-enhanced tracking, underwater remote sensing, acoustics and other cutting edge research techniques. Prerequisite: Graduate standing or permission from instructor.

**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

**607. RESEARCH AND CONSERVATION IN THE GULF OF CORINTH, GREECE: DOLPHINS, FISHERIES AND CULTURAL HERITAGE. (3-3). Credit 4.** Lectures, readings and labs on the ecology and behavior of the vertebrate fauna of the Gulf of Corinth, Greece; laboratory hands-on experience of the marine environment from boats, readings, videos, interpretation and select major peer-review scientific papers and books. Prerequisite: Permission from instructor.

**610. PROFESSIONAL DEVELOPMENT. (3-0). Credit 3.** Course will cover topics including proposal and manuscript development, the peer review process, proposal writing and speaking exercises, preparing oral and poster presentations, developing questions for quizzes and midterms, and library database management. Class discussions will include constructive critiques of participants' experimental designs, analytical approaches and scientific writing. Prerequisite: Graduate standing or permission from instructor

**615. COASTAL MARINE BIOLOGY AND GEOLOGY OF ALASKA. (3-0). Credit 3.** The course gives students an opportunity to learn about the coastal marine biology and geology of south-central Alaska and to participate in a behavioral ecological study of sea otters for 12 days at a remote field station on north-eastern Prince William Sound. Prerequisites: Graduate standing and permission from 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.

**640. ECOSYSTEM FUNCTIONS IN MARINE ENVIRONMENTS. (3-0). Credit 3.** Advanced study of ecological processes in marine environments, with an emphasis on the investigation of the interactions between organisms and physical processes that regulate marine ecosystem functions. Prerequisite: Graduate standing.

**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. (3-0). Credit 3.** 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. (3-3). 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.

**668. MARINE EVOLUTIONARY BIOLOGY. (3-0). Credit 3.** Lecture, readings and discussions on advanced evolutionary topics including: history of evolutionary thought, organic evolution, evolutionary methods and modern applications to organismal evolutionary questions. Students will lead and participate in journal club style discussion of selected recent literature. Prerequisite: Graduate standing.

**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 1-4.** 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.

**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 104.

**202. 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: MARE 100, MATH 152 or MATH 161 or concurrent enrollment.

**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. (1-3). Credit 2.** 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. (0-3). Credit 1.** 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.

**285. DIRECTED STUDIES. Credit 1-4 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.

**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.

**305. FLUID MECHANICS THEORY. (3-2). Credit 4.** Theory of incompressible and compressible fluid flow, introduction to fluid power systems and controls, and dynamics of turbomachinery. Mathematical analysis of piping systems to determine pump head, system resistance, and pipe sizing optimization. Topics include physical properties of fluids, continuity equation, Bernoulli's Equation, Darcy's Equation, series and parallel flow, relative roughness, friction factors, dimensional analysis, and laws of similitude. 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/reduction 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. MARINE DIESEL ENGINES. (2-3). Credit 3.** Comprehensive study of diesel engines, thermodynamics of air standard cycles, actual compression ignition engine cycles, emissions and emission controls, fuel injection systems and turbo charging systems, engine material properties, operational parameters including forces and temperatures resulting from combustion and inertial dynamics. Laboratory includes computer-aided parametric analysis of engine performance and use of a low-speed diesel propulsion plant simulator. Prerequisites: MARE 305, MARE 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 202, MARE 261 and MARE 305 or concurrent enrollment.

**314. GAS TURBINE POWER GENERATION. (2-3). Credit 3.** Application of the Brayton cycle to gas turbine power cycles, including ideal gas cycle analysis, compressor design and construction, gas turbine construction, operation and maintenance for marine and industrial installations. Prerequisites: MARE 205, MARE 303. MARE 309 or concurrent enrollment.

**350. COMMERCIAL CRUISE INTERNSHIP. (0-0). Credit 4.** Training program for second sea-training period; sea project required of each student under supervision of officer-instructors; lifeboat and safety training. Prerequisites: MARE 100, MARE 200, MART 103. Junior or senior classification or permission of MARR and MART department heads.

**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.

**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.

**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, interest 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: MARE 206, MARE 242, MARE 306, MARE 309, MARE 311, MARE 312, MARE 313, PHYS 208 (or concurrent enrollment) and senior classification.

**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, exper-



imenting 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 1-8 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.

### **Marine Engineering (MARR)**

**200. BASIC OPERATIONS. (6-0). Credit 6.** 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: MART 103.

**300. INTERMEDIATE OPERATIONS. (6-0). Credit 6.** 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.

**400. ADVANCED OPERATIONS. (6-0). Credit 6.** 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.

### **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.

**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.

**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. ENVIRONMENTAL MICROPALAEONTOLOGY. (3-3). Credit 4.** Major animal, plant and protist microfossils groups, ecology, biostratigraphy, paleoenvironmental and paleoclimatic utility, primary preparation techniques, basic microscopy, research design and dissemination. Coastal foraminifera, thecamoebians and ostracods emphasized. 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. (4-0). Credit 4.** General introductory biochemistry; structures of the four classes of biologically important molecules (proteins, carbohydrates, lipids and nucleotides); how these biomolecules are generated from molecular building blocks; relationship of biomolecule structure to biochemical reactivity such as kinetics and enzyme regulation; membrane phospholipids and glycoproteins and the structure and function of membranes; catabolic reaction pathways of monosaccharides and fatty acids; oxidative phosphorylation and photosynthesis. Prerequisites: BIOL 111, 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.

**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.

**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.

**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. Credit 1- 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.

**423. ECOLOGICAL ECONOMICS. (3-0). Credit 3.** An integrated study of management of ecology and economics; conceptual and professional economic and environmental policies; ethical concerns and economic benefits of nature to humans, human and nature's economies, and the complex connections between humans and nature with the valuing of ecosystem integrity. Prerequisite: Junior or senior classification.

**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.

**428. COASTAL DEVELOPMENT AND HUMAN HEALTH. (2-2). Credit 3.** Exploration of public environmental health issues associated with urbanization in coastal areas. Topics address population pressures on coasts, infectious and chronic disease, the natural and built environment, toxicology, sanitation, forms and media of pollution, and the application of environmental health science to coastal zone management. Prerequisites: CHEM 102 or equivalent; MARS 210 or equivalent. Junior or senior classification or approval of instructor. CHEM 383 and MARS 325 are recommended but not required.

**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 1-6.** 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 1-4.** 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.

### **Marine Sciences (MARS) Graduate Level**

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**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 ETHICS. (3-0) Credit 3.** Ethical issues that may arise in environmental business transactions; case studies, both real and hypothetical. Prerequisite: Approval of instructor or graduate status. .

**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. (2-0). Credit 2.** The course is designed to provide an EMS strategist’s skills with focus on international standards, including structure and elements of an EMS, determining how an effective EMS can reduce costs and increase profits, case studies. Prerequisite: Approval of instructor or graduate status.

**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 1-6.** 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 1-12 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. (2-2). Credit 3.** 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 or approval of instructor.

**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.

**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, seaways and dynamic loads; ship's structure tests and propulsion. Labs focus on manual and computer-based stability and trim calculations using standard industry-based software. 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.

**308. FAST RESCUE CRAFT. (2-3). Credit 3.** Search and rescue techniques through fast rescue craft maneuvers and team management; description of various rescue craft and U.S. Coast Guard "Fast Rescue Craft" Standard of Watchkeeping endorsement. Prerequisites: MART 103, MART 203, MART 204, junior or senior classification 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.

**311. TUG AND TOWING OPERATIONS. (2-3). Credit 3.** Knowledge and theory associated with the safe and efficient operation of towing vessels, utilizing classroom discussion, on-board vessel training and vessel simulation; concepts of vessel construction, business operations, and introduction to TOAR (Towing Operation Assessment Record) for U.S. Coast Guard. Prerequisites: MART 203, MART 301, MART 321, MART 306, junior or senior classification or approval of instructor.

**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.

**350. COMMERCIAL CRUISE INTERNSHIP. (0-0). Credit 4.** Practical application of student's classroom studies aboard an assigned merchant vessel during second training cruise. Student completes basic projects in communications, navigation, seamanship and rules of the road. Prerequisites: MART 200, 301, 303. Junior or senior classification or permission of MART department head.

**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.

**401. MARITIME SECURITY. (3-0). Credit 3.** Orientation of maritime security issues, duties and responsibilities based on U.S. Coast Guard and International Maritime Organization rules, regulations and recommendations for Vessel, Company and Port Facility Security Officer certification. Prerequisites: MART 300, MART 301, MARA 416, junior or senior classification or approval of instructor.

**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. (2-2). Credit 3.** 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 200 and MART 312, 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 1-3.** 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.

**498. MARITIME MEDICAL CARE. (1-3). Credit 2.** Provides advanced training for medical care of sick and injured in maritime field; course assessments meet the Standards of Training, Certification, and Watchkeeping Table A-VI/1-3 and Table A-VI/4 (1-2); successful completion of course awards student a Basic Safety Training for Elementary First Aid, Health Care Provider and Medical Person in Charge. Prerequisites: KINE 120, MART 200, MART 300, junior or senior classification or 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.

**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 - MART 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. PERSONNEL 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, MARA 301. 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, MARA 281 and 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: SCMT 303 and SCMT 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: SCMT 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 281, MARA 363, MKTG 321, SCMT 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 1-4.** 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 1-4.** Study of selected topics in an identified area of maritime administration. Prerequisite: Approval of instructor.

**491. RESEARCH IN MARITIME ADMINISTRATION. Credit 1-4.** 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.

**493. INTERNATIONAL MARITIME MANAGEMENT EXPERIENCE. (3-0). Credit 3.** Combination of classroom and two week international travel emphasizing cultural and historical aspects of maritime industry; direct contact with managers and regulators in the international maritime industry; examination of different management styles, business practices and regulatory approaches.

#### **Maritime Administration (MARA) Graduate Level**

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**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. SUPPLY CHAIN MANAGEMENT. (3-0). Credit 3.** Contemporary distribution logistics and integrated supply chain management. Emphasis is given to customer service, transportation modes, inventory policies, warehousing, order processing, and optimizing the logistics gross margin. 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 coverage, 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.

**684. Professional Internship. Credit 1-4.** On-the-job training in the field of maritime administration and logistics. Prerequisites: Graduate standing; approval of department head.

**685. DIRECTED STUDIES. Credit 1-6.** Selected topics in an identified area of Maritime Administration and Logistics not covered in another course in the curriculum. Prerequisite: Approval of instructor.

**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. Credit 1-4.** 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: CHEM 107, CHEM 117; MASE 221; MASE 216; 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: MASE 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 OCSE students. Prerequisites: MASE 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 OCSE students. Prerequisite: PHYS 208.

**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; moments of areas. Prerequisites: ENGR 111; MATH 251 or MATH 253 or registration therein; PHYS 218; enrollment in OCSL or OCSE major degree sequence.

**261. APPLIED NUMERICAL METHODS. (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: MATH 308 or concurrent enrollment, ENGR 111, ENGR 112.

**265. 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: MASE 221. Enrollment in OCSE or OCSL.

**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: Junior or senior classification or approval of instructor, MASE 261, MASE 363, CVEN 345, OCEN 300 or concurrent registration, enrollment in OCSE major degree sequence.

**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: Junior or senior classification or approval of instructor, MATH 308 or concurrent registration, ENGR 111, ENGR 112.

**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, CVEN 345; MASE 221, MASE 214. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**341. ENGINEERING ECONOMICS AND PROJECT MANAGEMENT. (3-0). Credit 3.** Analysis of engineering economics and management, using costs and benefits of various engineering options; project scheduling covered in detail including PERT, GANT and CPM methods. Additional topics include time value of money, cash flows, analysis techniques, interest rates, inflation, depreciation, optimization, statistics, network analysis and critical path programming. Prerequisites: Junior or senior classification. Enrollment in the OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**363. DYNAMICS AND VIBRATIONS. (3-0). Credit 3.** Application of Newtonian and energy methods to model dynamic systems with ordinary differential equations; dynamics and vibrations of linear single- and multi-degree of freedom systems of particles and rigid bodies; solutions of models using analytical approaches; interpreting solutions; application to simple floating systems. Prerequisites: MASE 221 with a grade of C or better; MATH 308 with C or better; MASE 261. Enrollment in OCSE major degree sequence and junior or senior classification.

**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. Enrollment in OCSE major degree sequence.

**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, CVEN 336. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

**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 346, MASE 214, MASE 261. Junior or senior classification or approval of instructor. Enrollment in OCSE major degree sequence.

**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: Students must have successfully completed all required 300-level engineering and technology courses and be in their final academic year prior to graduation. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**465. SUBSEA PIPELINE DESIGN. (3-0). Credit 3.** Design and construction practices of submarine oil/gas pipelines and risers; pipe selection, coating, insulation; route selection; operation and installation stresses; stability during laying and operation due to wave and current action; cost analysis considering long term operability and safety. Prerequisites: CVEN 345, CVEN 365, CVEN 446, OCEN 300. Junior or senior classification.

**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 261, MASE 301 and MASE 363; or approval of instructor. Enrollment in OCSE major degree sequence.

**474. PORT AND HARBOR ENGINEERING. (3-0). Credit 3.** Engineering background and specific skills for design of marine facilities and harbors; includes development of design criteria, channel design, evaluation of operations and extreme loads, dredging and disposal. Prerequisite: Junior or senior classification 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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**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. Enrollment in OCSE major degree sequence.

**491. RESEARCH IN MARITIME SYSTEMS ENGINEERING. Credit 1-4.** 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. Enrollment in OCSE major degree sequence.

### **Maritime Studies (MAST)**

**101. CONNECTIONS. (1-0). Credit 1.** A first year experience seminar to explore the connections between academics disciplines to develop creative and critical thinking strategies which will increase abilities to implement solutions, refine information literacy skills, and identify the resources available for a successful transition from high school to the university environment. Prerequisites: None.

**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 or-

ganization; 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. (1-6). 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 and supplemental 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 (1-4).** 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 storage of collections. Museum planning and exhibit design will be discussed. Prerequisite: Junior or senior classification or approval of instructor.

**321. INDUSTRIAL DIVING ORIENTATION. (2-2). Credit 3.** Illustrates the realities of operating in the scientific, commercial and military diving disciplines; practice real world training scenarios involving multiple aspects of each of the three fields. Prerequisites: Must have a recreational scuba diver's physical examination. Must be certified as a NAUI Advanced or NAUI Rescue Diver or equivalent. Divers Alert Network (DAN) diving accident insurance or equivalent. Junior or senior classification or instructor approval.

**330. RESCUE DIVER. (2-2). Credit 3.** Relates skills necessary to perform basic life support, administer dive first aid, evacuate victim, assist/rescue other divers in water; illustrate proper dive planning; practice prevention and effective accident management. Prerequisites: Must have a recreational scuba diver's physical examination. Must be certified as a NAUI Scuba Diver or equivalent. Divers Alert Network (DAN) diving accident insurance or equivalent. Junior or senior classification or instructor approval.

**333. VIKING ARCHAEOLOGY AND NORSE MYTHOLOGY. (3-0). Credit 3.** Overview of Viking Age (ca. 800 to 1100 C.E.) in Northern Europe; topics include Norse seafaring, world-view, society, archaeology, religion and cosmology as known from the archaeological and literary record. 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.

**352. TRADITIONAL MARITIME TOOLS. (3-0). Credit 3.** Examine and use traditional 17th-19th century shipbuilding and carpentry tools; experience through practical use the function and capabilities of tools used to build wooden historic sailing vessels; complete at least two individual projects and two group projects to develop and test skills learned in class. Prerequisites: Junior or senior classification and approval of instructor.

**354. ANCIENT EGYPTIAN SEAFARING. (3-0). Credit 3.** Archaeology, iconography and written records of ancient Egypt as they relate to local and international trade by land, river and sea, beginning in Neolithic times (c. 5000 B.C.) to the end of the New Kingdom (c. 1069 B.C.). Prerequisites: ANTH 316; junior or senior classification or approval of instructor.

**357. DIVING LEADERSHIP - DIVEMASTER. (2-2). Credit 3.** Examines divemaster level dive knowledge, dive leadership theory and application, presentations skills, physical diving skills, logistics/planning, and operational execution; develops a multi-environment capable diving leader. Prerequisites: Must have a recreational scuba diver's physical examination. Must be certified as a NAUI Master Scuba Diver and a NAUI Scuba Rescue Diver or their equivalent. Divers with evidence of equivalent training experience must pass the NAUI Master Scuba Diver and NAUI Scuba Rescue Diver written exams with minimum scores of 80% on each. Documentation of diving experience with a minimum of 60 logged dives (dives shall be varied in environment, depth and experience). Water skills and ability equivalent to that of a NAUI Assistant Instructor. Current certifications in First Aid, CPR and Emergency Oxygen Administration. Divers Alert Network (DAN) diving accident insurance (or equivalent). Junior or senior classification or instructor approval.

**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.

**441. MARITIME PIRACY. (3-0). Credit 3.** Research of social, economic, political and cultural aspects of piracy from ancient to modern times; presentation of findings; understanding modern perception of pirates through modern art, literature and movies. Prerequisites: Junior or senior classification and approval of instructor.

**457. DIVE LEADERSHIP - DIVE INSTRUCTOR. (2-2). Credit 3.** Apply effective methods to teach skin and scuba diving in compliance with NAUI instructional standards; evaluate instructional level dive knowledge, water skills, and presentation performance in accordance NAUI teaching standards. Prerequisites: Must have a recreational scuba diver's physical examination. Must be certified as a NAUI Divemaster or equivalent. Divers with evidence of equivalent training experience must pass the NAUI Master Scuba Diver and NAUI Scuba Rescue Diver written exams with minimum scores of 80% on each. Documentation of diving experience with a minimum of 100 logged dives (dives shall be varied in environment, depth and experience). Water skills and ability equivalent to that of a NAUI Instructor. Current certifications in First Aid,



CPR and Emergency Oxygen Administration. Divers Alert Network (DAN) diving accident insurance (or equivalent). Junior or senior classification or instructor approval.

**480. HONORS SEMINAR IN SERVICE LEARNING. (1-0). Credit 1.** Opportunities for community service through active community participation; includes structured time for reflection; use of skills and knowledge in real-life situations; extend learning beyond the classroom; foster a sense of caring for others. Prerequisites: Junior or senior classification or permission from the instructor and must be a member of the Honors Program.

**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 1-4.** 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 1-3.** 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 1-4.** 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)**

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**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)**

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**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.

**141. BUSINESS MATHEMATICS I. (3-0). Credit 3.** 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. 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.

**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 1-4.** 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.

**304. LINEAR ALGEBRA. (3-0). Credit 3.** Introductory course in linear algebra covering abstract ideas of vector space and linear transformation as well as models and applications of these concepts, such as systems of linear equations, matrices and determinants. MATH 323 designed to be a more demanding version of this course. Prerequisite: MATH 148, MATH 152, or MATH 172; junior or senior classification. Credit will not be given for more than one of MATH 304, MATH 309, MATH 311 and MATH 323.

**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.

**311. TOPICS IN APPLIED MATHEMATICS. (3-0). Credit 3.** Systems of linear equations, matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, diagonalization, inner product spaces, orthogonal functions; vector analysis, including gradient, divergence, curl, line and surface integrals, Gauss', Green's and Stokes' theorems. (Credit will not be given for more than one of MATH 304, MATH 309, MATH 311, and MATH 323). Prerequisites: MATH 221, MATH 251 or MATH 253; MATH 308 or concurrent enrollment. Junior or senior classification or approval of instructor.

**401. ADVANCED ENGINEERING MATHEMATICS. (3-0). Credit 3.** Engineering mathematics including Perturbation theory; Fourier series, and partial differential equations. Prerequisite: MATH 308.

**485. DIRECTED STUDIES. Credit 1-8.** 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)**

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**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, MASE 301. Enrollment in MASE major degree sequence. Junior or senior classification or approval of instructor.

#### **Meteorology (METR)**

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**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.

#### **Music (MUSC)**

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**226. HISTORY OF ROCK. (3-0). Credit 3.** Examination of the development of rock music; emphasis on how the sound and meaning of music reflects culture, ideology and history.

#### **Nautical Science (NAUT)**

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**200. BASIC COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 6.** 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.

**300. INTERMEDIATE COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 6.** 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 or NAUT 200, 301, 303, METR 302, or permission of MART department head. Junior or senior classification or approval of instructor.

**400. ADVANCED COMMUNICATIONS, NAVIGATION AND SEAMANSHIP. Credit 6.** 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 or NAUT 300, 321, 406 or permission of MART department head.

#### **Naval Science (NVSC)**

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**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 under-way replenishment procedures will be introduced.

**302. NAVAL OPERATIONS AND SEAMANSHIP. (2-2). Credit 3.** Relative motion, formation tactics, ship maneuvering behavior and characteristics, applied aspects of ship handling, afloat communications and ship employment; naval warfare, operations concepts, command and control, and joint warfare; review and analysis of case studies involving moral, ethical and leadership issues.

**320. NAVAL SHIP SYSTEMS I: ENGINEERING. (3-1). Credit 3.** Study of engineering concepts and their application in U.S. Naval vessels: basic ship design, hydrodynamic forces, fluid dynamics, stability, propulsion, closed thermodynamic systems, electrical systems, ship-board power generation and distribution, shipboard safety, organization and firefighting. Prerequisite: NVSC 101 or approval of department head.

**401. NAVAL SHIP SYSTEMS II. (3-1). Credit 3.** Types and purpose of major weapons systems and platforms of the U.S. Naval forces; theory and operational principles of radar, sonar and communication circuits; fire control problem geometry, principles of ballistics, propulsion, launching and guidance of weapons; principles of electronic warfare and nuclear weapons. Prerequisites: NVSC 102 or approval of department head. Junior or senior classification or approval of instructor.

**402. LEADERSHIP AND ETHICS. (3-1). Credit 3.** Theoretical concepts of Western moral traditions and ethical philosophy; topics include leadership, values, military ethics, Just War Theory, Uniform Code of Military Justice and Naval regulations; examination of the ethical foundation for the development of leadership and communications skills; should be taken the semester of graduation. Prerequisites: NVSC 102 or approval of department head. Junior or senior classification or approval of instructor.

**404. NAVIGATION AND NAVAL OPERATIONS II. (2-2). Credit 3.** Relative motion, formation tactics, ship maneuvering behavior and characteristics, applied aspects of ship handling, afloat communications and ship employment; naval warfare, operations concepts, command and control, and joint warfare; review and analysis of case studies involving moral, ethical and leadership issues. Prerequisites: NVSC 301. 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. Enrollment in MASE major degree sequence. Junior or senior classification or approval of instructor.

**362. 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 OCNG 252 if necessary for meeting the 8 credit hour science core curriculum requirement.

**252. OCEANOGRAPHY LABORATORY. (0-2). Credit 1.** Practical laboratory experiments and exercises demonstrating principles of ocean sciences. May include weekend field trips. Prerequisite: OCNG 251 or concurrent registration.

**401. INTERDISCIPLINARY 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.

#### **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.

**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.

**231. 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)**

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**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)**

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**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.

## **Supply Chain Management (SCMT)**

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**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: SCMT 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: SCMT 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 courses. Prerequisites: Cumulative GPA of 2.5 or higher. Approval of instructor and MARA department head.

## **Spanish (SPAN)**

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**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)**

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**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)**

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**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.

## **Undergraduate Studies (UGST)**

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**491. RESEARCH. Credit 1-4.** Research conducted under the direction of a faculty member in undergraduate studies. May be taken three times for credit. Prerequisites: Junior or senior classification and approval of instructor.

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## THE FACULTY

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The faculty and administrative positions are current as of Spring, 2014. Figures in parentheses indicate date of first appointment at the University and date of appointment to present positions, respectively. An asterisk indicates that the faculty member holds a graduate appointment.

- Acero-Schertzer, Carmen**, Lecturer, Department of General Academics (Mathematics) (2005, 2008). B.S., U.N.M. San Marcos, Lima, Peru, 1973; M.S., Drexel University, 1984; M.S., University of Miami, 1990; Ph.D., University of Miami, 1996.
- Adams, Keelee Rena**, Lecturer, Department of General Academics (Kinesiology) (2012). B.B.A., McMurry University, 2009.
- Alexander, Steve**, Lecturer, Department of Marine Sciences (2008). B.S., University of Houston, 1972; M.S. Louisiana State University, 1973; Ph. D., Louisiana State University, 1976.
- Alvarado-Bremer, Jaime R.**, Associate Professor, Department of Marine Biology\*, Department of Marine Sciences\*, and Department of Wildlife and Fisheries Sciences\* (1999, 2006). B.S., Universidad, Autonoma Metropolitana, Mexico, 1985; M.S., University of Toronto, 1988; Ph.D., University of Toronto, 1994.
- Ameredes, Bill T.**, Lecturer, Department of Marine Biology (2011). B.S., University of Akron, 1981; M.S., University of Akron, 1984; Ph.D., Ohio State University, 1989.
- Amon, Rainer**, Associate Professor, Department of Marine Sciences\*, Department of Marine Biology\*, and Department of Oceanography\* (2003, 2007). B.S., University of Vienna, Austria, 1986; M.S., University of Vienna, Austria, 1990; Ph.D., University of Texas, 1995.
- Anis, Ayal**, Associate Professor, Department of Marine Sciences\*, Department of Oceanography\* and Department of Maritime Systems Engineering, and Department of Marine Biology\* (2000, 2007, 2008). B.S., Tel-Aviv University, 1982; M.S., Hebrew University, 1984; Ph.D., Oregon State University, 1993.
- Arbuckle, Lindy**, Lecturer, Department of General Academics (Kinesiology) (2012) and Assistant Diving Safety Officer (2013). B.S., Texas A&M University, 2011; NAUI Instructor 53054; AAUS Scientific Diver; NSS-CDS/NACD Cave Diver; NAUI Trimix Diver.
- Armitage Chan, Anna R.**, Associate Professor, Department of Marine Biology\*, Department of Marine Sciences\* and Department of EcoSystem Science and Management\* (2006, 2007, 2012). B.S., University of California, Los Angeles, 1995; Ph.D., University of California, Los Angeles, 2003.
- Baca, David R.**, Director of Library Services and Instructional Associate Professor, Department of Maritime Administration (2010, 2012, 2014). B.S., Mechanical Engineering Technology, Texas A&M University, 1980; M.L.I.S., University of Texas, 1993; Ph.D., Texas A&M University, 2006.
- Baker, Robert K.**, Senior Lecturer, Department of 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; STCW 95- Endorsement.
- Balaban, Alexandru**, Professor Emeritus, Department of Marine Sciences (2000, 2013). Diploma, Radiochemist, Ph.D., Polytechnic University, Bucharest, Romania, 1953, 1957, 1959.
- Baldwin, Janetta**, Instructional Associate Professor, Department of General Academics (Kinesiology) (1980, 1994, 2012). B.S., University of Texas, 1969; M.S., Texas A&M University, 1980.
- Bearzi, Giovanni**, Associate Research Scientist, Department of Marine Biology\* (2014). B.S., University of Padua, Italy, 1989; Ph.D., Universitat Basel, 2003.
- Bell, Janice S.**, Lecturer, Department of General Academics (Spanish) (2002). B.A., University of Houston, 1970; M.A., University of Northern Iowa, 1995.
- Bodson, Bruce**, Lecturer, Department of 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.
- Borda, Elizabeth**, Postdoctoral Research Associate and Lecturer, Department of Marine Biology (2011, 2012). B.S., State University of New York at Stony Brook, 1998; Ph.D., City University of New York Graduate School and University Center, 2007.
- Boudreaux, Lowell A.**, Instructional Assistant Professor, Department of Maritime Administration and Department of Marine Sciences (2003, 2012). B.B.A., Lamar University, 1993; M.B.A., Lamar University, 1996.

- Boudreaux, Tiffany M.**, Instructional Assistant Professor, Department of General Academics (English) (2008, 2012). B.A., Southeastern Louisiana University, 1995; M.A., Southeastern Louisiana University, 1998.
- Bourgeois, P. Jaime**, Assistant Professor of the Practice, Department of Marine Transportation (2014). B.S., Kings Point, 1956. Master, Steam and Motor Vessels, Any Gross Tons, Oceans, Radar Observer.
- Brinkmeyer, Robin L.**, Assistant Professor, Department of Marine Sciences\*, Department of Oceanography\*, Department of Wildlife and Fisheries Sciences\*, and Department of Marine Biology\* (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.**, Professor, Department of Marine Sciences\*, Department of Landscape Architecture & Urban Planning\* and Department of Water Management and Hydrologic Science\*, and Department of Marine Biology\* (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, Department of General Academics, (Mathematics) (2000, 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, Department of Marine Sciences (2002). B.S., Shippensburg University, 1972; M.S., University of Houston at Clear Lake, 1978.
- Bunch Davis, Carol A.**, Assistant Professor, Department of General Academics (English) (2003). B.A., Trinity University, 1990; M.A., University of Houston at Clear Lake, 1998. Ph.D., University of Southern California, 2007.
- Carhart, John W.**, Instructional Assistant Professor, Department of General Academics (Political Science) and Assistant Department Head (1988, 2002, 2012). B.A., Southwest Texas State University, 1981; M.A., Southwest Texas State University, 1988.
- Carroll, Matthew C.**, Assistant Professor, Department of 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.
- Caton, Amy**, Instructional Assistant Professor – Literacy Coordinator in the Library (2013). B.A., Texas State University, 2006; M.L.I.S., University of North Texas, 2012.
- Ciminello, Jr., Vito J.**, C.P.A., Senior Lecturer in Maritime Administration (1994, 2005). B.A., Brown University, 1977; M.S., Northwestern University, 1979.
- Cleary, James P.**, Associate Professor of the Practice, Department of Marine Transportation (2008, 2012, 2014). B.S., Texas A&M University, 1980; M.A., American Public University, 2011. Master of Steam or Motor Vessels of Any Gross Tons upon Oceans; STCW 95- Endorsements: Master, Vessel Security Officer, Medical PIC, GMDSS.
- Cole, Collier M.**, Lecturer, Department of 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.**, Instructional Assistant Professor, Department of Marine Sciences and Director of the Geology Laboratory (1981, 1992, 2012). B.S., Texas A&M University, 1975; M.S., University of Houston at Clear Lake, 1986.
- Coleman, Cheryl L.**, Lecturer, Department of General Academics (Kinesiology) (1997). B.S., United States Naval Academy, 1984; J.D., Northwestern University, 1993.
- Coleman, Gerard T.**, P.E., Instructional Assistant Professor, Department of Marine Engineering Technology and Assistant Department Head (1996, 2012). B.S., U.S. Naval Academy, 1980; M.S., George Washington University, 1996.
- Conway, Steven M.**, Senior Lecturer, Department of 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.
- Coonrod, James**, Lecturer, Department of Marine Transportation (2012). B.S., Texas A&M University, 1967. Master 1600 Tons Oceans; Second Mate any Gross Tons Oceans; First Class Pilot, Galveston and Texas City.
- Curley, Stephen J.**, Regents Professor, Department of General Academics (English) (1973, 1996, 2005). B.A., Fordham University, 1968; Ph.D., Rice University, 1974.
- Davis, Randall W.**, Regents Professor, Department of Marine Biology\* and Department of Wildlife and Fisheries Sciences\* (1990, 1992, 1994, 2011). B.S., University of California, Riverside, 1974; Ph.D., University of California, San Diego, 1980.
- Davison, Janine**, Lecturer, Department of General Academics (Communication) (2011). B.A., Texas A&M University, 1996; M.A., University of Houston, 2004.



- Davlasheridze, Meri**, Assistant Professor, Department of Marine Sciences\* (2013). Diploma, Ivane Javakhishvili State University, 1998; M.S. Texas A&M University, 2007; Ph.D., Pennsylvania State University, 2013.
- Dellapenna, Timothy M.**, Associate Professor, Department of Marine Sciences\* and Department of Oceanography\*, and Department of Marine Biology\* (1999, 2007). B.S., Michigan State University, 1986; M.S. Western Michigan University, 1993; Ph.D., College of William and Mary, 1999.
- DiGeorgio-Lutz, JoAnn**, Professor and Department Head, Department of General Academics (Political Science) (2014). B.A., University of Maryland, 1985; M.S., Troy State University, 1987; Ph.D., University of North Texas, 1993.
- Ditty, James**, Lecturer, Department of Marine Biology\* (2009). B.S., Marshall University, 1977; M.S., Louisiana State University, 1981; Ph.D., Louisiana State University, 2002.
- Djordjevic, Dragana**, Instructional Assistant Professor, Department of General Academics (English) (2012). B.A., University of Belgrade, 2000; M.A., Texas A&M University, 2003; Ph.D., Texas A&M University, 2010.
- Domsky, Darren**, Associate Professor, Department of General Academics (Philosophy) (2007, 2013). B.A., University of Alberta, 1996; M.A., University of Alberta, 1998; Ph.D., York University, 2006.
- Donelan, Michael B.**, Lecturer, Department of Maritime Administration (2010). B.A., Brown University (1972). M.B.A., Tulane University (1981).
- Estes III, Ernest L.**, Professor, Department of Marine Sciences\* (1976, 1987, 2006). B.S., Lawrence University, 1965; M.A., Duke University, 1967; Ph.D., University of North Carolina, 1971.
- Eytan, Ron**, Assistant Professor, Department of Marine Biology\* (2014). B.S., University of Miami, 1999; Ph.D., Louisiana State University, 2010.
- Fanning, Travis**, Lecturer, Department of Maritime Administration (2012). B.S. Texas A&M University, 2002; J.D., Roger Williams University, 2005.
- Fielder, Larry R.**, Lecturer, Department of Marine Engineering Technology (2006, 2010). B.S. Texas A&M University, 1975; M.S., University of Houston, 1985.
- Figlus, Jens**, Assistant Professor, Department of Maritime Systems Engineering, Department of Civil Engineering\*, and Department of Marine Biology\* (2012). Dipl.-Ing., University of Karlsruhe, Germany, 2005; M.C.E. University of Delaware, 2007; Ph.D., University of Delaware, 2010.
- Fitzhugh III, Thomas C.**, Lecturer, Department of Maritime Administration (1996). B.S., Texas A&M University, 1971; J.D., University of Texas, 1976.
- Folden, Charles A.**, Instructional Assistant Professor Emeritus, Department of Marine Sciences (1980, 2012, 2014). B.S., California State University, Long Beach, 1975; M.A., Governors State University, 1980.
- Fredrickson, Henry W.**, Professor of the Practice, Department of Marine Engineering Technology (2005, 2012). B.S., Texas A&M University, 1968. Chief Engineer of Steam, Motor and Gas Turbine Vessels; STCW 95.
- Galan, Jhenny**, Assistant Professor, Department of Marine Sciences\* and Department of Marine Biology\* (2012). B.S. University of Philippines, 1996; Ph.D., University of Connecticut, 2006.
- Glenn Jr., William P.**, Lecturer, Department of Maritime Administration and Marine Transportation (1997). B.S., Texas A&M University, 1981; J.D., Franklin Pierce Law Center, 1992; MIP, Franklin Pierce Law Center 1998.
- Gracia, Pete A.**, Senior Lecturer, Department of General Academics (Mathematics) (1993, 2014). B.S., Lamar University, 1959; M.S., University of Houston at Clear Lake, 1991.
- Grefenstette-Moon, Cheryl**, Lecturer, Department of Maritime Administration (2013). B.A., University of Texas at Arlington, 1985; M.B.A., University of Dallas, 1991, Ed.D. University of Houston, 2011.
- Griffin, Lawrence L.**, Professor, Department of Marine Sciences\* and Department of Oceanography\* (1976, 1983, 2007). B.A., University of Texas, 1962; M.S., University of Texas, 1965; Ph.D., University of Texas, 1972.
- Guillen, George J.**, Lecturer, Department of Marine Biology (2005). B.S., Texas A&M University, 1979; M.S., Texas A&M University, 1983; Ph. D., University of Texas School of Public Health, 1996.
- Hall, Christopher P.**, Lecturer and Coordinator of Laboratories, Department of Marine Biology (2006). B. A., University of North Carolina at Wilmington, 1997. B. A., University of North Carolina at Wilmington, 1997. M. S., Texas A&M University, 2003.
- Hark, John F.**, Lecturer, Department of Maritime Administration (2002). B.S., Texas A&M University, 1989.



- Harper Jr., Donald E.**, Professor Emeritus, Department of Marine Biology and Department of 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.
- Hart, Rick A.**, Lecturer, Department of Marine Biology (2004). B.S., Bemidji State University, 1993; M.S., North Dakota State University, 1996; Ph.D., North Dakota State University, 1999.
- Highfield, Wesley E.**, Assistant Professor, Department of Marine Sciences\*, Department of Landscape Architecture and Urban Planning\*, and Department of Marine Biology\* (2011). B.S., Texas A&M University, 2001; M.U.P., Texas A&M University, 2004; Ph.D., Texas A&M University, 2008.
- Hill, Ronald**, Lecturer, Department of Marine Biology (2004). B.S., Oklahoma State University, 1976; M.S., University of West Florida, 1995; Ph.D., University of Puerto Rico – Mayagüez, 2001.
- Hite, Gerald E.**, Professor, Department of Marine Sciences\* and Department of Maritime Systems Engineering (1980, 1998, 1990). B.S., Case Western Reserve, 1962; M.S., University of Illinois, 1965; Ph.D., University of Illinois, 1967; Habilitation, Universität Kaiserslautern, 1974.
- Hochman, Mona**, Senior Research Associate and Lecturer, Department of Marine Biology (1998, 2012). B.S., Texas A&M University at Galveston, 1994; M.S., University of Maryland, 2000.
- Hoffman, Norman, P.E.**, Lecturer, Department of Maritime Systems Engineering (2011). B.S., Vallanova University, 1985; M.S., Drexel University, 1990; Ph.D., University of Houston, 2010.
- Horrillo, Juan J.**, Assistant Professor, Department of Maritime Systems Engineering and Department of Civil Engineering\* (2008). B.S., University of Cartagena, Columbia, 1984; M.S., University of Rhode Island, 1997; Ph.D., University of Alaska-Fairbanks, 2006.
- Horwitz, Irwin B.**, Instructional Associate Professor, Department of Maritime Administration (2014). B.S., Loyola University of Chicago, 1987; M.S., Loyola University of Chicago, 1991; M.B.A., University of Illinois, 1991; Ph.D., University of Minnesota, 2003.
- Hufton, Amie J.**, Instructional Assistant Professor, Department of General Academics (Kinesiology) (2006, 2012). B.S., Texas A&M University, 2002; M.M.R.M., Texas A&M University, 2010.
- Iliffe, Thomas M.**, Professor, Department of Marine Biology,\* Department of Wildlife and Fisheries Sciences\* and Department of Oceanography\* (1989, 1997). B.S., Penn State University, 1970; M.S., Florida State University, 1973; Ph.D., University of Texas Medical Branch, 1977.
- Jansen, Jack T.**, Lecturer, Department of Marine Transportation (2010). B.S., Texas A&M University, 1998. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans; STCW 95- Endorsements: Master, Vessel Security Officer, Medical PIC, GMDSS.
- Jin, Jun**, Lecturer, Department 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 Emeritus, Department 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, Department of Marine Sciences\* and Department of Oceanography\* and Department of Marine Biology\* (1996). B.A., University of Rhode Island, 1977; M.S., Columbia University, 1979; Ph.D., Columbia University, 1983.
- Jordan, Michael**, Lecturer, Department of General Academics (Kinesiology) (2013). B.S., Texas A&M University at Galveston, 2012.
- Kaiser, Karl**, Assistant Professor, Department of Marine Sciences\* and Department of Oceanography\* and Department of Marine Biology\* (2012). M.S., Johannes Kepler University, Linz, Austria, 1997; Ph.D., University of South Carolina, 2009.
- Kane, Matthew**, Associate Professor, Department of Marine Engineering Technology, Department of Materials Science and Engineering\* (2013). B.S., Rice University, 1996; M.S., Northwestern University, 1997; Ph.D., Georgia Institute of Technology, 2007.
- Kang, Cong X.**, Associate Professor, Department of General Academics (Mathematics) (2004, 2010, 2014). B.S., Carnegie Mellon University, 1992; Ph.D., University of Texas, 1999.

- Klein, Douglas J.**, Professor, Department of Marine Sciences\* and Department of Oceanography\* (1979, 1983, 1987). B.S., Oregon State University, 1964; M.A., University of Texas, 1967; Ph.D., University of Texas, 1969.
- Knock, Susan L.**, Instructional Associate Professor, Department of Marine Sciences\* and Department of Marine Biology\* and Director of Academic Enhancement (1996, 2003, 2012, 2014). B.A., Colorado College, 1975; Ph.D., University of Texas Medical Branch, 1988.
- Knox, Kris J.**, C.P.A., Instructional Associate Professor and Assistant Department Head, Department of Maritime Administration\* (1984, 2012, 2014). 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.
- Landry Jr., André M.**, Visiting Professor, Department of Marine Biology\*, Department of Wildlife and Fisheries Sciences\* and Department of Marine Sciences\* (1977, 1991). B.S., Tulane University, 1968; M.S., Texas A&M University, 1971; Ph.D., Texas A&M University, 1977.
- Lang, Donna C.**, Vice President for Academic Operations and Lecturer (1996, 2011). B.S., Texas A&M University, 1988; M.A. University of Houston at Clear Lake, 1992; Ed.D., University of Houston, 2000.
- Laureau, Ryan**, Lecturer, Department of General Academics (Kinesiology) (2013). B.A., Western Washington University, 2001; M.A., Western Washington University, 2004; USCG 100 Ton License with Sailing and Towing Endorsements.
- Lawhon, David R.**, Instructional Assistant Professor, Department of General Academics (History) and Director, Honors Program (2003, 2007, 2012). B.A., University of Houston at Clear Lake, 1995; M.A., University of Houston at Clear Lake, 2000.
- Lesko, Melanie J.**, Instructional Associate Professor, Department of Marine Sciences\* and Department of Marine Biology\* (1983, 1996, 2013). Associate Department Head (1996, 2012). Interim Department Head of Marine Sciences (2013). B.S., Lamar University, 1972; Ph.D., University of Houston, 1977.
- Linton, Thomas L.**, Instructional Assistant Professor, Department of Marine Sciences\* and Department of Wildlife and Fisheries Sciences\* and Department of Marine Biology\* (1981, 1989) B.S., Lamar University, 1959; M.S., University of Oklahoma, 1961; Ph.D., University of Michigan, 1965.
- Liu, Hui**, Assistant Professor, Department of Marine Biology\* and Department of Marine Biology\* (2012). B.S., Ocean University of Qingdao, 1992; M.S., Ocean University of Qingdao, 1995; M.S., University of Alaska Fairbanks, 2008; Ph.D., University of Alaska, 2006.
- Louchouart, Patrick**, Professor, Department of Marine Sciences\*, Department of Marine Biology\*, and Department of Oceanography\* (2006, 2010). Vice President for Academic Affairs (TAMUG) and Associate Provost (TAMU) (2012, 2013). B.S., McGill University, Montreal, Quebec, Canada, 1989; M.S., Université du Québec à Montréal, 1992; Ph.D., Université du Québec à Montréal, 1997.
- Luna, Amy**, Lecturer, Department of Marine Transportation (2012). B.S., Texas A&M University, 2007. Second Mate of Steam and Motor Vessels of Any Gross Tons Upon Oceans; STCW 95- Endorsements: GMDSS, Tankerman PIC, Dangerous Liquid PIC, and Liquefied Gases PIC.
- Luxemburg, Leon A.**, Associate Professor, Department of General Academics (Mathematics) (1990, 2005, 2011). Ph.D., Texas A&M University, 1987.
- Maack, Pamela A.**, Lecturer, Department of General Academics (Anthropology) (2008). B.A., University of Virginia, 1982; Ph.D., Northwestern University, 1992.
- Maceo, Debra A.**, Instructional Associate Professor Department of General Academics (Kinesiology) (1994, 2003, 2012). B.S., Lamar University, 1975; M.A., University of Houston, 1995.
- Mark, Samuel E.**, Professor, Department of General Academics (Anthropology/Archeology) and Department of Anthropology\* (2001, 2006, 2011). 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, Department of Marine Biology\* and Department of Wildlife and Fisheries Sciences\* (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.
- Martínez, Rudy D.**, P.E., Instructional Assistant Professor, Department of Marine Engineering Technology (2006, 2012). 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.
- Mathur, Parul**, Instructional Assistant Professor, Department of Maritime Administration (2013). B.A., University of Delhi, 2000; M.A., Delhi School of Economics, 2002; M.A., University of Houston, 2006; Ph.D., University of Houston, 2009.

- McCloud, Daisey**, Lecturer, Department of General Academics (Psychology) (2011) and Assistant Director of Counseling and Career Services (2009). B.A., Houston Baptist University, 1998; M.A., Houston Baptist University, 2002.
- McCright, Michael J.**, Lecturer, Department of Marine Transportation (2011). B.S., Roger Williams University, 1994. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans; First Class Pilot, Houston Ship Channel and Port Hueneme; STCW 95- Endorsements: Master, Vessel Security Officer, Medical PIC, GMDSS.
- McDowell, James**, Lieutenant US Navy, Lecturer, Department of Naval Science (2012). B.S., North Carolina University, 2008.
- McElfresh, Laura**, Instructional Assistant Professor – Digital Initiatives Librarian (2013). B.A., Rice University, 1995; M.S., University of Houston, 1998; M.L.S., Syracuse University (2002).
- Merrell, Jr., William J.**, Professor, Department of Marine Sciences\* and Department of Marine Biology\* (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, Department of Marine Biology (2006). B.S., Texas Christian University, 1995; M.S., Texas Christian University, 1997; Ph.D., Texas A&M University, 2004.
- Miglietta, Maria P.**, Assistant Professor, Department of Marine Biology\* (2014). B.S., Università di Lecce, 1996; M.S., Università di Lecce, 1996; Ph.D., Duke University, 2005
- Mileski, Joan P.**, C.P.A., Professor, Department of Maritime Administration\*, Department of Marine Sciences\* and Department of Marine Biology\* (2004, 2012, 2014). Interim Department Head of Maritime Administration (2012). B.B.A., University of Notre Dame, 1979; M.S., Pace University, 1983; Ph.D., University of Texas at Dallas, 2000.
- Miller, Martin C.**, Instructional Professor, Department of 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.
- Mohler, Robert R.**, Senior Lecturer, Department of Marine Sciences (2001, 2014). 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.
- Mykoniatis, Nikolaos**, Instructional Assistant Professor, Department of Maritime Administration\* (2013). B.A., University of Crete, 2005; M.S., University of York, 2007; Ph.D., Pennsylvania State University, 2013.
- Navarre, Fredric A.**, Lecturer, Department of Maritime Administration (2013). B.S., Southern University and A&M College, 2005; M.B.A., Texas Southern University, 2011; M.E., University of Texas at Arlington, 2012.
- Noack, Laurissa**, Lecturer, Department of General Academics (Academic Enhancement) (2012). B.S., Texas A&M University, 2008.
- Norris, Christopher**, Lieutenant US Navy, Officer-in-Charge, Department Head, Lecturer, Department of Naval Science (2013). B.S., Huston-Tillotson University, 2007.
- Nyakiti, Luke**, Assistant Professor, Department of Marine Engineering Technology (2013). B.S., Egerton University, 1998; M.S., Wichita State University, 2004; Ph.D., Texas Technical University, 2008.
- Oertling, Thomas J.**, Instructional Assistant Professor, Department of General Academics (Nautical Archaeology) (2000, 2012). B.S., Tulane University, 1977; M.A., Texas A&M University, 1984.
- Olivares, Saul**, Lecturer, Department of General Academics (Spanish) (2011). B.A., Lee College, 1999; M.S., University of Houston, 2003.
- O’Neal, Clifford C.**, Lecturer, Department of Marine Biology (2007). B.S., Texas A&M University, 1996; M.S., Louisiana State University, 2000; Ph.D., Southern Illinois University at Carbondale, 2005.
- O’Connor, John**, Lecturer, Department of Marine Engineering Technology (2014). B.S., Texas A&M University, 1981.
- Orange, William R.**, Lecturer, Department of Marine Transportation (2010). Survival Craft, Fast Rescue Craft, Basic Safety Training, Marine Fire Basic Advanced and LNG Fire Fighting, Oil Spill and Safe Gulf Instructor. B.S., Texas A&M University, 1991.
- Panchang, Vijaykumar G.**, Regents Professor, Department of Maritime Systems Engineering and Department 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.**, Instructional Assistant Professor, Department of General Academics (Mathematics) (2007, 2012). B.S., University of Southern California, 1998; M.S., State University of New York at Stony Brook, 2002.
- Park, Kyeong**, Professor and Department Head, Department of Marine Sciences\* (2014). B.S., Seoul National University, Korea, 1985; M.S., State University of New York at Stony Brook, 1987; Ph.D., College of William and Mary, 1993.
- Pearl, Frederic B.**, Associate Professor, Department of General Academics (Anthropology) and Department of Marine Sciences\* and Department of Anthropology\* (2000, 2007). B.A., San Diego State University, 1991; M.A., Texas A&M University, 1997; Ph.D., Texas A&M University, 2001.
- Perrigo, James**, Instructional Assistant Professor, Department of Marine Sciences (1996, 2012). B.S., Texas A&M University, 1981; M.S., Texas A&M University, 2004.
- Presswood, Phillip**, Lecturer, Department of General Academics (English and Academic Enhancement) (2012). B.A., University of Houston-Clear Lake, 2007; M.A., University of Houston-Clear Lake, 2011.
- Putty, D. Scott**, Associate Professor of the Practice, Department of Marine Transportation (2012, 2014). B.S., Texas A&M University, 1979. Master Oceans Unlimited; STCW 95- Endorsements: Master, Vessel Security Officer, Medical PIC, GMDSS.
- Qiu, Lin**, Instructional Assistant Professor, Department of General Academics (Mathematics) (2007, 2012), B.S., Tongji University, 2002; M.A., University of Alabama, Tuscaloosa, 2005; Ph.D., University of Alabama, Tuscaloosa, 2006.
- Quigg, Antonietta S.**, Professor, Department of Marine Biology,\* Department of Oceanography\* and Department of Marine Sciences\* (2003, 2009, 2013); Associate Vice President for Research and Graduate Studies (2011, 2013). B.S., La Trobe University, Australia, 1989; B.S., (Honors) La Trobe University, Australia, 1990; Ph.D., Monash University, Australia, 2000.
- Reich, Kimberly**, Assistant Research Scientist and Lecturer, Department of Marine Biology (2011, 2013). B.S., Palm Beach Atlantic University, 1998; M.S., Texas A&M University, 2001; Ph.D., University of Florida, 2009.
- Rooker, Jay R.**, Professor, Department of Marine Biology,\* Department of Wildlife and Fisheries Sciences\* and Department of 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.**, Associate Professor of the Practice, Department of Marine Transportation and Interim Department Head (2000, 2012, 2014). Assistant Superintendent of Standard of Training, Certification, and Watchkeeping/Academic Affairs (2010). B.S., Texas A&M University, 1996; M.B.A., University of Phoenix, 2008. Master of Steam and Motor Vessels of Any Gross Tons Upon Oceans; STCW 95- Endorsements: Master, Medical PIC, Fast Rescue Craft, GMDSS. RADAR, ARPA, ECDIS, VPDS, TOAR.
- Rowe, Gilbert T.**, Regents Professor, Department of Marine Biology\* and Department of Oceanography\* (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, Department of General Academics (History) (1990, 1996, 2004). 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, Department of Marine Sciences\*, Department of Oceanography\* and Department of Marine Biology\* (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, Department of Marine Sciences\* and Department of Oceanography\* (1978, 1985). B.S., U.S. Naval Academy, 1965; M.A., University of South Florida, 1971; Ph.D., Texas A&M University, 1978.
- Schmalz, Thomas G.**, Professor Emeritus, Department of Marine Sciences\* and Department of Oceanography\* (1981, 1996). B.S., Montana State University, 1970; Ph.D., University of Illinois, 1975.
- Schulze, Anja**, Associate Professor, Department of Marine Biology\*, Department of Oceanography\*, Department of Wildlife and Fisheries Sciences\*\* and Department of Marine Sciences\* (2006, 2012). Diploma, University of Bielefeld, Germany, 1995; Ph.D., University of Victoria, Canada, 2001.
- Schwarz, John R.**, Regents Professor, Department of Marine Biology\*, Department of Marine Sciences\* and Department of Oceanography\* (1976, 1986, 2012). Department Head of Marine Biology (1983, 2008). B.S., Rensselaer Polytechnic Institute, 1967; Ph.D., Rensselaer Polytechnic Institute, 1972.
- Schwehr, Kathleen**, Associate Research Scientist and Lecturer, Department of Marine Sciences and Department of Oceanography (2007, 2013). B.S., Montana College of Mineral Science and Technology, 1982; M.S., University of Houston, 1998; Ph.D., Texas A&M University, 2004.



- Seitz, William A.**, Regents Professor, Department of Marine Sciences\*, Department of Oceanography\* and Department of Marine Biology\* (1977, 2002), B.A., Rice University, 1970; Ph.D., University of Texas, 1973.
- Shodavaram, Bhaskar Raju**, Lecturer, Department of General Academics and Department of Marine Sciences (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.
- Slabaugh, Leticia A.**, Instructional Assistant Professor, Department of General Academics (English) (2008, 2012). B.A., Texas A&M University-Corpus Christi, 1997; M.A., Texas A&M University-Corpus Christi, 2001.
- Slatton, Katie, J.**, Instructional Assistant Professor, Department of General Academics (Kinesiology) (2003, 2012). B.S., University of Montevallo, 1999; M.A., University of Montevallo, 2003.
- Suen, Ching Y.**, Professor, Department of General Academics (Mathematics) (1984, 1998). M.S., Tsing Hua University, 1978; Ph.D., University of Houston, 1983.
- Sutherland, Todd**, Lecturer, Department of General Academics (Academic Enhancement) (2013) and Assistant Vice President of Student Affairs (1993, 2013). B.S., Texas A&M University, 1990; M.A., University of Houston, 2001; Ph.D., Texas A&M University, 2013.
- Sweetman, John A.**, P.E., Associate Professor, Department of Maritime Systems Engineering and Department of Civil Engineering\* (2003, 2011) and Interim Department Head of Maritime Systems Engineering and Marine Engineering Technology (2013). B.S., University of Michigan, 1986; M.E., Texas A&M University, 1987; Ph.D., Stanford University, 2001.
- Szucs, Joseph M.**, Professor Emeritus, Department of General Academics (Mathematics) (1980, 1991, 2006, 2013). M.S., Szeged University, 1965; Ph.D., Szeged University, 1967.
- Talent, David**, Instructional Associate Professor, Department of Marine Sciences and Department of Marine Engineering Technology (2012). B.S., Southwest Missouri State University, 1974; M.S., Rice University, 1979; Ph.D. Rice University, Houston, Texas, 1981.
- Teare, Joseph M.**, Lecturer, Department of Marine Transportation (2011). B.S., Texas A&M University, 1967. STCW 95-Endorsements: Master, Vessel Security Officer, Medical PIC, GMDSS, Fast Rescue Craft.
- Theis, William D.**, Instructional Assistant Professor, Department of General Academics (English) (2005, 2014). B.A., University of Texas, 1978; M.A., University of Houston, 1988.
- Townsend, Grace L.**, Instructional Assistant Professor, Department of Marine Sciences (2001, 2012). B.S., Texas A&M University, 1981; M.S., University of Houston at Clear Lake, 1983.
- Traber, Daniel S.**, Associate Professor, Department 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., Instructional Assistant Professor, Department of Marine Engineering Technology (2001, 2012). B.S., State University of New York Maritime College, 1966; First Assistant Engineer of Steam Vessels of any horsepower.
- Tysall, Terrance**, Lecturer, Department of General Academics (Kinesiology) (2013) and Diving Safety Officer (2012). B.A., Goddard College, 2005; US Army Dive Unit Commander; Cave Diving; Deep Diving; Mixed Gas Diving and Recreational Instructor Trainer (NSSCDS, NACD, IANTD, TDI, NAUI); Aquanaut; Hyperbaric Technician; Dive Medical Technician.
- Udoetuk, Mayen**, Lecturer, Department of General Academics (Academic Enhancement) (2009). B.S., Norfolk State University, 2006; M.Ed., University of Houston, 2012.
- Van Hengstum, Peter**, Assistant Professor, Department of Marine Sciences\*, Department of Marine Biology\* and Department of Oceanography\* (2013). B.S., McMaster University, 2005; M.S., McMaster University, 2008; Ph.D., Dalhousie University, 2010.
- Viser, Victor**, Instructional Assistant Professor, Department of General Academics (Communication) (2013). B.S., University of Texas, 1983; M.A., Our Lady of the Lake University, 1991; Ph.D., Temple University, 1995.
- Von Zharen, Wyndylyn M.**, Regents Professor, Department of Maritime Administration\*, Department of Marine Sciences\*, Department of Wildlife and Fisheries Sciences\*, Department of Oceanography\* and Department of Marine Biology\* (1990, 1994, 2000, 2011). 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, Department of General Academics (Political Science) (1995). B.A., University of Texas, 1962; M.A., University of Texas, 1963.



- Walling, Herbert M.**, Associate Professor of the Practice, Department of Marine Transportation (2010, 2012, 2014). B.S., Maine Maritime Academy, 1971; M.S., Maine Maritime Academy, 1987. Second Mate of Steam and Motor Vessels of Any Gross Tons Upon Oceans; Master of Towing Upon Oceans; STCW 95, Officer in Charge of a Navigational Watch.
- Wang, Ping**, Assistant Professor, Department of Maritime Administration\* (2013). B.S., Dalian Naval Academy, 1984; M.S., Chinese Academy of Science, 1992; M.E., Massachusetts Institute of Technology, 2002; Ph.D., Ohio State University, 2007.
- Wang, Wen-Yao “Grace”**, Associate Professor, Department of Maritime Administration\* and Department of Marine Sciences\* (2008, 2014). B.A., National Taipei University, 1999; M.A., National Taipei University, 2001; Ph.D., Texas A&M University, 2008.
- Wang, Yuxuan**, Assistant Professor, Department of Marine Sciences\*, Department of Marine Biology\* and Department of Atmospheric Sciences\* (2013). B.E., Tsinghua University, 2000; Ph.D., Harvard University, 2005.
- Wardle, William J.**, Senior Lecturer, Department of Marine Biology (1973, 2003). B.S., Lynchburg College, 1963; M.S., Texas A&M University, 1970; Ph.D., Texas A&M University, 1974.
- Warren, Jesse**, Lecturer, Department of General Academics (Academic Enhancement) (2009). B.S., University of Houston at Clear Lake, 2000; M.S., University of Houston at Clear Lake, 2005.
- Waterworth, Leonard**, Executive Professor, Department of Maritime Administration\* (2014). B.S., New Mexico State University, 1979; M.S., George Washington University, 1990; M.S., U.S. Army War College, 2000.
- Weeks, Kelly O.**, Assistant Professor, Department of Maritime Administration\* and Department of Marine Sciences\* (2008). B.B.A., Delta State University, 2001; M.B.A., Delta State University, 2003; Ph.D., Jackson State University, 2007.
- Wells, R. J. David**, Assistant Professor, Department of Marine Biology\* and Department of Wildlife and Fisheries Sciences\* (2012). B.S. Oregon State University, 1998; M.S., Texas A&M University, 2002; Ph.D., Louisiana State University, 2007.
- Willett, Donald E.**, Professor, Department of General Academics (History) (1985, 1993, 2010). B.A., St. Edward’s University, 1972; M.A., Stephen F. Austin University, 1976; Ph.D., Texas A&M University, 1985.
- Williams, Sara S.**, Lecturer, Department of General Academics, Kinesiology, (2010). B.S., Texas A&M University, 2000.
- Win, Kyaw K. “Kevin”**, Technical Lab Coordinator and Lecturer, Department of Marine Engineering Technology (2006, 2013). B.S., Yangon Institute of Technology, Myanmar, 1987; M.B.A., Hawaii Pacific University, 2002.
- Wood, Amanda L.**, P.E., Instructional Assistant Professor and Assistant Department Head, Department of Maritime Systems Engineering (2010, 2012). B.S., University of Houston, 1997, M.S., University of Houston, 2000, Ph.D., University of Houston, 2010.
- Würsig, Bernd G.**, Regents Professor, Department of Marine Biology\* and Department of Wildlife and Fisheries Sciences\* (1989, 2006). University Distinguished Professor (2013). B.S., Ohio State University, 1971; Ph.D., Stony Brook University, 1978.
- Yi, Eunjeong**, Associate Professor, Department of General Academics (Mathematics) (2003, 2006, 2011). 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 2012. 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](http://www.tccns.org).

|                                   |          |
|-----------------------------------|----------|
| HIST 1301 . . . . .               | HIST 105 |
| HIST 1302 . . . . .               | HIST 106 |
| HIST 2301 . . . . .               | HIST 226 |
| MATH 1314. . . . .                | MATH 102 |
| MATH 1316. . . . .                | MATH 106 |
| MATH 1325 and MATH 1425 . . . . . | 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 . . . . .               | COMM 203 |

|              |                  |
|--------------|------------------|
| TCCNS Course | Texas A&M Course |
|--------------|------------------|

|                     |          |
|---------------------|----------|
| ACCT 2301 . . . . . | ACCT 229 |
| ACCT 2302 . . . . . | ACCT 230 |
| ANTH 2302. . . . .  | ANTH 202 |
| ANTH 2351. . . . .  | ANTH 210 |
| 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 1411 . . . . . | CHEM 101 |
| CHEM 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 |
| 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 |