

2009–2010

# TEXAS A&M

## UNIVERSITY *at* QATAR

UNDERGRADUATE CATALOG ★ EDITION 132Q



## Accreditation

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Texas A&M University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097, 404-679-4501) to award degrees at the bachelor's, master's, doctoral, and professional levels. Within the Look College of Engineering, the undergraduate programs in aerospace, biological and agricultural, biomedical, chemical, civil, computer, electrical, industrial, mechanical, nuclear, ocean, petroleum, and radiological health engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. (formerly the Accreditation Board for Engineering and Technology). The electronics, manufacturing and mechanical, and telecommunications engineering technology programs are accredited by the Technology Accreditation Commission of ABET, Inc. The computer science program is accredited by the Computing Sciences Accreditation Commission of ABET, Inc.

The Qatar campus is fully accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award bachelor's and master's degrees. The Qatar campus is currently undergoing procedures to become accredited by the Engineering Accreditation Commission of ABET, Inc.

## Purpose of Catalog

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The purpose of this catalog is to provide information about the academic programs of Texas A&M University at Qatar to prospective students, students, faculty, and staff of the University. Included is information concerning admissions, academic regulations and requirements, services available to students, and academic offerings, along with a list of the administrative officers and faculty of the University. While every effort has been made to make this catalog as complete and accurate as possible, changes may occur at any time in requirements, deadlines, fees, curricula, and courses listed in this catalog.

Students should refer to the Web site [courses.qatar.tamu.edu](https://courses.qatar.tamu.edu) for course offerings in any given semester. For administrative reasons, because of insufficient enrollment, or because of limited resources, any given course might not be offered in the announced semester.

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, or faculty or staff member of Texas A&M University at Qatar 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.*

## Commitment to Diversity

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As a major public institution of higher education, Texas A&M University has both an extraordinary opportunity and a special responsibility to create and maintain a climate that affirms diversity of persons as well as diversity of views. Diversity is an indispensable component of academic excellence. A commitment to diversity means a commitment to the inclusion, welcome, and support of individuals from all groups, encompassing the various characteristics of persons in our community. Among these characteristics are race, ethnicity, national origin, gender, age, socioeconomic background, religion, sexual orientation, and disability. As we harness the power of diversity, we will provide students, faculty, and staff a university experience rich in perspectives and opportunities to learn from each other.

In the spirit of shared responsibility, we encourage each University unit, student organization, and campus community member to help make our campus a welcoming place for all.

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## Academic Calendar

### Fall Semester 2009\*

Month	Date	Day of Week	Event
August	16–20	Sunday–Thursday	New student orientation week Faculty orientation week
	21	Friday	Ramadan begins (approximate date)
	23	Sunday	First day of classes First day to apply for December graduation
	27	Thursday	Last day to drop with no record Last day to make schedule changes
	7	Monday	Official census date (12th class day) Change of major start date for spring semester
September	10	Thursday	Last day to apply for December graduation
	20–22	Sunday–Tuesday	Eid Al-Fitr holiday (offices closed)
	20–24	Sunday–Thursday	Student Eid Al-Fitr break (no classes)
	27	Sunday	Classes resume
	15	Thursday	Mid-semester grades due Substitution deadline for degree candidates
October	18	Sunday	Mid-semester grades posted
	5	Thursday	Q-drop deadline Last day to officially withdraw from the University
November	12	Sunday	Change of major deadline for spring semester
	15–25	Thursday	Pre-registration for spring 2010
	18	Thursday	Bonfire 1999 Remembrance Day
	29–30	Sunday–Monday	Eid Al-Adha holiday (no classes and offices closed)
	1	Tuesday	Eid Al-Adha holiday (no classes and offices closed)
December	2	Wednesday	Classes resume
	8	Tuesday	Last day of classes
	9	Wednesday	Reading day (no classes or finals)
	10	Thursday	Final examinations
	13	Sunday	Reading day (no classes or finals)
	14–16	Monday–Wednesday	Final examinations
	17	Thursday	Final grades due for degree candidates
	18	Friday	Final grades due for non-degree candidates
	19	Saturday	Fall Graduate Recognition
	24–31	Thursday–Thursday	Semester break (offices closed)

\* Calendar subject to change

## Spring Semester 2010\*

Month	Date	Day of Week	Event
January	3	Sunday	Offices reopen after semester break
	6	Wednesday	First day to apply for May graduation
	10	Sunday	First day of classes
	14	Thursday	Last day to drop with no record Last day to make schedule changes
	17	Sunday	Martin Luther King Day (offices closed and no classes)
	26	Tuesday	Official census date (12th class day) Change of major start date for fall semester
	28	Thursday	Last day to apply for May graduation
February	28	Sunday	Spring break (no classes held)
March	1-4	Monday–Thursday	Spring break (no classes held)
	4	Thursday	Spring break (offices closed)
	7	Sunday	Classes resume/offices reopen
	11	Thursday	Mid-semester grades due Substitution deadline for degree candidates
	14	Sunday	Mid-semester grades posted
	28	Sunday	Q-drop deadline Last day to officially withdraw from the University
April	4-14	Sunday–Wednesday	Pre-registration for summer and fall 2010
	21	Wednesday	Aggie Muster
	22	Thursday	First day to apply for August graduation
	25	Sunday	Last day of regular classes
	26–27	Monday–Tuesday	Reading days (no classes held)
	28-29	Wednesday–Thursday	Final examinations
May	2-3	Sunday–Monday	Final examinations
	4	Tuesday	Final grades due for degree candidates
	5	Wednesday	Final grades due for non-degree students
	6	Thursday	Final grades posted Commencement Ceremony Last day to apply for August graduation

\* Calendar subject to change

Summer Semester 2010\*

Month	Date	Day of Week	Event
May	16	Sunday	First day of classes for 5- and 8-week terms
	19	Wednesday	Official census date (4th class day) Last day to drop with no record for 5- and 8-week terms Last day to make schedule changes for 5- and 8-week terms
June	3	Thursday	Q-drop deadline for 5-week term Last day to officially withdraw from the University for 5-week term Substitution deadline for August degree candidates
	17	Thursday	Last day of 5-week term classes
	20	Sunday	5-week term final examinations No classes for 8-week term Change of major deadline for fall semester
	22	Tuesday	Final grades due for 5-week term
	23	Wednesday	Final grades posted for 5-week term Q-drop deadline for 8-week term Last day to officially withdraw from the University for 8-week term
July	4	Sunday	United States of America Independence Day (no classes)
	12	Monday	Last day of classes for 8-week term
	13	Tuesday	Final examinations for 8-week term
	14	Wednesday	Final grades due for 8-week term
	15	Thursday	Final grades posted for 8-week term

\* Calendar subject to change

## Board of Regents

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# General Information

2009–2010 Undergraduate Catalog



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# History and Development

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## Mission Statement

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Texas A&M University is dedicated to the discovery, development, communication, and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new understandings through research and creativity. It prepares students to assume roles in leadership, responsibility, and service to society. Texas A&M assumes as its historic trust the maintenance of freedom of inquiry and an intellectual environment nurturing the human mind and spirit. It welcomes and seeks to serve persons of all racial, ethnic, and geographic groups, women and men alike, as it addresses the needs of an increasingly diverse population and a global economy. In the twenty-first century, Texas A&M University seeks to assume a place of preeminence among public universities while respecting its history and traditions.

The mission of the Qatar campus is to embrace the University's traditional goals of teaching, research, and service and to replicate the world-class undergraduate engineering program offered at the main campus. Texas A&M University at Qatar will only realize the highest quality undergraduate programs through inseparable connections to its own programs in research and graduate studies. In all of its efforts, Texas A&M University at Qatar will ensure that it is contributing significantly to the international knowledge and research needs of Qatar and the region. Moreover, Texas A&M University at Qatar is strongly committed to establishing an interface within the community that will assist in improving the lives of the people of Qatar.

## History and Development

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Texas A&M University, home to the George Bush Presidential Library, is the first public institution of higher learning to be established in the State of Texas, opening in 1876 with fewer than 20 students and growing into what is now one of the largest universities in America. It has a current enrollment of more than 45,000 students including approximately 8,400 studying at the graduate and professional degree levels. Its students come from each of the 50 states in the nation and from more than 120 countries around the world.

Texas A&M is one of a select few universities in the United States to boast triple federal designation as a Land-Grant, Sea-Grant, and Space-Grant institution, underscoring its role as a leader at the cutting edge of engineering, science, agriculture, and other traditional academic programs that are especially important to economic, social, and cultural development, as well as in newer areas such as endeavors to explore the world's oceans, to conserve marine resources, and to facilitate space exploration. These and other programs and attributes combine to make Texas A&M a unique American institution and one of international renown.

In recognition of its strong academic programs and related research initiatives, Texas A&M University has been elected to membership in the prestigious American Association of Universities and is home to one of the nation's largest chapters of Phi Beta Kappa, the oldest and most respected undergraduate honor society in America.

Texas A&M ranks among the top 10 U.S. universities in endowment value, reflecting its ability to support world-class faculty and other aspects of the academic process.

The faculty includes two Nobel Laureates, two winners of the National Medal of Science, and more than 25 members of either the National Academy of Sciences or the National Academy of Engineering. The overall faculty totals approximately 2,500.

The research of an outstanding faculty in exceptional facilities places Texas A&M high in rankings of major universities by the National Science Foundation (NSF). The most recent NSF rankings placed Texas A&M among the top 20, and the value of the university's research has grown to \$550 million annually. The research projects supported by that funding encompass all of the university's academic colleges: agriculture and life sciences, architecture, business, education and human development, engineering, geosciences, liberal arts, science, and veterinary medicine and biomedical sciences. Homeland security figures prominently in several new programs at Texas A&M with multi-million dollar federal funding support.

Texas A&M is firmly committed to a global research perspective. Its international outreach efforts include memoranda of understanding for research and educational endeavors with more than 85 institutions and organizations throughout the world.

Texas A&M's branch campus in Qatar, part of the 2,500 acre multi-institutional campus known as "Education City," formally opened on September 7, 2003, offering undergraduate degree programs in chemical, electrical, mechanical, and petroleum engineering. Texas A&M's engineering program is widely considered among the best in America, and the curricula offered at the Qatar campus are materially the same as those offered at the main campus located in College Station, Texas. Texas A&M University at Qatar, fully funded by the Qatar Foundation for Education, Science and Community Development, provides a unique opportunity for the University to expand its international presence and to provide educational and research opportunities for faculty and students.

At the start of the 2008–2009 academic year, the Qatar campus had a student body of 336 undergraduate students, with plans to ultimately increase the total student enrollment to 500.

In addition to its branch campus in Qatar, Texas A&M operates a marine-oriented branch campus in Galveston, Texas, along with a study center in Castiglione Fiorentino, Italy, and a multi-purpose facility in Mexico City.

## **Qatar Foundation and Education City**

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Founded in 1995 by His Highness Sheikh Hamad Bin Khalifa Al-Thani, Emir of Qatar, Qatar Foundation for Education, Science and Community Development's guiding principle is that a nation's most valuable resources are its citizens. The foundation's symbol is the sidra tree, whose deep, solid roots reflect the foundation's regard for Qatari culture and whose fruits carry the seeds of hope for a better tomorrow.

Her Highness Sheikha Mozah Bint Nasser Al Missned serves as chairperson of Qatar Foundation and guides the nonprofit organization's programs and philosophies. Among those philosophies is a commitment to making Qatar a world-renowned center for higher learning.

To that end, Qatar Foundation's most visionary undertaking, Education City, was founded in 1997. The 2,500-acre complex outside of Doha, Qatar, boasts state-of-the-art facilities and a forward-thinking agenda that has enticed some of the world's top universities



to open branch campuses. In 2003, TAMUQ joined Virginia Commonwealth University School for the Arts and Weill Cornell Medical College in offering undergraduate degree programs at Education City. In 2004, Carnegie Mellon University came aboard, followed by Georgetown University in 2005 and Northwestern University in 2008, and negotiations with other institutions of higher learning continue. In addition, the Qatar Science & Technology Park, an extensive, state-of-the-art research complex, is providing opportunities for research partnerships between business, government, and academic institutions.

The missions of Education City are clearly defined: to prepare world-class graduates capable of assuming professional leadership positions in Qatar, throughout the Gulf region, and around the world, and to make Qatar a world leader in higher education and cutting-edge research. TAMUQ is proud to take part in achieving the goals of Qatar Foundation, which so closely resemble its own commitments to education and community service.

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# University Core Curriculum

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

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

## Specific Requirements

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In addition to the University Core Curriculum and degree-specific requirements, Texas A&M University at Qatar has criteria that must be met by all students in order to receive a degree. Please check the main campus online catalog at [www.tamu.edu/admissions/catalogs](http://www.tamu.edu/admissions/catalogs) for a more thorough outline of the courses that will meet each of the following requirements:

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

**Communication (6 hours):** A course used to satisfy this requirement shall have as its primary focus the improvement of student expression in communication. This focus on student expression should be demonstrated both in course instruction and assessment. Acceptable forms of student expression may range from creative to technical. Acceptable courses may include those embedded in subject areas other than writing. This requirement must be satisfied by ENGL 104 (3 hours) and an additional 3 hour course as specified in the degree plan.

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

**Mathematics (6 hours, at least 3 of which must be in mathematics).**



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

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

4. Knowledge of cultures and their ideals makes possible both social integration and self-realization.

**A. Humanities (3 hours):** Courses used to satisfy this requirement shall address one of the following subject areas: history, philosophy, literature, the arts, culture, or language (exclusive of courses devoted predominantly to acquiring language skills in a student's native language).

**B. Visual and Performing Arts (3 hours).**

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

**A. Social and Behavioral Sciences (3 hours):** Courses used to satisfy this requirement shall address one of the following subject areas: anthropology, economics, political science, geography, psychology, sociology, or communication.

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

6. As individual and national destinies become progressively more interconnected, the ability to survive and succeed is increasingly linked to the development of a more pluralistic, diverse, and globally aware populace. The list of available courses at the Qatar campus is limited, so please refer to a specific degree plan or consult an academic advisor about course options.

**International and Cultural Diversity (6 hours):** Refer to specific degree plans for courses that meet this requirement.

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

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

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# Degree Information

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## Which Catalog to Follow

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In meeting the requirements for a baccalaureate degree, a student is normally expected to complete the course and hour requirements as outlined in the catalog in effect at the time of his or her declaration of a major or change in major, or those of any later catalog of the student's choice. Normally, a student will not be granted a degree based upon completion of the requirements set forth in a catalog more than seven years old. Before changing catalogs, the student must consult his or her academic advisor. A student changes catalogs by filing a written notification with his or her dean. It is incumbent on the student to verify that the change has been made. Texas A&M University Student Rules (including periodic revisions) is the governing document in case of conflict between this catalog and Texas A&M University Student Rules. It is the responsibility of the individual student to read this information carefully and to use it as a reference. Please refer to the Web site [student-rules.tamu.edu](http://student-rules.tamu.edu) for this information.



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 or academic dean to identify another course that may be used to fulfill the requirement. Course substitutions in the academic degree program are permitted only with the approval of the academic dean through the program coordinator. Furthermore, the University reserves the right to make any changes in requirements it may consider necessary and desirable 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 academic degree requirements. Exceptions to certain requirements may be petitioned through the program coordinator to the academic dean of the college.

## Requirements for a Baccalaureate Degree

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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 Admissions and Records according to the schedule specified in the academic calendar, and has satisfied the requirements outlined in the following:

1. A curriculum leading to a baccalaureate degree shall contain a minimum of 120 credit hours including the required physical activity courses.
2. The undergraduate student must complete with at least a 2.0 grade point ratio all undergraduate coursework attempted at Texas A&M University at Qatar or College Station campuses (see item 6).
3. The undergraduate student must complete with a 2.0 grade point ratio all courses included in the major field of study (see item 7).
4. The student is required to successfully complete one semester of KINE 198 and one semester of KINE 199 (taken satisfactory/unsatisfactory except Health and Kinesiology majors), unless a substitution for this requirement is petitioned through the student's dean.
5. The undergraduate student must satisfy all areas of the University Core Curriculum as outlined in the student's catalog.
6. The total number of grade points earned at this institution in courses must be at least twice the number of hours the student carried in courses at this institution. Grades of F and U shall be included.
  - a. The number of credit hours associated with grades of S in courses taken on a satisfactory/unsatisfactory basis is not included in this computation.
  - b. The number of credit hours associated with grades of U in courses taken on a satisfactory/unsatisfactory basis is included in this computation.
  - c. With the approval of a student's dean, grades in courses not applying to the degree may be waived for the purpose of graduation only.
  - d. The waiver of grades in courses as indicated in item c will not affect the student's official grade point ratio or entitlement to graduation with honors.
  - e. The provisions of item c will not affect a student's probationary status prior to graduation.
7. The total number of grade points earned at this institution in courses in the student's major department must be at least twice the number of hours that he or she carried at this institution in his or her major department.
8. Grades made in courses elected in excess of a student's degree requirements shall be counted, but if failed, such courses need not be repeated.

9. First Year Grade Exclusion cannot be invoked after a baccalaureate degree has been conferred upon the student. First Year Grade Exclusion requests for degree candidates must be received in the Office of Admissions and Records not later than 4 p.m. the day midterm grades are due when the student is graduating in a fall or spring semester or not later than 4 p.m. Thursday of the third week of class for the second summer session when the student is graduating in August.
10. The student must be formally recommended for graduation by the Faculty Senate after consideration of his or her complete record.
11. The student must have settled all financial obligations to the University.
12. Graduation candidates who plan to attend a commencement ceremony must do so within the academic year they apply for graduation and complete the degree requirements.
13. To be a candidate for a degree at the end of the semester or summer term, a student must be registered for or have completed all degree requirements by the 50th class day in the fall and spring semesters, the 15th class day for summer I and the 35th class day for the 10-week summer term of the academic calendar of Texas A&M University at Qatar or College Station in residence or at another college or university, plus be formally admitted into a degree seeking program. Proof of registration must be provided to the Office of Admissions and Records by the deadline. In order to graduate from and participate in commencement at TAMUQ or TAMU a student must be admitted into a degree program at the respective campus.
14. Foreign Language: A year of foreign language is required in many degree programs from Texas A&M. This degree requirement can be satisfied by the satisfactory completion in high school of two units of the same foreign language or one year of college work.
  - a. International students are not permitted to enroll in courses to satisfy this degree requirement if those courses are taught in their native language.
  - b. 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. Please see your academic advisor for assistance.
  - c. 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 University at Qatar does not offer courses in ASL.)
15. All students must take at least two courses in their major that are designated as writing intensive (W). 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 Associate Dean for Academic Affairs. Upon request, students will provide the dean with a course description, syllabus, or writing sample from the course being transferred.

## Residence Requirement

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

To fulfill degree requirements for graduation that semester, transfer courses taken during a student's final semester must be completed and cited on an official transcript in the Office of Admissions and Records by the stated deadline.

Candidates will be expected to complete approximately the last two years in residence at this institution. Acceptance of transfer credit for engineering courses will generally be limited to those courses taught in the freshman and sophomore years at this institution.

## Requirement in Political Science (Government) and History

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

## Graduation Requirements in Foreign Language

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

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

### Notes:

1. International students are not permitted to enroll in courses which satisfy the foreign language requirement if those courses are taught in their native language.
2. Students who wish to demonstrate foreign language proficiency without taking acceptable high school or college courses may do so through the existing credit by examination process for the first two college courses in the foreign language.
3. American Sign Language (ASL) may be used to fulfill the foreign language requirement unless otherwise specified by the student's college or department. Students may either transfer ASL credits or arrange to be tested at another institution. (Texas A&M University at Qatar does not offer courses in ASL.)



## Application for a Degree

Formal application for degrees must be submitted by the deadline stated in the academic calendar and degree application. Under unusual circumstances, an application for a degree may be accepted after the stated deadline; however, no application will be accepted after grade sheets for graduating students have been produced for the faculty.

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

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

## 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 hours 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 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.

## Graduation with Honors

To be eligible for graduation with honors, a student seeking a baccalaureate degree must enroll in and complete a minimum of 60 undergraduate semester hours preceding graduation at this institution. Course credit received by examination and for graduate level courses is not included in this total. The grade point ratio of all college hours attempted, excluding transfer hours, must equal that required at Texas A&M University at Qatar for the appropriate category of honors.

Categories for honors shall be designated as follows:

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

No Upper Division student found guilty of academic misconduct may receive Cum Laude, Summa Cum Laude, or Magna Cum Laude honors at graduation. Upper Division status is defined as having earned 60 or more credit hours, including transfer hours, prior to the date of the violation. This sanction is automatic upon a finding of academic misconduct and is imposed without regard to the severity of other sanctions imposed by the instructor or Honor Council.



## Programs of Study at Texas A&M University at Qatar

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Texas A&M University's Dwight Look College of Engineering strives to provide its students with a high-quality education that will prepare them for a wide range of careers at the forefront of the engineering field. The curriculum is designed to accomplish this by closely integrating cutting-edge basic and applied research with innovative classroom instruction. Texas A&M University's engineering programs are routinely ranked among the best in the United States, and graduates are highly sought after to provide leadership and innovative solutions to global challenges.

Our faculty members maintain active research programs in a wide range of areas. In addition, our undergraduate students participate in numerous co-op and internship programs, which give them the opportunity to apply their knowledge to real problems in a variety of settings.

At Texas A&M University at Qatar, engineering students take courses in the fundamental disciplines—mathematics, sciences, and liberal arts—that will prepare them for the rigorous technical training that follows. This training is dedicated to specialized studies in one of the four engineering fields offered at the Qatar campus. After completing intensive, demanding coursework and practical experience, students are ready to step into their professional fields and make immediate, meaningful contributions.

### Chemical Engineering

Chemical engineers are concerned with the application of knowledge gained from basic sciences and practical experience to the development, design, operation, and management of plants and processes for economical and safe conversion of chemical raw materials to useful products. Because chemical engineering is the most broadly based of all engineering disciplines, the chemical engineer is in great demand in diverse technical and supervisory areas in a wide variety of industries, and has consistently commanded one of the highest starting salaries of all college students.

In addition to dominating the extensive chemical, petroleum, and petrochemical industries, for which Qatar and the rest of the Middle East is one of the world's leading regions, chemical engineers are leaders in such areas as food and pharmaceutical processing, biochemical and biomedical engineering, pollution control and abatement, polymers and plastics, ceramics and other advanced materials, corrosion, automation and instrumentation, aerospace materials, computer technology and data processing, safety, environmental control, and many others.

Visit the Chemical Engineering Program's Web site at [www.qatar.tamu.edu/chen](http://www.qatar.tamu.edu/chen).

## Electrical Engineering

Electrical engineers develop and apply the theories of electricity, electronics, and electromagnetics to analyze and design a variety of systems in such diverse fields as telecommunication, electric energy, computers, and automatic control and instrumentation, as well as consumer and entertainment electronics. Examples of such systems are cell phones, satellite communication, television, radar, global positioning systems, computers, and magnetic resonance imaging (MRI) systems, as well as sophisticated domestic appliances. The devices that practicing electrical engineers work with and design include modems, antennas, motor drives, digital systems, microprocessors, and integrated circuits that are the heart of almost any current system, including automotives, washers and dryers, etc.

The curriculum is designed to prepare the undergraduate student for work in the highly diverse electrical engineering profession. A solid foundation in physics, chemistry, and mathematics is used to support courses in the fundamentals of electrical engineering. The use of computers is integrated throughout the curriculum, and basic studies during the sophomore and junior years in analog and digital circuits, signals and systems, electronics, electromagnetic fields, and computer architecture lead to two tracks of electives in the senior year. The power track is designed to train students in the theory and techniques related to power electronics and power systems. The communication track is designed to prepare students to address challenges in the area of digital wired and wireless communication systems. Both tracks have similar requirements and provide an educational experience that is broad based and rigorous. Laboratory work throughout the curriculum and within both tracks is structured to first familiarize the student with the basic concepts and then to apply these concepts to engineering problems.

Visit the Electrical Engineering Program's Web site at [www.qatar.tamu.edu/ecen](http://www.qatar.tamu.edu/ecen).

## Mechanical Engineering

Mechanical engineering at Texas A&M University at Qatar (TAMUQ) challenges students and helps them to develop their full creative potential. TAMUQ's programs has three main areas: thermal-fluid sciences, systems and controls, and materials and manufacturing. The courses taken in these areas enable students to develop the technical tools and skills required for enhancing the design process. The education is broad and supports students being able to choose a variety of opportunities.

Mechanical engineers according to ABET, an engineering education accreditation organization, apply principles of engineering, basic science, and mathematics to model, analyze, design, and realize physical systems, components or processes; and work professionally in both thermal and mechanical systems areas. Mechanical engineering is a diversified profession because all industries, including oil and gas industries, chemical industries, and building environments, need mechanical engineers for designing, maintaining, testing, and managing operations. In addition to industry, mechanical engineers may work for governmental and consulting organizations.

The mission of the Mechanical Engineering program is to serve the students of Texas A&M University at Qatar and the State of Qatar by:

- Providing quality education, well grounded in the fundamental principles of engineering, to prepare students for leadership positions and successful careers in industry, government, and academia.
- Extending the knowledge base of mechanical engineering to support the competitiveness of existing industry and to spawn new economic development in the State of Qatar and the region through active involvement in basic and applied research.
- Providing professional development opportunities for practicing engineers through continuing education, service, and outreach activities.

For more information visit the Mechanical Engineering Program's Web site at [meen.qatar.tamu.edu](http://meen.qatar.tamu.edu).

## Petroleum Engineering

Petroleum engineering is primarily concerned with the economic extraction of oil, gas, and other natural resources from the earth. This is accomplished through the design, drilling, and operation of wells and well systems, and the integrated management of the underground reservoirs in which the resources are found.

The goal of the curriculum in petroleum engineering at Texas A&M University at Qatar is to provide a modern engineering education with proper balance between fundamentals and practice, and to graduate engineers prepared for life-long learning but capable of being productive contributors immediately. As a result, Aggie petroleum engineers are in high demand in the industry.

Visit the Petroleum Engineering Program's Web site at [pete.qatar.tamu.edu](http://pete.qatar.tamu.edu).



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# Admission

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## Application Information

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The application for undergraduate admission may be found at [admissions.qatar.tamu.edu](http://admissions.qatar.tamu.edu). Additional information may be obtained by calling +974 (423-0043) or by visiting the Office of Admissions and Records at the Engineering Building located in Education City, Doha, Qatar. The admission guidelines found in this catalog are subject to change. The most current information is available on the Web site or by calling the number listed above.

## Candidacy Requirements

The Texas A&M University Dwight Look College of Engineering is considered one of the world's premier programs, with globally recognized faculty renowned for their teaching and research excellence. Admission into the program is open to freshman and transfer candidates, and is highly competitive and selective. Therefore, Texas A&M University at Qatar is seeking candidates who have a proven record of academic achievement and who merit admission into the program. Only the best-qualified candidates will be admitted, so it is important that the application reflect what you have accomplished in your college preparatory schooling.

Entry into the Texas A&M University at Qatar program depends upon completion of the entire application, submission of the required supporting documents and college entrance test results, placement tests, and an interview conducted by members of the Texas A&M University at Qatar Admissions Board if applicable. All of these requirements determine admittance. Texas A&M University at Qatar seeks candidates who are committed to meeting the academic rigors of the program, who are global in their personal perspective, and who will thrive in a diverse and culturally rich environment.

The admission guidelines here are for admission to the fall 2009 and spring and summer 2010 semesters. While they are the best guide available, admission criteria are subject to change.



## Types of Admission and Application Calendars

Definition	Application Calendar		
At the Time of Application	Term	Opening Date	Closing Date
<b>Freshman</b> An applicant who: <ul style="list-style-type: none"> <li>• is a degree-seeking applicant and is without university credit</li> </ul> <b>or</b> is still in high school, with or without university credit <i>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.</i>	Fall 2010 or Fall 2011	Sept. 1, 2009 Sept. 1, 2010	March 1, 2010 March 1, 2011
<b>Transfer</b> An applicant who: <ul style="list-style-type: none"> <li>• is a degree-seeking applicant</li> <li>• has graduated from high school or equivalent</li> <li>• has enrolled in a post-secondary institution after graduation from high school</li> <li>• does not have a bachelor's degree</li> <li>• does not qualify for readmission</li> </ul>	Spring 2010, Fall 2010, or Fall 2011	Oct. 1, 2009 Nov. 1, 2009 Nov. 1, 2010	Nov. 15, 2009 April 1, 2010 April 1, 2011
<b>Readmission</b> An applicant who: <ul style="list-style-type: none"> <li>• is a former degree-seeking Texas A&amp;M undergraduate student (including an international student)</li> <li>• does not have a bachelor's degree</li> <li>• did not officially register for the previous semester (excluding summer sessions) at Texas A&amp;M</li> </ul> Readmission does not include applicants whose only previous enrollment at Texas A&M has been as a non-degree student.	Contact the Office of Admissions and Records		
<b>Transient</b> An applicant who: <ul style="list-style-type: none"> <li>• is a non-degree seeking applicant</li> <li>• is a high school graduate</li> <li>• may be enrolled in a post-secondary institution</li> <li>• has not been denied admission to TAMUQ</li> </ul>	Contact the Office of Admissions and Records		
<b>Postbaccalaureate Undergraduate</b> An applicant who: <ul style="list-style-type: none"> <li>• has a bachelor's degree</li> <li>• wishes to pursue a second undergraduate degree</li> </ul>	Contact the Office of Admissions and Records		
<b>Graduate</b> An applicant who: <ul style="list-style-type: none"> <li>• wishes to enroll in master's degree program</li> <li>• has completed an undergraduate degree</li> </ul>	Contact the Office of Admissions and Records		

## Items Necessary to Complete an Application File

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An application is reviewed to make a decision about admission only after all items listed in this section have been received. The items must be received by the appropriate closing date to assure consideration (please see [page 29](#)).

### Definition of a Complete Freshman Application

To be considered a candidate for freshman admission to Texas A&M University at Qatar, the prospective student must formally apply by submitting all of the required documents and test scores and meeting all of the admission requirements. The information provided in this section of the catalog will help guide the candidate through the admission process. Candidates must submit all of the following information by the admission deadline to be considered for admission:

1. Completed application
2. Passport copy (resident permit if required)
3. Official high school/secondary school transcript
4. Official college/university and/or Academic Bridge Program transcripts
5. Official test scores
6. Essay
7. Resume/CV
8. Personal reference form
9. Application fee

### Notification of Application Status

Check the Office of Admissions and Records Web site at [applicant.tamu.edu](http://applicant.tamu.edu) to verify your application has been received and to determine if any credentials are missing. Please allow two weeks to process credentials.

The Office of Admissions and Records will make every effort to inform applicants of incomplete files through the applicant Web site. If incomplete applications are received within one month of the closing date, there may not be sufficient time for the Office of Admissions and Records to notify applicants. All items necessary to complete an application must be received by the Office of Admissions and Records by the closing date to assure consideration for admission.

## Specific Admission Requirements

### 1. Completed Application

An application for Texas A&M University at Qatar can be found at [admissions.qatar.tamu.edu](https://admissions.qatar.tamu.edu).

### 2. Passport

Submit a legible copy of the candidate's passport and resident permit if required.

If the candidate is a non-Qatari and resides in Qatar, the candidate must submit a copy of the passport's resident permit page.

### 3. Official High School Transcript or an Official Completion Document from a Secondary School Program

Candidates who have not graduated from high school or who have not completed a secondary school program at the time of application are to submit a current official transcript listing coursework taken, credit earned, and, if calculated by the school, the respective class rank, all an indication of the candidate's academic preparation.

Candidates who apply and are admitted prior to having graduated from high school or having completed their final year of secondary school must submit an official transcript that indicates the graduation or completion date prior to the first day of class in order to remain eligible to enroll.

Candidates who have graduated at the time of application are to submit an official high school or secondary school program transcript that includes coursework, credits earned, grades and class rank, and date of graduation.

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. Candidates who have attended high schools in more than one country should submit official transcripts from each school attended.

Fax copies will not be considered official.

### 4. Official College and/or Academic Bridge Program (ABP) Transcripts

Official transcripts are required for candidates who have attended or are currently attending the ABP, colleges or universities.

Evaluation of college and university transcripts for transfer credit will only occur if the colleges and universities attended are accredited by accreditation organizations recognized by Texas A&M University. (Refer to the Transfer Admission section of this catalog.)

## 5. Official Test Scores

Either the SAT or ACT examination is required for admission consideration.

Priority consideration will be given to candidates who achieve a competitive test score in all sections of either examination. It is expected that all sections of these examinations will be given full attention.

A TOEFL score of 550 or higher, a computer-based score of 213 or higher, an IBT TOEFL score of 80 or higher, or an IELTS overall band score of 6.0 or higher is considered competitive. (In lieu of TOEFL or IELTS, University officials may consider as a substitute an SAT critical reading score of 480 or higher or an ACT English score of 19 or higher.) Candidates whose native language is English do not have to submit TOEFL scores.

TOEFL and IELTS test scores must be from a test date within two years of the planned date of enrollment. SAT scores must be from a test date within five years of the planned date of enrollment.

All test scores must be sent directly from the testing agency.

## 6. Essay

An essay is a required element of the application form. The essay is designed to give the candidate the opportunity to present his or her uniqueness, special skills, and challenges faced, or other considerations that will provide us with an insight into the candidate.

## 7. Resume/CV

In resume form, the candidate should document academic and non-academic accomplishments, achievements, and recognitions. These areas include extracurricular activities, leadership roles, community service, awards, talents, sports, and employment.

## 8. Personal Reference Form

Two personal reference forms must be completed and submitted by officials from your graduating high school. The forms can be found online at the Texas A&M University at Qatar Web site.

## 9. Application Fee

QR275, or \$75 USD, payable to Texas A&M University at Qatar.

The application fee is non-refundable. Applicants have the option to pay online.

All items necessary to complete the application should be sent to:

Office of Admissions and Records  
Texas A&M University at Qatar  
Education City  
P.O. Box 23874  
Doha, Qatar

## Preferred Preparatory Coursework

The following list shows recommended minimum courses. Most candidates who are offered admission will have taken full advantage of the most challenging courses offered at their high school or secondary school program.

- 4 years of mathematics to include Algebra, Geometry, Algebra II, and an advanced mathematics course, with Calculus being the preferred subject.
- 4 years of science in Biology, Chemistry, and Physics.
- English language preparatory courses indicating a high proficiency of understanding course content and concepts taught in the English language.

## Definition of a Freshman

A freshman is defined as a degree-seeking applicant who has not attended a university prior to entrance into the program, or an applicant who is still in high school or in a secondary school program who may have taken university courses and received college credits as an element of the secondary school curriculum or requirements. If an applicant has enrolled in a foundation program at a college or university, he/she is still considered to be a freshman. If an applicant has enrolled in a foundation program at a college or university, he/she is still considered to be a freshman for the purpose of admission.



## Placement Tests

Texas A&M University at Qatar will administer placement tests to admitted students. Each accepted student will be required to participate in English and math placement exams. Details regarding the exams will be provided once a student has committed to the University.

## Application Calendar and Notification

Application to Texas A&M University at Qatar usually occurs from September 1 through March 1. Priority consideration will be given to those candidates who submit a completed application early. Failure to meet the application deadline will disqualify the applicant from admission.

Candidates will be notified of acceptance once all interviews have been conducted and admission decisions are made, which is usually in May. New Student Orientation will occur the week prior to the start of classes, with dates to be announced, and attendance is mandatory for those admitted. Classes normally start in August.

Candidates admitted to Texas A&M University at Qatar will be notified by telephone or email, followed by a written admission confirmation letter mailed to the student's home address or collected at the Office of Admissions and Records. Candidates denied admission will be notified by postal correspondence to the permanent address specified on the application for admission.

## When to Apply

Students currently enrolled in a high school or secondary school program who wish to be considered for admission to Texas A&M University at Qatar should apply while in their senior or final year of their high school or secondary school program. Candidates are strongly encouraged to take the necessary college entrance examinations before the beginning of their final year in high school or secondary school.

## Suspected Fraudulent Admission Applications

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Applicants for admission to Texas A&M University at Qatar should be aware that the information submitted will be relied upon by University officials to determine their status for admission and citizenship. 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 University officials. Submission of false or incomplete information is grounds for rejection of the application, withdrawal of any offer of acceptance, cancellation of enrollment, or other appropriate disciplinary action.

Any University official who suspects that a prospective student or enrolled student has submitted a fraudulent admission application must notify the Director of Admissions and Records.

## Transfer Admission

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Transfer admission will be considered if the applicant has a successful record of proven academic rigor from a university whose accreditation is recognized by Texas A&M University. Candidates wishing to transfer to Texas A&M University at Qatar should have completed 24 transferable hours at the time of application and must have at least a 2.5 grade point average. Candidates 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 the essay, is considered in reviewing the transfer applicant for admission. Candidates with less than 24 transferable hours are required to meet the freshman and transfer admission requirements. Only the most qualified transfer candidates will be admitted. For more transfer admission information, please visit the Web site at [admissions.qatar.tamu.edu](https://admissions.qatar.tamu.edu).

### Definition of a Complete Transfer Application

To be considered a candidate for transfer admission to Texas A&M University at Qatar, the prospective student must formally apply by submitting all of the required documents and meeting all of the admission requirements. The information provided in this section of the catalog will help guide the candidate through the admission process. Candidates must submit all of the following information by the admission deadline to be considered for admission:

1. Completed application
2. Passport copy (resident permit if required)
3. Official college/university and/or Academic Bridge Program transcripts
4. Official test scores
5. Essay
6. Resume/CV
7. Application fee

More detailed information can be found on [page 31](#).

## Transfer Course Credit Policies

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

The transfer of course credit will be determined by the Office of Admissions and Records on a course-by-course basis. Credit submitted for transfer must be on an official transcript received by the Office of Admissions and Records from the appropriate official at 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 criteria as specified below.

- a. The credit earned must be from a university whose accreditation is recognized by Texas A&M University. Non-engineering courses will transfer if they were taken at one of the six regionally accredited associations in the U.S.A. or at a post-secondary university approved by the Ministry of Education at an international institution or upon review and approval from the respective academic program at Texas A&M University at Qatar. Engineering courses will transfer only from ABET accredited colleges or universities.
- b. A course that is normally considered as part of the bachelor's degree may be transferred if:
  - i. The course is applicable to the selected degree at Texas A&M University at Qatar.
  - ii. The course is similar to a course or courses offered for degree credit at Texas A&M University.
  - iii. The course content is at or above the level of the beginning course in the subject matter offered by Texas A&M University.
- c. A course that is intended for use in a vocational, technical, or occupational program will not transfer.
- d. Credit for support courses such as math, science, and English intended specifically in an occupational program will not transfer.
- e. Credit for the course must be indicated on the official transcript in semester hours or in units that are readily converted to semester hours.
- f. A graduate-level course will not transfer for undergraduate credit unless approved for use in the student's undergraduate degree program by the student's major department and campus dean.
- g. Credit by examination courses which are listed on the transcript by another recognized university may transfer if sequential coursework 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.



- h. Courses similar to ones offered by the College of Engineering 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 academic program coordinator and academic dean. Validation of such credit, either by examination or the completion of a higher level course, may be required.
- i. A field experience or internship may be transferred by title only.
- j. Credit for cooperative education will not transfer.
- k. A course that is substantially equivalent to a Texas A&M University 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 Texas A&M University at Qatar academic program or Texas A&M University department offering the course subject matter will be asked to determine if the course is equivalent.
- l. As a general policy, credit for admission will be given for transfer work satisfactorily completed with a passing grade at another university whose accreditation is recognized by Texas A&M University at Qatar.
- m. If deemed transferable only the course and the credit will transfer, but the grade earned for the course will not be calculated into the grade point ratio (GPR) of Texas A&M University at Qatar coursework.

- n. Grade Point Ratio (GPR) for any period shall be computed by dividing the total number of semester hours of transferable courses for which the student received grades into the total number of grade points earned in that period. Credit hours to which grades equivalent to Texas A&M University at Qatar grades of W, WF, F, I or U are assigned shall be included; those having grades equivalent to Texas A&M University at Qatar grades of WP, Q, S, X and NG shall be excluded.
- o. In any case where a decision cannot be made using the above criteria, the Office of Admissions and Records at the main campus in College Station, Texas, will determine the transfer of credit based on University policy, previous actions of the University, and prior experience.
- p. No English composition courses will transfer from institutions located in non-English speaking countries.
- q. American history and American political science (government) courses will not transfer from foreign institutions.

### **Credit from International Institutions**

Transfer work from institutions following other than the United States educational system with instruction in English will be evaluated on an individual basis. 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 in an international institution offering programs recognized by Texas A&M University at Qatar. Official credentials submitted directly from the Office of the Registrar and a listing of courses completed and grades awarded must accompany any request for transfer credit. Transfer work will be awarded by course title unless previous arrangements have been made using the Texas A&M University Study Abroad Transfer Credit Agreement Form or the course has been evaluated and approved as transferable to Texas A&M University at Qatar. Courses must be equivalent in character and content to courses offered at Texas A&M University at Qatar.

### **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.

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

- obtain advance written permission from the Associate Dean for Academic Affairs and
- present appropriate evidence of having completed the course.

## **Additional English Proficiency Requirements for Admitted Undergraduate Students Whose Native Language Is Not English**

The criteria for admission into Texas A&M University at Qatar differs slightly for those students whose native language is not English. These applicants must demonstrate the ability to speak, write, and understand the English language. Undergraduate students may meet this requirement in one of the following ways:

1. Have an official TOEFL score of 600 paper-based test, 250 computer-based test, or 100 internet-based test;
2. Have an official IELTS score of 7.0 overall band;
3. Have an official SAT Verbal score of 480 or ACT English score of 19;
4. 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
5. Achieve English Language Proficiency Verification by taking an English language proficiency or placement examination prior to enrolling for the first semester at Texas A&M University at Qatar. (If foundation English is required, the student will be enrolled in a pre-university English course, which may increase the time required to complete a degree.)



## Course Credit

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Undergraduate students at Texas A&M University at Qatar may earn credit 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 (GPR). The University awards credit for scores on certain tests published by the Advanced Placement Program (AP), the College Level Examination Program Computer-Based Testing (CLEP CBT), the SAT Subject Tests, and the International Baccalaureate (IB) Program. Although limited, Texas A&M University at Qatar 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 Academic Services Office.

Please note these regulations concerning credit by examination:

1. Test scores and/or credit eligibility must be formally reported to the Office of Admissions and Records for credit by examination to be awarded. Credit is posted to the academic record once appropriate scores are received and the student has officially enrolled in the University.
2. Students may not receive credit by examination for courses that are prerequisites to courses for which they already have credit except with the approval of the department authorizing the examination.
3. A student may not have credit posted for credit by examination for a course in which 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.
4. Taking a course through to completion removes eligibility for credit by examination. Students who accept credit by examination in a course and later take that course (or equivalent course) will have credit by examination removed from their records following completion of the course. First-year grade exclusion does not restore eligibility for credit by examination.

## Advanced Placement Program (AP)

Examinations offered by the AP are administered during late spring by high schools. Students usually take the examinations after completing Advanced Placement courses, although experience in an AP course is not required. Interested students should contact their high school counselors for information concerning registration and test sites. High school students and currently enrolled students should have the College Board forward their scores to the Office of Admissions and Records at Texas A&M University at Qatar. Advanced Placement scores of entering freshmen are generally received in late July.

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

AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Art History	4	ARTS 149, 150	6
Biology	4	BIOL 111, 112	8
Calculus AB	4*	MATH 151	4
Calculus BC	3*	MATH 151	4
	4*	MATH 151, 152	8
Chemistry	3	CHEM 101	4
	4	CHEM 101, 102	8
Comparative Governments	4	POLS 329	3
Computer Science A	4	CSCE 110	4
Computer Science AB	4	CSCE 110	4
Economics: Macroeconomics	4	ECON 203	3
Economics: Microeconomics	4	ECON 202	3
English Lang. and Comp.	3	ENGL 104	3
	4	ENGL 104, 241	6
English Lit. and Comp.	3	ENGL 104	3
	4	ENGL 104, 203	6
Environmental Science	3	GEOS 105	3
European History	4	HIST 102	3
French Language	3	FREN 101, 102	8
	4	FREN 101, 102, 201	11
	5	FREN 101, 102, 201, 202	14
German Language	3	GERM 101, 102	8
	4	GERM 101, 102, 201	11
	5	GERM 101, 102, 201, 202	14
Human Geography	3	GEOG 201	3
Italian Language	3	ITAL 101, 102	8
	4	ITAL 101, 102, 201	11
	5	ITAL 101, 102, 201, 202	14
Latin: Literature	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221, 222	14
Latin: Vergil	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221, 222	14

AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Music Theory	4	MUSC 102	3
Physics B	3	PHYS 201, 202	8
Physics C: Mechanics	3 <sup>†</sup>	PHYS 201 or 218	4
Physics C: Elect. and Magnetism	3 <sup>†</sup>	PHYS 202, 208 or 219	4
Psychology	3	PSYC 107	3
Spanish Language	3	SPAN 101, 102	8
	5	SPAN 101, 102, 201	11
Spanish Literature	3	SPAN 202	3
	5	SPAN 202, 320	6
Statistics	3	STAT 301, 302 or 303	3
Studio Art: Drawing Portfolio	4	ARTS 103, 111	6
Studio Art: 2D	4	ARTS 103, 111, 112	9
U.S. Government and Politics	3	POLS 206	3
U.S. History	4	HIST 105, 106	6
Visual Arts	5	ARTS 103	3
World History	4	HIST 104	3

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

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



## 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.

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

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

### Dantes Subject Standardized Tests (DSST) Program

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

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

### International Baccalaureate (IB)

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

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

Texas A&M University will notify IB applicants of their eligibility to receive credit by posting information on the Web site [www.tamu.edu/mars/testingsite/HTMLfiles/highschool.htm](http://www.tamu.edu/mars/testingsite/HTMLfiles/highschool.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.

**International Baccalaureate (IB)  
Entering Freshman Class—Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Biology SL	4 w/diploma	BIOL 113/123	4
Biology HL	4	BIOL 111	4
	5	BIOL 111, 112	8
Business Management SL	4 w/diploma	MGMT 309	3
Business Management HL	4 w/diploma	MGMT 309	3
Chemistry SL	4 w/diploma	CHEM 106/116	4
Chemistry HL	4	CHEM 101	4
	5	CHEM 101, 102	8
Chinese: Language A or B SL	4 w/diploma	CHIN 101	4
	5 w/diploma	CHIN 101, 102	8
Chinese: Language A or B HL	4	CHIN 101, 102	8
	5	CHIN 101, 102, 201, 202	14
Computer Science SL	4 w/diploma	CSCE 111	4
Computer Science HL	4	CSCE 111	4
Economics SL	4 w/diploma	ECON 203	3
Economics HL	4	ECON 203	3
English: Language A SL	4 w/diploma	ENGL 104	3
English: Language A HL	4	ENGL 104	3
	5	ENGL 104, 222	6
Environmental Systems	4	GEOS 105	3
French: Language A or B SL	4 w/diploma	FREN 101	4
	5 w/diploma	FREN 101, 102	8
French: Language A or B HL	4	FREN 101, 102	8
	5	FREN 101, 102, 201, 202	14
Fundamentals of Music	5	MUSC 102, 202	6
Further Mathematics SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Geography SL	4 w/diploma	GEOG 201	3
Geography HL	4	GEOG 201	3
German: Language A or B SL	4 w/diploma	GERM 101	4
	5 w/diploma	GERM 101, 102	8
German: Language A or B HL	4	GERM 101, 102	8
	5	GERM 101, 102, 201, 202	14

**International Baccalaureate (IB)  
Entering Freshman Class—Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
History HL			
Africa	4 w/diploma	HIST 289	3
Americas	4 w/diploma	HIST 105	3
	5 w/diploma	HIST 105, 106	6
E & SE Asia and Oceania	4 w/diploma	HIST 289	3
Europe	4 w/diploma	HIST 102	3
South Asia & Middle East	4 w/diploma	HIST 289	3
History SL			
Islamic History	4 w/diploma	HIST 289	3
Info. Tech. in a Global Society SL	4 w/diploma	PHIL 205	3
Info. Tech. in a Global Society HL	4	PHIL 205	3
Italian: Language A or B SL	4 w/diploma	ITAL 101	4
	5 w/diploma	ITAL 101, 102	8
Italian: Language A or B HL	4	ITAL 101, 102	8
	5	ITAL 101, 102, 201, 202	14
Japanese: Language A or B SL	4 w/diploma	JAPN 101	4
	5 w/diploma	JAPN 101, 102	8
Japanese: Language A or B HL	4	JAPN 101, 102	8
	5	JAPN 101, 102, 201, 202	14
Mathematics SL	4	MATH 150	4
Mathematics HL	4	MATH 150	4
	5	MATH 150, 151*	8
Mathematical Methods SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Mathematical Studies SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Music SL	4 w/diploma	MUSI 201	3
Music HL	4	MUSI 201	3
Other Languages SL	4 w/diploma	MODL 289	4
	5 w/diploma	MODL 289	8
Other Languages HL	4	MODL 289	8
	5	MODL 289	14
Philosophy SL	4 w/diploma	PHIL 251	3
Philosophy HL	4	PHIL 251	3
Physics SL	4 w/diploma	PHYS 205	4
Physics HL	4	PHYS 201, 202	4

**International Baccalaureate (IB)  
Entering Freshman Class—Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Psychology SL	4 w/diploma	PYSC 107	3
Psychology HL	4	PYSC 107	3
Social and Cultural Anthropology SL	4 w/diploma	ANTH 210	3
Social and Cultural Anthropology HL	4	ANTH 210	3
Spanish: Language A or B SL	4 w/diploma	SPAN 101	4
	5 w/diploma	SPAN 101, 102	8
Spanish: Language A or B HL	4	SPAN 101, 102	8
	5	SPAN 101, 102, 201, 202	14
Theater Arts SL	4 w/diploma	THAR 101	3
Theater Arts HL	4	THAR 101	3
Visual Arts SL	4 w/diploma	ENDS 101	3
Visual Arts HL	4	ENDS 101	3

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



SAT Subject Tests

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

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

\* The minimum score required is based on the recentered scale. Students who took tests before April 1, 1995, should contact Measurement and Research Services to determine the minimum score required.

Departmental Examinations for Entering Freshmen and Currently Enrolled Students

Qualified entering freshmen may take departmental tests after being officially admitted into Texas A&M University at Qatar. Currently enrolled students can also take the exams throughout the year. The tests are prepared by participating departments. Current offerings include:

CHEM 101/111	PHYS 201
CHEM 102/112	PHYS 202
CHEM 107/117	PHYS 208
MATH 151	PHYS 218
MATH 152	PHYS 219

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# Registration and Academic Status

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Registration for the fall and spring semesters is accomplished prior to the beginning of each entering semester with approval from either the academic advisors or faculty. An online preregistration period will be held for currently enrolled and readmitted students to register for the next semester. New Student Orientation serves 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 the Office of Admissions and Records. The schedule of classes is available online.

## 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, or 8 hours in an 8-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 Qatar can be used toward certification of enrollment.

## Undergraduates Registering for Graduate Courses

A senior undergraduate student with a cumulative grade point ratio of at least 3.0 or approval of his/her academic dean is eligible to enroll in a graduate course and reserve it for graduate credit by filing a petition obtained from the academic advisor and approved by the course instructor, the student's major program coordinator, and the Associate Dean for Academic Affairs.

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

## Maximum Schedule

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

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

Code	Classification Definition
U0	<p><b>Undergraduate Non-degree</b></p> <p>Students who are admitted to the Aggie Opportunity Program or 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&amp;M University at Qatar. This includes:</p> <ul style="list-style-type: none"><li>i. Transient students during the fall, spring or summer</li><li>ii. Cross registered students from Education City institutions</li><li>iii. Others as may be deemed appropriate by the Office of Admissions and Records</li></ul> <p>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.</p> <p>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.</p> <p>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, submission of all required credentials, and meeting of all admission requirements.</p> <p>An undergraduate non-degree student may not take graduate-level coursework.</p> <p>Undergraduate non-degree students are subject to English proficiency requirements.</p> <p>An undergraduate non-degree student does not qualify for financial aid or scholarships through the University.</p> <p>With few exceptions, undergraduate non-degree status is not available to international students.</p>
U1	<b>Freshman 0–29 hours</b>
U2	<b>Sophomore 30–59 hours</b>
U3	<b>Junior 60–89 hours</b>
U4	<b>Senior 90+ hours</b>

Code	Classification Definition
U5	<p><b>Postbaccalaureate Undergraduate</b></p> <p>Students with a recognized baccalaureate degree who wish to complete requirements for a second baccalaureate degree at Texas A&amp;M University at Qatar or to complete established Texas A&amp;M University at Qatar certification requirements.</p> <p>The postbaccalaureate undergraduate classification (U5) has all the privileges and responsibilities of a senior classification (U4).</p> <p>Recipients of a Texas A&amp;M University at Qatar 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 readmission as second bachelor's degree candidates.</p> <p>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. 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.</p>

## Academic Status

### Distinguished Student and Dean's Honor Roll

An undergraduate student who completes a semester schedule of at least 15 hours or a summer session schedule of at least 12 hours with no grade lower than C and with a grade point ratio of not less than 3.5 for the semester or for a summer session shall be designated "distinguished student." A student who, under the same circumstances, achieves a grade point ratio of at least 3.75 shall also be designated as a member of the "dean's honor roll." First semester freshmen must complete a semester schedule of at least 15 hours with no grade lower than a C, no Q-drops, and a grade point ratio of not less than 3.5 for "distinguished student" designation and a 3.75 for "dean's honor roll." Official notification of these designations will be issued to the student by the dean of the student's college. The hours earned with a grade of S shall not be included in determining minimum hours required for the designation of "distinguished student" or "dean's honor roll." A grade of I or U disqualifies a student from being considered as a "distinguished student" or for the "dean's honor roll." Students who use grade exclusion must still meet the minimum of requirements in hours and grades to qualify for the appropriate honors. Grades of Q, W, and NG may not be included in the 15 graded hours. Only undergraduate courses or graduate courses used for the undergraduate degree will be used in either honors calculation.

## Scholastic Probation

Scholastic probation is a conditional permission for an undergraduate student to continue in the University after he or she has become scholastically deficient. For University policy regarding scholastic deficiency and scholastic probation, see the Texas A&M University Student Rules at [student-rules.tamu.edu](http://student-rules.tamu.edu).

## Withdrawal from the University

A student wishing to withdraw from the University before the completion of a semester or summer term is required to comply with the official withdrawal procedure. This process is initiated with the academic dean. Students may not withdraw after the Q-drop deadline. The academic dean retains 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
  - 8-week summer semester
2. If the student is currently enrolled in the 8-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 after the first class day, but before the Q-drop deadline, the Office of Admissions and Records assigns a grade of **W** to all courses enrolled in that semester. Any courses previously graded for that semester are changed to **W**, and the **W** grades are displayed on the permanent record.

## Correct Addresses

It is necessary to have a correct permanent residence address on file with the University. Students may change their address by completing a form in the Office of Admissions and Records. International students must have a correct physical and permanent address. The University assumes no obligation for failure of a student to receive communications if the student has not kept the address current.

Texas A&M University at Qatar uses email for official communications with currently enrolled students. It is each student's responsibility to check their email periodically.

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# Honor Code and Grading System

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## Aggie Honor System Code

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Integrity is a fundamental core value of Texas A&M University at Qatar. Academic integrity requires a commitment by all faculty, students, and administrators to:

- Remain constantly focused on the quality of our academic programs,
- Achieve and maintain academic excellence in all courses and programs to assure the value of Texas A&M degrees, and
- Demand high academic standards from all members of the Aggie community.

All Texas A&M University at Qatar students, graduate and undergraduate, part-time or full-time, in residence or in distance education, are expected to follow the guiding rule of the Aggie Honor Code:

**“An Aggie does not lie, cheat, or steal or tolerate those who do.”**

Upon accepting admission to Texas A&M University at Qatar, a student immediately assumes a commitment to uphold the honor code, to accept responsibility for learning, and to follow the philosophy and rules of Texas A&M University at Qatar. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the Texas A&M community from the requirements or the processes of the academic integrity policy.



# Grades

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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 two weeks of a semester and during the first week of a summer term.

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

A	Excellent, 4 grade points per semester hour
B	Good, 3 grade points per semester hour
C	Satisfactory, 2 grade points per semester hour
D	Passing, 1 grade point per semester hour
F	Failing, no grade 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 for and repeating the course in class. The original grade will remain on the student's permanent record, and both grades will be used in computing the GPR. An F or U previously made is not removed once the course is passed. Credit for each repeated course may only be used once toward degree requirements.

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



### First Year Grade Exclusion Policy

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

The first year grade exclusion option may be used by current “first time in college” freshmen for courses taken in the twelve months beginning with their initial enrollment at Texas A&M University at Qatar. Sophomores, juniors, and seniors also may use the exclusions for courses taken in their first twelve months as “first time in college” freshmen, dating from initial enrollment. All courses chosen for first year grade exclusion shall remain on the official transcript and be designated on the transcript as excluded.

First year grade exclusion cannot be invoked after a baccalaureate degree has been conferred upon the student. First Year Grade Exclusion requests for degree candidates must be received by his/her academic advisor not later than 4 p.m. the day midterm grades are due when the student is graduating in a fall or spring semester or not later than 4 p.m. Thursday of the third week of class for the second summer session when the student is graduating in August.

For additional information, please see the Office of Admissions and Records or [student-rules.tamu.edu](http://student-rules.tamu.edu).

\* First time in college: an undergraduate, degree seeking student who applied and enrolled in college for the first time at Texas A&M University at Qatar regardless of whether the student has acquired college level credit through testing, advanced placement or summer enrollment.

## I and X Grades

A temporary grade of I (incomplete) at the end of a semester or summer term indicates that the student (graduate or undergraduate) has completed the course with the exception of a major quiz, final examination, or other work. The instructor shall give this grade only when the deficiency is due to an authorized absence or other cause beyond the control of the student. When an instructor reports an incomplete grade to the Office of Admissions and Records, he or she will fill out an "Incomplete Grade Report," which is filed with the academic dean. Copies are sent to the student and to the student's academic program coordinator. 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 academic dean, with the consent of the instructor (in the absence of the instructor, the academic program coordinator), grants an extension of time for good reason. If the incomplete work is not completed within this time or if the student registers for the same course again, the I will be changed to an F by the Office of Admissions and Records. Grades of I assigned to 684, 691, 692, or 693 are excluded from this rule.

The X notation is assigned to a course by the Office of Admissions and Records at the end of a semester or summer term only when a grade is not submitted by the instructor. The Office of Admissions and Records will notify the academic dean that an X notation has been made. The academic dean will request, through the academic program coordinator, that the instructor submit a Grade Change Report Form removing the X notation and assigning a letter grade with a Grade Change Report. The instructor will have 30 days from the beginning of the succeeding semester or summer term to report a change of grade to the Office of Admissions and Records. If a Grade Change Report is not received during this time period, the Office of Admissions and Records 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 5-week summer term or the 8-week summer semester. A student requesting to add a course after these deadlines must have the approval of the student's dean and program.
2. A student may drop a course with no record during the first five class days of a fall or spring semester and during the first four class days of a 5-week summer term or an 8-week summer semester. Following this period, if approved by the Associate Dean for Academic Affairs, a student may drop a course without penalty through the 50th class day of a fall or spring semester, the 15th class day of a 5-week summer term or the 28th class day of an 8-week summer semester. The symbol Q shall be given to indicate a drop without penalty.

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

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

3. Any course taught on a shortened format or between regularly scheduled terms will have add/drop, Q-grade, and withdrawal dates proportionally the same as if the course were offered in a regular term. These dates will be determined by the Office of Admissions and Records.
4. A student who drops a course after the Q-drop period has elapsed will receive a grade of F unless unusual circumstances exist as determined by the Associate Dean for Academic Affairs. A grade of W may be recorded by the academic dean if it is determined such circumstances do exist.

## Satisfactory/Unsatisfactory (S/U)

1. 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.

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.

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 Web site [Howdy.tamu.edu](http://Howdy.tamu.edu). 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. Undergraduate Students
  - a. Undergraduate students may be permitted to take courses in their degree programs at Texas A&M University at Qatar on a satisfactory/unsatisfactory basis consistent with the requirements of the student's college.
  - 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.

## Semester Credit Hour

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

## Grade Point Ratio (GPR)

For undergraduate students, only the grade made in coursework for which the student was registered at Texas A&M University or Texas A&M University at Qatar 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 the Office of Admissions and Records. Sophomore, junior, and senior classification will be granted to 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 University at Qatar, and of a selected group of other undergraduate students that the academic deans/departments are monitoring, will be made available. Preliminary grades are not recorded on the student's permanent record. Grades are available at Myrecord in the Howdy Web portal.

### Final Grade Report

End of semester final grades are available at Myrecord in the Howdy Web portal. No student grade that is personally identifiable may be posted unless the student has given written consent in advance.

University officials keep in close touch with the student's progress. Advice and counsel are offered from time to time as seem justified in each case. For failure to keep up with studies, the student may at any time be dropped from the rolls of the University.

### Parent/Guardian Access to Grades

A parent or guardian may access midterm and final grades at [howdy.tamu.edu](https://howdy.tamu.edu) after the student sets the parent access password. Please discuss this with your student. The Office of Admissions and Records cannot see the passwords created by students for parental access; therefore, you must receive a password from your student.

### Transcripts

Students applying for admission to Texas A&M University at Qatar are required to submit official 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, 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 completing the transcript request form online at [admissions.qatar.tamu.edu/studentsforms.aspx](https://admissions.qatar.tamu.edu/studentsforms.aspx) or in person at the Office of Admissions and Records located on the first floor of the Engineering Building in Education City, Doha, Qatar.

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# Tuition, Fees, and Other Financial Information

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## Tuition and Required Fees

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### Tuition

As a state institution, Texas A&M University has held firmly to the premise that the Qatar campus should remain affordable, and therefore should follow the same tuition and fee structure as that of the main campus. There are two classifications of tuition and fees for the academic year, which usually begins in late August and ends in early May, as follows:

- Non-sponsored students pay QR63,500, or approximately \$17,400 USD, for the full academic year, excluding summer.
- Sponsored students pay QR127,000, or approximately \$34,800 USD, for the full academic year, excluding summer.

Educational expenses for the nine academic months will vary according to personal needs. All tuition and fee amounts provided herein represent the most accurate figures available at the time of this publication and are subject to change without notice. University Rules regarding tuition and fees and all related payments in place at the time of publishing are reflected here. All are subject to change. The most current information available is maintained on the Web site [www.qatar.tamu.edu](http://www.qatar.tamu.edu).

### Payment of Tuition and Fees

Students must meet all financial obligations to the University by their due dates. Payment as of the date of this publication goes to Qatar Foundation cashier's office. Failure to pay amounts owed may result in cancellation of the student's registration and his/her being barred from future enrollment and receiving official transcripts. Qatar Foundation policy requires that tuition and fees be paid as early as possible in the semester. Any and all payment arrangements should be made with the appropriate official at Qatar Foundation. Officials at Texas A&M University at Qatar calculate the appropriate tuition and fees of each student enrolled, and Qatar Foundation issues to each student his or her respective tuition statement. Students are then responsible for making payment to Qatar Foundation. Students will receive their invoices via their Texas A&M University at Qatar email address.

Sponsored students will provide a tuition statement to his or her respective sponsor and then ensure that the sponsor has made the appropriate payment to Qatar Foundation.

Recipients of University scholarships will see the scholarship reflected in their respective tuition and fee statement.

## Financial Obligation for Graduating Students

According to Texas A&M University Student Rules and Chapter § 54.007 (c) of the Texas Education Code, all financial obligations owed to the University and/or to Qatar Foundation 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.

### Citations:

Section 14.15 of the Texas A&M University Student Rules states, "The student must have settled all financial obligations to the University."

Chapter § 54.007 (c) of the Texas Education Code states, "A student who fails to make payment prior to the end of the semester may be denied credit for the work done that semester."

## Cancelling of Registration

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Once a student has registered for classes and subsequently wishes to withdraw from the university prior to the first day of classes, he/she must do the following in order to receive a tuition and fees refund if the tuition and fees have been paid:

1. Contact the Academic Services Office prior to the first day of classes and complete a withdrawal form indicating the intent to officially withdraw from the University.
2. Contact the Qatar Foundation fiscal office to inform officials of the official intent to withdraw, and request any appropriate refund of tuition and fees paid.
3. Contact the sponsoring agency if tuition and fees are being paid by a sponsor.

Following this procedure is especially important for students who have been awarded scholarships or Qatar Foundation 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 or the Qatar Foundation for 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.

## Cancellation for Nonpayment of Tuition or Fees

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If notified by the Qatar Foundation of non-payment, the University reserves the right to cancel registration for any semester in which a student is enrolled.

## Fees for Other Special Items or Services

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### Application Fees

Application for admission fee for undergraduate and graduate applicants: QR275, or \$75 USD, non-refundable.

### Confirmation Fee

A non-refundable fee of QR275, or \$75 USD, is assessed to students who confirm their acceptance into Texas A&M University at Qatar at the time the letter of commitment to enroll at the University is submitted.



### Graduation (Diploma) Fee

A non-refundable fee of QR146, or \$40 USD, is assessed the semester a student applies for graduation. This fee is payable each time a student applies for graduation.

### Refund Policy

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#### Withdrawal from the University

Once registered for classes, a student is considered officially enrolled unless otherwise restricted from enrolling. Stopping payment to Qatar Foundation or allowing the check or bank draft to be returned unpaid by the bank for any reason does not constitute official withdrawal. The withdrawal process is specified in the section Cancelling of Registration. A withdrawal form found online at [admissions.qatar.tamu.edu/studentsforms.aspx](https://admissions.qatar.tamu.edu/studentsforms.aspx) explains exactly what the student needs to do. Failure to follow procedures for withdrawing from the University may result in financial penalties and delays with future enrollment in the University. Once a student registers, he or she is responsible for the total cost of the tuition and fees assessed if the withdrawal process is not followed properly, and refunds will occur only within the specified refund time periods as listed in the section Tuition and Fee Adjustments. Recipients of Qatar Foundation financial assistance should talk to a financial aid representative at Qatar Foundation before withdrawing. Sponsored students should talk to a representative from their respective sponsoring agency prior to withdrawing.

## Tuition and Fee Adjustments

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Tuition and fee adjustments shall be made to students officially withdrawing from the University according to the following refund schedule:

### Fall and Spring Semester and 8-Week Summer Semester

By 4 p.m. on the last business day before the first day of class .....	100%
During the first five class days .....	80%
During the second five class days .....	70%
During the third five class days .....	50%
During the fourth five class days .....	25%
After the fourth five class days .....	None

### 5-Week Summer Term

By 4 p.m. on the last business day before the first day of class .....	100%
During the first, second, or third class day.....	80%
During the fourth, fifth, or sixth class day.....	50%
Seventh day of class and thereafter.....	None

## Financial Assistance/Scholarships

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The Qatar Foundation financial assistance program is designed for all students who have a demonstrated financial need for assistance to meet college expenses and who are making satisfactory academic progress, as defined by the policies of the Qatar Foundation financial aid agreement that students sign upon receiving financial assistance. The University submits academic program reports to Qatar Foundation, following the guidelines of the Family Educational Rights and Privacy Act, or FERPA. University scholarships, on a limited basis, are available to selected students and are also awarded based on academic excellence. Students who are on conduct probation are not eligible for University-awarded scholarships.

In determining the type and amount of financial assistance necessary to meet a student's financial need, the University expects parents to make a maximum effort to assist with college expenses. Financial assistance resources of Qatar Foundation and University scholarships should be viewed only as supplementary to the financial resources of the applicant and family.

Only those students who have been accepted for enrollment into the University may apply for Qatar Foundation financial aid and/or for University scholarships. Information about Qatar Foundation financial aid can be found at [www.qf.edu.qa/output/page353.asp](http://www.qf.edu.qa/output/page353.asp).

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# Services for Students

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## On-Campus Housing

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Student housing in Education City is available to students enrolled full-time at Texas A&M University at Qatar on a first-come, first-served basis. Upon admission, students will receive a Qatar Foundation application for student housing from the Texas A&M University at Qatar Office of Admissions and Records.

In order to apply for student housing, students must complete a Housing Application. In order to consider the application complete, students must also submit the following fees with the application:

- A refundable damage deposit of QR2000.
- A non-refundable reservation fee of QR1000.

Applications received without the deposit will be returned. Prior to receiving access to their assigned room each semester students are required to pay the balance of their housing fees for the upcoming semester. For the fall semester this would total QR 6000. For the spring semester this would total QR 7000.

There are separate residence halls for male and female students. The standard form of accommodation is two to four students sharing a self-contained apartment (presently there are one and two bedroom apartments).

In addition, students have access to a communal lounge with computers, printers, cable television, DVD, and video in each residential area. Laundry facilities with washers and dryers are available on the upper floors of the buildings. Wireless Internet is available throughout the residence halls.

The Qatar Foundation Housing and Residence Life professional (Residence Hall Directors or RHDs) and student (Community Development Advisors or CDAs) staff work closely with student residents to maintain a safe, comfortable, and healthy living-learning environment.

The RHD is a full-time professional staff member available to help students with life transitions associated with living in a community residential environment and the transition to college. The RHDs are responsible for the supervision of student staff members known as CDAs. CDAs are student leaders who have been selected because of their maturity and knowledge of the Education City community. They are a resource available to the student in the residence halls, and their primary focus is to facilitate the development of a strong living-learning community in the halls.

For more information about student housing please send questions via email to [housing@qf.org.qa](mailto:housing@qf.org.qa) and a Qatar Foundation Student Affairs professional will be in touch with you to answer any questions that you may have.

## New Student Orientation for New and Transferring Undergraduates

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Each year New Student Orientation is held for undergraduate students entering Texas A&M University at Qatar. New students are required to attend orientation in order to accept their offer of admission and register for classes. Families are encouraged to attend the orientation with their students and participate in programs designed especially for them to learn more about what their student will be experiencing as a new Aggie.

New Student Orientation provides students with the tools they will need to get started on their career at Texas A&M University at Qatar and offer a chance to learn about the many opportunities available to members of the Aggie community. During the orientation, new students will meet with academic advisors and register for their first semester courses. Since their first year is important to their continued success at Texas A&M University at Qatar, orientation will acquaint new students with student life activities and services available at the University. In addition, orientation offers social programs that provide students an opportunity to interact with other students. Each year current students volunteer as Orientation Leaders to help new students and their families connect with Texas A&M University at Qatar.



## Academic Advising

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The primary purpose of academic advising at Texas A&M University at Qatar is to assist students in the development of meaningful educational plans that are compatible with their personal abilities and goals. The ultimate responsibility for making decisions about personal goals and educational plans rests with the individual student. The academic advisor assists by helping to identify and assess alternatives and the consequences of decisions. Academic advising is a continuous process of clarification and evaluation.

The objectives for academic advising for the University and its component units include facilitating the following for each student:

- Clarifying personal and career goals;
- Developing suitable educational plans;
- Selecting appropriate courses and other educational experiences;
- Interpreting institutional requirements;
- Increasing student awareness of available educational resources;
- Evaluating student progress toward established goals;
- Enhancing decision-making skills;
- Reinforcing responsible student self-direction; and
- Using referrals to other institutional and community support services, where appropriate.

The advising system of Texas A&M University at Qatar includes professional staff advisors, faculty advisors, and administrators working together to ensure the total educational development of students by meeting intellectual, academic, personal, and career needs.

## Library

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### The Texas A&M University at Qatar Library

The Texas A&M University at Qatar Library supports the teaching, research, and outreach missions of the University in an environment that fosters learning and inquiry. A core professional collection of 8,000 engineering titles, 80 journals, and basic materials in the liberal arts, humanities, and basic sciences are available in the library. Students may also request books and journal articles from the libraries on the main campus, from a collection of 4 million volumes and 52,000 serial titles.

Extensive online resources are available to students in the library and remotely, including more than 76,000 electronic journals and newspapers, over 825 databases, and over 462,000 electronic books. Scores of these files comprise citations to research literature, and a growing number of databases of full-text information from journals and other information sources are also available.



Students can locate books and thousands of journals by author, title, subject, and keyword using the online catalog, LibCat. Time-saving search tools are available through SearchNow (a metasearch of most electronic resources in the collection) and SFX OpenURL which link to the most appropriate full text. Online Chat, which makes an experienced librarian available via computer, is a great way to start a research project. DeliverEdocs offers a document delivery service which supplies print books or electronic copies of journal articles or book chapters, free of charge to all students. Print books generally arrive within three to five working days. Electronic versions are emailed within one to two days. Material not available from the main campus libraries will be obtained from other North American universities and libraries and generally arrive within two to three weeks. Librarians are available to teach individuals or groups how to use these library tools and resources, to supplement the body of tools, documents, and tutorials available on the library's Web sites for independent, anytime learning.

Information and services for the library can be accessed on the web at [qatar.library.tamu.edu](http://qatar.library.tamu.edu).

## Sterling C. Evans Library at the College Station Campus

The University Libraries complex consists of the Sterling C. Evans Library and Annex, the Cushing Memorial Library and Archives, the West Campus Library, the Policy Sciences and Economics Library, and the Medical Sciences Library. The University's principal research collections, numbering close to 4 million volumes and 5.5 million microforms, are housed in the centrally located Sterling C. Evans Library and Annex with seating for more than 4,000 readers. Currently more than 70 group study areas are available for students, faculty, and staff.

Advanced Studies Division staff members provide assistance in using the reference collections as well as the general collection and specialized collections such as government documents and microform materials. Over 650 national and international electronic citation databases are available to students in the library and remotely. Scores of these files comprise citations to research literature, and a growing number of databases of full-text information from journals and other information sources are also available. Reference services provide a broad program of library instruction, ranging from orientation tours to class sessions on subject-specific resources and research techniques.

The Cushing Memorial Library and Archives, a repository for rare books, manuscripts, special collections and archives, is located on the west side of Evans Library, across from the Academic Building.

Educational Media Services (EdMS) on the fourth floor of the Annex provides audiovisual and multimedia services and videotape resources. It offers database and Internet searching for reference purposes. Multimedia authoring and development software such as Authorware, Director, and Photoshop is also available.

Through the online catalog, LibCat, users can access the Library's books and thousands of journals by author, title, subject, and keyword searching. The bulk of the collections are organized according to the Library of Congress classification system. An "open stack" arrangement allows free access to all materials except those in Special Collections and Archives.

Approximately 52,000 serial titles are currently received, including some 150 state, national, and foreign newspapers. The library is a depository for selected U.S. Federal documents. The library is also a depository for Texas State documents and U.S. patents. An extensive collection of technical reports is also housed in the library.

The West Campus Library primarily serves the Mays Business School. It has a limited, specialized collection of 650 periodicals, reference works, and current monographs in business. The library has reading space for 1,000. A document delivery service delivers materials between the Evans Library, the West Campus Library, and the Medical Sciences Library. The focus of the West Campus Library is the R. C. Barclay Reference and Retailing Resources Center. The Barclay Center offers a variety of electronic resources, including compact disk and online databases as well as access to the Internet, to serve the needs of business. Staff members offer instruction on searching databases and consultation for specific information needs.

The Policy Sciences and Economics Library in the Annenberg Presidential Conference Center has a limited, specialized collection of periodicals, reference works, and current monographs in political science, government and public service, and economics. It also offers several hundred electronic journals and databases.

Information and services for these libraries can be accessed on the web at [library.tamu.edu](http://library.tamu.edu).

## Information Technology Services

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Information Technology Services (ITS) provides the infrastructure and services to enable and support communication, computing, and instructional technology at Texas A&M University at Qatar. We maintain a distinctive approach to providing technology services to faculty, staff, students, and affiliates through a vision focused on providing innovative technology services—with creativity, enthusiasm, and integrity—framed through the perspective of end users, not technology professionals. In a rapidly changing world of fast growing information technology needs in higher education, ITS staff are committed to making the academic studies at TAMUQ a unique experience by responding to these needs with technological creativity and flexibility.

### Student Laptop Program

ITS promotes and advocates the use of technology in pedagogically sound ways to enhance teaching and learning. Our unique student laptop program is an extension of this effort. Through this program, all TAMUQ students are loaned a tablet PC and related accessories for the duration of their enrollment at TAMUQ. These tablet PCs become the students' property when they graduate. Using these tablet PCs, students can take notes during their classes and conduct instructional activities wherever they want. Faculty can benefit from the laptop program by incorporating technology into their teaching in creative ways. By using available specialized software, faculty can share class notes as well as monitor and limit student computer activity during class sessions. At the end of each academic year, ITS performs needed repairs, maintenance, and upgrades, in preparation for the classes students will be taking the following academic year.

### On-Campus Resources

TAMUQ faculty, staff, and students enjoy a variety of computing resources on campus to enhance the educational experience. They have access to information technology resources and services provided by ITS, as well as Texas A&M University's (TAMU) main campus in College Station. All workstations at TAMUQ are connected to a Windows Local Area Network. In addition to email and Internet access, network storage is available for TAMUQ employees and students through the TAMUQ domain accounts. Network storage consists of personal storage space (Home drive), faculty-staff shared drive, and faculty-student shared drive. In addition, TAMUQ employees and students are given a web folder. Documents that are saved in this folder are published on the campus web server.

In the TAMU Engineering Building, all TAMUQ users have access to wireless Internet; open access and specialized computer labs; advanced network printers, copiers, and scanners; multimedia equipment; and technology-rich classrooms with Sympodiums (pen-equipped computer monitors that allow you to write electronic notes on the computer screen), document cameras, plasma screens, tabletop microphones, and distance learning capabilities such as bidirectional video conferencing. Class sessions with remote faculty and students are held in some of these classrooms. For students who desire cutting edge technology, access to a state-of-the-art Supercomputer (SAQR) and Immersive Visualization Facility (Cave) is also available. The SAQR cluster is the product of a shared vision of Texas A&M University and the Qatar Foundation for Education, Science, and Community Development to enhance education, research, and development in the Arabian Peninsula by bringing leading-edge

computing resources to the region. The cluster is comprised of 101 Apple G5 Xserves and hosts a variety of engineering applications as well as resources for weather modeling and video rendering. The Immersive Visualization Facility (Cave) is a visualization environment for running 3D applications. It supports stereo image generation to give the user a rich immersive experience. It also supports DVD playback with 5.1 stereo surround sound and an external input source.

### Off-Campus Resources

Access to computing services does not stop when students and employees leave campus. TAMUQ users can access a myriad of academic, engineering, and general use applications (such as Matlab, Microsoft Office products, and Adobe Photoshop) anywhere they have access to an Internet connection, through our Citrix application delivery system. Many resources and services such as remote access to network drives, short message service (SMS), and directory search are provided through our WebVPN system. In addition, many courses provide content (syllabi, homework, exams, etc.) and conduct course-related activities (assignments, course discussions, blogs, wikis) in an online environment through the Blackboard Learning System-Vista Enterprise course management system that is delivered from our main campus in College Station, Texas.



### Support and Training

The ITS Help Desk is only a phone call or email away from providing information technology assistance. Help Desk is located in room 139 and open from 7:00 to 17:00, Sunday through Thursday. We also have a host of online resources available on our website to help TAMUQ students learn more about the technology tools and services at TAMUQ. Students can also benefit from the training courses we offer on a variety of technology topics.

We routinely communicate with TAMUQ faculty, students, and staff about their information technology needs. The Information Technology Advisory Council, with appointed and elected representatives from TAMUQ faculty, staff, and students, has an advisory role in the information technology decisions that are made. We always welcome ideas and feedback from individual members of the TAMUQ community as well.

More information on ITS can be found online at [technology.qatar.tamu.edu](http://technology.qatar.tamu.edu). We look forward to serving you.



## The Office of Academic Supplemental Instruction Services

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The Office of Academic Supplemental Instruction Services (OASIS) is designed as a student needs-driven center at Texas A&M University at Qatar. The operations facilitate the learning of basic academic skills as well as core course component concepts within the common body of knowledge expected of students graduating with a degree in engineering. Focus areas within this definition are English, math, and science. Ancillary skills such as keyboarding, public speaking, peer interaction, career-building resources, specialized writing, foreign language training, and computer applications are important emphasis areas in the professional development of engineering graduates.

The OASIS staff is comprised of full- and part-time professional lecturers and tutors working both onsite and online as writing consultants and instructors. In addition, students participate actively in the center as peer tutors, teaching assistants, and supplemental instruction program leaders. Through the synergies generated in this dynamic department, the OASIS provides students with active, independent learning.

In addition to meeting the learning needs of students, the OASIS provides faculty and staff members with resources and assistance in business writing, designing of syllabi, and creating class assignments.

The OASIS is open 8:00–19:00 onsite, and 20:00–24:00 online (Arab Standard Time) Sunday through Thursday, and Saturdays during peak times during the semester. All activities are scheduled via the online appointment system found at [oasis.qatar.tamu.edu](https://oasis.qatar.tamu.edu).

## The Association of Former Students

The Association of Former Students is the foundation of the world-renowned Aggie Network. With more than 450,000 members, The Association proudly promotes the interests and welfare of Texas A&M University, while maintaining ties of camaraderie among former students. The Association's extensive support of Texas A&M includes nearly \$4 million annually toward the funding of student scholarships and financial aid, student activities and awards, and faculty enrichment. The Association of Former Students has the responsibility of protecting the spirit and integrity of the Aggie Ring. The Aggie Ring is possibly the most personal and visible symbol of Aggie pride.

### Aggie Ring

The Aggie Ring is a rite of passage for Texas Aggies and symbolizes both the history of the institution and character of those who earn the right to wear it. The design of the Aggie Ring is as deep in symbolism as it is in tradition. The ring's shield symbolizes protection of the good reputation of the Alma Mater. The 13 stripes in the shield refer to the 13 original states and symbolize the intense patriotism of Aggies. The five stars in the shield refer to phases of development of the student: mind or intellect, body, spiritual attainment, emotional poise, and integrity of character. The eagle is symbolic of agility and power, and the ability to reach great heights.

One side of the Ring symbolizes the seal of the State of Texas authorized by the Constitution of 1845. The five-pointed star is encircled with a wreath of live oak leaves symbolizing the strength to fight, and olive or laurel leaves signifying achievement and the desire for peace. They are joined at the bottom by an encircling ribbon to show the necessity of joining these two traits to accomplish one's ambition to serve.

The other side, with its ancient cannon, saber and rifle, symbolizes the fight of Texans for their land and their determination to defend their homeland. The saber itself stands for valor and confidence, while the rifle and cannon symbolize preparedness and defense. The crossed flags of the United States and Texas recognize the dual allegiance to the nation and state.

Texas A&M students can order an Aggie Ring only after completing 95 credit hours. You can visit The Association of Former Students and find out more about the Aggie Ring and order requirements online at [www.AggieNetwork.com](http://www.AggieNetwork.com).



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# Campus Life

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## Director of Student Affairs

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The mission of the Department of Student Affairs is to promote the holistic development of students in preparation for excellence in the engineering discipline in a diverse global society. We aim to achieve this goal by providing resources for students to challenge their intercultural awareness, leadership skills, and sense of empowerment. The department collaborates with other entities of Education City under the guidance of Qatar Foundation and in support of the local community. The Director of Student Affairs provides leadership in building alliances within the Texas A&M University at Qatar community and between the University and its partner institutions at Education City. If students experience problems or difficulties or just need advice about where to go for assistance, they are encouraged to contact the Department of Student Affairs.

## Student Activities

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The Department of Student Affairs empowers students to organize into recognized clubs and organizations and plan their own campus activities. Student Development Specialists within the department advise student organizations and assist them in managing their own events.

Involvement in one or more of the University's 20-plus organizations can add an important dimension to one's college experience. It is a way to balance one's life, meet new people, and develop interpersonal and leadership skills. In addition, prospective employers often look at what students have accomplished and experienced outside of their coursework. The recognized student organizations include the Institute of Electrical and Electronic Engineers, the American Society of Mechanical Engineers, the Society of Petroleum Engineers, the American Institute of Chemical Engineers, the Society of Women Engineers, the Society of Automotive Engineers, and many others. The recognized student organizations include a variety of events such as business meetings, conferences, social events, sponsored guest speakers, workshops, and field trips. For all these reasons, Student Affairs supports the belief that students can learn from experiences as well as from textbooks.

University sports clubs are part of the activities offered and include basketball and soccer for boys and basketball for girls. Tryouts will be held for these teams each full semester.



## Leadership Activities

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The Department of Student Affairs offers a wide variety of leadership development programs that provide an excellent opportunity for students to develop personal leadership and student organization management skills. Student leadership exchange trips to the main campus in College Station take place during spring break each year. Programs are sponsored such as LeaderShape, a six-day residential experience focused on introducing student leadership concepts to all students.

## Student Government

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The representative governing body for all students at Texas A&M is the Student Body Government. This body is directly responsible for representing the interests of students to the administration and to the entire University community. The Student Body Government works with the administration on issues of concern to the general student population.

Student Body Government consists of three representatives elected from each class and the student body president. These officers are elected in the spring each year.

## Student Wellness and Counseling

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The Student Wellness and Counseling Program promotes the process of developing a healthy lifestyle. By participating in awareness activities, educational programs, and counseling, Aggies can enhance their personal wellness with improved physical health, emotional stability, supportive relationships, spiritual growth, and academic/career satisfaction. Services for students at the Wellness Program include academic skills counseling and testing, career counseling and testing, personal counseling, stress management and biofeedback, outreach programming, and crisis and consultation services.

## Critical Incident Response Team

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The purpose of the Critical Incident Response Team is to respond to critical incidents involving Texas A&M University at Qatar students and serve as the University contact when students are involved in critical incidents away from the campus.

Texas A&M University at Qatar is committed to providing an educational climate that is conducive to the personal and professional development of each individual. Even with a small university community, Texas A&M at Qatar and the Department of Student Affairs realize that crisis, or critical incidents, will occur and that these crises can have a significant effect on the entire University, Education City, and local communities. Such critical incidents require an effective and timely response. The Department of Student Affairs has developed a Critical Incident Response Team consisting of University administrators and staff to best respond to these critical student incidents.

The goals of the Critical Incident Response Team are as follows:

- To coordinate the University's response to critical incidents involving students while paying special attention to the safety and security needs of members of the University community.
- To offer counseling, guidance, and appropriate support to members of the University community, their families, and University caregivers.
- To use critical incidents, when appropriate, as "teachable moments" which may enhance the quality of life for all those touched by critical incidents.

## Intercollegiate Athletics at the College Station Campus

Nationally regarded for its outstanding school spirit and unique traditions, Texas A&M University and its athletics department are fully committed to "Building Champions." Texas A&M provides complete support to help its student-athletes attain their athletic and academic goals.

Texas A&M is a member of the National Collegiate Athletic Association (NCAA) and the prestigious Big 12 Conference, which also includes Baylor University, Iowa State University, Kansas State University, Oklahoma State University, Texas Tech University, University of Colorado, University of Kansas, University of Missouri, University of Nebraska, University of Oklahoma, and the University of Texas.

Texas A&M's athletic teams are known as "Aggies," and the official school colors are maroon and white.

Many of the school's rich traditions are centered around athletics. The student body, known as the "12th Man," stands throughout football games to underscore its readiness in case it is needed to go into the game as the original 12th Man, E. King Gill, did in 1922. On Friday nights before home football games, the student body has "Yell Practice" at midnight, with as many as 40,000 people in attendance at Kyle Field. The student body also creates a one-of-a-kind atmosphere in sports such as baseball, soccer, volleyball, and tennis, giving the Aggies a true home field advantage.

Texas A&M sponsors 20 intercollegiate athletics teams, and all but equestrian compete in the Big 12. The nine men's programs are football, basketball, baseball, golf, indoor track and field, outdoor track and field, cross country, swimming and diving, and tennis. The 11 women's programs are basketball, cross country, golf, indoor track and field, outdoor track and field, softball, swimming and diving, tennis, volleyball, soccer, and equestrian.

Texas A&M consistently ranks among the national leaders in student attendance, and its facilities are considered among the finest in the country. As a result, Texas A&M has played host to a variety of national intercollegiate events, including the 2001 NCAA Men's Swimming and Diving Championships, 2002 NCAA Men's Tennis Championships, the



2003 National Varsity Equestrian Championships, the 2004 NCAA Women's Swimming and Diving Championships, the 2005 Men's Tennis Championships, and most recently the 2005 Women's Soccer Championships. Texas A&M also has administered many conference and NCAA regional championship events.

Texas A&M has won two Big 12 South Division football titles and won the Big 12 Championship in 1998, advancing to the Nokia Sugar Bowl as part of the Bowl Championship Series (BCS). The baseball team won back-to-back Big 12 titles in 1998 and 1999 and advanced to the 1999 College World Series. Men's tennis won the 2001 Big 12 title, while the women's tennis squad captured the league crown in 2005. Texas A&M has won Big 12 titles in women's golf (1998) and soccer (2002, 2004, and 2005).

Including its days as a charter member of the Southwest Conference (1915–1996), Texas A&M captured 99 conference championships in addition to national titles in football (1939), softball (1982, 1983, and 1987), and equestrian (2002–2005).

Aggie athletes have earned more than 800 All-American citations, and hundreds have gone on to successful professional careers in their respective sports. In addition, Texas A&M has produced a number of Olympic athletes, including recent gold medalists Randy Barnes (track and field, 1996), Jennifer McFalls (softball, 2000), and Mike Stulce (track and field, 1992).

The mission of Texas A&M athletics is “Building Champions,” and it is at the heart of the athletic department’s Mission Statement: *“Texas A&M Athletics commits to Building Champions through academic achievement, athletic excellence and national recognition of our student-athletes, teams and programs. We provide our student-athletes with all the necessary tools for them to be Champions in their sport and in life. The integrity of our program takes root in the tradition and spirit of Texas A&M, bringing honor and distinction to our University.”*



## Study Abroad Programs

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Texas A&M University at Qatar is deeply committed to providing complete access to international education opportunities for all students. In the globally interconnected 21st century, the ability to engage successfully across cultures and the development of international leadership skills are crucial for success as graduates enter the work force.

The study abroad mission of Texas A&M University at Qatar is to provide students a wide variety of educational experiences abroad. Therefore, a wide range of international opportunities is offered, coordinated both in Qatar and centrally through the Study Abroad Programs Office at the main campus in College Station. Whether a student chooses to join other Aggies in a faculty-led study abroad, opt for a reciprocal educational exchange program, work with staff to tailor an independent study program, or do research, language training, internships, work, or leadership programs abroad, Texas A&M can provide an international education opportunity that will enhance the success of our students both personally and professionally.

## Faculty-Led Group Study Programs

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Every year, many faculty-led programs take Aggies around the world for study, with a special concentration in Latin America, Asia, and Europe. Each respective program is designed to provide students with a relevant application of the coursework to the host country, while also enriching the academics with cultural immersion. Most programs take place during the summer, but some programs are also offered during the fall, spring, and intersessions. One of the most popular locations for a semester program is at the University's Santa Chiara Study Abroad Center, located in the small medieval town of Castiglione Fiorentino, Italy.

## Santa Chiara Study Center in Italy

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For more than a decade, the Center has provided Texas A&M students and faculty the opportunity to live in and learn about another culture while studying a variety of academic subjects, including Italian and an Arts and Civilization course. The Center, located south of Florence in Tuscany, offers summer session programs lasting approximately five weeks, as well as spring and fall semester programs lasting 15 weeks each. All are open to students from all majors. Courses are taught by Texas A&M faculty and are enhanced by specialized guests lectures and field trips. Special programs for pre-freshman honor students have also been among the offerings at the Santa Chiara Center.

## Reciprocal Educational Exchange Programs (REEP)

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Both departmental and university-wide reciprocal exchange programs have been developed, allowing students to receive A&M credit while studying at a foreign university, changing places with a student from that university who comes to study at Texas A&M. There are over 40 reciprocal exchanges to choose from in Latin America, Europe, and Asia. Proficiency in the language of the host country is required; however, some programs are available in English-speaking countries.

## Independent Programs Abroad

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Independent international programs encompass many possible opportunities, such as applying directly to an international university, applying through a sponsoring U.S. university, institute, or organization, or conducting research abroad coordinated by a Texas A&M faculty member. Other opportunities include internships, teaching, and volunteer opportunities. Staff members in the Study Abroad Programs Office and extensive web-based and paper resources are available to assist in this search.



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# Family Educational Rights and Privacy Act of 1974

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Annually, Texas A&M University informs students of the Family Educational Rights and Privacy Act of 1974 (FERPA). This Act, with which the University intends to comply fully, is intended to protect the privacy of education records, to establish the rights of students to inspect and review their education records, and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office of the Department of Education in Washington, D.C., concerning alleged failures by the University to comply with the Act.

The Family Educational Rights and Privacy Act of 1974 is a federal law which provides minimum standards for the management of student education records for universities receiving funds made available under any federal program administered by the U.S. Commissioner of Education. The Act provides, among other things, that an institution will maintain the confidentiality of student education records, and students will have the right to inspect most education records an institution maintains on them.

This policy and the procedures included within it are designed to meet the FERPA provisions. Texas A&M University at Qatar is committed to the good faith implementation of this policy. Copies of the policy may be obtained at [registrar.tamu.edu](http://registrar.tamu.edu).

In case a student, the parent of a student, or any other individual has a complaint that an official of the University is violating FERPA, and the complaint cannot be satisfactorily resolved within the University, that person has the right to file a complaint with the Department of Education by contacting:

Family Policy Compliance Office  
U.S. Department of Education  
400 Independence Ave., S.W.  
Washington, D.C. 20202-4605  
(202) 260-3887

For the purposes of this policy, Texas A&M University at Qatar has used the following definitions of terms:

## **Student**

Person who attends or has attended a program of instruction sponsored by Texas A&M University at Qatar.

## **Education Records**

Any records (in handwriting, print, tapes, film, or other medium) maintained by the University, an employee of the University, or agent of the University which is related to the student.



## Directory Information

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### Student Records Policy for Texas A&M University

Under the Family Educational Rights and Privacy Act of 1974 (FERPA), the following directory information may be made public unless the student desires to withhold any or all of this information:

- Student's Name
- Local Address
- Permanent Address
- Email Address
- Local Telephone Number
- Permanent Telephone Number
- Dates of Attendance
- Program of Study (college, major, and campus)
- Classification
- Previous Educational Agencies/Institutions Attended
- Degrees, Honors, and Awards Received
- Participation in Officially Recognized Activities and Sports

Currently enrolled students wishing to withhold any or all directory information items may do so by completing, printing and returning the FERPA release form to the Office of Admissions and Records, located on the 1st floor of the Engineering Building. The form is available online at [admissions.qatar.tamu.edu/studentsforms.aspx](https://admissions.qatar.tamu.edu/studentsforms.aspx).

Information on a student may be released unless a Hold Directory Information form is completed by the student and submitted to the Records section by the 12th class day of a fall or spring semester or by the 4th class day of a summer term (the official census day). The Hold Directory request to suppress directory information remains in effect until the student revokes it in writing or is deceased. Only currently enrolled students may request directory information be withheld.

## Statement of Rights

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Texas A&M University encourages students to exercise all of their rights under the Family Educational Rights and Privacy Act, 20 U.S.C. 1232g. Operating under the premise that the educational process is a cooperative venture between a student and the University, we emphasize the following rights of eligible students:

1. The right to inspect and review, with certain limited exceptions, the student's education records, including the right to receive explanations and interpretations of the records and to obtain copies of the records when such are needed to allow the student to effectively exercise his/her right of inspection and review.
2. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A *school official* is a person or entity: (a) employed by the university or the university system in an administrative, supervisory, academic or research, or support staff position; (b) serving on an university governing body or duly authorized panel or committee; or (c) employed by or under contract to the university to perform a special task, function, or service for the university.

A school official has a *legitimate educational interest* if the information requested is necessary for that official to (a) perform appropriate tasks that are specified in his/her position description or in the performance of regularly assigned duties by a lawful supervisor; (b) fulfill the terms of a contractual agreement; (c) perform a task related to a student's education; (d) perform a task related to the discipline of a student; or (e) provide a service or benefit relating to the student or student's family, such as health care, counseling, financial aid, job placement, or former student-related activities.

Disclosure to a school official having a legitimate educational interest does not constitute university authorization to transmit, share, or disclose any or all information received to third parties unless such disclosure is permitted or required by law.

3. The right to correct a student's education records when the records are inaccurate, misleading, or otherwise in violation of FERPA.
4. The right to report violations of FERPA to the Department of Education.
5. The right to be informed about FERPA rights.

All the rights and protections given students under FERPA belong to the student. However, information in student records may be provided to parents without the written consent of the student if the student is a financial dependent of his or her parents as defined under Section 152 of the Internal Revenue Code of 1954.

### **Records Not Available for Information and Review**

Students shall have access to all education records concerning them maintained by the University with the exception of the following:

1. A personal record kept by a University faculty or staff member which meets the following tests:
  - a. It is in the personal possession of the individual who made it.
  - b. Information contained in it has never been revealed or made available to any other person except the maker's temporary substitute.
2. An employment record which is used in relation to a student's employment by the University, except where an individual in attendance at the University is employed as a result of his or her status as a student.
3. Records relating to a student which are created or maintained by a physician, psychiatrist, psychologist, or other recognized professional or para-professional acting in his or her professional or para-professional capacity or assisting in that capacity which are used in connection with the provision of treatment to a student and are not disclosed to anyone other than the individuals providing the treatment.
4. Financial records and statements of a student's parents.
5. Confidential letters and statements of recommendation which were placed in the education records of a student prior to January 1, 1975.
6. Confidential letters and statements of recommendation which were placed in the education records of a student on or after January 1, 1975, if the student has waived his/her right to inspect and review the letters or statements.
7. Records concerning admissions to an academic component of the University which the student has never attended.

Any questions concerning FERPA should be directed to the Office of Admissions and Records.

# Degrees Offered

2009–2010 Undergraduate Catalog



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# Dwight Look College of Engineering at the College Station Campus

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## Administrative Officers

Dean .....	G. Kemble Bennett, B.S., M.S., Ph.D.
Executive Associate Dean .....	John M. Niedzwecki, B.S.A.E., M.S., Ph.D.
Associate Dean for Engineering .....	Kenneth R. Hall, B.S., M.S., Ph.D.
Associate Dean for Research .....	Nagamangala K. Anand, M.S., Ph.D.
Senior Associate Dean for Academic Programs .....	Jo W. Howze, B.S., B.A., Ph.D.
Associate Dean for Recruitment and International Programs .....	César O. Malavé, B.Ch.E., M.S.O.R., Ph.D.
Associate Dean for Graduate Programs .....	Robin L. Autenrieth, B.S., M.S., Ph.D.
Assistant Dean for Finance.....	Carol A. Huff, B.B.A., CPA, C.G.F.M.

## General Statement

Engineering is the application of science and mathematics to the solution of relevant problems in our society. To a great extent, our current standard of living and high level of technology are due to the diligent and innovative efforts of engineers. In spite of the increasing expense of basic resources, modern engineers have succeeded in maintaining stable costs for a wide variety of goods, and at the same time have used their design and analysis abilities to introduce new products and technologies for the betterment of mankind.

The accelerating pace of industrial and technological developments has created an ever-increasing demand for highly qualified, professional engineers to maintain the momentum already achieved, and to extend and direct its course. The ever-expanding population and the increased demands for goods and services have imposed new challenges to present and future engineers to provide these things and, at the same time, minimize the unwanted side effects of such efforts. Engineers recognize that all actions taken have respective costs, and that solutions to long-standing societal problems are not found in confrontation but in careful, thorough planning and study. With a pragmatic background in problem solving, engineers are perhaps best qualified to address society's problems.

The complexities of today's environment are such that all resources must be used in the best possible manner. Thus, the Dwight Look College of Engineering, through its curricula, strives to educate and train engineers who have the breadth of vision to formulate and solve the problems of today and the future. It is expected that a student who conscientiously applies himself or herself and successfully completes one of these broad engineering programs will be not only technically trained but also humanly and socially educated, and thus well prepared to make a significant contribution to the world in which he or she works.

The mission of the Dwight Look College of Engineering is to serve the state, nation, and global community by providing engineering graduates who are well founded in engineering fundamentals, instilled with the highest standards of professional and ethical behavior, and prepared to meet the complex technical challenges of society.

To achieve this mission the college is committed to:

- Ensuring an academic environment conducive to our faculties achieving the highest levels of academic and research excellence;
- Building upon our traditional partnerships with industry, engineering practitioners, and former students to enhance our impact on the profession of engineering;
- Encouraging excellence, innovation, and cross-disciplinary initiatives in education and research;
- Providing national and international leadership in undergraduate and graduate engineering education;
- Becoming the engineering college of choice for the increasingly diverse citizenry of the state; and
- Encouraging and supporting opportunities for our students to grow beyond their chosen disciplines by participation in ethics, leadership programs, study-abroad programs, and research.

A student engineer can pursue any one of several career plans, according to personal ambitions, interests, and abilities. The student may choose the traditional B.S. degree and consider advanced research-oriented graduate programs leading to M.S. and Ph.D. degrees. Alternatively, the student may select the Doctor of Engineering program, which is directed toward professional engineering practice and leads to the Doctor of Engineering degree. Within the Dwight Look College of Engineering, the undergraduate programs in aerospace, biological and agricultural, biomedical, chemical, civil, computer, electrical, industrial, mechanical, nuclear, ocean, petroleum, and radiological health engineering are accredited by the Engineering Accreditation Commission of ABET, Inc. (formerly the Accreditation Board for Engineering and Technology). The electronics, manufacturing, mechanical, and telecommunications engineering technology programs are accredited by the Technology Accreditation Commission of ABET, Inc. The Computer Science program is accredited by the Computing Accreditation Commission of ABET, Inc. The Qatar campus is currently undergoing the procedures to become accredited by the Engineering Accreditation Commission of ABET, Inc.

After graduation an engineer will probably work as a member of a team to solve a problem, or to design a product or process. Individually, the engineer's responsibility can include many of the following: 1) the conception of the idea, including a careful delineation of the problem; 2) the design of the item or process, including operational and production requirements; 3) the selection of materials; 4) the determination of markets; 5) the assessment of sociological effects and determination of methods for controlling these effects; 6) the design or selection of machines for production; and 7) the control of costs. At the present time, over two-thirds of all the technical and a large percentage of the managerial positions in industry are occupied by engineers. In addition, the reindustrialization of our nation will call for engineers to play even more of a leadership role in the future.

## Curricula in Engineering

The freshman year is almost identical for degrees in all engineering programs offered at Texas A&M University at Qatar, thus allowing a student with adequate grades to change majors within programs. Although listed in eight semesters, most students will change the sequence and number of courses taken in any semester. However, deviations from the prescribed course sequence should be made with care to ensure that prerequisites for all courses are met. All four majors at Texas A&M University at Qatar include a set of required courses known as the Common Body of Knowledge (CBK) Courses. The CBK includes MATH 151 and 152, PHYS 208 and 218, CHEM 107/117 (CHEM 102/112 for CHEN majors), ENGL 104, and ENGR 111 and 112.

In addition to the listed freshman year, please refer to the specific major curriculum for other requirements.

<b>FRESHMAN YEAR**</b>					
First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
ENGL 104 Comp. and Rhetoric .....	(3-0)	3	CHEM 107 Gen. Chem. for Engr. Stu. <sup>3</sup> .....	(3-0)	3
ENGR 111 Foundations in Engineering I .....	(1-3)	2	CHEM 117 Gen. Chem. for Engr. Stu. Lab....	(0-3)	1
MATH 151 Engineering Mathematics I <sup>1</sup> .....	(3-2)	4	ENGR 112 Foundations in Engineering II.....	(1-3)	2
PHYS 218 Mechanics .....	(3-3)	4	MATH 152 Engineering Mathematics II .....	(3-2)	4
University Core Curriculum elective <sup>2</sup> .....		3	PHYS 208 Electricity and Optics .....	(3-3)	4
* KINE 198 Health and Fitness Activity.....	(0-2)	<u>1</u>	University Core Curriculum elective <sup>2</sup> .....		3
		17	* KINE 199 Required Physical Activity.....	(0-2)	<u>1</u>
					18

- NOTES: 1. Entering students will be given a placement test in mathematics. Test results will be used in selecting the appropriate starting course, which may be at a higher or lower level.
2. To be selected from the University Core Curriculum. Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U.S. history, and 6 from POLS 206 and 207. The required 6 hours from international and cultural diversity may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and political science and history requirements if they are also on the approved list of international and cultural diversity courses (see academic advisor for more information).
3. BMEN, CHEN and RHEN require 8 hours of freshman chemistry, which may be satisfied by CHEM 101/111 or CHEM 107/117 and 102/112, Credit by Examination (CBE) for CHEM 101/111 or CHEM 107/117 plus CHEM 102/112, or 8 hours of CBE for CHEM 101/111 or CHEM 107/117 and CHEM 102/112. (Note: BMEN and RHEN are not offered at TAMUQ.)

\* See academic advisor for more information.

\*\*A grade of C or better will be required for the Common Body of Knowledge (CBK) Courses (MATH 151 and 152, PHYS 208 and 218, CHEM 107/117 [CHEM 102/112 for BMEN, CHEN and RHEN majors], ENGL 104, and ENGR 111 and 112) and any other courses designated by the individual engineering departments. Prerequisites for the CBK courses will not be included in the calculations for CBK grade point average. See descriptions of individual majors and written requirements available from the departmental offices. (Note: BMEN and RHEN are not offered at TAMUQ.)

## Curriculum in Chemical Engineering

### Administrative Officer at Texas A&M University at Qatar

Program Coordinator (PC) ..... Ahmed I. A. Abdel-Wahab, B.S., M.S., Ph.D.

### Administrative Officer of Artie McFerrin Department of Chemical Engineering at Texas A&M University

Department Head (DH) ..... Michael Pishko, B.E., M.S., Ph.D.

Chemical engineering is a broad field of engineering and thus requires a diverse preparation in science and engineering. Distinguishing chemical engineering from other engineering disciplines is its use of chemical and biochemical reactions to produce products and materials for society. Traditionally, chemical engineers have provided leadership in the petrochemical, refining, chemical, polymer, and food processing industries. Because of strengths in the foundation sciences of mathematics, chemistry, physics, and biology, as well as in engineering, this leadership role has now extended to the biochemical, biomedical, high-tech materials, semi-conductor and microelectronics, nanotechnology, environmental quality and safety industries, and a host of other areas. Chemical engineers have consistently commanded starting salaries among the highest of all college graduates because of the combined breadth and depth of their education.

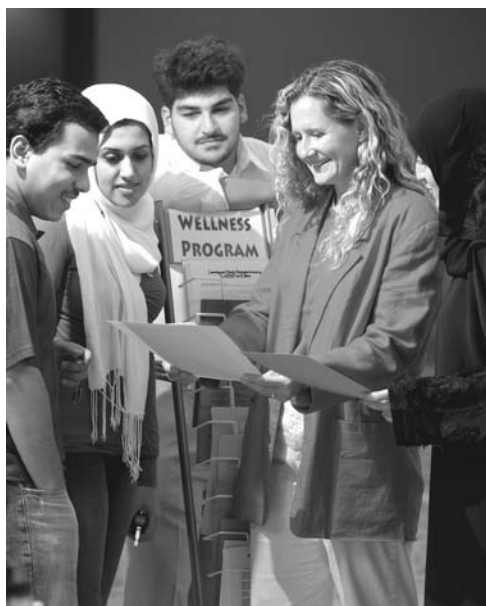
The mission of the Chemical Engineering Program at Texas A&M University at Qatar is to meet the educational, research, and service needs of the State of Qatar by:

- Preparing students for leadership roles in industry and government in Qatar and in the region and for postgraduate education;
- Being a valuable resource and service base to the State of Qatar through education, research, and consulting;
- Providing solutions to problems of social, economic, and environmental importance; and
- Contributing to the expansion of knowledge by conducting research and applying modern chemical engineering tools and techniques.

The objectives of the Chemical Engineering program at TAMUQ are:

1. Our graduates will demonstrate the foundation, depth, and breadth of knowledge for successful chemical engineering careers in industry or government.
2. Our graduates will demonstrate effective communication, leadership, and teaming skills.
3. Our graduates will demonstrate that they have a sense of responsibility, are ethical in the conduct of their profession, and have an appreciation for the impact of their profession on society.

The Chemical Engineering curriculum provides a balanced education in virtually all aspects of chemical engineering principles and practice and includes education in economics, humanities, and communication. Chemical engineering courses emphasize fundamentals and methods that are applicable to the analysis, development, design, and operation of a wide variety of chemical engineering systems and processes, thereby providing the necessary background for entry into the wide array of activities described above. At the same time, specific example applications provide the student with insight into the ability of chemical engineers to work in such a variety of areas. The sequence of courses converges in the senior year into a comprehensive capstone design course that includes elements of



economics, safety, and environmental issues. The course provides an experience much like that of an industry design project. It is this philosophy of fundamentals, applications, and design that has enabled our chemical engineering graduates to adapt readily to a dynamic and rapidly changing world and to solve problems they have not previously experienced.

To supplement course work, well-equipped laboratories provide our students with experiences in operating and analyzing a variety of unit operations and process control equipment and in using modern computational tools and software used in chemical engineering.

The free CHEN electives are to be taken from a prescribed list. Other courses may also be acceptable, with special approval.

#### FRESHMAN YEAR

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
ENGL 104 Comp. & Rhetoric .....	(3-0)	3	CHEM 102 Fund. of Chem. II* .....	(3-0)	3
ENGR 111 Found. in Engr. I .....	(1-3)	2	CHEM 112 Fund. of Chem. Lab II .....	(0-3)	1
MATH 151 Engr. Math I' .....	(3-2)	4	ENGR 112 Found. in Engr. II .....	(1-3)	2
PHYS 218 Mechanics .....	(3-3)	4	MATH 152 Engr. Math II .....	(3-2)	4
University Core Curriculum elective <sup>2</sup> .....		3	PHYS 208 Elect. and Optics. ....	(3-3)	4
KINE 198 Health and Fitness Activity .....	(0-2)	1	University Core Curriculum elective <sup>2</sup> .....		3
		<u>17</u>	KINE 199 Req'd Phys. Act. ....	(0-2)	<u>1</u>
					18

**SOPHOMORE YEAR**

CHEM 227 Organic Chem. I.....	(3-0)	3	CHEM 228 Organic Chem. II.....	(3-0)	3
CHEM 237 Organic Lab. I.....	(0-3)	1	CHEM 238 Organic Chem. Lab. II.....	(0-3)	1
CHEN 204 Elem. Chen.....	(2-3)	3	CHEN 205 CHEN Thermo. I.....	(3-0)	3
MATH 251 Engr. Math III.....	(3-0)	3	ENGL 210 Scientific and Tech. Writing .....	(3-0)	3
MEEN 221 Statics & Dynamics.....	(2-2)	3	MATH 308 Diff. Eqns. ....	(3-0)	3
University Core Curriculum elective <sup>2</sup> .....		<u>3</u>	University Core Curriculum elective <sup>2</sup> .....		<u>3</u>
		16			16

**JUNIOR YEAR**

CHEM 316 Quant. Analy. ....	(2-0)	2	CHEM 322 Phys. Chem. for Engr.....	(3-0)	3
CHEM 318 Quant. Analy. Lab.....	(0-3)	1	CHEM 466 Polymer Chem.....	(3-0)	3
CHEN 304 CHEN Fluid Oper.....	(3-0)	3	CHEN 323 Heat Transfer Oper.....	(3-0)	3
CHEN 354 CHEN Thermo. II.....	(3-0)	3	CHEN 313 CHEN Materials.....	(3-0)	3
CHEN 320 CHEN Analysis.....	(3-0)	3	ECEN 215 Princ. Elect. Eng. ....	(2-2)	3
University Core Curriculum elective <sup>2</sup> .....		3	University Core Curriculum elective <sup>2</sup> .....		<u>3</u>
Elective <sup>3</sup> .....		<u>3</u>			18
		18			

**SENIOR YEAR**

CHEN 414 Chem. Engr. Lab. I.....	(0-3)	1	CHEN 426 CHEN Plant Design.....	(1-6)	3
CHEN 424 CHEN Mass Trans. Ops .....	(3-0)	3	CHEN 433 Chem. Engr. Lab. II.....	(0-3)	1
CHEN 425 Process Integ., Sim., and Econ. ...	(2-3)	3	CHEN 464 CHEN Kinetics.....	(3-0)	3
CHEN 455 Process Safety Engr. ....	(3-0)	3	CHEN Specialty Electives <sup>4</sup> .....		6
CHEN 461 Process Dynamics and Control....	(3-0)	3	ENGR 482 Ethics and Eng. ....	(2-2)	<u>3</u>
CHEN 481 CHEN Seminar .....	(0-2)	<u>1</u>			16
		14			

**Total Credits Required 133**

NOTES: 1. Entering students will normally be given placement tests in mathematics. Test results will be used to select the appropriate starting courses, which may be at a higher or lower level.

\* BMEN, CHEN, and RHEN require 8 hours of freshman chemistry, which may be satisfied by CHEM 101 or CHEM 107 and 102, Credit by Examination (CBE) for CHEM 101 or CHEM 107 plus CHEM 102, or 8 hours of CBE for CHEM 101 or CHEM 107 and CHEM 102.

2. To be selected from the University Core Curriculum. Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U.S. history, and 6 from POLS 206 and 207. The required 6 hours from international and cultural diversity may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and political science and history requirements if they are also on the approved list of international and cultural diversity courses (see academic advisor for more information).

3. To be selected from courses at 300 level or above or any 100 to 400 level Computer Science.

4. To be selected from CHEN 409, 440, 451, 458, 459, 471, 474, 475, and 489; ENGR 385; and MEEN 455 and 458 (others by petition).

The Systems Safety Engineering Specialty is available for students pursuing this degree.

*At TAMUQ, the BMEN and RHEN majors are not offered, and the Systems Safety Engineering Specialty is not available.*

## Scholastic Performance Requirements for Chemical Engineering Undergraduates

The Texas A&M University Student Rules stipulate that a student must achieve a minimum grade point ratio (GPR) of 2.0 both overall and in those courses in the student's major in order to graduate from the University. The University also classifies students with less than 30 credit hours as freshmen (U1), 30 to 60 hours as sophomores (U2), 60 to 89 hours as juniors (U3), and 90 hours or more as seniors (U4). The Chemical Engineering Program imposes additional requirements for students to be accepted into, and progress through, the Chemical Engineering curriculum, based upon classification with regard to the courses which have been completed in the Chemical Engineering curriculum, as follows.

**Freshmen.** Students will complete the Common Body of Knowledge (CBK) courses in the freshman year of the curriculum (e.g., all of the required first year English, chemistry, physics, math, and engineering courses), with no grade below C.

**Sophomores.** All students are required to complete both CHEN 204 and CHEN 205, each with a grade of C or better. Neither CHEN 204 nor CHEN 205 can be repeated more than once.

**Juniors.** Students who have successfully completed all 200-level CHEN courses but have not completed all of the 300-level CHEN courses in the Chemical Engineering curriculum are classified as Chemical Engineering juniors regardless of the total number of credit hours they have earned. Students must complete each 300-level CHEN course in the Chemical Engineering curriculum with a grade of C or better, while maintaining a cumulative average GPR of 2.0 or better for all CHEN courses.

**Seniors.** Students who have successfully completed all required 300-level CHEN courses are classified as Chemical Engineering seniors. All students must complete each of the 400-level required prerequisite CHEN courses with a grade of C or better and have a cumulative average GPR of 2.0 for all CHEN courses, as well as an overall GPR of 2.0, in order to qualify for graduation with a B.S. degree in Chemical Engineering. Graduating seniors in their final semester should see their academic advisor for their final degree checks.

Curriculum in  
Electrical Engineering

Administrative Officer at Texas A&M University at Qatar

Program Coordinator (PC) .....Hussein M. Alnuweiri, B.S., M.S., Ph.D.

Administrative Officer of Department of Electrical and  
Computer Engineering at Texas A&M University

Department Head (DH) .....Costas N. Georgiades, B.E., M.S., Ph.D.

Electrical engineers develop and apply the theories of electricity, electronics, and electromagnetics to analyze and design a variety of systems in such diverse fields as telecommunication, electric energy, computers, automatic control, and instrumentation, as well as consumer and entertainment electronics. Examples of such systems are cell phones, satellite communication, television, radar, global positioning systems, computers, and magnetic resonance imaging (MRI) systems, as well as sophisticated domestic appliances. The devices that practicing electrical engineers work with and design include modems, antennas, motor drives, digital systems, microprocessors, and integrated circuits that are the heart of almost any current system, including automotives, washers and dryers, etc.

The curriculum is designed to prepare the undergraduate student for work in the highly diverse electrical engineering profession. A solid foundation in physics, chemistry, and mathematics is used to support courses in the fundamentals of electrical engineering. The use of computers is integrated throughout the curriculum, and basic studies during the sophomore and junior years in analog and digital circuits, signals and systems, electronics, electromagnetic fields, and computer architecture lead to two tracks of electives in the senior year. The power track is designed to train students in the theory and techniques related to power electronics and power systems. The communication track is designed to prepare students to address challenges in the area of digital wired and wireless communication systems. Both tracks have similar requirements and provide an educational experience that is broad based and rigorous. Laboratory work throughout the curriculum and within both tracks is structured to first familiarize the student with the basic concepts and then to apply these concepts to engineering problems.

Students who expect to enroll in electrical engineering after attending another college or university should note that there is a five-semester sequence of electrical engineering courses in the standard curriculum. If the prerequisites are satisfied, transfer students may complete this sequence in at least two years.

### Program Mission

The educational mission of the Electrical Engineering program is to provide quality education, well grounded in the fundamental principles of engineering, that prepares students for positions in industry, government, and academia. The Electrical Engineering program also aims to serve the industries and the governmental agencies in the State of Qatar through continuing education, outreach activities, consulting and research.

### Educational Program Objectives

The educational program objectives of the electrical engineering program are:

1. Graduates will demonstrate the foundation and depth for successful electrical engineering careers.
2. Graduates will demonstrate professionalism as well as effective communications, teaming, and project management skills.
3. Graduates will be competitive in the electrical engineering job market or in continuing their graduate education.

The extent to which the program is meeting these objectives is periodically assessed through such instruments as alumni surveys and employer/recruiter surveys. Our goal is to continually improve the program's ability to meet these educational objectives. The electrical engineering curriculum and individual course contents are periodically evaluated and adjusted in order to further support our ability to achieve the program objectives. The program welcomes comments and suggestions from any interested individuals regarding the above program objectives and/or how the program can better meet these objectives.



(See Freshman Year)

**SOPHOMORE YEAR**

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
ECEN 248 Intro. to Dig. Sys. Design.....	(3-3)	4	ECEN 214 Electrical Circuit Theory.....	(3-3)	4
ENGL 210 Scientific and Tech. Writing.....	(3-0)	3	MATH 308 Differential Equations.....	(3-0)	3
MATH 251 Engineering Mathematics III.....	(3-0)	3	PHYS 222 Mod. Physics for Engineers .....	(3-0)	3
MEEN 221 Static and Particle Dynamics .....	(2-2)	3	UCC elective <sup>1</sup> .....	(3-0)	3
UCC elective <sup>1</sup> .....	(3-0)	<u>3</u>	UCC elective <sup>1</sup> .....	(3-0)	<u>3</u>
		16			16

**JUNIOR YEAR**

ECEN 314 Signals and Systems.....	(3-1)	3	ECEN 303 Random Signal and Systems .....	(3-0)	3
ECEN 325 Electronics .....	(3-3)	4	ECEN 322 Elec. and Magnetic Fields.....	(3-0)	3
ECEN 370 Elec. Props. of Matls. ....	(3-0)	3	ECEN 350 Comp. Arch. and Design.....	(3-3)	4
MATH 311 Topics in Applied Math I.....	(3-0)	3	ECEN elective <sup>2</sup> .....	(3-3)	4
ECEN elective <sup>2</sup> .....	(0-3)	1	Technical elective <sup>2</sup> .....	(3-0)	<u>3</u>
UCC elective <sup>1</sup> .....	(3-0)	<u>3</u>			17
		17			

**SENIOR YEAR**

ISEN 302 Econ. Analysis of Engr. Proj. ....	(2-0)	2	ECEN 405 Electrical Design Lab.....	(1-6)	3
ECEN elective <sup>2</sup> .....	(3-3)	4	ENGR/PHIL 482 Ethics and Engineering ....	(2-2)	3
ECEN elective <sup>2</sup> .....	(3-3)	4	ECEN elective <sup>2</sup> .....	(2-3)	3
ECEN elective <sup>2</sup> .....	(3-0)	<u>3</u>	ECEN elective <sup>2</sup> .....	(3-0)	3
		13	ECEN elective <sup>2</sup> .....	(0-3)	1
			ECEN elective <sup>2</sup> .....	(3-0)	<u>3</u>
					16

**Total Credits Required 130**

- NOTES: 1. To be selected from the University Core Curriculum (UCC). Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U.S. history, 6 from POLS 206 and 207, and 6 from international and cultural diversity. The international and cultural diversity requirement may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and history requirements if they are also on the approved list of international and cultural diversity courses.
2. ECEN and Technical electives are to be chosen from a list available from the TAMUQ ECEN program office.

## Curriculum in Mechanical Engineering

### Administrative Officer at Texas A&M University at Qatar

Program Coordinator (PC).....Richard B. Griffin, B.S., Ph.D.

### Administrative Officer of Department of Mechanical Engineering at Texas A&M University

Department Head (DH) .....Dennis L. O'Neal, B.S., M.S., Ph.D.

Mechanical Engineering at Texas A&M University at Qatar (TAMUQ) challenges students and helps them to develop their full creative potential. TAMUQ's program has three main areas: thermal-fluid sciences, systems and controls, and materials and manufacturing. The courses taken in these areas enable students to develop the technical tools and skills required for enhancing the design process. The education is broad and supports students being able to choose from a variety of opportunities.

Mechanical engineers according to ABET, an engineering education accreditation organization, apply principles of engineering, basic science, and mathematics to model, analyze, design, and realize physical systems, components or processes; and work professionally in both thermal and mechanical systems areas. Mechanical engineering is a diversified profession because all industries, including oil and gas industries, chemical industries, and building environments, need mechanical engineers for designing, maintaining, testing, and managing operations. In addition to industry, mechanical engineers may work for governmental and consulting organizations.

The mission of the Mechanical Engineering program is to serve the students of Texas A&M University at Qatar and the State of Qatar by:

- Providing quality education, well grounded in the fundamental principles of engineering, to prepare students for leadership positions and successful careers in industry, government, and academia.
- Extending the knowledge base of mechanical engineering to support the competitiveness of existing industry and to spawn new economic development in the State of Qatar and the region through active involvement in basic and applied research.
- Providing professional development opportunities for practicing engineers through continuing education, service, and outreach activities.

The objectives of the Mechanical Engineering program are:

1. To produce graduates who will have successful careers and become leaders in industry, government, and academia.
2. To produce graduates who will:
  - Appropriately apply acquired knowledge,
  - Work well with other people,
  - Effectively communicate ideas and technical information,
  - Continue to learn and improve, and
  - Pursue advanced studies, if they so choose, and subsequently contribute to the development of advanced concepts and leading-edge technologies.



3. To produce graduates that will be able to function effectively in the diverse work environment of Qatar and the region and contribute to the development of advanced concepts and leading-edge technologies.

The Mechanical Engineering curriculum at Texas A&M at Qatar requires students to develop and apply logical thinking, innovative approaches, and ethical standards as a prerequisite for professional competence. The curriculum consists of basic theory courses complemented by laboratory experiences in science and mathematics, dynamic systems and controls, design, experimentation, fluid mechanics, heat transfer, manufacturing, and materials. Elective courses are offered in several specific areas of mechanical engineering including air conditioning, computer-aided design, control systems, corrosion, energy conversion, materials, mechanical design, plastics, mechatronics, failure, power generation, turbomachinery, and others. The selection of elective courses is dictated by the interests and professional goals of the student, working with departmental advisors and within the curriculum guidelines.

Many students enhance their education by participating in professional internships, which offer opportunities for employment in engineering positions while working toward a degree. Numerous study abroad programs are also available for gaining experience and perspectives in the international arena. Participation in student chapters of professional and honor societies provides leadership opportunities, collegial activities, and learning experiences outside the classroom. Students may also participate in research projects through individually directed studies courses with a professor. The Mechanical Engineering program culminates with a senior capstone design course sequence highlighted by real-life projects sponsored by various industries. Students benefit from the challenges and gratification that come through direct interaction with practicing engineers.

## (See Freshman Year)

A grade of C or better is required for all of the Common Body of Knowledge (CBK) courses (MATH 151 and 152, PHYS 208 and 218, CHEM 107/117, ENGL 104, and ENGR 111 and 112). Prerequisites for the CBK courses will not be included in the calculations.

**SOPHOMORE YEAR**

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
ENGL 210 Scientific and Tech. Writing.....	(3-0)	3	CVEN 305 Mechanics of Materials <sup>1</sup> .....	(3-0)	3
MEEN 221 Statics and Particle Dynamics <sup>1</sup> ....	(2-2)	3	ECEN 215 Prin. of Electrical Engr. <sup>1</sup> .....	(2-2)	3
MEEN 222 Materials Science <sup>1</sup> .....	(3-0)	3	MATH 308 Differential Equations <sup>1</sup> .....	(3-0)	3
MATH 251 Engineering Mathematics III <sup>1</sup> .....	(3-0)	3	MEEN 260 Mechanical Measurements <sup>1</sup> .....	(2-3)	3
UCC electives <sup>2</sup> .....		3	MEEN 315 Principles of Thermodynamics <sup>1</sup> ...	(2-2)	3
		<u>15</u>			<u>15</u>

**JUNIOR YEAR**

MEEN 344 Fluid Mechanics <sup>1</sup> .....	(3-0)	3	ISEN 302 Economic Analysis of Engineering Projects.....	(2-0)	2
MEEN 345 Fluid Mechanics Lab. <sup>1</sup> .....	(0-3)	1	MEEN 364 Dynamic Sys. and Controls <sup>1</sup> .....	(2-3)	3
MEEN 357 Engineering Analysis for Mech. Engineers <sup>1</sup> .....	(3-0)	3	MEEN 368 Solid Mechanics in Mechanical Design <sup>1</sup> .....	(2-2)	3
MEEN 360 Mat. and Manuf. Sel. in Design <sup>1</sup> .....	(3-3)	4	MEEN 381 Mechanical Eng. Seminar.....	(0-2)	1
MEEN 363 Dynamics and Vibrations <sup>1</sup> .....	(2-2)	3	MEEN 461 Heat Transfer.....	(3-0)	3
UCC elective <sup>2</sup> .....		3	MEEN 464 Heat Transfer Lab.....	(0-3)	1
		<u>17</u>	UCC elective <sup>2</sup> .....		3
					<u>16</u>

**SENIOR YEAR**

MEEN 401 Intro. to Mech. Engr. Design <sup>1</sup> .....	(2-3)	3	ENGR 482 Ethics and Engineering .....	(2-2)	3
MEEN 404 Engineering Laboratory .....	(2-3)	3	MEEN 402 Intermediate Design .....	(2-3)	3
Stem courses ME(2) <sup>3</sup> .....		6	Technical electives ME(2) <sup>3</sup> .....		6
Technical elective ME(1) <sup>3</sup> .....		3	UCC elective <sup>2</sup> .....		3
		<u>15</u>			<u>15</u>

**Total Credits Required 128**

NOTES: 1. Requires a grade of C or better.

2. To be selected from the University Core Curriculum. Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U.S. history, and 6 from POLS 206 and 207. The required 6 hours from international and cultural diversity may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and political science and history requirements if they are also on the approved list of international and cultural diversity courses (see academic advisor for more information).

3. Stem courses and technical electives: See the Mechanical Engineering Program Coordinator for a list of approved courses.

This curriculum lists the minimum number of classes required for graduation. Additional courses may be taken.

**Curriculum in  
Petroleum Engineering**

**Administrative Officer at Texas A&M University at Qatar**

Program Coordinator (PC) ..... Mohamed A. Aggour, B.S., Ph.D.

**Administrative Officer of Harold Vance Department of  
Petroleum Engineering at Texas A&M University**

Department Head (DH) ..... Stephen A. Holditch, B.S., M.S., Ph.D.

Petroleum engineering is primarily concerned with the economic extraction of oil, gas, and other natural resources from the earth. This is accomplished through the design, drilling, and operation of wells and well systems, and the integrated management of the underground reservoirs in which the resources are found.

The Petroleum Engineering program has three educational objectives:

1. Graduates will be competitive in the petroleum engineering job market or in continuing their education.
2. Graduates will have the technical depth and breadth to be successful as petroleum engineers in whatever part of the field their career path leads them.
3. Graduates will have the broad education, communication skills and ethical principles needed to rise to positions of leadership in the field of petroleum engineering.

The mission of the Petroleum Engineering curriculum is to provide a modern engineering education with proper balance between fundamentals and practice, and to graduate engineers prepared for life-long learning but capable of being productive contributors immediately. The curriculum includes study of:

1. Design and analysis of well systems and procedures for drilling and completing wells;
2. Characterization and evaluation of subsurface geological formations and their resources;
3. Design and analysis of systems for producing, injecting, and handling fluids;
4. Application of reservoir engineering principles and practices for optimizing resource development and management; and
5. Use of project economics and resource valuation methods for design and decision making under conditions of risk and uncertainty.

There is a heavy emphasis on mathematics, computer applications, communication skills, and interdisciplinary problem solving. The department encourages its students to work as interns during the summer months. A minimum of six weeks of approved experience is required for graduation.

## (See Freshman Year)

**SOPHOMORE YEAR**

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
COMM 205 Comm. for Tech. Professionals ...	(3-0)	3	CVEN 305 Mechanics of Materials.....	(3-0)	3
GEOL 104 Physical Geology .....	(3-3)	4	GEOL 404 Geology of Petroleum.....	(2-3)	3
MATH 251 Engineering Mathematics III.....	(3-0)	3	MATH 308 Differential Equations.....	(3-0)	3
MEEN 221 Statics and Particle Dynamics .....	(2-2)	3	MEEN 315 Prin. of Thermodynamics.....	(2-2)	3
PETE 225 Petroleum Drilling Systems.....	(1-3)	2	PETE 311 Reservoir Petrophysics .....	(3-3)	4
University Core Curriculum elective <sup>1</sup> .....		3			16
		18			

**JUNIOR YEAR**

PETE 301 Petr. Engr. Numerical Methods ....	(2-3)	3	PETE 321 Formation Evaluation.....	(3-3)	4
PETE 310 Reservoir Fluids .....	(3-3)	4	PEEN 323 Reservoir Models .....	(3-0)	3
PETE 314 Transport. Processes in.....			PETE 324 Well Performance .....	(3-0)	3
Petroleum Production.....	(3-0)	3	PETE 325 Petroleum Productions Systems ....	(1-3)	2
PETE 335 Technical Presentations I <sup>2</sup> .....	(1-0)	1	PETE 403 Petroleum Project Evaluation .....	(3-0)	3
University Core Curriculum elective <sup>1</sup> .....		3			15
		14			

**SUMMER**

PETE 300 Summer Practice

**SENIOR YEAR**

ECEN 215 Principles of Electrical Engineering.....	(2-2)	3	ENGR 482 Ethics and Engineering .....	(3-0)	3
PETE 400 Reservoir Description.....	(2-3)	3	PETE 322 Geostatistics .....	(3-0)	3
PETE 405 Drilling Engineering .....	(3-0)	3	PETE 401 Reservoir Development.....	(2-3)	3
PETE 410 Production Engineering .....	(3-0)	3	Technical elective <sup>3</sup> .....		3
PETE 435 Technical Presentations II <sup>2</sup> .....	(1-0)	1	University Core Curriculum elective <sup>1</sup> .....		3
University Core Curriculum elective <sup>1</sup> .....		3			15
		16			

**Total Credits Required 129**

- NOTES: 1. To be selected from the University Core Curriculum. Of the 18 hours shown as University Core Curriculum electives, 3 must be from visual and performing arts, 3 from social and behavioral sciences, 6 from U.S. history, and 6 from POLS 206 and 207. The required 6 hours from international and cultural diversity may be met by courses satisfying the visual and performing arts, social and behavioral sciences, and/or U.S. history requirements if they are also on the approved list of international and cultural diversity courses (see academic advisor for more information). In addition, ENGR 482 must be taken.
2. Independent study of a petroleum engineering problem, the solution of which will be documented by a technical paper and an oral presentation.
3. Select from GEOL 312, GEOP 421, PETE 406 or 416, or other as approved by the Department Head.

## Undergraduate Minor Programs

### Minor in Chemistry

Students seeking a minor in Chemistry must complete a declaration of minor form and have it approved by the Science Program Coordinator and their academic advisor. The courses required for the minor are listed below along with any restrictions and conditions.

All students seeking a Chemistry minor must complete at least 22 credits of chemistry, consistent with the statement on minors published by the American Chemical Society.

All students must satisfy the requirements in Categories A and B below.

Students whose major requires 16 or fewer credits of chemistry must take 3 credits from Category C and an additional 3 credits from either Category C or D for a total of 6 or more credits.

Students whose major requires greater than 16 credits of chemistry must take at least 3 credits from Category C and at least 3 credits from Category D for a total of 6 or more credits.

A. General Inorganic Chemistry (8 credits)

CHEM 101(3) and CHEM 111(1) or CHEM 103(3)/113(1) or CHEM 107(3)/CHEM 117(1)  
plus  
CHEM 102(3) and CHEM 112(1) or CHEM 104(3)/114(1)

B. Organic Chemistry (8 credits)

CHEM 222(3) and CHEM 242(1) or CHEM 227(3), CHEM 237(1), or CHEM 231(2)  
plus  
CHEM 228(3) and CHEM 238(1) or CHEM 234(3)

C. Analytical, Environmental, or Physical Chemistry (3–6 credits dependent on major)

At least one laboratory course is required, but no more than one-third of the credits in this category may be laboratory course credits.

CHEM 315(3), 316(2), 317(2), 318(1), 320(2), 322(3), 325(1), 326(1), 327(3), 328(3), 334(2), 362(3), or 383(3). Students may not count both CHEM 315 and 316.

D. Advanced Chemistry Elective (0–3 credits dependent on major)

Chemistry 415(3), 446(3), 462(3), 464(3), 466(3), or 470(3)

Substitution of courses without the Chemistry Department CHEM prefix will not be allowed.



### Minor in Mathematics

The courses listed below constitute 17 credit hours, all of which are required for a minor in Mathematics. A grade of “C” or better must be earned in each of the specified courses.

1. MATH 151: Engineering Mathematics I. Credit 4
2. MATH 152: Engineering Mathematics II. Credit 4
3. MATH 308: Differential Equations. Credit 3
4. MATH 311: Topics in Applied Mathematics I. Credit 3
5. MATH 414: Fourier Series and Wavelets. Credit 3

### Minor in Electrical Engineering

The courses listed below constitute the 18 credit hours required for a minor in Electrical Engineering (for non-Electrical Engineering students):

1. ECEN 214: Electrical Circuit Theory. Credit 4
2. ECEN 248: Introduction to Digital Systems Design. Credit 4
3. ECEN 314: Signal and Systems. Credit 3
4. ECEN 325: Electronics. Credit 4
5. ECEN XXX: Any 300- or 400-level ECEN course except ECEN 405, ECEN 485, or ECEN 491. Credit 3

**Acceptance in the Electrical Engineering Minor:** A minimum grade point ratio of 2.5 is required in order to enter the minor. This is the same requirement as for students who are majoring in Electrical Engineering to enter the upper division of Electrical Engineering.

**Satisfactory Completion of the Electrical Engineering Minor:** To be awarded the minor in Electrical Engineering, students must earn a C or better grade in each of the courses used for the minor.

### **Minor in Geology**

General requirements. A grade of “C” or better must be earned in each of the minor courses.

1. Minimum of 15 credits
2. Either Geology 101, 104 or 320
3. Remaining courses to be taken in Geology (all could count except Geology 308) or may include selected courses in Geography, Geophysics, and Oceanography, with advisor approval
4. Minimum of 6 credits must be taken in residence at Texas A&M University at Qatar or Texas A&M University in College Station

# Supporting Academic Programs

2009–2010 Undergraduate Catalog



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# College of Education and Human Development

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## Administrative Officer at Texas A&M University at Qatar

Associate Dean for Academic Affairs..... Prasad Enjeti, B.E., M.Tech, Ph.D.

## Administrative Officers at College Station Campus

Dean ..... Douglas J. Palmer, B.A., M.A., Ph.D.  
Executive Associate Dean for Faculty Affairs ..... Christine A. Stanley, B.S., M.S., Ph.D.  
Associate Dean for Academic Affairs..... James B. Kracht, B.A., M.A., Ph.D.  
Associate Dean for Research and P-16 Initiatives..... Linda Skrla, B.B.A., M.S., Ph.D.  
Associate Dean for Graduate Program Development .....Patricia Goodson, B.A., M.Ph., M.A., Ph.D.  
Assistant Dean for Finance and Administration .....Kelli Shomaker, B.B.A.  
Assistant Dean for Administrative Services ..... Becky Carr, B.S., M.Ed., Ph.D.

## General Statement

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The development of the body as well as the mind is an integral part of the educational process. In order to meet this educational need, Texas A&M University at Qatar offers a variety of Kinesiology courses. These courses are divided into two types: Health and Fitness Activity and a required Physical Activity. The purpose of these courses is to improve the student’s level of fitness and/or pursuit of lifetime sport and to provide knowledge and skill development to meet present and future wellness objectives.



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# College of Geosciences

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## Administrative Officer at Texas A&M University at Qatar

Program Coordinator ..... Mohamed A. Aggour, B.S., Ph.D.

## Administrative Officers at College Station Campus

Dean ..... Björn Kjerfve, B.A., M.S., Ph.D.

Executive Associate Dean and

Associate Dean for Research ..... Luis A. Cifuentes, B.A., M.S., Ph.D.

Associate Dean for Academic Affairs ..... Sarah W. Bednarz, B.A., M.A.T., Ph.D.

## General Statement

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Students at Texas A&M at Qatar will have the opportunity to take courses in two areas within the College of Geosciences. Geology deals with the processes and forces acting at the surface and within the earth; with the materials of the earth, its forms and structures; and with the history of its development and the evolution of life on its surface and in its waters. Geophysics deals primarily with the physics of the solid earth from the measurement and understanding of its internal structure and physical properties, plate motions and their effect on continents and ocean basins, to the detection of its natural resources through remote sensing.



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# College of Liberal Arts

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## Administrative Officer at Texas A&M University at Qatar

Program Coordinator ..... C. Todd Kent, B.S., M.A., Ph.D.

## Administrative Officers at College Station Campus

Dean ..... Charles A. Johnson, B.S., M.A., Ph.D.  
Executive Associate Dean ..... Ben M. Crouch, B.A., M.A., Ph.D.  
Associate Dean ..... Pamela R. Matthews, B.A., M.A., Ph.D.  
Interim Associate Dean..... Patricia A. Hurley, B.A., M.A., Ph.D  
Assistant Dean ..... Cheryl L. Hanks, B.A., M.A.  
Assistant Dean ..... Donald J. Curtis, Jr., B.A., M.A., Ph.D.

## General Statement

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Examples of history show us that a liberal arts education is the foundation of a strong and progressive society. The Liberal Arts program offers students an opportunity to explore the intellectual achievements of humankind through a disciplined and responsible study of issues that have been of enduring importance to people. Thus, courses in liberal arts help students develop sensitivity to the questions and values that confront them in their daily lives. At the same time, skills are built which can be put to use in solving complex problems. One of the program's principal objectives is to achieve the hallmark of an educated person: a fundamental knowledge of the forces that have shaped and continue to direct our cultural identity.

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# College of Science

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## Administrative Officer at Texas A&M University at Qatar

Program Coordinator .....Hassan S. Bazzi, B.S., M.S., Ph.D.

## Administrative Officers at College Station Campus

Dean ..... H. Joseph Newton, B.S., M.S., Ph.D.  
Executive Associate Dean ..... Michael B. Hall, B.S., Ph.D.  
Associate Dean for Undergraduate Programs..... Timothy P. Scott, B.S., M.S., Ph.D.  
Associate Dean for Graduate Studies..... Mark J. Zoran, B.A., M.S., Ph.D.  
Associate Dean for Assessment and Pre K-12 Education ..... Jane F. Schielack, B.S., M.A., Ph.D.  
Associate Dean for External Relations..... Marlan O. Scully, B.S., M.S., Ph.D.  
Associate Dean for Technology Mediated  
Instruction and Distance Education .....F. Michael Speed, B.S., M.S., Ph.D.  
Associate Dean for Faculty Affairs ..... Sherry J. Yennello, B.S., M.S., Ph.D.  
Assistant Dean for Finance and Administration ..... Julie B. Allen, B.B.A.

## Curricula in Chemistry

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An understanding of chemistry is critical to an understanding of life and its associated activities. Chemistry and chemical principles profoundly influence the way we live, communicate, and interact with one another, so it is little wonder that a strong background in chemistry provides a solid foundation for a variety of careers of major importance in the 21st century. Chemistry is uniquely positioned at the crossroad between the biological and physical sciences. By exploiting their understanding of both realms, chemists and other professionals with strong backgrounds in chemistry have made, and continue to make, major contributions to improve the human condition. Major technological and biological discoveries almost always depend on a fundamental understanding of chemistry, and the pursuit of these discoveries, as a way to improve the world in which we live, drives those who seek to be a part of the process.

The Chemistry Program at TAMUQ offers course work and research in various areas of chemistry, organized into a program leading to a minor degree in chemistry.



## Curricula in Mathematics

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A comprehensive understanding of mathematics is a key foundation to engineering. The Texas A&M University at Qatar Mathematics Curriculum is structured to teach mathematical concepts that enhance the students' analytical abilities and to use quantitative mathematical tools and apply them to problems in engineering. Students will learn coordinate systems, vectors, analytical geometry, functions, differentiation and integration techniques, computer algebra systems (Maple and Matlab), multiple integration techniques, gradients, line and surface integrals, Stokes' theorems, differential equations, matrices, determinants, and topics in applied mathematics such as Fourier series and wavelets with application to data compression and signal processing.

## Curricula in Physics

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Physics is the science which investigates and tries to understand the basic laws of nature. In this pursuit, it deals with the entire range of natural phenomena from the smallest domain of sub-nuclear particles to the largest domain of distant objects in the universe.

This breadth of interests is reflected in the type of work pursued by physicists. Some physicists are interested in research on problems which are at the frontiers of knowledge. Some apply this newly acquired knowledge to make practical advances. Still others use knowledge of physics as a basis for careers in teaching or administration.



# Course Descriptions

2009–2010 Undergraduate Catalog



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# Course Descriptions

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All undergraduate courses offered in the University are described on the following pages and are listed by subject and arranged alphabetically. Some of the new courses and changes in courses are included in this catalog pending their approval by the Texas Higher Education Coordinating Board. The course numbering scheme is as follows: 100–199, primarily open to freshmen; 200–299, primarily open to sophomores; 300–399, primarily open to juniors; and 400–499, primarily open to seniors.

Figures in parentheses following the course title 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, credit cannot be received for both courses. Any course may be withdrawn from the session offerings in case the number of registrations is too small to justify offering the course.

Note: Please note that where department head is listed in the course descriptions, the academic program coordinator at Texas A&M University at Qatar serves as proxy for the department head in College Station.

## Chemical Engineering (CHEN)

**Professors** D. B. Bukur, J. C. Holste; **Senior Professors** B. Palmer, S. Waldram; **Senior Associate Professors** A. I. A. Abdel-Wahab (PC), P. Linke, M. N. Nounou; **Visiting Assistant Professor** N. Elbashir; **Lecturer** G. H. Salama

- 204. **Elementary Chemical Engineering.** (2-3). **Credit 3.** Solution of elementary problems by application of mass balances, energy balances, and equilibrium relationships. Prerequisite: Admission to upper-level chemical engineering.
- 205. **Chemical Engineering Thermodynamics I.** (3-0). **Credit 3.** First and second laws of thermodynamics; volumetric properties of pure fluids; heat effects; applications to flow processes, power cycles, refrigeration. Prerequisites: CHEN 204; MATH 251.
- 285. **Directed Studies.** **Credit 1 to 4.** Directed study of special projects or studies in chemical engineering processes or operations, for lower division students. Credit not applicable to degree requirements in chemical engineering. Prerequisites: Freshman or sophomore classification; approval of department head.
- 289. **Special Topics in...** **Credit 1 to 4.** Selected topics in an identified area of chemical engineering for lower division students. May be repeated for credit. Credit not applicable to degree requirements in chemical engineering. Prerequisite: Approval of instructor.
- 304. **Chemical Engineering Fluid Operations.** (3-0). **Credit 3.** Fundamentals of fluid mechanics with applications to design and analysis of process equipment. Prerequisites: CHEN 205; MATH 308.
- 313. **Chemical Engineering Materials.** (3-0). **Credit 3.** Overview of materials science with particular emphasis on classes of materials relevant to chemical engineers. Prerequisites: MATH 251 or registration therein, CHEN 205 or registration therein.
- 320. **Numerical Analysis for Chemical Engineers.** (3-0). **Credit 3.** Applications of numerical analysis techniques to mathematical models of processes common to chemical and associated industries; computational methods and software for analysis of chemical engineering processes. Prerequisites: CHEN 205; MATH 308.
- 323. **Chemical Engineering Heat Transfer Operations.** (3-0). **Credit 3.** Continuation of CHEN 304. Heat transfer operations. Prerequisite: CHEN 304.
- 354. **Chemical Engineering Thermodynamics II.** (3-0). **Credit 3.** Applications of thermodynamics to pure and mixed fluids; phase equilibria and chemical reaction equilibria. Prerequisites: CHEN 205; CHEN 320 or registration therein; MATH 308.

409. **Mathematical Models of Chemical Processes.** (3-0). Credit 3. Development of the mathematical models of chemical and physical processes common to the petroleum processing, chemical, and associated industries. Prerequisite: CHEN 424.
414. **Chemical Engineering Laboratory I.** (0-3). Credit 1. Laboratory work based on CHEN 304 and 323. Prerequisites: CHEN 304 and 323; ENGL 210 or 301.
424. **Chemical Engineering Mass Transfer Operations.** (3-0). Credit 3. Introduction to mass transfer operations with applications to design and analysis of process equipment. Prerequisites: CHEN 323 and 354.
425. **Process Integration, Simulation and Economics.** (2-3). Credit 3. Integration, simulation, and economic methods involved in the design of chemical processes and equipment. Prerequisite: Senior level in chemical engineering or approval of instructor.
426. **Chemical Engineering Plant Design.** (1-6). Credit 3. Integration of material from other chemical engineering courses with applications to the design of plants and processes representative of the chemical and related process industries. Prerequisites: CHEN 424 and 425; graduating senior or approval of instructor.
433. **Chemical Engineering Laboratory II.** (0-3). Credit 1. Laboratory work based on CHEN 424, 461 and 464. Prerequisites: CHEN 414 and 424; CHEN 461 and 464 or registration therein.
440. **Introduction to Transport Phenomena.** (3-0). Credit 3. Unifying principles and analytical description of phenomena of momentum transport (viscous flow), energy transport (heat conduction and convection), and mass transport (diffusion) in continuous media; similarities and differences in these phenomena. Prerequisite: Senior classification or approval of instructor.
451. **Introduction to Polymer Engineering.** (3-0). Credit 3. Fundamentals of polymer reaction kinetics, morphology, chemical and rheological properties with applications to polymer synthesis, production, and processing operations. Prerequisite: Senior classification in chemical engineering or approval of instructor.
455. **Process Safety Engineering.** (3-0). Credit 3. Applications of engineering principles to process safety and hazards analysis, mitigation, and prevention, with special emphasis on the chemical process industries; includes source modeling for leakage rates, dispersion, analysis, relief valve sizing, fire and explosion damage analysis, hazards identification, risk analysis, accident investigations. Prerequisite: Senior classification in any engineering major. Cross-listed with SENG 455.
458. **Fundamentals of Environmental Remediation Processes.** (3-0). Credit 3. Fundamental approach to various remediation technologies; topics in environmental thermodynamics and mass transfer; adsorption, desorption, ion exchange, air stripping extractions, chemical oxidation, biodegradation. Prerequisites: CHEN 354 and 424.
459. **Gas and Petroleum Processing.** (3-0). Credit 3. Design and operation of petroleum and gas processing facilities including hydrate suppression, dehydration, sweetening, sulfur recovery, LPG and liquid recovery, refining operations; analysis of the design and operations involving a large degree of process simulation. Prerequisites: CHEN 323 and approval of instructor.
461. **Process Dynamics and Control.** (3-0). Credit 3. Analysis of process dynamics and methods for the design of automatic control systems for chemical process plants. Prerequisite: CHEN 320.
464. **Chemical Engineering Kinetics.** (3-0). Credit 3. Introduction to kinetics of reactions and application of fundamental principles to design and operation of commercial reactors. Prerequisites: CHEN 320, 323, 354, or approval of instructor.
470. **Introduction of Biomedical Optics.** (3-0). Credit 3. Fundamentals of biomedical optics; basic engineering principles used in optical therapeutics, optical diagnostics, and optical biosensing. Prerequisites: MATH 308; PHYS 208. Cross-listed with BMEN 470.
471. **Introduction to Biochemical Engineering.** (3-0). Credit 3. Fundamentals of microbial and enzyme processes; application of biochemical reaction kinetics, transport phenomena, and chemical reactor design principles to design and analysis of enzyme reactors and fermentation systems. Prerequisite: Senior classification in engineering or approval of instructor. Cross-listed with BAEN 471.
474. **Unit Operations in Food Processing.** (2-2). Credit 3. Design of food process engineering systems; basic concepts of rheology and physical properties of foods; fundamentals of heat and mass transfer and process control. Prerequisites: CHEN 205 and 304, or ENGR 214. Cross-listed with BAEN 474.

475. **Microelectronics Process Engineering.** (3-0). **Credit 3.** State-of-the-art process engineering principles on microelectronics, especially for the fabrication of very large scale integrated circuits (VLSICs); fundamental unit processes, such as thin film deposition, thermal growth, lithography, etching and doping, material structures and properties, and basic device operation principles. Prerequisites: CHEN 354 and 464 or approval of instructor; CHEM 322.
481. **Seminar.** (0-2). **Credit 1.** Preparation of oral and written reports on selected topics from recent technical publications. Prerequisites: Senior classification in chemical engineering; ENGL 210 or 301.
485. **Directed Studies.** **Credit 1 to 5.** Work covers one or more problems in chemical engineering processes or operations. Prerequisite: Approval of department head.
489. **Special Topics in...** **Credit 1 to 4.** Selected topics in an identified area of chemical engineering. May be repeated for credit. Prerequisite: Senior classification in chemical engineering or approval of instructor.

## Chemistry (CHEM)

**Professor M. W. Rowe; Senior Professor D. G. Seapy; Senior Associate Professor H. S. Bazzi (PC), A. Bengali; Visiting Assistant Professor E. N. Brothers**

102. **Fundamentals of Chemistry II.** (3-0). **Credit 3.** Theory and applications of oxidation-reductions systems; thermodynamics and kinetics; complex equilibria and solubility products; nuclear chemistry; descriptive inorganic and organic chemistry. Prerequisites: CHEM 101, 111 or their equivalent. Concurrent registration in CHEM 112 suggested.
107. **General Chemistry for Engineering Students.** (3-0). **Credit 3.** 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.
112. **Fundamentals of Chemistry Laboratory II.** (0-3). **Credit 1.** Introduction to analytical and synthetic methods and to quantitative techniques to both inorganic and organic compounds with emphasis on an investigative approach. Prerequisites: CHEM 101, 111; CHEM 102 or registration therein.
117. **General Chemistry for Engineering Students Laboratory.** (0-3). **Credit 1.** Introduction to important concepts and principles of chemistry in the laboratory; emphasis on areas considered most relevant in an engineering context; practical applications of chemical principles in engineering and technology. Students completing CHEM 117 and changing majors to curricula requiring CHEM 111 and CHEM 112 may substitute CHEM 117 for CHEM 111. Students may not receive credit for both CHEM 117 and CHEM 111. Prerequisite: CHEM 107 or registration therein.
227. **Organic Chemistry I.** (3-0). **Credit 3.** Introduction to chemistry of compounds of carbon; general principles and their application to various industrial and biological processes. Prerequisite: CHEM 102 or 104. Concurrent registration in CHEM 237 is suggested.
228. **Organic Chemistry II.** (3-0). **Credit 3.** Continuation of CHEM 227. Prerequisite: CHEM 227. Concurrent registration in CHEM 238 is suggested.
237. **Organic Chemistry Laboratory.** (0-3). **Credit 1.** Operations and techniques of elementary organic chemistry laboratory; preparation, reactions and properties of representative organic compounds. Prerequisites: CHEM 102 or 114; CHEM 227 or registration therein.
238. **Organic Chemistry Laboratory.** (0-3). **Credit 1.** Continuation of CHEM 237. Prerequisites: CHEM 228 or registration therein; CHEM 237.
316. **Quantitative Analysis.** (2-0). **Credit 2.** Introduction to methods of chemical analysis; chemical equilibrium. Prerequisite: CHEM 102 or 104.
318. **Quantitative Analysis Laboratory.** (0-3). **Credit 1.** Laboratory work consists of selected experiments in quantitative analysis designed to typify operations of general application; work is primarily volumetric with limited gravimetric experiments. Prerequisites: CHEM 102 or 114; CHEM 315 or 316 or registration therein.

- 322. **Physical Chemistry for Engineers.** (3-0). **Credit 3.** 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.
- 466. **Polymer Chemistry.** (3-0). **Credit 3.** Mechanisms of polymerization reactions of monomers and molecular weight distributions of products; principles, limitations, and advantages of most important methods of molecular weight determination; relationship of physical properties to structure and composition; correlations of applications with chemical constitution. Prerequisites: CHEM 228 and 315 or equivalents.
- 485. **Directed Studies.** **Credit 1 or more.** Introduction to research, library, and laboratory work. Prerequisites: Senior classification and approval of chemistry advisor.
- 489. **Special Topics in...** **Credit 1 to 4.** Selected topics in an identified field of chemistry. May be repeated for credit.

### **Civil Engineering (CVEN)**

- 305. **Mechanics of Materials.** (3-0). **Credit 3.** Applications of conservation principles and stress/deformation relationships for continuous media to structural members; axially loaded members; thin-walled pressure vessels; torsional and flexural members; shear; moment; deflection of members; combined loadings; stability of columns; nonsymmetrical bending, shear center; indeterminate members; elastic foundations. Prerequisite: CVEN 221.

### **College of Liberal Arts (LBAR)**

Lecturer J. M. Bell

- 289. **Special Topics in...** **Credit 1 to 4.** Selected topics in an identified area of liberal arts. May be repeated for credit. Prerequisite: Freshman or sophomore in liberal arts.

### **Dwight Look College of Engineering (ENGR)**

Associate Professor of Civil Engineering E. Masad; Lecturer B. Ahmed

- 101. **Energy: Resources, Utilization and Importance to Society.** (3-1). **Credit 4.** Introductory course about current and potential energy sources, the link between energy and wealth, and the consequences of action or inaction concerning energy and the environment.
- 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 application in systems; Newton's laws, unit conversions, statistics, computers, Excel; basic graphics skills; visualization and orthographic drawings. Corequisites: MATH 151; admission to the Dwight Look College of Engineering.
- 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. Prerequisites: ENGR 111; MATH 151; approval of instructor may also be required.
- 281. **Engineering Scholars Program Seminar I.** (1-0). **Credit 1.** Survey of interdisciplinary topics related to the professional practice of engineering; seminars with practicing professionals in industry and government. To be taken on a satisfactory/unsatisfactory basis. Prerequisites: Engineering Scholars Program membership; sophomore classification.

289. **Special Topics in...** Credit 1 to 4. Selected topics in an identified area of engineering. May be repeated for credit. Prerequisite: Approval of instructor.
301. **College of Engineering Study Abroad.** Credit 1 to 18. For students in approved programs abroad. May be repeated for credit. Prerequisites: Admission to approved program; approval of study abroad coordinator.
381. **Engineering Scholars Program Seminar II. (1-0).** Credit 1. Exploration of research and development opportunities; university and industry research; research commercialization. To be taken on a satisfactory/unsatisfactory basis. Prerequisite: ENGR 281.
385. **Problems for Co-Op Students.** Credit 1 to 3 each semester. Special problems in engineering for cooperative education students. Problems related to student's work assignment culminating in a research paper. Three hours may be used as technical elective, and one additional hour may be used as free elective. A total of 4 hours may be used toward graduation. Prerequisite: Approval of department head.
400. **Public Leadership Development. (3-0).** Credit 3. Major issues in the study of public leadership, development of leadership skills, and a field investigation done in conjunction with local public leaders. Prerequisites: Junior or senior classification and approval of instructor. Cross-listed with ALED 400 and CARC 400.
401. **Interdisciplinary Design. (2-3).** Credit 3. Instruction and practice in the following design process applied to an interdisciplinary design project: establish the customer need; determine requirements in terms of function (what) and performance (how well); develop alternative design concepts; perform trade-off studies among performance, cost, and schedule; embodiment and detail design; iterate the above steps; major interdisciplinary design project. Prerequisites: Senior classification and approval of instructor.
402. **Interdisciplinary Design II. (2-3).** Credit 3. Product detail and design development process including case studies; may include project management, marketing considerations, manufacturing detailed design specifications; failure modes, applications of codes and standards, selection of design margins; product (component) development guidelines; intellectual property, product liability, and ethical responsibility. Prerequisites: ENGR 401; junior or senior classification.
482. **Ethics and Engineering. (2-2).** Credit 3. Development of techniques of moral analysis and their application to ethical problems encountered by engineers, such as professional employee rights and whistle blowing; environmental issues; ethical aspects of safety, risk, and liability and conflicts of interest; emphasis on developing the capacity for independent ethical analysis of real and hypothetical cases. Prerequisite: Junior classification. Cross-listed with PHIL 482.
483. **Energy and the Environment. (3-0).** Credit 3. Introduction to methods to generate electricity including actual overall costs, efficient use, and conservation; political and ethical issues associated with energy use in the world. Prerequisite: Junior or senior level in engineering.
484. **International Engineering Internship. (6-0).** Credit 6. International Engineering Internship. Prerequisite: Junior or senior classification.
489. **Special Topics in...** Credit 1 to 4. Selected topics in an identified field of engineering. May be repeated for credit.
491. **Research.** Credit 1 to 4. Research conducted under the direction of faculty member in the College of Engineering. May be repeated 3 times for credit. 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.

## Electrical Engineering (ECEN)

**Professors** P. Enjeti, M. H. Weichold; **Associate Professor** E. Serpedin; **Senior Professors** H. M. Alnuweiri (PC), J. J. Boutros; **Senior Associate Professors** H. A. Abu-Rub, H. N. Nounou, K. A. Qaraqe, M. Saghir; **Visiting Assistant Professors** S. Ahmed, M. Cheng

214. **Electrical Circuit Theory.** (3-3). **Credit 4.** Resistive circuits: circuit laws, network reduction, nodal analysis, mesh analysis; energy storage elements; sinusoidal steady state; AC energy systems; magnetically coupled circuits; the ideal transformer; resonance; introduction to computer applications in circuit analysis. Prerequisites: PHYS 208; MATH 308 or registration therein; admission to upper level in an engineering major.
215. **Principles of Electrical Engineering.** (2-2). **Credit 3.** Fundamentals of electric circuit analysis and introduction to electronics for engineering majors other than electrical and computer engineering. Prerequisite: PHYS 208; Corequisite MATH 308; admission to upper level in an engineering major.
248. **Introduction to Digital Systems Design.** (3-3). **Credit 4.** Combinational and sequential digital system design techniques; design of practical digital systems. Prerequisite: Admission to upper level in an engineering major.
285. **Directed Studies.** **Credit 1 to 4.** Problems of limited scope approved on an individual basis intended to promote independent study. Prerequisite: Approval of department head.
289. **Special Topics.** **Credit 1 to 4.** Selected topics in an identified area of electrical engineering. May be repeated for credit. Prerequisite: Approval of instructor.
291. **Research.** **Credit 1 to 4.** Research conducted under the direction of faculty member in electrical engineering. May be repeated 3 times for credit. Prerequisites: Freshman or sophomore classification and approval of instructor.
303. **Random Signals and Systems.** (3-0). **Credit 3.** Concepts of probability and random variables necessary for study of signals and systems involving uncertainty; applications to elementary problems in detection, signal processing, and communication. Prerequisites: ECEN 214, MATH 308 or registration therein.
314. **Signals and Systems.** (3-1). **Credit 3.** Introduction to the continuous-time and discrete-time signals and systems; time domain characterization of linear time-invariant systems; Fourier analysis; filtering; sampling; modulation techniques for communication systems. Prerequisites: ECEN 214; MATH 308.
322. **Electric and Magnetic Fields.** (3-0). **Credit 3.** Vector analysis, Maxwell's equations, wave propagation in unbounded regions, reflection and refraction of waves, transmission line theory; introduction to waveguides and antennas. Prerequisites: ECEN 214; MATH 311 or registration therein; PHYS 208.
325. **Electronics.** (3-3). **Credit 4.** Introduction to electronic systems; linear circuits; operational amplifiers and applications; diodes, field effect transistors, bipolar transistors; amplifiers and nonlinear circuits. Prerequisite: ECEN 314 or registration therein.
326. **Electronic Circuits.** (3-3). **Credit 4.** Basic circuits used in electronic systems; differential and multistage amplifiers; output stages and power amplifiers; frequency response, feedback circuits, stability and oscillators, analog integrated circuits, active filters. Prerequisites: ECEN 314 and 325.
338. **Electromechanical Energy Conversion.** (3-3). **Credit 4.** Introduction to magnetic circuits, transformers, electromechanical energy conversion devices such as DC, induction, and synchronous motors; equivalent circuits, performance characteristics, and power electronic control. Prerequisite: ECEN 214.
350. **Computer Architecture and Design.** (3-3). **Credit 4.** Computer architecture and design; use of register transfer languages and simulation tools to describe and simulate computer operation; central processing unit organization, microprogramming, input/output, and memory system architectures. Prerequisite: ECEN 248. Cross-listed with CSCE 350.
370. **Electronic Properties of Materials.** (3-0). **Credit 3.** Introduction to basic physical properties of solid materials; some solid-state physics employed, but major emphasis is on engineering applications based on semiconducting, magnetic, dielectric, and superconducting phenomena. Prerequisite: PHYS 222.

405. **Electrical Design Laboratory.** (1-6). **Credit 3.** Introduction to the design process and project engineering as practiced in industry; student teams apply the design process by developing a project from proposal through test and evaluation. Prerequisites: ENGL 210 or 301, completion of selected major field courses, senior classification, and project approval.
420. **Linear Control Systems.** (3-0). **Credit 3.** Application of state variable and frequency domain techniques to modeling, analysis, and synthesis of single input, single output linear control systems. Prerequisites: ECEN 314; MATH 308.
421. **Digital Control Systems.** (3-0). **Credit 3.** Feedback systems in which a digital computer is used to implement the control law; Z-transform and time domain methods serve as a basis for control systems design. Effects of computer word length and sampling rate. Prerequisite: ECEN 420 or equivalent.
438. **Power Electronics.** (3-3). **Credit 4.** Electric power conditioning and control; characteristics of solid-state power switches; analysis and experiments with AC power controllers, controlled rectifiers, DC choppers and DC-AC converters; applications to power supplies, airborne and spaceborne power systems. Prerequisite: Junior or senior classification in electrical engineering or approval of instructor.
444. **Digital Signal Processing.** (3-0). **Credit 3.** Digital signal processing; discrete-time signals and systems, linear shift-invariant systems, the discrete Fourier transform and fast Fourier transform algorithm, and design of finite impulse response and infinite impulse response digital filters. Prerequisite: ECEN 314.
448. **Real-Time Digital Signal Processing.** (2-3). **Credit 3.** Features and architectures of digital signal processing chips; assembly language programming; software development tools; real-time implementation of FIR filters, IIR filters, and the FFT algorithms; signal processing project. Prerequisites: ECEN 444; familiarity with C programming.
449. **Microprocessor Systems Design.** (2-2). **Credit 3.** Introduction to microprocessors; 16/32 bit single-board computer hardware and software designs; chip select equations for memory board design, serial and parallel I/O interfacing; ROM, static and dynamic RAM circuits for no wait-state design; assembly language programming, stack models, subroutines, and I/O processing. Prerequisite: ECEN 248.
451. **Antenna Engineering.** (3-0). **Credit 3.** Introduction to antenna theory and design; includes antenna performance parameters, analysis of radiation from sources using Maxwell's equations, theory and design of wire antennas, arrays, and frequency independent antennas; computer methods for antenna design. Prerequisite: ECEN 322.
455. **Digital Communications.** (3-3). **Credit 4.** Digital transmission of information through stochastic channels; analog-to-digital conversion, entropy and information, Huffman coding; signal detection, the matched-filter receiver, probability of error; base-band and pass-band modulation, signal space representation of signals, PAM, QAM, PSK, FSK; block coding, convolutional coding; synchronization; communication through fading channels; spread-spectrum signaling; simulation of digital communication systems. Prerequisite: ECEN 314.
456. **Communication Theory.** (3-0). **Credit 3.** Frequency domain and time domain response of linear systems; analog modulation methods including amplitude modulation, frequency modulation, and phase modulation; signal and noise modeling using probabilistic descriptions; narrow-band random processes and the performance of analog modulation techniques in the presence of noise; design of communication links. Prerequisite: ECEN 314.
459. **Power System Fault Analysis and Protection.** (3-2). **Credit 4.** General considerations in transmission and distribution of electrical energy as related to power systems; calculation of electric transmission line constants; general theory of symmetrical components and application to analysis of power systems during fault conditions. Prerequisite: ECEN 215 or ECEN 314.
460. **Power System Operation and Control.** (3-2). **Credit 4.** Load flow studies; power system transient stability studies; economic system loading and automatic load flow control. Prerequisite: ECEN 215 or 314.
478. **Wireless Communications.** (3-0). **Credit 3.** Overview of wireless applications, models for wireless communication channels, modulation formats for wireless communications, multiple access techniques, wireless standards. Prerequisites: ECEN 455; junior or senior classification.
480. **RF and Microwave Wireless Systems.** (3-0). **Credit 3.** Introduction to various RF and microwave system parameters, architectures, and applications; theory, implementation, and design of RF and microwave systems for communications, radar, sensor, surveillance, navigation, medical, and optical applications. Prerequisite: ECEN 322.

485. **Directed Studies. Credit 1 to 6 each semester.** Problems of limited scope approved on an individual basis intended to promote independent study. Prerequisites: Senior classification; approval of department head.
489. **Special Topics in... Credit 1 to 4.** Selected topics in an identified area of electrical engineering. May be repeated for credit. Prerequisite: Approval of instructor.
491. **Research. Credit 1 to 4.** Research conducted under the direction of faculty member in electrical engineering. May be repeated 3 times for credit. 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.

## English (ENGL)

Associate Professor Z. Eslami; Senior Lecturer L. J. Salter; Lecturers C. Beggs, H. Hughes, S. Ward;  
Lecturers of Liberal Arts C. Farmer, D. McPherson, J. Williams

104. **Composition and Rhetoric. (3-0). Credit 3.** Focus on referential and persuasive researched essays through the development of analytical reading ability, critical thinking, and library research skills; for U1 and U2 students only. (ENGL 104I offered for students whose native language is not English.)
210. **Scientific and Technical Writing. (3-0). Credit 3.** Principles of composition, rhetoric, and document design applied to the basic genres of research-based scientific and technical writing, including the report, proposal, manual, resume, and professional correspondence. Appropriate for all majors. Computer sections available. Prerequisite: ENGL 104.
251. **The Language of Film. (2-2). Credit 3.** Development of the language of film: major movements, representative works, theory, and techniques; lecture/discussion following film screenings. Prerequisite: ENGL 104.

## Geology (GEOL)

Professor E. Hoskins, Visiting Professor R. Winn

104. **Physical Geology. (3-3). Credit 4.** Earth materials, structures, external and internal characteristics; physical processes at work upon or within the planet; required for students in geology, geophysics, and petroleum engineering. A working knowledge of high school chemistry and mathematics is required.\*
285. **Directed Studies. Credit 1 to 4.** Directed studies in specific problem areas of geology. Prerequisite: Approval of instructor.
300. **Field Geology. Credit 6.** Basic concepts of field relationships and field techniques are used to develop geologic maps, stratigraphic columns, cross-sections, and geologic interpretations for a variety of geologic provinces. Course conducted off-campus in a field camp for six weeks. Prerequisites: GEOL 302, 306, 309, 312 or approval of instructor.\*
306. **Sedimentology and Stratigraphy. (3-3). Credit 4.** Origin of sediments and sedimentary rocks; climate, weathering, and weathering products; transport, deposition, and depositional environments for sediments; field and laboratory studies in description and interpretation of genesis of sedimentary rocks; principles of stratigraphy and basin analysis; plate tectonics and formation of sedimentary basins; stratigraphic nomenclature; geologic time and correlation; sequence stratigraphy and basin architecture. Prerequisite: GEOL 101 or 104 or approval of instructor.\*
312. **Structural Geology and Tectonics. (3-3). Credit 4.** Interpretation of rock structures; their relation to stratigraphic, physiographic, and economic problems; regional tectonics of several selected areas. Prerequisites: GEOL 101, 104, or 320; approval of instructor.\*
330. **Geologic Field Trips. Credit 1 to 3.** Field trips to observe, analyze, and interpret the geology and geophysics of selected localities; complements classroom experience. Trip frequencies, duration, dates, and study localities vary with semester. Prerequisite: GEOL 101 or 104 or approval of instructor. May be repeated for credit.\*

404. **Geology of Petroleum. (2-3). Credit 3.** Origin, migration, and accumulation of petroleum; typical U.S. oil and gas fields; laboratory work in subsurface geology. Prerequisites: GEOL 312; senior classification in geology. Note: At TAMUQ, the prerequisite for this course is GEOL 104.
485. **Directed Studies. Credit 1 or more each semester.** Advanced problems in geology.
489. **Special Topics. Credit 1 to 4.** Selected topics in an identified area of geology. May be repeated for credit. Prerequisite: Approval of instructor.

\*Field trips may be required for which departmental fees may be assessed to cover costs.

## **Geophysics (GEOP)**

Professor of Geology E. Hoskins

421. **Petroleum Seismology I. (3-3). Credit 4.** Physical principles behind seismic acquisition; acoustic/elastic, homogeneous/heterogeneous, onshore/offshore transition zones; description of seismic data, pre- and post-critical reflections, multiples, ground roll; signal processing for seismic data analysis; Fourier transforms, wavelet transform, correlation and smoothness; least squares optimization; forward and inverse problems fitting a Fourier series, deconvolution. Prerequisites: MATH 151 and 152 or approval of instructor.

## **History (HIST)**

Associate Professors T. Bickham, E. Obadele-Starks; Lecturer T. Nester

105. **History of the United States. (3-0). Credit 3.** Colonial heritage; Revolution; adoption of Constitution; growth of nationalism and sectionalism; Civil War; Reconstruction.
106. **History of the United States. (3-0). Credit 3.** Since Reconstruction; new social and industrial problems; rise of progressivism; U.S. emergence as world power; World War I; reaction and New Deal; World War II; contemporary America.
301. **Blacks in the United States Since 1877. (3-0). Credit 3.** Blacks in the United States from the end of Reconstruction to the present; the ideologies of black leaders, disfranchisement, lynching and the quest for equality in the 1950s and 1960s.
368. **The Birth of the Republic, 1763-1820. (3-0). Credit 3.** Impact of French and Indian War; British colonial policy 1763-1775; War for Independence; Confederation crisis; Constitution making and ratification; development of political parties; problem of foreign entanglements; War of 1812; conflict of nationalist and sectionalist tendencies; historiography and interpretation.

## **Industrial Engineering (ISEN)**

101. **Introduction to Industrial Engineering. (1-0). Credit 1.** Introduction to industrial engineering; overview of the curriculum; presentations by faculty and industry to familiarize students with the department and the scope of industrial engineering applications.
220. **Introduction to Production Systems. (3-0). Credit 3.** Introduction to manufacturing and production systems; provides an overview of various aspects of manufacturing systems; includes design, analysis, operation, and control; a perspective for manufacturing systems related problems and the complex interactions that they entail. Corequisites: CPSC 206; ENTC 181; STAT 211.
285. **Directed Studies. Credit 1 to 4.** Problems of limited scope in industrial engineering approved on an individual basis intended to promote independent study. Prerequisite: Approval of department head.

302. **Economic Analysis of Engineering Projects. (2-0). Credit 2.** Principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and after-tax analysis of economic projects. Prerequisite: MATH 152.
303. **Engineering Economic Analysis. (3-0). Credit 3.** Principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and tax implications; certainty; uncertainty; risk analysis; public sector analysis and break-even concepts. Prerequisite: MATH 152.

## Kinesiology (KINE)

Lecturer T. Canterbury; Assistant Lecturer M. Minus

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. **(PHED 1151, 1152, 2155, 2255, any PHED activity course) Required Physical Activity. (0-2). Credit 1.** Selection from a wide variety of activities designed to increase fitness and/or encourage the pursuit of lifetime activity.

## Mathematics (MATH)

Senior Professor R. Lorentz; Senior Associate Professor T. Huang, S. Jones; Visiting Assistant Professors H. Moghbelli, P. Schumacher; Senior Lecturer A. Belmonte

151. **Engineering Mathematics I. (3-2). Credit 4.** Rectangular coordinates, vectors, analytical 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, 151, and 171.
152. **Engineering Mathematics II. (3-2). Credit 4.** Differentiation and integration techniques and their application (areas, 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 both MATH 152 and 172.
251. **Engineering Mathematics III. (3-0). Credit 3.** Vector algebra, calculus of functions of several variables, partial derivatives, directional derivatives, gradient, multiple integration, line and surface integrals, Stokes' theorems. Prerequisite: MATH 152 or equivalent. Credit will not be given for more than one of MATH 221, 251, and 253.
308. **Differential Equations. (3-0). Credit 3.** Ordinary differential equations, solutions in series, solutions using Laplace transforms, systems of differential equations. Prerequisites: MATH 251 or equivalent; knowledge of computer algebra system.
311. **Topics in Applied Mathematics I. (3-0). Credit 3.** Matrices, determinants, systems of linear equations, eigenvalues, eigenvectors, diagonalization of symmetric matrices, special functions; vector analysis, including normal derivatives, gradient, divergence, curl, line, and surface integrals, Gauss', Green's and Stokes' theorems. Prerequisites: MATH 221, 251, or 253; MATH 308 or concurrent enrollment therein.
411. **Mathematical Probability. (3-0). Credit 3.** Probability spaces, discrete and continuous random variables, special distributions, joint distribution, expectations, law of larger numbers, the central limit theorem. Prerequisite: MATH 221 or equivalent.
414. **Fourier Series and Wavelets. (3-0). Credit 3.** Fourier series and wavelets with applications to data compression and signal processing. Prerequisite: MATH 222 or 304 or 311.

## Mechanical Engineering (MEEN)

Associate Professor R. Griffin (PC); Senior Visiting Professor H. Masudi; Visiting Professors S. Gyeszly, M. Karkoub; Visiting Associate Professor G. Kridli; Senior Assistant Professors N. Ozalp, R. Sadr; Visiting Assistant Professors A. Ruimi, R. Tafreshi; Associate Professor of Construction Science J. Bryant

221. **Statics and Particle Dynamics. (2-2). Credit 3.** Application of the fundamental principles of Newtonian mechanics to the statics and dynamics of particles; equilibrium of trusses, frames, beams, and other rigid bodies. Prerequisites: Admission to upper division in an engineering major; MATH 251 or 253 or registration therein; PHYS 218.
222. **Materials Science. (3-0). Credit 3.** Mechanical, optical, thermal, magnetic, and electrical properties of solids; differences in properties of metals, polymers, ceramics, and composite materials in terms of bonding and crystal structure. Prerequisites: CHEM 102, or 104 and 114, or CHEM 107; PHYS 218.
260. **Mechanical Measurements. (2-3). Credit 3.** Introduction to the basic principles of engineering experimentation including: instrumentation and measurement techniques, data acquisition, analysis and interpretation, and reporting of results. Prerequisites: MEEN 221, ECEN 215, MATH 308, and MEEN 315 or registration therein.
289. **Special Topics in... Credit 1 to 4.** Selected topics in an identified area of mechanical engineering. May be repeated for credit. Prerequisite: Approval of instructor.
315. **Principles of Thermodynamics. (2-2). Credit 3.** Theory and application of energy methods in engineering; conservation of mass and energy; energy transfer by heat, work, and mass; thermodynamic properties; analysis of open and closed systems; the second law of thermodynamics and entropy; gas, vapor, and refrigeration cycles. Prerequisites: MEEN 221; MATH 251 or 253.
344. **Fluid Mechanics. (3-0). Credit 3.** Application of laws of statics, buoyancy, stability, energy, and momentum to behavior of ideal and real fluids; dimensional analysis and similitude and their application to flow through ducts and piping; lift and drag and related problems. Prerequisites: MEEN 221 and MEEN 315.
345. **Fluid Mechanics Laboratory. (0-3). Credit 1.** Introduction to basic fluid mechanics instrumentation; experimental verification and reinforcement of the analytical concepts introduced in MEEN 344. Prerequisites: MEEN 260; MEEN 344 or registration therein.
357. **Engineering Analysis for Mechanical Engineers. (3-0). Credit 3.** Practical foundation for the use of numerical methods to solve engineering problems: Introduction to Matlab, error estimation, Taylor series, solution of non-linear algebraic equations and linear simultaneous equations; numerical integration and differentiation; initial value and boundary value problems; finite difference methods for parabolic and elliptic partial differential equations. Prerequisites: ENGR 112 and MATH 308.
360. **Materials and Manufacturing Selection in Design. (3-3). Credit 4.** Selection of materials and manufacturing processes in design; emphasis on mechanical properties of materials; production and control of microstructures; manufacturing processes for producing a variety of shapes for different components and structures; use of design methodology. Prerequisites: MEEN 260; CVEN 305; MEEN 222.
363. **Dynamics and Vibrations. (2-2). Credit 3.** Application of Newtonian and energy methods to model dynamic systems (particles and rigid bodies) with ordinary differential equations; solution of models using analytical and numerical approaches; interpreting solutions; linear vibrations. Prerequisites: MEEN 357 or CVEN 302 or registration therein; MEEN 221; MATH 308; CVEN 305.
364. **Dynamic Systems and Controls. (2-3). Credit 3.** Mathematical modeling, analysis, measurement, and control of dynamic systems; extensions of modeling techniques of MEEN 363 to other types of dynamic systems; introduction to feedback control, time, and frequency domain analysis of control systems, stability, PID control, root locus; design and implementation of computer-based controllers in the lab. Prerequisites: MEEN 260 and 363; ECEN 215.
368. **Solid Mechanics in Mechanical Design. (2-2). Credit 3.** Stress analysis of deformable bodies and mechanical elements; stress transformation; combined loading; failure modes; material failure theories; fracture and fatigue; deflections and instabilities; thick cylinders; curved beams; design of structural/mechanical members; design processes. Prerequisites: CVEN 305; MEEN 357 and 360 or registration therein; junior or senior classification.

381. **Seminar. (0-2). Credit 1.** Presentations by practicing engineers and faculty addressing: effective communications, engineering practices, professional registration, ethics, career-long competence, contemporary issues, impact of technology on society, and being informed; students prepare a resume, a life-long learning plan, two papers, two oral presentations, and complete an online assessment of the mechanical engineering program. Prerequisite: Upper-level classification in mechanical engineering.
401. **Introduction to Mechanical Engineering Design. (2-3). Credit 3.** The design innovation process; need definition, functional analysis, performance requirements and evaluation criteria, conceptual design evaluation, down-selected to an embodiment; introduction to systems and concurrent engineering; parametric and risk analysis, failure mode analysis, material selection, and manufacturability; cost and life cycle issues, project management. Prerequisites: MEEN 360, 364, 368, 461.
402. **Intermediate Design. (2-3). Credit 3.** Product detail design and development process including case studies; project management, marketing considerations, manufacturing, detailed design specifications; failure modes, application of codes and standards, selection of design margins; product (component) development guidelines; intellectual property, product liability, and ethical responsibility. Prerequisites: MEEN 401; junior or senior classification.
404. **Engineering Laboratory. (2-3). Credit 3.** Systematic design of experimental investigations; student teams identify topics and develop experiment designs including: establishing the need; functional decomposition; requirements; conducting the experiment; analyzing and interpreting the results and written and oral reports documenting the objectives, procedure, analysis, and results and conclusion of two or three experiments. Prerequisites: MEEN 260, 360, 364, 461; MEEN 401 or registration therein; junior or senior classification.
408. **Introduction to Robotics. (3-0). Credit 3.** Forward and inverse kinematics of robot manipulators, path planning, motion planning for mobile robots, dynamics of robot manipulators, control algorithms, computed torque algorithm, adaptive control algorithms, and current topics in mobile robots; cooperative motion planning of mobile robots and formation control. Prerequisites: MEEN 364 or equivalent; junior or senior classification.
414. **Principles of Turbomachinery. (3-0). Credit 3.** Aero-thermodynamic and mechanical design of turbomachinery components including steam and gas turbine stages, compressor stages, and inlet and exhaust systems, and their integration into power and thrust generation units; design and off-design behaviors of turbine and compressor stages and units; design with SolidWorks. Prerequisites: MEEN 421 or approval of instructor; junior or senior classification.
421. **Thermal-Fluids Analysis and Design. (3-0). Credit 3.** Integration of thermodynamics, fluid mechanics, and heat transfer through application to the design of various thermal systems comprised of several components requiring individual analyses; analysis of the entire system; representative applications of thermal-fluids analysis with a design approach. Prerequisites: MEEN 461; MEEN 315; junior or senior classification. (*Note: satisfies stem course requirement at TAMUQ.*)
431. **Advanced System Dynamics and Controls. (3-0). Credit 3.** Unified framework for modeling, analysis, synthesis, design, and simulation of mechanical systems with energy exchange across multiple domains; study of mechanical, electrical, hydraulic, and thermal subsystems; Newtonian mechanics, rigid body dynamics, multiple degrees of freedom vibrations, and control system design. Prerequisites: MEEN 364; junior or senior classification. (*Note: satisfies stem course requirement at TAMUQ.*)
433. **Mechatronics. (2-3). Credit 3.** Basic principles of digital logic and analog circuits in mechanical systems; electrical-mechanical interfacing; sensors and actuators; digital control implementation; precision design and system integration. Prerequisite: MEEN 364 or equivalent.
436. **Principles of Heating, Ventilating and Air Conditioning. (3-0). Credit 3.** Application of thermodynamics, fluid mechanics, and heat transfer to the design of HVAC equipment; selection of equipment, piping, and duct layouts. Prerequisite: MEEN 461 or equivalent.
437. **Principles of Building Energy Analysis. (3-0). Credit 3.** Analysis of building energy use by applying thermodynamics and heat transfer to building heating and cooling load calculations; heat balance and radiant time series calculation methods; psychrometric analysis, indoor air quality, effect of solar radiation on heating and cooling of buildings. Required design project. Prerequisites: MEEN 315 or equivalent; junior or senior classification.

441. **Design of Mechanical Components and Systems.** (3-0). **Credit 3.** Design of machine elements, characteristics of prime movers, loads, and power transmission elements as related to mechanical engineering design. Prerequisite: Junior classification in mechanical engineering.
442. **Computer Aided Engineering.** (3-0). **Credit 3.** Effective and efficient use of modern computer hardware and software in modeling, design, and manufacturing; simulation of a broad spectrum of mechanical engineering problems. Prerequisites: MEEN 363 and 368.
444. **Finite Element Analysis in Mechanical Engineering.** (3-0). **Credit 3.** Introduction to basic theory and techniques; one- and two-dimensional formulations for solid mechanics applications; direct and general approaches; broader aspects for field problems; element equations, assembly, and solution schemes; computer implementation, programming, and projects; error sources and application consideration. Prerequisites: MEEN 357 and 368 or equivalents.
448. **Fundamentals of Nondestructive Testing.** (3-0). **Credit 3.** Physical principles of magnetics, wave propagation and reflection, radiography, penetrants, and eddy currents as they apply to nondestructive testing; new NDT techniques, origin of defects, types of failure, material anisotropy, NDT, and design. Prerequisite: MEEN 360.
455. **Engineering with Plastics.** (3-0). **Credit 3.** Polymer structure, processing, property characterization at the molecular, microscopic, and macroscopic dimensional levels for thermosets, thermoplastics, elastomers, fibers, and advanced fibrous nonparticle filled composites and smart multi-performance structures. Prerequisite: MEEN 222 or approval of instructor.
459. **Mechanical Vibrations.** (3-0). **Credit 3.** Basic theory of vibrating systems with single and multiple degrees of freedom and principles of transmission and isolation of vibrations, vibration measurement, and application for machinery health monitoring. Prerequisites: MEEN 363; MATH 308.
460. **Corrosion Engineering.** (3-0). **Credit 3.** Basic corrosion phenomena are described, including mixed potential theory; types of corrosion, experimental methods, and prevention techniques. Prerequisite: MEEN 360 or equivalent.
461. **Heat Transfer.** (3-0). **Credit 3.** Heat transfer by conduction, convection, and radiation: steady and transient conduction, forced and natural convection, and blackbody and gray body radiation; multi-mode heat transfer; boiling and condensation; heat exchangers. Prerequisites: MEEN 344; MATH 308.
464. **Heat Transfer Laboratory.** (0-3). **Credit 1.** Basic measurement techniques in conduction, convection, and radiation heat transfer; experimental verification of theoretical and semi-empirical results; uncertainty analysis. Prerequisite: MEEN 461 or registration therein.
467. **Mechanical Behavior of Materials.** (3-0). **Credit 3.** Fundamentals of flow and fracture in metals, emphasizing safe design by anticipating response of materials to complex stress and environmental service conditions; micromechanisms of flow, fatigue, creep, and fracture; fracture mechanics approach to design. Special emphasis given to microstructure-mechanical property relationship and damage tolerant design. Prerequisite: MEEN 360.
475. **Materials in Design.** (3-0). **Credit 3.** The heuristics of synthesis of material properties, configuration and processing in the optimization of material selection in the design process; product design and development overview, failure mode effects analysis, design margin establishment; role of the generic failure modes and codes and standards; fundamental characteristics of process methods. Prerequisites: MEEN 360; CVEN 305. (*Note: satisfies stem course requirement at TAMUQ.*)
485. **Directed Studies.** **Credit 1 to 6.** Special problems relating to a specific project in some phase of mechanical engineering. A commitment of two semesters with 6 hours 485 credit is required. Prerequisites: Approval of department head and senior classification.
489. **Special Topics in...** **Credit 1 to 4.** Selected topics in an identified area of mechanical engineering. Prerequisite: Approval of instructor.

## Petroleum Engineering (PETE)

Visiting Professor M. Aggour (PC); Senior Associate Professors M. Amani, A. Gupta, S. Elgaghah; Visiting Assistant Professors M. Fahes, H. Nasrabadi; Professor of Geology E. Hoskins; Visiting Professor of Geology R. Winn

201. **Introduction to Petroleum Engineering.** (1-0). **Credit 1.** Overview of petroleum industry and petroleum engineering, including nature of oil and gas reservoirs, petroleum exploration and drilling, formation evaluation, completion and production, surface facilities, reservoir mechanics, and improved oil recovery. Prerequisite: Approval of department head.
211. **Petroleum Engineering Systems.** (1-0). **Credit 1.** Introduction to petroleum engineering reservoir, drilling, formation evaluation, and production systems, including fundamental petroleum engineering concepts, quantities, and unit systems. Prerequisites: ENGR 112; MATH 152; PHYS 218.
225. **Petroleum Drilling Systems.** (1-3). **Credit 2.** Introduction to Petroleum Drilling Systems, including fundamental petroleum engineering concepts, quantities and unit systems, drilling rig components, drilling fluids, pressure loss calculations, casing, well cementing, and directional drilling. Prerequisites: ENGR 112, MATH 152, PHYS 218.
285. **Directed Studies.** **Credit 1 to 4.** Special problems in various phases of petroleum engineering assigned to individual students or to groups. Prerequisites: Completion of engineering common body of knowledge courses; approval of department head.
300. **Summer Practice.** **Required. No Credit.** Industry practice to familiarize the petroleum engineering student with practices and equipment of the petroleum industry. Approval of advisor required.
301. **Petroleum Engineering Numerical Methods.** (2-3). **Credit 3.** Use of numerical methods in a variety of petroleum engineering problems; numerical differentiation and integration; root finding; numerical solution of differential equations; curve fitting and interpolation; computer applications; introduction to the principles of numerical simulation methods. Prerequisites: PETE 311; CVEN 305; MEEN 315; MATH 308.
310. **Reservoir Fluids.** (3-3). **Credit 4.** Thermodynamic behavior of naturally occurring hydrocarbon mixtures; evaluation and correlation of physical properties of petroleum reservoir fluids including laboratory and empirical methods. Prerequisites: PETE 311; CHEM 107; CVEN 305; MEEN 315; MATH 308.
311. **Reservoir Petrophysics.** (3-3). **Credit 4.** Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks; lithology, porosity, relative and effective permeability; fluid saturations, capillary characteristics, compressibility, rock stress, and fluid-rock interaction. Prerequisites: PETE 225; MEEN 221; GEOL 104; MATH 308 or registration therein.
314. **Transport Processes in Petroleum Production.** (3-0). **Credit 3.** Fluid mechanics: fluid statics; mass, energy, momentum balances; friction losses, turbulent flow, Reynolds Number (Moody diagram); Newtonian/non-Newtonian fluids; flow in porous media (Darcy's law and non-Darcy flow); heat transfer: heat conduction (steady-state/transient flow: flux components, slabs/cylinders, thermal conductivity, analogs, applications); heat convection (heat transfer/pressure drop, heat exchangers, applications). Prerequisites: PETE 311; CVEN 305; MEEN 315; MATH 308.
320. **Drilling and Production Systems.** (2-3). **Credit 3.** Introduction to drilling systems: components, drilling fluids, pressure loss calculations, well cementing, and directional drilling; theoretical and laboratory prediction of flow rates and pressure drops through conventional petroleum production networks; calculation of static and flowing bottom-hole pressures in oil and gas wells; well deliverability via inflow (IPR)/outflow (VLP) methods; gas lift; pump lift; gas compression. Prerequisites: PETE 301, 310; GEOL 404.
321. **Formation Evaluation.** (3-3). **Credit 4.** Introduction to modern well logging methods, engineering, core-log integration. Prerequisites: PETE 301, 310; GEOL 404; or approval of instructor.

322. **Geostatistics. (3-0). Credit 3.** Introduction to geostatistics; basic statistics concepts; univariate distributions and estimators; measures of heterogeneity; hypothesis testing, correlation, and regression; analysis of spatial relationships, modeling geological media, and use of statistics in reservoir modeling. Prerequisites: PETE 401; GEOL 404; or approval of instructor.
323. **Reservoir Models. (3-0). Credit 3.** Determination of reserves; material balance methods; aquifer models; fractional flow and frontal advance; displacement, pattern, and vertical sweep efficiencies in water-floods; enhanced oil recovery processes; design of optimal recovery processes. Prerequisites: PETE 301, 310; GEOL 404.
324. **Well Performance. (3-0). Credit 3.** Steady-state, pseudo-steady-state, and transient well testing methods to determine well and reservoir parameters used in formation evaluation; applications to wells that produce gas and liquid petroleum, rate forecasting, deliverability testing. Prerequisites: PETE 301, 310; GEOL 404.
325. **Petroleum Production Systems. (1-3). Credit 2.** Introduction to production operations and oil field equipment multiphase flow in pipes, bottom-hole pressure prediction, inflow/outflow performance, production systems and backpressure analysis, hydraulic fracturing fluids and equipment; downhole and artificial lift equipment, tubulars, workover/completion nomenclature and procedures; produced fluids, fluid separation and metering, safety systems, pressure boosting and monitoring. Prerequisites: PETE 301, 310, 314; GEOL 404.
335. **Technical Presentations I. (1-0). Credit 1.** Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format; oral presentations judged by petroleum industry professionals. Prerequisites: COMM 205; junior classification in petroleum engineering.
400. **Reservoir Description. (2-3). Credit 3.** An integrated reservoir description experience for senior students in petroleum engineering, geology, and geophysics; includes using geophysical, geological, petrophysical, and engineering data; emphasis on reservoir description (reservoir and well data analysis and interpretation), reservoir modeling (simulation), reservoir management (production optimization), and economic analysis (property evaluation). Prerequisite: Approval of instructor. Cross-listed with GEOL 400.
401. **Reservoir Development. (2-3). Credit 3.** An integrated reservoir development experience for senior students in petroleum engineering; emphasis on reservoir description (reservoir and well evaluation), reservoir modeling (simulation), production optimization (nodal analysis, stimulation, artificial lift, facilities), reservoir management (surveillance and reservoir optimization), and economic analysis (property evaluation and risk analysis). Prerequisites: PETE 321, 323, 324, 325, 403.
403. **Petroleum Project Evaluation. (3-0). Credit 3.** Analysis of investments in petroleum and mineral extraction industries; depletion, petroleum taxation regulations, and projects of the type found in the industry; mineral project evaluation case studies. Prerequisites: PETE 301, 310, 314.
405. **Drilling Engineering. (3-0). Credit 3.** The design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics; well control, casing design; well cementing; wellbore surveying. Prerequisites: PETE 321, 323, 324, 325, 403.
406. **Advanced Drilling Engineering. (3-0). Credit 3.** Well control; underbalanced drilling; offshore drilling; horizontal, extended reach, multi-lateral drilling; fishing operations. Prerequisite: PETE 405.
410. **Production Engineering. (3-0). Credit 3.** Fundamental production engineering design, evaluation, and optimization for oil and gas wells, including well deliverability, formation damage, and skin analysis, completion performance, and technologies that improve oil and gas well performance (artificial lift and well stimulation). Prerequisites: PETE 321, 323, 324, 325, 403.
411. **Well Drilling. (3-0). Credit 3.** The design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics; casing design; well cementing; drilling of directional and horizontal wells; wellbore surveying. Prerequisites: PETE 320; 321, 322, 323, 324.
416. **Production Enhancement. (3-0). Credit 3.** Design, problem diagnosis and solving, and performance optimization of the technologies that increase oil and gas well production, including artificial lift, acid stimulation, and hydraulic fracturing. Prerequisite: PETE 410.

435. **Technical Presentations II. (1-0). Credit 1.** Preparation of a written technical paper on a subject related to petroleum technology and an oral presentation of the paper in a formal technical conference format; oral presentations are judged by petroleum industry professionals. Prerequisites: PETE 335; senior classification in petroleum engineering.
485. **Directed Studies. Credit 1 to 5.** Special problems in various phases of petroleum engineering assigned to individual students or to groups. Prerequisites: Junior or senior classification and approval of department head.
489. **Special Topics in... Credit 1 to 4.** Selected topics in an identified field of petroleum engineering. May be repeated for credit. Prerequisite: Approval of instructor.

## Physics (PHYS)

Senior Professor M. Belic; Visiting Professor M. Abou Ghantous; Visiting Assistant Professor H. Nha

208. **Electricity and Optics. (3-3). Credit 4.** Continuation of PHYS 218. Electricity, magnetism, and optics. Primarily for engineering students. Prerequisites: PHYS 218; MATH 152 or 172 or registration therein.
218. **(PHYS 2325 and 2125, 2425) Mechanics. (3-3). Credit 4.** Mechanics for students in science and engineering. Prerequisite: MATH 151 or 171 or registration therein.
222. **Modern Physics for Engineers. (3-0). Credit 3.** Atomic, quantum, relativity, and solid-state physics. Prerequisites: PHYS 208 or 219; MATH 308 or registration therein.
485. **Directed Studies. Credit 1 or more.** Special work in laboratory or theory to meet individual requirements in cases not covered by regular curriculum. Prerequisite: Approval of department head.
489. **Special Topics in... Credit 1 to 4.** Selected topics in an identified field of physics. May be repeated for credit. Prerequisite: Approval of instructor.

## Political Science (POLS)

Senior Assistant Professors T. Kent (PC), D. Thornton; Visiting Assistant Professor H. Bashir; Assistant Lecturer J. Heeg Maruska

206. **American National Government. (3-0). Credit 3.** Survey of American national government, politics, and constitutional development.
207. **State and Local Government. (3-0). Credit 3.** Survey of state and local government and politics with special reference to the constitution and politics of Texas.
324. **Politics of Global Inequality. (3-0). Credit 3.** Examination of the causes and consequences of economic inequality between rich and poor states; evaluation of competing explanations for poverty of less-developed countries; development strategies employed by poor states; and structure of global economic relations. Prerequisite: Junior or senior classification.
329. **Introduction to Comparative Politics. (3-0). Credit 3.** A comparison of political institutions, processes and issues across a wide variety of political systems. Prerequisite: POLS 206 or approval of department head.
331. **Introduction to World Politics. (3-0). Credit 3.** Analysis of contemporary world from point of view of nation-state; political problems, factors involved in foreign policies and relations of nations. Prerequisite: POLS 206 or approval of department head.

**Student Learning Center  
(STLC)**

- 002. **Basic Writing Skills. Credit 1 to 3.** Individualized instruction in English composition based on an analysis of the student's proofreading, revision, and editing skills; a programmed sequence of study and practice designed for improvement of writing performance through mastery of basic skills at word, sentence, paragraph, and multiparagraph levels. May not be used for credit toward a degree.
- 003. **Basic Reading Skills. Credit 1 to 3.** Individualized instruction in reading based on an analysis of the student's reading comprehension skills; study and practice of reading strategies designed to increase reading comprehension skills. May not be used for credit toward a degree.
- 101. **Application of Learning Theories to College Studies. (2-0). Credit 2.** The study of critical theories of learning with application to academic performance; designated as the university's learning framework course, this course is designed to help students understand learning theory and develop strategies for successful completion of college level studies.

# Faculty

2009–2010 Undergraduate Catalog



# Faculty

## Texas A&M University at Qatar Faculty

Figures listed in parentheses indicate date of first appointment on the University staff and date of appointment to present position, respectively.

- Abdel-Wahab, Ahmed I.A.**, Senior Associate Professor of Chemical Engineering. (2000, 2009) B.S., Al-Minia University, 1990; M.S., Al-Minia University, 1995; Ph.D., Texas A&M University, 2003.
- Abou Ghantous, Michel**, Visiting Professor of Physics. (2009) B.S., Lebanese University, 1969; M.S., USM-Grenoble (France), 1970; Ph.D., USM-Grenoble (France), 1974.
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At the printing of this publication, Texas A&M University at Qatar officials were developing a tenure-track process and procedure.

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