



TEXAS A&M
UNIVERSITY *at* QATAR

TEXAS A&M

UNIVERSITY *at* QATAR

2013–2014
UNIVERSITY CATALOG

EDITION 136Q

Accreditation

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 bachelors', masters', 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 bachelors' and masters' degrees. The four undergraduate programs at Texas A&M at Qatar, chemical, electrical, mechanical, and petroleum engineering are accredited by the Engineering Accreditation Commission of ABET, Inc.

Purpose of Catalog

The purpose of this catalog is to provide information about the academic programs of Texas A&M University at Qatar to students, prospective 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 records.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.**

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Academic Calendar

Fall Semester 2013*

Month	Date	Day of Week	Event
August	8–12	Thursday–Monday	Eid al-Fitr (offices expected to be closed)^
	25	Sunday	First day of fall classes First day to apply for December graduation
	29	Thursday	Last day for adding/dropping courses with no record for the fall semester, 4 p.m.
September	9	Monday	Official census date (12th class day) Change of major start date for spring semester
	19	Thursday	Last day to apply for December graduation, 4 p.m.
	26	Thursday	Last day for MS THO to submit "Request and Announcement of the Final Examination" or 10 working days prior to the examination, whichever comes first, to Office of Graduate Studies in College Station**
October	3	Thursday	Last day for MS students to change degree to M.Eng. and still be eligible to graduate in December, Office of Graduate Studies in College Station**
	10	Thursday	Last day for MS THO students to take final exam
	17	Thursday	Last day to submit a signed approval form and a PDF file of the thesis in final form to the Thesis Office in College Station**
	13–17	Sunday–Thursday	Eid Al-Adha student break (no classes)
	15–17	Tuesday–Thursday	Eid Al-Adha (offices expected to be closed)^
	24	Thursday	Mid-semester grades due by noon, Office of Records Adjustment deadline for degree candidates Last day for M. Eng. students to request final exam or request exemption from exam, Office of Graduate Studies in College Station**
	November	7	Thursday
17		Sunday	Change of major deadline for spring semester
17–28		Sunday–Thursday	Pre-registration for spring 2014
18		Monday	Bonfire 1999 Remembrance Day
21		Thursday	Last day for all students to drop courses with no penalty (Q-drop), 4 p.m. Last day to change KINE 198/199 grade type, 4 p.m. Last day to officially withdraw from the University, 4 p.m.
27	Wednesday	Last day to submit final thesis corrections to the Thesis Office in College Station**	
December	5	Thursday	Last day of fall semester classes
	8	Sunday	Reading day (no classes or finals)
	9–10	Monday–Tuesday	Fall semester final examinations for all students
	11	Wednesday	Reading day (no classes or finals)
	12	Thursday	Fall semester final examinations for all students
	15–16	Sunday–Monday	Fall semester final examinations for all students
	16	Monday	Fall Graduate Recognition
	18	Wednesday	Qatar National Day (university closed)
	19	Thursday	Final grades due for all students by noon, Office of Records
	22–26	Sunday–Thursday	Semester break (offices closed)

* Calendar subject to change

^Dates for the Eid holidays are subject to change; however, the University will be closed for a 3-day period during each Eid.

**Graduate students should allow sufficient time for all documents to get to the Office of Graduate Studies in College Station from Qatar.

Spring Semester 2014*

Month	Date	Day of Week	Event
December	29	Sunday	Offices reopen after semester break
January	12	Sunday	First day of spring classes First day to apply for May graduation
	16	Thursday	Last day for adding/dropping courses with no record for the spring semester, 4 p.m.
	20	Monday	Martin Luther King Day (offices open and classes in session)
	27	Monday	Official census date (12th class day) Change of major start date for fall semester
February	6	Thursday	Last day to apply for May graduation, 4 p.m.
	11	Tuesday	Qatar National Sports Day (university closed/no classes)
	20	Thursday	Last day for MS students to change degree to M.Eng. and still be eligible to graduate in May, Office of Graduate Studies in College Station** Last day for MS THO students to submit "Request and Announcement of the Final Examination" or 10 working days prior to the examination, whichever comes first, to Office of Graduate Studies in College Station**
March	2-6	Sunday-Thursday	Spring break (no classes)
	5-6	Wednesday-Thursday	Spring break (offices closed)
	9	Sunday	Spring semester classes resume
	13	Thursday	Mid-semester grades due by noon, Office of Records Adjustment deadline for degree candidates Last day for MS THO students to take final thesis exam**
	20	Thursday	Last day to submit a signed approval form and a PDF file of the thesis in final form to the Thesis Office in College Station**
	27	Thursday	Last day for M.Eng. students to request final exam or request exemption from exam, Office of Graduate Studies in College Station **
April	3	Thursday	Change of major deadline for fall semester
	10	Thursday	Last day for M.Eng. students to take final exam
	13	Sunday	Last day for all students to drop courses with no penalty (Q-drop), 4 p.m. Last day to change KINE 198/199 grade type, 4 p.m. Last day to officially withdraw from the University, 4 p.m.
	14-24	Monday-Thursday	Pre-registration for summer and fall 2014 terms
	21	Monday	Aggie Muster
	24	Thursday	Last day to submit final thesis corrections to the Thesis Office in College Station**
	27	Sunday	Last day of spring semester classes Redefined day—Tuesday classes to be held
	28-29	Monday-Tuesday	Reading days (no classes and no finals)
	30	Wednesday	Spring semester final examinations
May	1	Thursday	Spring semester final examinations
	4-6	Sunday-Tuesday	Spring semester final examinations
	7	Wednesday	Final grades due for degree candidates by 9 a.m., Office of Records
	8	Thursday	Commencement Ceremony
	9	Friday	Final grades due for all non-degree candidates by 12 noon, Office of Records

* Calendar subject to change

**Graduate students should allow sufficient time for all documents to get to the Office of Graduate Studies in College Station from Qatar.

Summer Semester 2014*

Month	Date	Day of Week	Event	
May	18	Sunday	First day of classes for 5- and 8-week terms First day to apply for summer graduation	
	21	Wednesday	Official census date (4th class day) Last day for adding/dropping courses with no record for the summer semester, 4 p.m.	
	22	Thursday	Last day for MS THO students to submit "Request and Announcement of the Final Examination" or 10 working days prior to the examination, whichever comes first, to Office of Graduate Studies in College Station**	
June	5	Thursday	Last day for MS THO students to take final thesis exam	
	11	Wednesday	Adjustment deadline for degree candidates	
	12	Thursday	Last day for all students to drop courses with no penalty for the 5-week term (Q-drop), 4 p.m. Last day to change KINE 198/199 grade type for the 5-week term, 4 p.m. Last day to officially withdraw from the University for 5-week term, 4 p.m. Last day to apply for summer graduation, 4 p.m. Last day for M.Eng. students to request final exam or request exemption from exam, Office of Graduate Studies in College Station ** Last day for MS students to change degree to M.Eng. and still be eligible to graduate in August, Office of Graduate Studies in College Station**	
	19	Thursday	Last day of 5-week term classes Last day to submit a signed approval form and a PDF file of the thesis in final form to the Thesis Office in College Station**	
	22	Sunday	5-week term final examinations No classes for 8-week term	
	24	Tuesday	Final grades due for 5-week term by noon, Office of Records Final grades posted for 5-week term	
	26	Thursday	Last day for M. Eng. Students to take final exams	
	28	Saturday	Projected first day of Ramadan	
	July	2	Wednesday	Last day for all students to drop courses with no penalty for the 8-week term (Q-drop), 4 p.m. Last day to change KINE 198/199 grade type for the 8-week term, 4 p.m. Last day to officially withdraw from the University for 8-week term, 4 p.m.
		3	Thursday	Last day to submit final thesis corrections to the Thesis Office in College Station **
4		Friday	United States Independence Day	
13		Sunday	Last day of classes for 8-week term	
15		Tuesday	Final examinations for 8-week term	
17		Thursday	Final grades due for 8-week term by noon, Office of Records Final grades posted for 8-week term	
20		Sunday	Summer degrees posted	

*Dates subject to change.

**Graduate students should allow sufficient time for all documents to get to the Office of Graduate Studies in College Station from Qatar.

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Assistant Provost for Graduate Studies.....	Susan A. Bloomfield, B.A., M.A., Ph.D.

Statement and Policy on Individuals with Disabling Conditions

Texas A&M University has a strong institutional commitment to the principle of diversity in all areas. In that spirit, admission to Texas A&M and any of its sponsored programs is open to all qualified individuals. Texas A&M does not discriminate on the basis of an individual's disability and complies with Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act (ADA) as amended in its admissions, accessibility, treatment, and employment of students in its programs and activities. The designated ADA coordinator for Texas A&M University at Qatar is the Manager of Student Support Services in the Academic Services Office, Academic Affairs, (+974) 4423-0221. Texas A&M provides academic accommodations and auxiliary aids to students with disabling conditions, as defined under the law, who are otherwise qualified to meet the institution's academic requirements. The Manager of Student Support Services, (+974) 4423-0221, coordinates Texas A&M University at Qatar's programs and efforts for the benefit of the students covered under the statute.

University Statement on Harassment and Discrimination

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

Individuals who have experienced harassment or discrimination are encouraged to contact the appropriate offices within their respective units. Students should contact the Office of Student Affairs at (+974) 4432-0047, faculty members should contact the Office of the Associate Dean for Academic Affairs at (974) 4423-0015, and staff should contact Human Resources at (+974) 4423-0030.

University Student Rules

Each student enrolled at Texas A&M University is responsible for being fully acquainted with and complying with the Texas A&M University Student Rules. Specific rules, information and procedures may be found in publications pertaining to each particular service, or department. These rules and guidelines were in effect as of the printing of this catalog. Graduate students are encouraged to check the Web site student-rules.tamu.edu for any changes.



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General Information

EDITION 136Q

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History and Development

Mission Statement

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 understanding 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, 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 develop exemplary engineers and leaders through internationally respected undergraduate and graduate degree programs. Texas A&M University at Qatar will generate new knowledge by conducting research and disseminating results. In all of its efforts, Texas A&M University at Qatar will serve the needs of the State of Qatar and the region through broad expertise.

History and Development

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 49,000 students including more than 9,000 studying at the graduate and professional degree levels. Its students come from each of the 50 states in the nation and 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 1888, twelve years after the opening of the Agricultural and Mechanical College of Texas, the faculty initiated programs of instruction at the graduate level. In 1890, two



Master of Science degrees were conferred without any indication of the specialization of the recipients. Initially, the Agricultural and Mechanical College of Texas emphasized graduate programs in agriculture and engineering, which were administered by a faculty committee for graduate studies. In 1898, a single Master of Science degree in horticulture was awarded, followed by a scattering of Master of Science degrees in agriculture over the next 22 years.

Texas A&M University is a member of the prestigious American Association of Universities, a highly selective organization that promotes high standards for teaching, research, and scholarship at the undergraduate, graduate, and professional levels—one of only 61 institutions with this distinction. It is also home to one of the nation's largest chapters of Phi Beta Kappa, the oldest and most respected undergraduate honor society in the United States.

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

The faculty includes winners of the Nobel Prize, National Medal of Science and Wolf Prize, with 27 holding membership in the prestigious National Academy of Sciences, the National Academy of Engineering or Institute of Medicine. The overall faculty totals more than 2,800.

Classified by the Carnegie Foundation as a Research University (very high research activity), Texas A&M embraces its mission of the advancement of knowledge and human achievement in all its dimensions. The research mission is key to advancing economic development in both public and private sectors. Integration of research with teaching prepares students to compete in a knowledge-based society and to continue developing their own creativity, learning, and skills beyond graduation.

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. The branch campus began offering Master degrees in chemical engineering in fall 2011. 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 2012-2013 academic year, the Qatar campus had a student body in excess of 500 undergraduate and graduate students.

In addition to its branch campus in Qatar, Texas A&M operates a marine-oriented branch campus in Galveston, Texas, along with centers in Castiglione Fiorentino, Italy, Mexico City, and Costa Rica.



Qatar Foundation and Education City

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 natural resource is its people. 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 Moza bint Nasser 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, Texas A&M at Qatar 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, Northwestern University in 2008, University College of London in 2010, HEC Paris in 2011, 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. Texas A&M at Qatar is proud to take part in achieving the goals of Qatar Foundation, which so closely resemble its own commitments to education and community service.

University Core Curriculum

Guided by requirements of the Texas Core Curriculum, 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

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 (see page 21). Please check the main campus online catalog at catalog.tamu.edu 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 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 specifically excluded.

4. Knowledge of our cultures and its 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.

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

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

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.

Notes:

1. Individual degree programs may impose more restrictive requirements in any of these areas. Students should consult the degree listing in this catalog and their academic advisors to ensure that they are satisfying all requirements of their majors.
2. With the exception of courses satisfying the International and Cultural Diversity requirement (see section 6), no course shall be counted twice by the same student toward satisfaction of the University Core Curriculum requirements. For example, if a course is used to satisfy the Visual and Performing Arts requirement, the student may not use the course to satisfy the Humanities requirement.
3. Courses numbered 285 or 485 do not satisfy University Core Curriculum requirements. Individual Special Topics (289 and 489) courses may be approved for use in the Core Curriculum.
4. No student may satisfy all 12 hours of University Core Curriculum requirements in the categories of humanities, visual and performing arts, and social and behavioral sciences by courses having the same prefix.
5. If courses in MODL are used to fulfill the Humanities requirement, they must be in a different language than taken in high school or, if in the same language, at the 200-level or higher. For example, if the student took Spanish in high school, then the student may not use SPAN 101 or 102 in satisfying the Humanities requirement.
6. Students transferring course credit to satisfy the University Core Curriculum requirements should refer to the Texas Common Course Numbering System and the Transfer Course Credit Policies in this catalog.
7. Courses taken abroad, which are conducted in another country by a Texas A&M University faculty member, completed as reciprocal education exchange programs (REEP), or completed in another country through direct enrollment in another institution, can be used to satisfy the Core Curriculum requirement for International and Cultural Diversity. This includes credits earned through 285, 291, 485, 484, and 491 courses conducted abroad for which grades are determined by a Texas A&M University faculty member.
8. Courses approved as satisfying one or more areas of the University Core Curriculum become effective the semester or summer session immediately following approval by the Faculty Senate.



Student Learning Outcomes

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

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

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

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

Baccalaureate

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

<p>Master the depth of knowledge required for a degree, including the ability to:</p>	<p>Articulate disciplinary and interdisciplinary theories, concepts, principles, skills, and practices;</p> <p>Synthesize knowledge across courses and other experiences; and</p> <p>Apply knowledge from core curriculum courses, discipline-based courses, and other experiences in a range of contexts to solve problems and make decisions.</p>
<p>Demonstrate critical thinking, including the ability to:</p>	<p>Evaluate, analyze, and integrate information from a variety of sources;</p> <p>Use appropriate strategies and tools to represent, analyze, and integrate information; and</p> <p>Develop critical, reasoned positions.</p>
<p>Communicate effectively, including the ability to:</p>	<p>Demonstrate effective oral communication skills (which could include the use of languages such as American Sign language for those who do not communicate orally);</p> <p>Demonstrate effective writing skills;</p> <p>Demonstrate effective nonverbal communication skills (which could include appropriate use of performance, design, or representations such as maps, tables, and graphs);</p> <p>Listen actively and critically;</p> <p>Present work effectively to a range of audiences; and</p> <p>Effectively communicate original and creative ideas.</p>
<p>Practice personal and social responsibility, including the ability to:</p>	<p>Practice ethical leadership;</p> <p>Recognize an ethical dilemma and apply rational decision-making in order to address it;</p> <p>Choose ethical courses of action in research and practice;</p> <p>Acknowledge and address the consequences of one's own actions; and</p> <p>Engage in local and global civic activities.</p>

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

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

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

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

Work collaboratively, including the ability to:

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



Undergraduate Degree Information

Which Catalog to Follow

In meeting the requirements for a baccalaureate degree, a student is normally expected to complete the course and hour requirements as outlined in the catalog in effect at the time of his or her declaration of a major or change in major, or those of any later catalog of the student's choice. Normally, a student will not be granted a degree based upon completion of the requirements set forth in a catalog more than seven years old. Before changing catalogs, the student must consult his or her academic advisor. A student changes catalogs by completing a change of catalog form. 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 website 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 to identify another course that may be used to fulfill the requirement. Course adjustments in the degree program are permitted only with the approval of the academic dean through the program chair. 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 degree requirements. Exceptions to certain requirements may be petitioned through the program chair to the academic dean of the college.

Requirements for a Baccalaureate Degree

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

1. Be registered for or have completed all degree requirements by the 60th class day of the fall or spring semester, or the 15th class day of the second summer term either in residence or at another college or university. Proof of enrollment in any courses taken at another college or university must be provided to the Office of Records by the above deadlines. A student must be enrolled in his or her degree-granting college(s) at the beginning of the student's last semester at Texas A&M to be a candidate for a degree from that college.
2. Complete a minimum of 120 credit hours.
3. Complete, with at least a 2.0 grade point average, all undergraduate coursework attempted at Texas A&M University.

4. Complete, with a 2.0 grade point average, all courses included in the major field of study.
5. Meet the Residence Requirement. A minimum of 36 semester hours of 300- and/or 400-level coursework must be successfully completed in residence at Texas A&M to obtain a baccalaureate degree. A minimum of 12 of these 36 semester hours must be in the major. A student participating in Texas A&M University off-campus study programs approved by the student's college may apply upper division credits earned in the programs toward the residence requirement up to a maximum of 18 semester hours, including hours transferred from another institution as part of one of these programs.
6. Complete the University Core Curriculum.
7. Complete the citizenship requirement, which includes at least 6 credit hours in political science (government) and at least 6 credit hours in American history. POLS 206 (American National Government) and POLS 207 (State and Local Government with emphasis on Texas) fulfill the political science requirement.

Both the political science and American history requirements may be met, in whole or in part, by equivalent coursework satisfactorily completed at another accredited college or university.

8. Complete the Foreign Language requirement. A minimum of one year of foreign language is required in many degree programs at Texas A&M. This degree requirement can be satisfied by the satisfactory completion in high school of two units of the same foreign language or one year of the same language at the college level.
 - a. International students are not permitted to enroll in courses to satisfy this degree requirement.
 - b. Bachelor of Arts degrees from the College of Liberal Arts require an additional 6 semester hours at the 200-level.
 - c. Students who wish to demonstrate foreign language proficiency without taking acceptable high school or college courses may do so through the existing credit by examination process. In cases where students wish to demonstrate proficiency, the student shall request an examination from the Academic Services Office. This department will coordinate the administration of special examinations to demonstrate foreign language proficiency. This will include finding an appropriate examination to test the student's proficiency, informing the student how to arrange to take the examination and certifying the results to the student's advisor. All arrangements shall be made and fees paid by the student.
 - d. American Sign Language (ASL) may be used to fulfill the foreign language degree requirement unless otherwise specified by the student's college or department. Students may either transfer ASL credits or arrange to be tested at another institution. (Texas A&M does not offer courses in ASL.)

9. Complete the Writing requirement. The requirement may be met by taking two writing (W) courses or one writing (W) course and one oral communication (C) course. The requirement may not be met by any course listed as a University Core Curriculum communication requirement, nor may it be met through credit by examination. It may be met by a course transferred from another institution of higher learning, with the approval of the dean of the student's college and the Associate Provost for Undergraduate Studies. Upon request, students will provide their dean with a course description, syllabus or writing sample from the course being transferred.
10. Be formally recommended for graduation by the Faculty Senate after consideration of his or her complete record.
11. Fulfill any other requirements stipulated by Student Rule 14 (student-rules.tamu.edu/rule14).

Graduation Application, Diploma and Commencement

Formal application for degrees at Texas A&M at Qatar is a two step process. An application must be submitted online by the deadline stated in the academic calendar and degree application. In addition, the supplemental application must be submitted by the deadline. Under unusual circumstances, an application for a degree may be accepted after the stated deadline. The student must apply online at howdy.tamu.edu.

The diploma of the University, with the appropriate degree, will be granted to the student who has made formal application for the degree by the published official deadline, has all grades on record in the Office of Records, including grades pertaining to graduation with honors, by no later than 4 p.m., Thursday, the first week of classes of the succeeding semester or summer term following commencement and has satisfied all degree requirements.

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

Graduate and undergraduate students completing their degree in July or December will have the opportunity to participate in the commencement ceremony in May, following the completion of their degree.

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 Office of Records will add the minor for the student in COMPASS. Approval by the program chairs of the minor-granting program and the student's major program are required before the minor is added. Adjustments in a minor can be initiated by the academic advisor or the student's faculty advisor, but must be approved by both programs. 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 average 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.

Programs of Study at Texas A&M University at Qatar

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 website at www.qatar.tamu.edu/academics/academic-programs/chemical-engineering/.

Electrical Engineering

Electrical engineering is a challenging but exciting and rewarding field of study. It is a rich and rapidly advancing field that plays a significant role in shaping all facets of modern society. This includes generating, transmitting, and storing electrical energy, developing and utilizing wired and wireless technologies for broadband communications, controlling complex systems, and developing hardware and software systems that are at the core of most devices we interact with on a daily basis. The rapid industrialization and computerization of Qatar's economy is creating a need for highly skilled electrical and computer engineers who can plan, design, implement, and manage this transformation. Studying electrical and computer engineering prepares students for playing key roles in developing and managing the information, communication, and electrical energy infrastructures of Qatar and the region.

The program curriculum is designed to prepare the graduate 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 program leverages the integrated use of computers throughout the curriculum while laboratory work allows students to learn and then apply basic concepts to a wide range of engineering problems. After their exposure to the most recent analytical techniques and technological developments, students will implement engineering concepts using state-of-the-art computers and laboratory equipment. Foundation studies in analogue and digital circuits, signals and systems, electronics, electromagnetic fields, and computer



architecture during the sophomore and junior years leads to three main elective tracks in the senior year. The electric energy systems track is designed to train students in the theory and techniques related to electromechanical energy conversion systems, electric power and power electronic systems. The communication track is designed to prepare students to address challenges in the area of digital and wireless communication systems. The computer engineering track is designed to enhance student knowledge and skills in developing and maintaining the hardware and software components of modern computer and communication systems. All tracks have similar requirements and provide a broad based and rigorous educational experience.

Visit the Electrical Engineering Program's website at www.qatar.tamu.edu/academics/academic-programs/electrical-and-computer-engineering/.

Mechanical Engineering

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

Texas A&M at Qatar received ABET accreditation in the fall of 2008. According to ABET, an engineering education accreditation organization, mechanical engineers 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. Mechanical engineering is a diversified profession because all industries, including oil and gas industries, chemical industries, and built environment, need mechanical engineers for designing, maintaining, testing, and managing operations. In addition to industry, mechanical engineers may work for governmental and consulting organizations, and mechanical engineers may continue their studies and earn graduate degrees in MEEN or other disciplines.

For more information visit the Mechanical Engineering Program's website at www.qatar.tamu.edu/academics/academic-programs/mechanical-engineering/.

Petroleum Engineering

Petroleum engineering is primarily concerned with the safe and 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.

Petroleum engineering graduates often work as drilling, production, or reservoir engineers. Their activities include quantifying oil and gas reserves, well construction, well performance evaluation, reservoir modeling, and optimized production planning.

Texas A&M at Qatar's petroleum engineering students are prepared for the workplace through participation in research on topics such as reservoir simulation and flow correlations for pipelines. Fourth-year students complete a senior design project in which they developed a detailed reservoir model and make a recommendation for optimized reservoir development. They present their findings to industry people.

Petroleum engineering faculty members contribute to the local industry and community. They develop research projects that directly improve production and recovery from local industry reservoirs, a major source of the State of Qatar's gross domestic product, and provide continuing education courses and expertise to local industry. Student participation in research further develops the State of Qatar's human capital.

Visit the Petroleum Engineering Program's website at www.qatar.tamu.edu/academics/academic-programs/petroleum-engineering/.

Undergraduate Admission

Application Information

The application for undergraduate admission may be found at exploretamuq.com. Additional information may be obtained by calling (+974) 4423-0043 or by visiting the Office of Admissions at the Engineering Building located in Education City, Doha, Qatar. The admission guidelines presented here are for admission to the spring or fall 2014 semesters. While they are the best available, admission criteria are subject to change. The most current information is available on the website 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.



Types of Admission and Application Calendars

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

Items Necessary to Complete an Application File

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 30).

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 online 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. Reference forms
9. Application fee

Notification of Application Status

Check the applicant information website at qatar.tamu.edu/apply 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 will make every effort to inform applicants of incomplete files through the applicant website. If incomplete applications are received within one month of the closing date, there may not be sufficient time for the Office of Admissions to notify applicants. All items necessary to complete an application must be received by the Office of Admissions 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 qatar.tamu.edu/apply.

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

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

Freshman applicants 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.

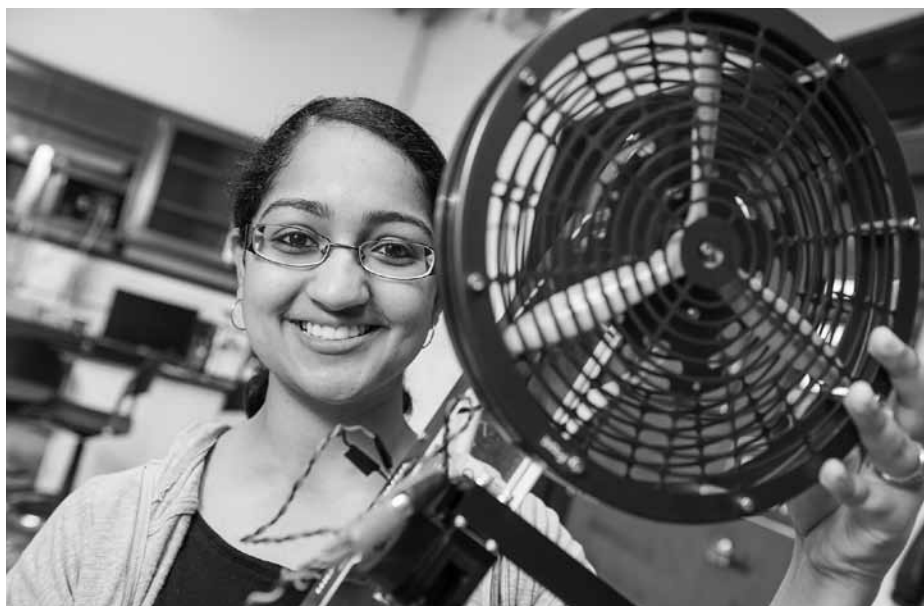
Freshman and transfer applicants who have graduated at the time of application are to submit an official high school or secondary school program transcript that includes coursework, credits earned, grades and class rank, and date of graduation.

Readmit applicants are not required to submit a high school transcript as a part of the application file.

To be considered official, a transcript must bear an original signature of a school official or an original school seal.

Transcripts in a language other than English must be accompanied by an official English translation. Applicants who have attended high schools in more than one country should submit official transcripts from each school attended.

Faxed copies are not official and will not be accepted.



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

An official transcript is required from every post-secondary institution attended even if the applicant did not earn credit, receive a course grade, or the course is not transferable. This includes attendance at the ABP, and any colleges or universities. Coursework from one college posted on the transcript of another college will not satisfy this requirement. Failure to acknowledge attendance and provide transcripts from all schools attended may be considered a fraudulent admissions application.

Official transcripts on paper are to be sent by the sending institution in a sealed envelope. The transcript will not be considered official if the student has had access to the actual transcript.

Transcripts in a language other than English must be accompanied by an official English translation.

Faxed copies are not official and will not be accepted.

Evaluation of college and university transcripts for transfer credit will be based on the Transfer Admission procedures outlined in 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.

TOEFL scores of 550 or higher on paper-based, computer-based score of 213 or higher, internet-based TOEFL score of 80 or higher, 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 500 or higher or an ACT English score of 21 or higher.) Candidates whose native language is English do not have to submit TOEFL/IELTS scores.

TOEFL and IELTS test scores must be from a test date within two years of the planned date of enrollment. SAT and ACT 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. **Reference Forms**

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 website.

9. **Application Fee**

QAR 330, or \$90 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 become the property of Texas A&M University at Qatar and should be sent to:

Office of Admissions
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.

Placement Tests

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



Application Calendar and Notification

Freshman 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 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. Candidates denied admission will be notified by e-mail and/or 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

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. The 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 or the Director of Records.

Transfer Admission

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. Applicants 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 ratio (GPR). Transfer admission decisions are very competitive; thus, admission standards are not known until the review for admission occurs. Preference is given to the applicant with the highest grade point ratio (GPR) and credit hours. Applicants who drop or withdraw from courses frequently and who do not achieve satisfactory grades routinely will be at a disadvantage in the review for admission. The entire application, including the essay, is considered in reviewing the transfer applicant for admission. Applicants with less than a 2.5 grade point ratio (GPR) will be denied admission. Only the most qualified transfer candidates will be admitted. For more transfer admission information, please visit the website at exploretamuq.com.

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 high school/secondary school transcripts
4. Official college/university and/or Academic Bridge Program transcripts
5. Official test scores
6. Essay
7. Resume/CV
8. Application fee

More detailed information can be found on page 31.

Additional Information for Transfer Applicants

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

Change of Curriculum or Change of Campus

Texas A&M offers coursework off campus. Participation in such programs or coursework does not give the participant automatic campus enrollment privileges.

Students are eligible to change to another campus, center, or location if they meet certain criteria. The criteria include, but are not limited to, the completion of a minimum of 27 credit hours earned, with at least a 2.50 GPA, while enrolled as a student in residence at the Texas A&M location of admission. For a change of curriculum to be approved, students must meet the change of major requirements of the desired curriculum and space must be available. Final approval is granted by the academic dean for that major.

Transfer Course Credit Policies

Transfer credit on coursework completed at the time of application to Texas A&M University at Qatar is transferable only when an official transcript from the originating institution 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 Records on a course-by-course basis. Credit submitted for transfer must be on an official transcript received by the Office of 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. All criteria are to be considered together; for example, criteria 10 may be qualified by criteria 7.

Credit from Institutions Accredited by One of the Regional Accrediting Associations

1. A course that is normally considered as part of the bachelor's degree program (not including the bachelor of technology or similar terminal degrees) may be transferred. The following criteria, taken together, are used:
 - a. The course is applicable to a bachelor's degree at Texas A&M University at Qatar.
 - b. The course is similar to a course or courses offered for degree credit at Texas A&M University.
 - c. The course content is at or above the level of the beginning course in the subject matter offered by Texas A&M University.
2. A course that is intended for use in a vocational, technical, or occupational program will normally not transfer. In certain cases, credit for occupational skill courses will be considered. Transfer of this credit requires that the student's major program and the academic dean approve the course for use in the student's degree program.
3. Credit for support courses such as math, science, and English intended specifically in an occupational program will not transfer.

4. Credit for the course must be indicated on the official transcript in semester hours or in units that are readily converted to semester hours.
5. 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.
6. Credit by examination courses, which are transcribed from other colleges and universities, may be transferred if sequential coursework with credit is also indicated. If there is evidence that the credit by examination courses are part of the student's program of study at that institution, credit will be awarded for those courses that meet the transfer guidelines.
7. Courses similar to ones offered by the 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.
8. A field experience or internship may be transferred by title only.
9. Credit for cooperative education will not transfer.
10. A course that is substantially equivalent to a Texas A&M 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.
11. As a general policy, credit for admission will be given for transfer work satisfactorily completed with a passing grade at another properly accredited institution.
12. Grade Point Ratio (GPR) for any period shall be computed by dividing the total number of semester hours of transferable courses for which the student received grades into the total number of grade points earned in that period. Credit hours to which grades equivalent to 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.
13. In any case where a decision cannot be made using the above criteria, the Office of Admissions 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.

Credit from Nonaccredited Schools

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

1. Successful completion of a comprehensive departmental examination or nationally standardized examination that is approved by the department.
2. Successful completion of a higher level course in the same subject area when approved by the head of the department and the dean of the college.

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

Credit from Institutions other than the United States

Transfer work from institutions following other than the United States educational system with instruction in English will be evaluated on an individual basis. A-level examinations with a grade of “C” or better will transfer. Baccalaureate II examinations will not transfer; however, these students may take placement and proficiency examinations to receive credit by examination. Credit will be given for work satisfactorily completed in an international institution offering programs recognized by Texas A&M. Official credentials submitted directly from the Office of the Registrar/Records 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 at Qatar Equivalency 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.

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

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

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.

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



In order for a student in residence at Texas A&M 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 critical reading score of 500 or ACT English score of 21;
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 will extend the time required to complete a degree.)

Admission Criteria for Other Application Types

Readmission Criteria

Admission decisions for readmission are based on the following:

- GPR on Texas A&M at Qatar coursework;
- GPR on coursework since leaving Texas A&M at Qatar;
- desired major; and
- information presented in the application.

If you were previously admitted but did not attend class through the official census date, you must apply as either a freshman or transfer student. Transcripts from institutions attended since the last enrollment at Texas A&M at Qatar are required. Please contact the Office of Admissions for readmission deadlines.

Postbaccalaureate Undergraduate Criteria

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

Additional requirements to complete a postbaccalaureate application:

- an official transcript indicating the receipt of a recognized baccalaureate degree;
- a statement explaining why enrollment at Texas A&M is necessary; and
- official transcripts from all colleges attended (official high school transcript not required).

Admission decisions for postbaccalaureate undergraduates consider:

- GPR on transferable college coursework;
- completion of prerequisite coursework; and
- information presented in the application.

Priority is given to qualified applicants for their initial degree; therefore, postbaccalaureate undergraduate admission may be limited or may not be available.

Transient Session Only Criteria

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

Additional requirements to complete transient session only application:

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

Course Credit

Credit by Examination

Undergraduate students at Texas A&M University at Qatar may earn course credits by demonstrating superior achievement on tests offered through several examination programs. Credit by examination is available to freshmen who plan to enter the University and to students who are currently enrolled. Credit earned by examination does not contribute to a student's grade point ratio (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, DANTES Subject Standardized Tests (DSST) 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 reported formally to the Office of Records for credit by examination to be awarded. Credit is posted to the academic record once appropriate scores are received, the student has officially enrolled in the University, and the student has accepted the credit. For information regarding current procedures for accepting credit, please contact the Office of Records or visit their website at records.qatar.tamu.edu.
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.

Advanced Placement Program (AP)

Examinations offered by the AP Program 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 Records at Texas A&M University at Qatar. Advanced Placement scores of entering freshmen are generally received in late July. Students will need to log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via AP tests. You are encouraged to meet with your advisor before you accept credit.

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

AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Art History	4	ARTS 149, 150	6
Biology	4	BIOL 111, 112	8
Calculus AB	4*	MATH 151	4
Calculus BC	3*	MATH 151	4
	4*	MATH 151, 152	8
Chemistry	3	CHEM 101, 111	4
	4	CHEM 101, 111, 102, 112	8
Chinese	3	CHIN 101, 102	8
	4	CHIN 101, 102, 201, 202	14
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, 202	14
German Language	3	GERM 101, 102	8
	4	GERM 101, 102, 201, 202	14
Human Geography	3	GEOG 201	3
Italian Language	3	ITAL 101, 102	8
	4	ITAL 101, 102, 201, 202	14
Japanese Language	3	JAPN 101, 102	8
	4	JAPN 101, 102, 201, 202	14
Latin: Literature	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221, 222	14



AP Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Latin: Vergil	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221, 222	14
Music Theory	4	MUSC 102	3
Physics B	3	PHYS 201, 202	8
Physics C: Mechanics	3 [†]	PHYS 201 or 218	4
Physics C: Elect. and Magnetism	3 [†]	PHYS 202, 208, or 219	4
Psychology	3	PSYC 107	3
Spanish Language	3	SPAN 101, 102	8
	4	SPAN 101, 102, 201	11
	5	SPAN 101, 102, 201, 202	14
Spanish Literature	3	SPAN 202	3
	5	SPAN 202, 320	6
Statistics	3	STAT 301, 302, or 303	3
Studio Art: Drawing	4	ARTS 103, 111	6
Studio Art: 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. Students will need to log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via CLEP tests. You are encouraged to meet with your advisor before you accept credit.

CLEP CBT Subject Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Algebra	50	MATH 102	3
American Government	50	POLS 206	3
Calculus with Elementary Functions	50	MATH 151 or MATH 171	4
Chemistry	45 50	CHEM 101 CHEM 101/102, 111/112	4 8
Financial Accounting	50	ACCT 209	3
History of the United States I: Early Colonization to 1877	60	HIST 105	3
History of the United States II: 1865 to the Present	60	HIST 106	3
Human Growth and 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
Western Civilization I: Ancient Near East to 1648	60	HIST 101	3
Western Civilization II: 1648 to Present	60	HIST 102	3



Dantes Subject Standardized Tests (DSST) Program

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

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

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 at Qatar 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 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 log onto their Howdy portal under My Records and then Credit by Exam to accept the credit earned via IB tests.

Texas A&M University will notify IB applicants of their eligibility to receive credit by posting information on the website dars.tamu.edu/ 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	BIOL 113/123	4
Biology HL	4	BIOL 111	4
	5	BIOL 111, 112	8
Business Management SL	4 w/diploma	MGMT 309	3
Business Management HL	4 w/diploma	MGMT 309	3
Chemistry SL	4 w/diploma	CHEM 106/116	4
Chemistry HL	4	CHEM 101/111	4
	5	CHEM 101/111, 102/112	8
Chinese: Language A or B SL	4	CHIN 101	4
	5	CHIN 101, 102	8
	6	CHIN 101, 102, 201	11
	7	CHIN 101, 102, 201, 202	14
Chinese: Language A or B HL	3	CHIN 101	4
	4	CHIN 101, 102	8
	5	CHIN 101, 102, 201, 202	11
	6	CHIN 101, 102, 201, 202	14
Classical Greek SL	4	CLAS 101	4
	5	CLAS 101, 102	8
	6	CLAS 101, 102, 211	11
Classical Greek HL	3	CLAS 101	4
	4	CLAS 101,102	8
	5	CLAS 101,102,211	11
Computer Science SL	4 w/diploma	CSCE 111	4
Computer Science HL	4	CSCE 111	4
Economics SL	4 w/diploma	ECON 203	3
Economics HL	4	ECON 203	3
English: Language A SL	4 w/diploma	ENGL 104	3
English: Language A HL	4	ENGL 104	3
	5	ENGL 104, 222	6

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

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Environmental Systems	4	GEOS 105	3
French: Language A or B SL	4	FREN 101	4
	5	FREN 101, 102	8
	6	FREN 101,102,201	11
	7	FREN 101,102,201,202	14
French: Language A or B HL	3	FREN 101	4
	4	FREN 101, 102	8
	5	FREN 101, 102, 201, 202	11
	6	FREN 101, 102, 201, 202	14
Fundamentals of Music	5	MUSC 102, 202	6
Further Mathematics SL	4 w/diploma	MATH 102	3
	5	MATH 150	4
Geography SL	4 w/diploma	GEOG 201	3
Geography HL	4	GEOG 201	3
German: Language A or B SL	4	GERM 101	4
	5	GERM 101, 102	8
	6	GERM 101, 102, 201	11
	7	GERM 101, 102, 201, 202	14
German: Language A or B HL	3	GERM 101	4
	4	GERM 101, 102	8
	5	GERM 101, 102, 201, 202	11
	6	GERM 101, 102, 201, 202	14
History HL			
Africa	4 w/diploma	HIST 104	3
Americas	4 w/diploma	HIST 105	3
	5 w/diploma	HIST 105, 106	6
	4 w/diploma	HIST 104	3
E & SE Asia and Oceania	4 w/diploma	HIST 104	3
Europe	4 w/diploma	HIST 102	3
South Asia & Middle East	4 w/diploma	HIST 104	3
History SL			
Islamic History	4 w/diploma	HIST 221	3
Info. Tech. in a Global Society SL	4 w/diploma	PHIL 205	3
Info. Tech. in a Global Society HL	4	PHIL 205	3
Italian: Language A or B SL	4	ITAL 101	4
	5	ITAL 101, 102	8
	6	ITAL 101, 102, 201	11
	7	ITAL 101, 102, 201, 202	14

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

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Italian: Language A or B HL	3	ITAL 101	4
	4	ITAL 101, 102	8
	5	ITAL 101, 102, 201, 202	11
	6	ITAL 101, 102, 201, 202	14
Japanese: Language A or B SL	4	JAPN 101	4
	5	JAPN 101, 102	8
	6	JAPN 101, 102, 201	11
	7	JAPN 101, 102, 201, 202	14
Japanese: Language A or B HL	3	JAPN 101	4
	4	JAPN 101, 102	8
	5	JAPN 101, 102, 201, 202	11
	6	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	MODL 289	4
	5	MODL 289	8
	6	MODL 289	11
	7	MODL 289	14
Other Languages HL	3	MODL 289	3
	4	MODL 289	8
	5	MODL 289	11
	6	MODL 289	14
Philosophy SL	4 w/diploma	PHIL 251	3
Philosophy HL	4	PHIL 251	3
Physics SL	4 w/diploma	PHYS 205	4
Physics HL	4	PHYS 201, 202	4
Psychology SL	4 w/diploma	PYSC 107	3
Psychology HL	4	PYSC 107	3
Russian: Language A or B SL	4	RUSS 101	4
	5	RUSS 101, 102	8
	6	RUSS 101, 102, 201	11
	7	RUSS 101, 102, 201, 202	14



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

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Russian Language A or B HL	3	RUSS 101	4
	4	RUSS 101, 102	8
	5	RUSS 101, 102, 201	11
	6	RUSS 101, 102, 201, 202	14
Social and Cultural Anthropology SL	4 w/diploma	ANTH 210	3
Social and Cultural Anthropology HL	4	ANTH 210	3
Spanish: Language A or B SL	4	SPAN 101	4
	5	SPAN 101, 102	8
	6	SPAN 101, 102, 201	11
	7	SPAN 101, 102, 201, 202	14
Spanish: Language A or B HL	3	SPAN 101	4
	4	SPAN 101, 102	8
	5	SPAN 101, 102, 201, 202	11
	6	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 101/111	4
French	640	FREN 101	4
	740	FREN 101, 102	8
German	630	GERM 101	4
	740	GERM 101, 102	8
Italian	630	ITAL 101	4
	750	ITAL 101, 102	8
Latin	630	CLAS 121	4
	730	CLAS 121, 122	8
Physics	680	PHYS 201, 202	8
Spanish	630	SPAN 101	4
	750	SPAN 101, 102	8

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
MATH 251	POLS 206
MATH 308	POLS 207

Registration and Academic Status

Registration for the fall and spring semesters is accomplished at several times. In the preceding fall and spring semesters (during November and April), an online preregistration period is held for currently enrolled and readmitted students to register for the next semester. There are periods of announced open registration for students who were unable to preregister during the scheduled preregistration period. New Student Conference serves as an opportunity for new undergraduate students to register. Further information concerning registration may be obtained from the academic calendar published in this catalog or from the Office of Records. The schedule of classes is available online at records.qatar.tamu.edu.

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, or 8 hours in a 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 chair, 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 academic advisor and approved by the course instructor, the student's major program chair, 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

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
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U0	Undergraduate Non-degree
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Students who are admitted to the Aggie Gateway 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&M University at Qatar. This includes:

- i. Transient students during the fall, spring or summer
- ii. Cross registered students from Education City institutions
- iii. Others as may be deemed appropriate by the Office of Records

Undergraduate non-degree students are not permitted to enroll in courses until all degree seeking students have had the opportunity to enroll. Undergraduate non-degree enrollment begins on the first day of open registration. Enrollment may be limited by college or program policies. Undergraduate non-degree students are limited to part-time status except for summer session or because of extenuating circumstances which result in the approval of full-time status at the time of admission. Admitted students are not eligible for refund of the admission processing fee regardless of course availability.

An undergraduate non-degree student must maintain a 2.0 GPA on all coursework attempted to remain eligible to register. Enrollment is subject to review at the end of each semester of enrollment. Enrollment beyond two years of attendance will be approved only in exceptional cases.

Should an undergraduate non-degree student desire admission to a degree program, regular formal application is necessary, including: a complete application for admission, the required application processing fee, submission of all required credentials, and meeting of all admission requirements.

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

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

An undergraduate non-degree student does not qualify for financial aid or scholarships through the University.

U1	Freshman 0–29 hours
U2	Sophomore 30–59 hours
U3	Junior 60–89 hours
U4	Senior 90+ hours

Code	Classification Definition
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U5	<p>Postbaccalaureate Undergraduate</p> <p>Students with a recognized baccalaureate degree who wish to complete requirements for a second baccalaureate degree at Texas A&M University at Qatar or to complete established Texas A&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&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>
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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. 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." 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.

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 if the student decides to drop to zero hours and does not intend to enroll in any subsequent summer session.

When a student withdraws from the University between the first class day and the Q-drop deadline, the Office of Records assigns a grade of W to all courses enrolled in during that semester that have not been completed by the official withdraw date. Any course previously Q-dropped for that semester are changed to W, and the W grades are displayed on the permanent record. For university policy regarding withdrawal, see the Texas A&M University Student Rules at student-rules.tamu.edu.

Correct Addresses

It is necessary to have a correct physical and permanent residence address on file with the University. Students may change their address on the Howdy portal at howdy.tamu.edu. 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 Texas A&M at Qatar email periodically.



Honor Code and Grading System

Aggie Honor System

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.

In addition to adherence to the Honor Code, a student (graduate students in particular) who is completing a thesis, record of study, dissertation, and publication may fall under the additional federal requirements promulgated by the Office of Research Integrity (Scientific Misconduct Regulations—42 CFR part 50), as well as Texas A&M System Regulations and Texas A&M University Rules (Texas A&M System Regulations—Ethics in Research and Scholarship—15.99.03, and Texas A&M University rules and standard administrative procedures—Responsible Conduct in Research and Scholarship—15.99.03.M1, 15.99.03.M1.01-06).

Grades

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

The basis upon which the final grade will be determined shall be distributed in written form to the class during the first class meeting.

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

A	Excellent, 4 grade points per semester hour
B	Good, 3 grade points per semester hour
C	Satisfactory, 2 grade points per semester hour
D	Passing, 1 grade point per semester hour
F	Failing, no grade points, hours included in GPA
I	Incomplete, no grade points hours not included in GPA
NG	No grade, grade removed from record, no grade points, hours not included in GPA
Q	Course dropped with no penalty, no grade points, hours not included in GPA
S	Satisfactory (C or above), no grade points, hours not included in GPA
U	Unsatisfactory (D or F), no grade points, hours included in GPA
X	No grade submitted, no grade points, hours not included in GPA
W	Withdrew, no grade points, hours not included in GPA (effective spring 1996)
F*	Aggie Honor Code violation, no grade points, hours included in the GPA

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 GPA. An F or U previously earned is not removed once the course is passed. Credit for each repeated course may only be used once toward degree requirements.

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

I and X Grades

A temporary grade of I (incomplete) at the end of a semester or summer term indicates that the student (graduate or undergraduate) has completed the course with the exception of a major quiz, final examination, or other work. The instructor shall give this grade only when the deficiency is due to an authorized absence or other cause beyond the control of the student. When an instructor reports an incomplete grade to the Office of Records, he or she will fill out an "Incomplete Grade Report," which is filed with the Office of Records. Copies are sent to the student and to the student's academic program chair. 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 chair), 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 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 Records at the end of a semester or summer term only when a grade is not submitted by the instructor. The Office of Records will notify the academic dean that an X notation has been made. The academic dean will request, through the academic program chair, that the instructor submit a Grade Change Report Form removing the X notation and assigning a letter grade. 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 Records. If a Grade Change Report is not received during this time period, the Office of 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 a summer term. A student requesting to add a course after these deadlines must have the approval of the student's dean or designee and program.
2. A student may drop a course with no record during the first 12 class days of a fall or spring semester and during the first four class days of a summer term. Following this period, if approved by the Associate Dean for Academic Affairs, a student may drop a course without penalty through the 60th class day of a fall or spring semester, the 15th class day of a summer term, or the 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 four Q-drops during their undergraduate studies. However, in order to comply with this statute a student who has dropped courses at other Texas public institutions may not be permitted four Q-drops if the student's total number of dropped courses would exceed the State limit of six.

3. Any course taught on a shortened format or between regularly scheduled terms will have add/drop, Q-grade, and withdrawal dates proportionally the same as if the course were offered in a regular term. These dates will be determined by the Office of 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. 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 (S/U) 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 (S) will be given only for grades of C and above; a grade of unsatisfactory (U) will be given for grades D and F. The hours earned on a satisfactory/unsatisfactory basis shall not be included in the designation of distinguished student or dean's honor roll.
 - c. Students on probationary standing may be required to take KINE 199 or electives on an S/U basis as determined by published college policies.
 - d. Students entering Texas A&M University Qatar in the fall 2003 semester and later must enroll in their first KINE 199 on an S/U basis.
 - e. Students registered for KINE 198 or additional classes of KINE 199 who wish to change the grade type from a graded course to S/U or from S/U to a graded course, may do so on the My Record tab in the Howdy Web portal. All requests for KINE 198 and 199 changes must be completed on or before the Q-drop deadline for the fall, spring or summer semester.
2. Graduate students
 - a. Graduate students will not receive graduate degree credit for undergraduate degree courses taken on a satisfactory/unsatisfactory basis. Graduate students may take any graduate courses that are not used on their degree plans on an S/U basis.
 - b. A grade of satisfactory (S) will be given only for grades of A and B in graduate courses, and for grades of C and above in undergraduate and professional courses; a grade of unsatisfactory (U) will be given for grades of C and below in graduate courses, and for D and F grades in undergraduate and professional courses.
 - c. S/U grades are not included in the grade point ratio calculation for graduate students.

3. Students must register for courses on an S/U basis during the official registration periods and shall not be permitted to change the basis on which their grades will be recorded on their official transcripts, except for unusual circumstances and with the approval of the student's academic dean.
4. Courses numbered 681, 684, 690, 691, 692, 693, 695, and 697 are graded on an S/U basis only.

Semester Credit Hour

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

Grade Point Average (GPA)

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 average. Students anticipating graduating with honors should refer to that section of this catalog for information concerning the computation of grade point averages for that purpose.

An undergraduate student's grade point average 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 Records. Sophomore, junior, and senior classification will be granted to students who have passed 30, 60, and 90 semester hours, respectively.

Grade Reports

Midsemester Report

Near the middle of the fall and spring semesters, a preliminary report, showing the current progress of all undergraduate students who have completed less than 30 semester credit hours of coursework at Texas A&M 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 My Record in the Howdy Web portal.

Final Grade Report

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

Parent/Guardian Access to Grades

A parent or guardian may access midterm and final grades at howdy.tamu.edu after the student sets the parent access password. The Office of Records cannot access the passwords created by students for parental access.

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. Students and former students may request an official transcript by completing the transcript request form online at records.qatar.tamu.edu or in person at the Office of Records located on the first floor of the Engineering Building in Education City, Doha, Qatar.



Tuition, Fees, and Other Financial Information

Tuition and Required Fees

Tuition and Fees

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. 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.

Tuition and fees for the academic year, which usually begins in late August and ends in early May, are as follows:

- Non-sponsored students pay QAR 36,050, or approximately \$9,877 USD, per semester, excluding summer. Students enrolling part-time are charged QAR 2,400 per credit hour.
- Sponsored students pay QAR 72,100, or approximately \$19,753 USD, per semester, excluding summer. Students enrolling part-time are charged QAR 4,800 per credit hour.
- All graduate students pay QAR 1,960, or approximately \$537 USD, per credit hour.

Tuition and fees for summer courses are based on the number of credit hours in which the student enrolls and are billed at QAR 2,400, or approximately \$658 USD, per credit hour.

Educational expenses for the nine academic months will vary according to personal needs. 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 website www.qatar.tamu.edu.

Payment of Tuition and Fees

Students must meet all financial obligations to the University by their due dates. 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's cashier office. Students will receive their invoices via their Texas A&M University at Qatar email address. Failure to pay amounts owed may result in cancellation of the student's registration and 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. Arrangements for paying tuition in installments should be made with the Academic Services Office.

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 the 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

Once students have registered for classes and subsequently wish to withdraw from the university prior to the first day of classes, s/he must do the following to prevent being charged tuition/fees for the term:

1. Contact the Office of Records prior to the first day of classes and complete a withdrawal form indicating the intent to officially withdraw from the University.
2. Contact the Academic Services Office to inform the Manager of Student Support Services of the official intent to withdraw.
3. Contact the sponsoring agency if the student is sponsored.

Following this procedure is especially important for students in order to prevent being assessed tuition/fees for the term even if 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 held responsible for paying all fees for the semester, regardless of whether he or she attended classes.

Cancellation of Nonpayment of Tuition or Fees

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

Application Fees

Application for admission fee for undergraduate and graduate applicants: QAR 330, or \$90 USD, non-refundable.

Confirmation Fee

A non-refundable fee of QAR 330, or \$90 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.

Diploma Fee

A non-refundable fee per degree sought is assessed the semester a student applies for graduation. This fee is payable each time a student applies for graduation. The late diploma fee is charged at the rate of QAR 185 or \$50 USD, in addition to the diploma fee above, to those who apply for graduation after the set deadline.

Refund Policy

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 records.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

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

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, Qatar Foundation 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.org.qa/clubhouse/output/page353.asp.

Services for Students

On-Campus Housing

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. Preference is given to those students who do not live in Qatar. Upon admission, students will receive a Qatar Foundation application for student housing from the Texas A&M University at Qatar Office of Admissions.

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 QAR 2,000.
- A non-refundable reservation fee of QAR 1,000.

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 QAR 6,000. For the spring semester this would total QAR 7,000. These fees are subject to change.

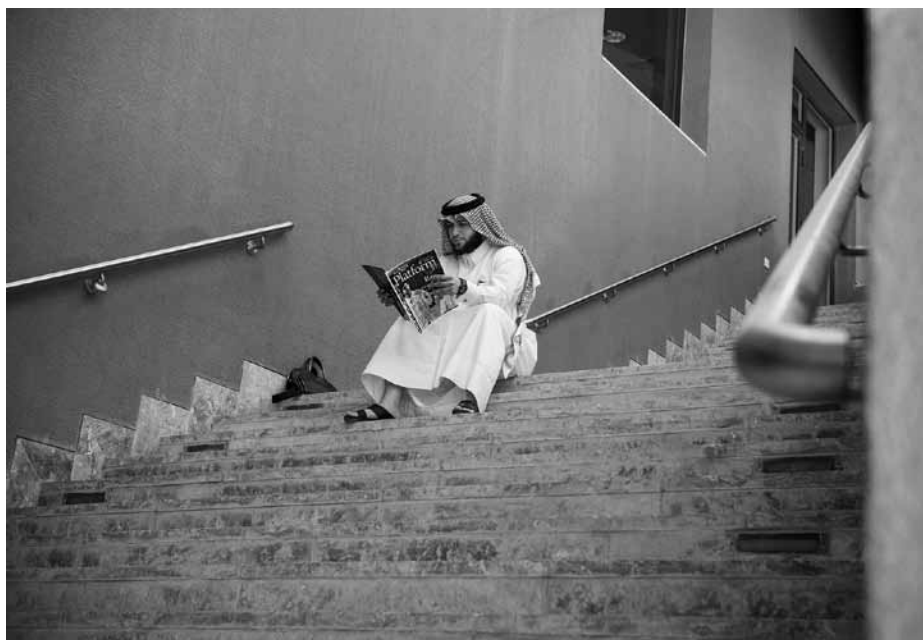
There are separate residence halls for male and female students. The standard form of accommodation is two to four students sharing a self-contained apartment (presently there are one and two bedroom apartments).

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 students 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 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

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. For questions concerning orientation, please contact the Department of Student Affairs at dsa@qatar.tamu.edu or (+974) 4423-0047.

Academic Advising

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 liaisons, and administrators working together to ensure the total educational development of students by meeting intellectual, academic, personal, and career needs.

Library

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 over 7000 titles is complemented by basic collection in the arts and humanities of around 3,000 volumes. Students may also request books and journal articles from the libraries on the main campus, where there is a print collection of more than 4 million volumes.

Extensive online resources are available to students both within the library and via remote access. This includes more than 100,000 electronic journals and newspaper titles, over 1,300 databases, and over 900,000 electronic books.

Students can locate books and thousands of journals by author, title, subject, and keyword using the online catalog, LibCat. The time-saving meta-search tool Search, that allows searching of multiple databases at one time, is also available for online library users. Online Chat, which makes an experienced librarian available via computer, is a great way to start a research project. GetItForMe is 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 in five to ten working days. Electronic versions are emailed within one to two days. Material not available from the main campus libraries can often be obtained from other North American universities and libraries and generally arrive within two to three weeks. Also available are professional librarians who are able to teach individuals and groups how to use these library tools and resources. There is a body of online tutorials available on the library's websites for independent, anytime learning.

Further information on the library can be found at the libraries web site: library.qatar.tamu.edu.

Information Technology Services

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 Texas A&M at Qatar 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 student laptop program is an extension of this effort. Through this program, all students are loaned a netbook for their freshmen year, which is exchanged for a tablet PC in their sophomore year for the duration of their enrollment. This equipment becomes the students' property when they graduate. Using these netbooks and 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

Texas A&M at Qatar 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 the main campus in College Station. All workstations in Qatar are connected to a Windows Local Area Network. In addition to email and Internet access, network storage is available for university employees and students, which includes a personal storage space (Home drive), a faculty-student shared drive, project drives, and departmental shared drives for faculty and staff. Texas A&M at Qatar employees and students are also given a web folder. Documents that are saved in this folder are published on the campus web server.

On campus, all 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. Students who desire cutting edge technology also have access to a state-of-the-art supercomputer (Suqoor) and a visualizations facility (the Immersive Visualization–IVF, or The Cave). The Suqoor cluster is the product of a shared vision of the university and Qatar Foundation to enhance education, research, and development in the Arabian Peninsula by

bringing leading-edge computing resources to the region. Named Suqoor (falcons in Arabic), the cluster is an SGI Altix XE1300 system and consists of 576 computational “cores” with 2.5 TB (trillion bytes) of memory. The Altix cluster is paired with a 60 TB clustered storage system, capable of supplying 1.8 gigabytes of data per second, which is referred to as the “Research Data Repository” (RDR). The Cave, on the other hand, aids researchers and faculty in understanding their data and presenting the results of their endeavors visually. The IVF consists of a 120 degree curved screen showing images as large as 3576 X 1024 pixels. As a viewer stands in front of the screen, the curved surface of the image envelopes the viewer’s peripheral vision, giving them the feeling of being immersed in the visualization. The Cave is also capable of stereo projection which (with the aid of specialized eyewear) enables human eyes to distinguish near objects from far ones, resulting in perception of objects floating in the air.



Off-Campus Resources

Access to computing services does not stop when students and employees leave campus. 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 Vista course management system that is delivered from our main campus in College Station, Texas, USA.

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 is open from 7:30 to 16:30, Sunday through Thursday. A host of online resources are available on our website to help university students learn more about the technology tools and services. Students can also benefit from the training courses we offer on a variety of technology topics.

We routinely communicate with faculty, students, and staff about their information technology needs. The Information Technology Advisory Committee, with appointments from the broad cross-section of Texas A&M at Qatar faculty and staff, has an advisory role in the information technology decision making and policy review. 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.

The Office of Academic Supplemental Instruction Services

The Office of Academic Supplemental Instruction Services (OASIS) is designed as a student needs-driven learning 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 student peer tutors who participate actively in the center as one-on-one tutors for courses offered by the university and community outreach programs, as well as within group tutoring Supplemental Instruction sessions. The synergies generated in this dynamic department provide students with pathways to 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 for tutoring assistance from 9:00 a.m. – 7:00 p.m. onsite and from 3:00 p.m. – 6:00 p.m. on Saturdays. All activities are scheduled via the online appointment system found on the OASIS website at: www.oasis101.com.

Community Education Services

OASIS also offers not-for-credit community education classes for the community at large, current and prospective students, as well as for faculty and staff members. These courses fall in the following categories: test preparation classes: GRE, ACT, TOEFL and IELTS preparation; university preparation: Jumpstart program for incoming freshmen; Business Etiquette Dinner: Annual event for Graduating Seniors; enrichment courses such as presentation skills, writing skills, and study skills; general interest courses such as Arabic language, time management, and managing stress.

The Association of Former Students

Founded in 1879, The Association of Former Students is the official alumni organization of Texas A&M University and proudly promotes the interests and welfare of Texas A&M University, maintains ties of camaraderie among former students and serves the student body. Through the generosity of former students and friends of Texas A&M, The Association provides the University with an annual impact of \$7 million in support of scholarships and academic programs, traditions and student activities, faculty and student enrichment, and former student programs. The Clayton W. Williams, Jr. Alumni Center serves as the headquarters to the organization and tells the story of Texas A&M and Texas Aggies through historical and interactive displays. In addition to the many former student programs coordinated annually, The Association of Former Students proudly protects and promotes the spirit and integrity of the Aggie Ring, one of the most enduring and visible symbols 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 after completing 90 credit hours. 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.

The right shank of the Ring includes 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. The leaves 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 left shank, 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 represents 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.



Campus Life

Department of Student Affairs

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

The Department of Student Affairs empowers students to organize into recognized clubs and organizations and plan their own campus activities. Program Coordinators 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, 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 teams are part of the activities offered and include basketball, soccer and cricket for boys and basketball and soccer for girls. Tryouts will be held for these teams each full semester.



Leadership Activities

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 programs to the main campus in College Station take place during spring break each year. The Department of Student Affairs will also offer service opportunities each year for students to give back to others. Programs are sponsored such as LeaderShape, a six-day residential experience focused on introducing student leadership concepts to all students. Another program we offer is called Catalyst, which is an intensive one-day program that challenges students to be a force for change within their student organizations and communities.

Student Body Government

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. The freshman class representatives are elected in the fall each year.

Student Wellness and Counseling

The Student Wellness and Counseling Programs promote 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, crisis and consultation, and disability services.

Critical Incident Response Team

The purpose of the Critical Incident Response Team (CIRT) 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 Critical Incident Response Team can be reached at (+974) 5588-6748.

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.

Study Abroad Programs

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, an array 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 conduct research, engage in 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

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 centers in Costa Rica, Italy, and Mexico. place during the summer, but some programs are also offered during the fall, spring, and intersessions. Three popular locations for semester programs are the University's three

Career Services

The Career Services Office offers advising and assistance to students seeking internships and full time employment, while supporting the recruiting initiatives of local and international companies. Career Services assists students as they prepare for their job searches by coordinating informational sessions and workshops on topics such as resume writing and interviewing skills. In coordination with the Student Engineers Council, the office hosts two annual recruiting events, the Student Networking Event and the spring career fair, Careers for Engineers. A variety of guest lecturers from industry are hosted each year, addressing students about opportunities in specific companies and on general issues related to working in the field of engineering.

Family Educational Rights and Privacy Act of 1974

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 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.

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 Maryland Ave., S.W.
Washington, D.C. 20202-5920

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

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

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

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

- Student’s Name
- UIN
- Local Address
- Permanent Address
- Email Address
- Local Telephone Number
- Permanent Telephone Number
- Dates of Attendance
- Program of Study (college, major, and campus)
- Classification
- Previous Institution(s) Attended
- Degrees Received
- Academic 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 going to the My Record tab in the Howdy Web portal, clicking on Withhold Directory Information in the “My Information” channel and submitting a completed form.

Directory Information may be released unless a Withhold Directory Information form is submitted by the student. The request remains in effect until the student revokes it or is deceased. Only currently enrolled students may request directory information be withheld.

Statement of Rights

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; and
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/legal guardians without the written consent of the student if the student is a financial dependent of his or her parents/legal guardians 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 Records.



2013–2014

Undergraduate Degrees Offered

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Dwight Look College of Engineering at the College Station Campus

Administrative Officers

Vice Chancellor and Dean of Engineering	M. Katherine Banks, B.S., M.S., Ph.D.
Executive Associate Dean	Nagamangala K. Anand, M.S., Ph.D.
Senior Associate Dean for Academic Affairs.....	Valerie E. Taylor, B.S., M.S., Ph.D.
Associate Dean for Graduate Programs.....	Scott Miller, B.S., M.S., Ph.D.
Senior Associate Dean for Research.....	Dimitris Lagoudas, B.S., M.S., Ph.D.
Assistant Dean for Research.....	Costas Georghiades, B.E., M.S., D.Sc.
Senior Assistant Vice Chancellor 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 chemical, electrical, mechanical, and petroleum engineering programs at Texas A&M at Qatar are 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. 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.

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

FRESHMAN YEAR**					
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. ³	(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 ¹	(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 ²		3	PHYS 208 Electricity and Optics	(3-3)	4
*KINE 198 Health and Fitness Activity	(0-2)	1	University Core Curriculum elective ²		3
		<u>17</u>	*KINE 199 Required Physical Activity	(0-2)	<u>1</u>
					<u>18</u>

- 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 Texas A&M University at Qatar.)

* 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 Texas A&M University at Qatar.)

Engineering Scholars Program (ESP) Certificate

The Engineering Scholars Program (ESP) Certificate is an Honors program offered through the College of Engineering for high achieving, highly motivated students. ESP requires students to complete 18 credit hours of honors coursework, including three seminar courses. These three seminar courses will expose students to speakers from industry, government, and academia, as well as hone their skills in resume writing and presentation skills, and receive information about graduate school. Students are also required to register for independent study or undergraduate research to be used toward their total number of honors coursework. Please see the Academic Services Office for further information.

Curriculum in Chemical Engineering

Administrative Officer at Texas A&M University at Qatar

Program Chair (PC)Bruce Palmer, B.S., Ph.D.

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

Department Head (DH) M. Nazmul Karim, B.S., 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.

Program Mission

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 the following:

- Chemical Engineering at Texas A&M University at Qatar will provide the best environment possible for students, staff and faculty to aspire to excellence and to develop to the maximum of their potential.
- Our graduates will have the competencies to become leaders in the process industries, business, government and education.
- We will use state of the art facilities, equipment and tools in our teaching and research. We will work as part of the international community to help develop creative solutions to problems of national and international importance.

Program Educational Objectives

The objectives of the Chemical Engineering Program at Texas A&M at Qatar are:

1. Our graduates will apply the foundation, depth, and breadth of knowledge for successful chemical engineering careers in industry or government.
2. Our graduates will apply effective communication, leadership, and teaming skills.
3. Our graduates will have a sense of responsibility, be 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 ¹	(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 ²		3	PHYS 208 Elect. and Optics.	(3-3)	4
KINE 198 Health and Fitness Activity	(0-2)	1	University Core Curriculum elective ²		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 ²		<u>3</u>	University Core Curriculum elective ²		<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 313 CHEN Materials.....	(3-0)	3
CHEN 320 CHEN Analysis.....	(3-0)	3	CHEN 323 Heat Transfer Oper.....	(3-0)	3
CHEN 354 CHEN Thermo. II.....	(3-0)	3	ECEN 215 Princ. Elect. Eng.....	(2-2)	3
University Core Curriculum elective ²		3	University Core Curriculum elective ²		<u>3</u>
Elective ³		<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	ENGR 482 Ethics and Eng.	(2-2)	3
CHEN 461 Process Dynamics and Control..	(3-0)	3	CHEN Specialty Electives ⁴		<u>6</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, 457, 458, 459, 471, 475, 476, 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 Texas A&M at Qatar, 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 average (GPA) 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 GPA 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 GPA of 2.0 for all CHEN courses, as well as an overall GPA 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 Chair (PC) Hussein M. Alnuweiri, B.S., M.S., Ph.D.

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

Interim Department Head (DH) Chanan Singh, B.E., M.S., Ph.D.

Electrical engineering is a challenging but exciting and rewarding field of study. It is a rich and rapidly advancing field that plays a significant role in shaping all facets of modern society. This includes generating, transmitting, and storing electrical energy, developing and utilizing wired and wireless technologies for broadband communications, controlling complex systems, and developing hardware and software systems that are at the core of most devices we interact with on a daily basis. The rapid industrialization and computerization of Qatar’s economy is creating a need for highly skilled electrical and computer engineers who can plan, design, implement, and manage this transformation. Studying electrical and computer engineering prepares students for playing key roles in developing and managing the information, communication, and electrical energy infrastructures of Qatar and the region.

The program curriculum is designed to prepare the graduate 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 program leverages the integrated use of computers throughout the curriculum while laboratory work allows students to learn and then apply basic concepts to a wide range of



engineering problems. After their exposure to the most recent analytical techniques and technological developments, students will implement engineering concepts using state-of-the-art computers and laboratory equipment. Foundation studies in analogue and digital circuits, signals and systems, electronics, electromagnetic fields, and computer architecture during the sophomore and junior years leads to three main elective tracks in the senior year. The electric energy systems track is designed to train students in the theory and techniques related to electromechanical energy conversion systems, electric power, and power electronic systems. The communication track is designed to prepare students to address challenges in the area of digital and wireless communication systems. The computer engineering track is designed to enhance student knowledge and skills in developing and maintaining the hardware and software components of modern computer and communication systems. All tracks have similar requirements and provide a broad based and rigorous educational experience.

Visit the Electrical Engineering Program's website at www.qatar.tamu.edu/academics/academic-programs/electrical-and-computer-engineering/.

Program Mission

In support of the university mission, the mission of the Electrical and Computer Engineering program is twofold:

- to provide quality education, well grounded in the fundamental principles of engineering, that prepares students for positions in industry, government, and academia.
- to serve the industries and the governmental agencies in the State of Qatar through continuing education, outreach activities, consulting, and research.

Program Educational Objectives

The Program Educational Objectives of the Electrical and Computer Engineering Program are:

1. Prepare graduates to apply knowledge and skills to be successful electrical engineers that will meet or exceed the expectations of their supervisors.
2. Prepare graduates to be professionals through effective communication, teamwork and project management skills.
3. Prepare graduates to 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
MATH 251 Engineering Mathematics III.....	(3-0)	3	ISEN 302 Econ. Analysis of Engr. Proj.....	(2-0)	2
UCC elective ¹	(3-0)	3	MATH 308 Differential Equations.....	(3-0)	3
UCC elective ¹	(2-2)	3	PHYS 222 Mod. Physics for Engineers	(3-0)	3
UCC elective ¹	(3-0)	3	UCC elective ¹	(3-0)	3
		<u>16</u>			<u>15</u>

JUNIOR YEAR

ECEN 314 Signals and Systems.....	(3-1)	3	ECEN 303 Random Signal and Systems.....	(3-1)	3
ECEN 325 Electronics	(3-4)	4	ECEN 322 Elec. and Magnetic Fields.....	(3-1)	3
ECEN 370 Elec. Props. of Matls.....	(3-1)	3	ECEN 350 Comp. Arch. and Design.....	(3-3)	4
ENGL 210 Scientific and Tech. Writing.....	(3-0)	3	ECEN elective ²		3
MATH 311 Topics in Applied Math I.....	(3-0)	3	Technical elective ²		3
		<u>16</u>			<u>16</u>

SENIOR YEAR

ECEN 403 Electrical Design Lab I.....	(2-2)	3	ECEN 404 Electrical Design Lab II.....	(2-3)	3
ECEN elective ²		3	ENGR/PHIL 482 Ethics and Engineering....	(2-2)	3
ECEN elective ²		3	ECEN elective ²		3
ECEN elective ²		3	ECEN elective ²		3
ECEN elective ²		3	ECEN elective ²		3
		<u>15</u>			<u>15</u>

Total Credits Required 128

- 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 Texas A&M University at Qatar ECEN program office.



Curriculum in Mechanical Engineering

Administrative Officer at Texas A&M University at Qatar

Program Chair (PC) Vijay G. Panchang, B.S., M.S., Ph.D.

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

Department Head (DH) Andreas A. Polycarpou, B.S., M.S., Ph.D.

Mechanical engineering is a highly diversified profession. The mechanical engineer designs machines, devices, various products and control systems, and works with the generation, conversion, transmission, and utilization of mechanical and thermal power. Assignments often include analysis and synthesis of mechanical, thermal, and fluid systems. Mechanical engineers are also responsible for characterization, specification, and analysis of materials used in design and manufacturing. Manufacturing systems, robotics, electromechanical devices, and control systems are also the purview of the mechanical engineer. Graduates in mechanical engineering are among the most versatile engineers and enjoy professional employment in industry, government, consulting, and research organizations.

The work of mechanical engineers varies from general engineering to numerous, narrow specialties, as required by the wide variety of employers. A general list, though not in any way exhaustive, of the areas of professional employment opportunities available to mechanical engineers includes: design, construction, controls, materials specification and evaluation, analysis of thermal systems, fluid and solid mechanics, manufacturing, plant engineering, research and development, and technical sales. Many mechanical engineers are promoted to management and administrative positions as well.

Program Mission

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.

Program Educational Objectives

The Mechanical Engineering Program Educational Objectives (PEOs) are to produce graduates who will

- have successful careers, and become leaders, in private and public sectors in Qatar, the region, and beyond;
- appropriately apply acquired knowledge, work well with other people, effectively communicate ideas and technical information, and continue to learn and improve; and
- successfully pursue advanced studies, if they so choose, and subsequently 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 ¹	(3-0)	3
MATH 251 Engineering Mathematics III ¹	(3-0)	3	ECEN 215 Prin. of Electrical Engr. ¹	(2-2)	3
MEEN 221 Statics and Particle Dynamics ¹ ...	(3-0)	3	MATH 308 Differential Equations ¹	(3-0)	3
MEEN 222 Materials Science ¹	(3-0)	3	MEEN 260 Mechanical Measurements ¹	(2-3)	3
UCC electives ²		3	MEEN 315 Principles of Thermodynamics ¹ ..	(3-0)	3
		15			15

JUNIOR YEAR

MEEN 344 Fluid Mechanics ¹	(3-0)	3	ISEN 302 Economic Analysis of		
MEEN 345 Fluid Mechanics Lab. ¹	(0-3)	1	Engineering Projects	(2-0)	2
MEEN 357 Engineering Analysis for			MEEN 364 Dynamic Sys. and Controls ¹	(2-3)	3
Mech. Engineers ¹	(3-0)	3	MEEN 368 Solid Mechanics in		
MEEN 360 Mat. and Manuf. Sel.	(3-0)	3	Mechanical Design ¹	(2-2)	3
in Design ¹			MEEN 381 Mechanical Eng. Seminar.....	(0-2)	1
MEEN 361 Mat. and Manuf. in Design Lab ..	(0-3)	1	MEEN 461 Heat Transfer	(3-0)	3
MEEN 363 Dynamics and Vibrations ¹	(2-2)	3	MEEN 464 Heat Transfer Lab	(0-3)	1
UCC elective ²		3	UCC elective ²		3
		<u>17</u>			<u>16</u>

SENIOR YEAR

MEEN 401 Intro. to Mech. Engr. Design ¹	(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) ³		6	Technical electives ME(2) ³		6
Technical elective ME(1) ³		3	UCC elective ²		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 Chair 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 Chair (PC) Vassilios C. Kelessidis, DipChemEng, M.S., Ph.D.

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

Department Head (DH) A. Daniel Hill, 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.

Program Mission

The mission of the Petroleum Engineering program at Texas A&M University at Qatar is to create, preserve, integrate, transfer and apply petroleum engineering knowledge, and to produce capable future engineers and to enhance the capabilities of current practitioners. 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.

Program Educational Objectives

The Program Educational Objectives (PEO) of the Petroleum Engineering Program at their core are broad statements that describe expected achievements of graduates within a few years of graduation:

1. Graduates will have the technical depth and breadth to be successful as petroleum engineers early in their careers.
2. Graduates will have the broad technical knowledge and communicative and interpersonal skills needed to rise to positions of professional leadership.

(See FRESHMAN YEAR)¹

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.....	(3-0)	3	MEEN 315 Prin. of Thermodynamics.....	(3-0)	3
PETE 225 Petroleum Drilling Systems.....	(1-3)	2	PETE 311 Reservoir Petrophysics.....	(3-3)	4
University Core Curriculum elective ²		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	PETE 323 Reservoir Models.....	(3-0)	3
PETE 314 Transport. Processes in Petroleum Production.....	(3-0)	3	PETE 324 Well Performance.....	(3-0)	3
PETE 335 Technical Presentations I ³	(1-0)	1	PETE 325 Petroleum Productions Systems... Petroleum Project Evaluation.....	(1-3)	2
University Core Curriculum elective ²		3		(3-0)	3
		14			15

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 401 Reservoir Simulation.....	(2-3)	3	PETE 322 Geostatistics.....	(3-0)	3
PETE 405 Drilling Engineering.....	(3-0)	3	PETE 400 Reservoir Description.....	(2-3)	3
PETE 410 Production Engineering.....	(3-0)	3	Technical elective ⁴		3
PETE 435 Technical Presentations II ³	(1-0)	1	University Core Curriculum elective ²		3
University Core Curriculum elective ²		3			15
		16			

Total Credits Required 129

- NOTES:**
1. PETE 201 is also required during the first semester of the freshman year.
 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/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.
 3. Independent study of a petroleum engineering problem, the solution of which will be documented by a technical paper and an oral presentation at the departmental student paper contest held during the same academic year.
 4. 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 Chair 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)

CHEM 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 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 average 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 in the discipline with at least 6 taken at the 300-400 level.
2. Either Geology (GEOL) 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.

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 Mechanical Engineering

The minor in Mechanical Engineering requires a minimum of 18 credit hours. The requirements for the minor in Mechanical Engineering are:

1. Each student participating in the minor will be required to take MEEN 360, MEEN 368, and MEEN 421.
2. All of the prerequisites listed for the 3 required courses listed above apply.
3. Equivalent courses as substitutions for prerequisites are allowed.
4. The minor must be approved by the student’s home department and Mechanical Engineering.

Students must earn a C or better in each of the courses. Any special considerations must be approved by the Mechanical Engineering Program Chair.

Minor in Political Science

The minor in Political Science requires a minimum of 15 credit hours. The requirements for the minor in Political Science are:

1. POLS 206 and POLS 207 are required.
2. 9 additional hours of POLS courses are required.
3. Minimum of 6 hours at 300- to 400-level.
4. No more than 3 hours of POLS 485.



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Supporting Academic Programs

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College of Education and Human Development

Administrative Officer at Texas A&M University at Qatar

Associate Dean for Academic Affairs.....Hamid R. Parsaei, B.S., M.S., Ph.D.

Administrative Officers at College Station Campus

Dean.....Douglas J. Palmer, B.A., M.A., Ph.D.

Executive Associate Dean for

Faculty Affairs and Research Mary Alfred, B.S., M.S., Ph.D.

Associate Dean for Academic Affairs.....George B. Cunningham, B.S., M.S., Ph.D.

Assistant Dean for Finance and Administration.....Becky Carr, B.S., M.Ed., Ph.D.

Assistant Dean for Undergraduate Academic Affairs..... David A. Byrd, B.A., M.S., Ph.D.

Assistant Dean for Organizational Development and

Diversity Initiatives Nancy T. Watson, B.S., M.Ed., Ph.D.

General Statement

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.



College of Geosciences

Administrative Officer at Texas A&M University at Qatar

Program Chair (PC) Vassilios C. Kelessidis, DipChemEng, M.S., Ph.D.

Administrative Officers at College Station Campus

Dean Kate C. Miller, A.B., M.S., Ph.D.

Executive Associate Dean and

Associate Dean for Research..... Jack G. Baldauf, B.A., Ph.D.

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

General Statement

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.



College of Liberal Arts

Administrative Officer at Texas A&M University at Qatar

Program Chair (PC) Troy Bickham, B.A., M.A., M.Phil., D.Phil.

Administrative Officers at College Station Campus

Dean José Luis Bermúdez, B.A., M.A., Ph.D.

Associate Dean Antonio C. La Pastina, B.A., M.A., Ph.D.

Associate Dean Michael T. Stephenson, B.S., M.A., Ph.D.

Associate Dean Patricia A. Hurley, B.A., M.A., Ph.D.

Associate Dean Gerianne Alexander, B.A., B.A., Ph.D.

Assistant Dean Donald J. Curtis, Jr., B.A., M.A., Ph.D.

Assistant Dean Cheryl L. Hanks, B.A., M.A.

General Statement

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.

College of Science

Administrative Officer at Texas A&M University at Qatar

Program Chair (PC) 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 and Development 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 Faculty Affairs Sherry J. Yennello, B.S., M.S., Ph.D.
 Associate Dean for Strategic Initiatives W. Michael Kemp, B.S., Ph.D.
 Assistant Dean for Finance and Administration Julie B. Allen, B.B.A.

Curricula in Chemistry

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 Texas A&M at Qatar offers course work and research in various areas of chemistry, organized into a program leading to a minor degree in chemistry.



Curricula in Mathematics

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

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.



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Graduate Studies

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Graduate Studies

Administrative Structure

As a branch campus, graduate programs at Texas A&M University at Qatar are subject to the administration and oversight of the Texas A&M University main campus.

Office of Graduate Studies (OGS) — Located on the main campus, The Office of Graduate Studies (OGS) maintains the official record for each graduate student, and in this role serves as the primary administrative body and overarching source of information for graduate education.

Office of Research and Graduate Studies (RGS) — Located on the Qatar campus, RGS is a support resource for all graduate education locally. As a liaison, RGS ensures student and administration adherence to OGS and university rules. All activity as a graduate student at Texas A&M University at Qatar should be coordinated through RGS and the student's academic program.

Academic Programs and Departments — Texas A&M University main campus academic units are referred to as departments whereas those on the Qatar campus are referred to as programs. Departments and programs work more closely together in regards to graduate studies. Rules and requirements of a student's academic programs are identical to their corresponding academic departments on main campus.

Once a graduate student is accepted, OGS and RGS assist and facilitate progression toward completion of a graduate degree through maintenance of all official documents. OGS interacts directly with the Graduate Council and Graduate Operations Committee to set minimal University guidelines, and all colleges and programs use these as a framework for operation, only setting more stringent standards when needed and appropriate. Clearance for graduation, including final review of theses and dissertations when required, is performed by OGS, but the Office of the Registrar in College Station or the Office of Records in Qatar is responsible for issuing all transcripts.

Ombudsman for Graduate Education

The Ombudsperson for Graduate Education assists graduate students, faculty, staff, and administrators in solving conflicts informally. This is accomplished by serving as a neutral listener, information resource, advisor, intermediary, and mediator.

A graduate student may serve in many roles during his/her academic career such as student, teacher, co-worker, colleague, employee, or technician. Varying rules/policies are in place to guide and protect each of these roles. When expectations for each of these roles are understood and accepted by all parties, problems rarely occur. Challenges can arise however when differing expectations of conflicting policies occur, or when one group is accused of violating the rules. The Ombudsperson advocates for the processes of graduate education by being equally open and accessible to all parties—students, faculty, staff, and administrators.

The Ombudsperson for Graduate Education can assist if:

- you have an issue or a concern that you and others cannot resolve, or that you would prefer not to address through formal channels.
- you have a matter to explore “off the record,” or those for which you need informal consultation.
- you have a problem, and are unsure with whom to speak or what options are available to address it.
- you believe that a University policy, procedure, or regulation has been applied unfairly, or is itself unfair or ambiguous.
- you have a problem that requires an outside party to negotiate a solution, or facilitate your communication with others.



Ombudsperson contact information:

Bill Mercer
Manager of Graduate and Continuing Education Services
Office of Research and Graduate Studies
Texas A&M University at Qatar Engineering Building
974.4423.0198

Additional information about the administration of Graduate Studies, guidelines for graduate faculty membership including a description of graduate faculty, and Texas A&M University System graduate faculty and graduate advisors may be found in the Texas A&M University Graduate Catalog at the website catalog.tamu.edu.

Degree Programs

Chemical Engineering

Texas A&M University at Qatar offers two graduate degrees in Chemical Engineering, the Master of Science (MS), thesis option only, and Master of Engineering (MEng). The MS degree program includes a significant research component in addition to graduate coursework. Information about specific program coursework and examinations is available upon request and on the web site www.qatar.tamu.edu/academics/academic-programs/chemical-engineering/.

Some research areas available within the program include: liquified natural gas safety, water and environmental management, desalination, gas-to-liquid conversion, applied crystal catalysis, design and simulation of chemical reactors, energy efficiency, process integration and optimization, oil and gas processing, nonlinear modeling, and process dynamics and control. Modern equipment and computational tools are available in numerous laboratories to perform research in these and other areas.

The Degree of Master of Science

The Master of Science (MS) curriculum is designed to develop new understanding through research and creativity.

Residence

In partial fulfillment of the residence requirement for the degree of Master of Science, the student must complete 9 resident credit hours during one regular semester or one 8-week summer semester. Upon recommendation of the student's advisory committee or program chair if appropriate, and with approval of the Office of Graduate Studies, a student may be granted exemption from this requirement. Such a petition, however, must be approved prior to the student's registration for the final 9 credit hours of required coursework.

Students who are employed full-time while completing their degree may fulfill total residence requirements by completion of less-than-full time course loads each semester. In order to be considered for this option, the student is required to submit a Petition for Waivers and Exceptions along with verification of his/her employment to the Office of Graduate Studies.

Student's Advisory Committee

After receiving admission to graduate studies and enrolling for coursework, the student will consult with the program chair of his or her major concerning appointment of the student's committee chair or advisory committee. The student's advisory committee for the master's degree will consist of no fewer than three members of the graduate faculty representative of the student's fields of study and research. The chair or one of the co-chairs of the advisory committee must be from the student's major program and at least one or more of the members must be from a program other than the student's major program.

The committee chair, in consultation with the student, will select the remainder of the advisory committee. The student will interview each prospective committee member to determine whether he or she is willing to serve. The chair of the committee, who usually has immediate supervision of the student's research and thesis, has the responsibility for calling

required meetings of the committee and for calling meetings at any other time considered desirable.

If the chair of a student's advisory committee voluntarily leaves the University and the student wants the chair to continue to serve as the committee chair, the student is responsible for adding an additional member of the current University Graduate Faculty, from the student's academic program and located on the Qatar campus, to serve as the co-chair of the committee.

If the chair of the student's advisory committee is unavailable for an extended time in any academic period during which the student is involved in activities relating to an internship, thesis, or professional paper, and is registered for 684, 691, 692, or 693 courses, the student may request, in writing, that the program chair appoint an alternate advisory committee chair during the interim period.

The duties of the committee include responsibility for the proposed degree plan, the research proposal, the thesis, and the final examination. In addition, the committee as a group and as individual members are responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Office of Graduate Studies.

The committee members' approval on the degree plan indicates their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although individual committee members may be replaced by petition for valid reasons, a committee cannot resign en masse.

Degree Plan

The student's advisory committee, in consultation with the student, will develop the proposed degree plan. The degree plan must be completed and filed with the Office of Graduate Studies prior to the deadline imposed by the student's college and no later than 90 days prior to the date of the final oral examination or thesis defense.

A student should submit the degree plan using the online Automated Degree Plan Submission System located on the Web site ogsdps.tamu.edu.

A student submitting a proposed degree plan for a Master of Science degree at Texas A&M at Qatar should designate on the official degree plan form the program option "thesis option."

Additional coursework may be added to the approved degree plan by petition if it is deemed necessary by the advisory committee to correct deficiencies in the student's academic preparation.

Credit Requirement for Masters Level Programs

A minimum of 32 semester credit hours of approved courses and research is required for the Master of Science degree.

Ordinarily the student will devote the major portion of his or her time to work in one or two closely related fields. Other work will be in supporting fields of interest.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M University at Qatar may be authorized to transfer courses in excess of the limits prescribed below upon the advice of the advisory committee and with the approval of the Office of Graduate Studies. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater **might** be considered for transfer credit if, at the time the courses were completed, the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Otherwise, the limitations stated in the following section apply. Coursework **in which no formal grades are given or in which grades other than letter grades (A or B) are given (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit.** Courses appearing on the degree plan with grades of D, F, or U may not be absolved by transfer work. Credit for thesis research or the equivalent is not transferable. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Records on the Qatar campus.

Grades for courses completed at other institutions are not included in computing the GPR, with the exception of courses taken at the Texas A&M Health Science Center.

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

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

1. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:
 - Graduate and/or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University (Qatar or College Station campus), or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
 - Courses previously used for another degree are not acceptable for degree plan credit.
2. The maximum number of credit hours taken in post-baccalaureate non-degree (G6) classification at Texas A&M University (Qatar or College Station) which may be considered for application to the degree plan is 12.
3. Any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan:
 - A maximum of 6 hours of 684 (Professional Internship) and/or
 - A maximum of 6 hours of 685 (Directed Studies), and
 - Up to 3 hours of 690 (Theory of Research), and
 - Up to 3 hours of 695 (Frontiers in Research).
4. A maximum of 2 hours of seminar (681).

5. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).
6. No credit may be obtained by correspondence study.
7. For graduate courses of three weeks' duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.
8. No credit hours of 691 (Research) may be used
9. Continuing education courses may not be used for graduate credit.
10. Extension courses are not acceptable for credit.

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

Continuous Registration

A student in the Master of Science program who has completed all degree plan coursework other than 691 (Research) is required to be in continuous registration until all requirements for the degree have been completed. See Continuous Registration Requirements, page 129.

Foreign Languages

No specific language requirement exists for the Master of Science degree.

Thesis Proposal

For the thesis option Master of Science degree, the student must prepare a thesis proposal for approval by the advisory committee and the program chair. This proposal must be submitted to the Office of Graduate Studies at least 15 working days prior to the submission of the request for the final examination.

Compliance issues must be addressed if a graduate student is performing research involving human subjects, animals, infectious biohazards, and recombinant DNA. A student involved in this type of research must check with the Office of Research Compliance, Office of the Vice President for Research at +1 (979) 845-8585 to ensure that he/she has met all compliance responsibilities. Additional information can also be obtained on the Web site researchcompliance.tamu.edu.

Thesis Defense/Final Examination

The candidate must pass a final examination by dates announced each semester or summer term in the Office of Graduate Studies Calendar. **The Office of Graduate Studies must be notified in writing of any cancellation.** To be eligible to take the final examination, a student's GPR must be at least **3.000 for courses on the degree plan and for all courses completed at Texas A&M (Qatar or College Station campus) which are eligible to be applied to a graduate degree, and there must be no unabsolved grades of D, F, or U for any course listed on the degree plan.** To absolve a deficient grade, the student must have repeated the course at Texas A&M University (Qatar or College Station campus) and have achieved a grade of C or better. All coursework on the degree plan must have been completed with the exception of those hours for which the student is currently



registered. Additionally, all English Language Proficiency requirements must be satisfied prior to scheduling the examination. If applicable, an approved thesis proposal must be on file in the Office of Graduate Studies according to published deadlines.

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

For thesis option students, the final examination covers the thesis and all work taken on the degree plan and at the option of the committee may be written or oral or both. The final examination may not be administered before the thesis is available to all members of the student's advisory committee in substantially final form, and all members have had adequate time to review the document. The examination is conducted by the student's advisory committee as finally constituted. A thesis student must be registered in the University in the semester or summer term in which the final examination is taken. Persons other than members of the graduate faculty may, with mutual consent of the candidate and the major professor, attend final examinations for advanced degrees. Upon completion of the questioning of the candidate, all visitors must excuse themselves from the proceedings. A positive vote by all members of the graduate committee with at most one dissension is required to pass a student on his or her exam. A program may have a stricter requirement provided there is consistency within all degree programs within the program.

A thesis candidate may petition to be exempted from his/her final examination provided his/her degree plan GPR is 3.500 or greater and he/she has the approval of the advisory

committee, the student's major program, and the Office of Graduate Studies. It is required that the petition for exemption be submitted the same semester the student intends to submit the thesis.

For non-thesis option students, a final comprehensive examination is required. Exemptions from final examinations are not allowed. The final exam cannot be held prior to the mid point of the semester if questions on the exam are based on courses in which the student is currently enrolled. If a student has completed all required degree plan coursework, the student is not required to be registered for classes in the semester the final examination is administered (unless he/she holds an assistantship).

Exam results must be submitted with original signatures of only the committee members approved by the Office of Graduate Studies. If an approved committee member substitution (1 only) has been made, his/her signature must also be submitted to the Office of Graduate Studies.

Thesis Option

An acceptable thesis is required for the Master of Science degree for a student who selects the thesis option program. The finished work must reflect a comprehensive understanding of the pertinent literature and express in clear English, the problem(s) for study, the method, significance and results of the student's original research. Guidelines for the preparation of the thesis are available in the Thesis Manual, which is available online at thesis.tamu.edu.

After successful defense (or exemption) and approval by the student's advisory committee and the head of the student's major department (or chair of the intercollegiate faculty, if appropriate), the student must submit his/her thesis to the Thesis Office in electronic format as a single PDF file. The PDF file must be uploaded to the Thesis Office website, thesis.tamu.edu. Additionally, a signed approval form must be brought or mailed to the Thesis Office. The PDF file and the signed approval form are required by the deadline.

Deadline dates for submitting are announced each semester or summer term in the "Office of Graduate Studies Calendar" (see Time Limit statement). These dates also can be accessed via the website ogs.tamu.edu/current-students/dates-and-deadlines/.

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

A thesis that is deemed unacceptable by the Thesis Office because of excessive corrections will be returned to the student's department head (or chair of the intercollegiate faculty, if applicable). The manuscript must be resubmitted as a new document, and the entire review process must begin again. All original submittal deadlines must be met during the resubmittal process to graduate that semester.

Non-Thesis Option

For the non-thesis option, a thesis is not required. A final comprehensive examination is required for all non-thesis Master of Science programs. No exemptions are allowed. The requirements as to level of courses and examinations are the same as for the thesis option Master of Science degree. The final examination cannot be held prior to the mid point of the semester if questions on the examination are based on courses in which the student is currently enrolled.

A student pursuing the non-thesis option is not allowed to enroll in 691 (Research) for any reason and 691 may not be used for credit toward a non-thesis option Master of Science degree. A maximum of 4 credit hours of 684 (Professional Internship), 8 credit hours of 685 (Directed Studies), and up to 3 credit hours of 690 (Theory of Research) or 695 (Frontiers in Research) may be used toward the non-thesis option Master of Science degree. In addition, any combination of 684, 685, 690 and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan. All requirements for the non-thesis option Master of Science degree other than those specified above are the same as for the thesis option degree.

Time Limit

All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements.

A student must have the final corrected version of the thesis cleared by the Thesis Office no later than one year after the final examination, or approval of a petition for exemption from the final exam, or within the seven-year time limit, whichever occurs first. Failure to do so will result in the degree not being awarded.

Application for Degree

A graduate degree is conferred at the close of each regular semester and 8-week summer semester. A candidate for an advanced degree who expects to complete his/her work at the end of a given semester must apply for graduation by submitting the electronic application for degree via the Howdy student portal, submitting the supplemental application form to the Office of Records, and by paying the required graduation fee in the finance office no later than the deadline listed in the academic calendar each term. A cancellation made after the application deadline will not receive a refund of the diploma fee. Students who have completed all their degree requirements will not be allowed to cancel their graduation. The electronic application can be accessed via the student's Howdy portal. The supplemental application can be found at



<http://www.qatar.tamu.edu/academics/office-of-records/graduation/>

Steps to Fulfill Master's Degree Requirements

1	Meet with departmental graduate advisor to plan course of study for first semester.	➔	When: Before first semester registration. Approved by: Graduate advisor or chair of the intercollegiate faculty.
2	Establish advisory committee. Submit a degree plan.*	➔	When: Prior to the deadline imposed by the student's college and no later than 90 days prior to final oral or thesis defense. Approved by: Advisory committee, department head or chair of the intercollegiate faculty, and Office of Graduate Studies (OGS).
3	If thesis is required, submit thesis proposal to the Office of Graduate Studies.	➔	When: At least 25 working days prior to the submission of the Request for the Final Examination. Approved by: Advisory committee, department head or chair of the intercollegiate faculty and OGS.
4	Apply for degree**, pay graduation fee.	➔	When: During the first week of the final semester, see OGS calendar.
5	Check to be sure degree program and advisory committee are up to date and all ELPE requirements (if applicable) and coursework are complete.	➔	When: Well before submitting request to schedule final examination.
6	Complete residence requirement.	➔	When: If applicable, before or during final semester. Approved by: OGS.
7	Submit request for permission to schedule final examination.	➔	When: Must be received by OGS at least 10 working days before exam date. See OGS calendar for deadlines. Approved by: Advisory committee, department head or chair of the intercollegiate faculty, and OGS.
8	If required, upload one approved final copy of thesis as a single PDF file (thesis.tamu.edu) and submit signed approval form to the Thesis Office.	➔	When: See OGS calendar for deadlines. Approved by: Advisory committee, department head or chair of the intercollegiate faculty and OGS.
9	Graduation; arrange for cap and gown.	➔	For more information, contact the Office of Records.

* The online Automated Degree Plan Submission System is located on the website ogsdps.tamu.edu.

** Complete the application for degree form via the student's Howdy portal and the supplemental application via the Office of Records website www.qatar.tamu.edu/academics/office-of-records/graduation.

The Degree of Master of Engineering

A student holding a Bachelor of Science degree in engineering or a qualified senior during the last semester may apply for admission to graduate studies to work toward the non-thesis degree of Master of Engineering (MEng), majoring in his or her particular field of engineering. Approximately one-third of the required 30 credit hours of coursework will be taken in fields outside of the major field.

The work in the major field will include one or two written reports (not necessarily involving results of research conducted by the candidate).

Residence

No residence requirement exists; however, attention is directed to the rules regarding Limitations on the Use of Transfer, Extension, and Certain Other Courses.

Student's Advisory Committee

After receiving admission to graduate studies the student will consult with the program graduate advisor or the program chair concerning registration and the student's degree plan. If an advisory committee is deemed necessary by the program, the graduate advisor, in consultation with the student, will select the members of the advisory committee.

If the student's graduate advisor is unavailable for an extended time in any academic period during which the student is involved in activities relating to an internship or professional paper and is registered for 684, 692, or 693 courses, the student may request, in writing, that the program chair appoint an alternate graduate advisor during the interim period.

The duties of the graduate advisor include responsibility for the proposed degree plan, any professional study or project, and the final examination. In addition, the graduate advisor (or committee if deemed necessary) is responsible for counseling the student on academic matters, and, in the case of academic deficiency, initiating recommendations to the Office of Graduate Studies.

The graduate advisor (or committee's) approval on the degree plan indicates their willingness to accept the responsibility for guiding and directing the entire academic program of the student and for initiating all academic actions concerning the student. Although an advisor may be replaced by petition for valid reasons, a student will always be provided an advisor.

Degree Plan

The student's graduate advisor, in consultation with the student, will develop the proposed degree plan. **The degree plan must be completed and filed with the Office of Graduate Studies prior to the deadline imposed by the student's college, and no later than 90 days prior to the date of the final oral examination. No exceptions are allowed.**

This proposed degree plan should be submitted through the online Automated Degree Plan System located on the Web site ogsdpps.tamu.edu.

Additional coursework may be added to the approved degree plan by petition if it is deemed necessary by the graduate advisor to correct deficiencies in the student's academic preparation. No further changes can be made to the degree plan once the student's Request for Final Examination or Request for Exemption from Final Examination is approved.



Credit Requirement

A minimum of 30 semester credit hours of approved courses is required for the Master of Engineering degree.

Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M University (Qatar or College Station) may be authorized to transfer courses in excess of the limits prescribed below upon the advice of the advisory committee and with the approval of the Office of Graduate Studies. Courses taken in residence at an accredited U.S. institution or approved international institution with a final grade of B or greater might be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University (Qatar or College Station campus) or at the institution at which the courses were taken, and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution. Otherwise, the limitations stated in the following section apply. Coursework in which no formal grades are given or in which grades other than letter grades (A or B) are given (for example, CR, P, S, U, H, etc.) is not accepted for transfer credit. Courses appearing on the degree plan with grades of D, F, or U may not be absolved by transfer work. Credit for thesis research or the equivalent is not transferable. Credit for coursework submitted for transfer from any college or university must be shown in semester credit hours or equated to semester credit hours. An official transcript from the university at which the transfer coursework was taken must be sent directly to the Office of Records on the Qatar campus.

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

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

1. The maximum number of credit hours which may be considered for transfer credit is the greater of 12 hours or one-third (1/3) of the total hours of a degree plan. The following restrictions apply:
 - Graduate or upper-level undergraduate courses taken in residence at an accredited U.S. institution, or approved international institution with a final grade of B or greater will be considered for transfer credit if, at the time the courses were completed, the student was in degree-seeking status at Texas A&M University (Qatar or College Station campus), or the student was in degree-seeking status at the institution at which the courses were taken; and if the courses would be accepted for credit toward a similar degree for a student in degree-seeking status at the host institution.
 - Courses previously used for another degree are not acceptable for degree plan credit.
2. The maximum number of credit hours taken in post-baccalaureate non-degree (G6) classification at Texas A&M University (Qatar or College Station campus) which may be considered for application to the degree plan is 12.
3. Any combination of 684, 685, 690, and 695 may not exceed 25 percent of the total credit hour requirement shown on the individual degree plan:
 - A maximum of 6 hours of 684 (Professional Internship) and/or
 - A maximum of 6 hours of 685 (Directed Studies), and
 - Up to 3 hours of 690 (Theory of Research), and
 - Up to 3 hours of 695 (Frontiers in Research).
4. A maximum of 2 hours of Seminar (681).
5. A maximum of 9 hours of advanced undergraduate courses (300- or 400-level).
6. No credit may be obtained by correspondence study.
7. For graduate courses of three weeks' duration or less, taken at other institutions, up to 1 hour of credit may be obtained for each five-day week of coursework. Each week of coursework must include at least 15 contact hours.
8. No credit hours of 691 (Research) may be used.
9. Continuing education courses may not be used for graduate credit.
10. Extension courses are not acceptable for credit. Exceptions will be permitted only in unusual cases and when petitioned by the student's advisory committee and approved by the Office of Graduate Studies.

Foreign Languages

No specific language requirement exists for the Master of Engineering degree.

Internship

The final examination is not to be administered until all other requirements for the degree, including any internship, have been substantially completed.

Time Limit

All degree requirements must be completed within a period of seven consecutive years for the degree to be granted. A course will be considered valid until seven years after the end of the semester in which it is taken. Graduate credit for coursework which is more than seven calendar years old at the time of the final examination (oral or written) may not be used to satisfy degree requirements.

Final Examination

The candidate must pass a final examination by dates announced each semester or summer term in the "Office of Graduate Studies Calendar" unless the student has been exempted from the examination. The Office of Graduate Studies must be notified in writing of any cancellation. The candidate is eligible to petition for an exemption from the final examination with program chair and committee approval. The approved petition should be submitted to the Office of Graduate Studies by the deadline announced for the student's final semester (or semester of graduation) in the Office of Graduate Studies Calendar. Please see the Office of Graduate Studies Web site at ogs.tamu.edu/calendar.

To be eligible to take the final examination, a student's GPR must be at least 3.000 for courses on the degree plan and for all courses completed at Texas A&M (Qatar or College Station campus) which are eligible to be applied to a graduate degree, and no unabsolved grades of D, F, or U can occur for any course listed on the degree plan. To absolve a deficient grade, the student must have repeated the course at Texas A&M University (Qatar or College Station campus) and have achieved a grade of C or better. All coursework on the degree plan must have been completed with the exception of those hours for which the student is registered. Additionally, all English language proficiency requirements must be satisfied prior to scheduling the examination.

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



excluded). The final exam cannot be held prior to the mid point of the semester if questions on the exam are based on courses in which the student is currently enrolled.

The final examination covers all work taken on the degree plan and at the option of the graduate advisor may be written or oral or both. The examination is conducted by faculty in the student's major program. Students should contact their graduate advisor for further examination information.

Exam results must be submitted with original signatures to the Office of Graduate Studies.

Application for Degree

A graduate degree is conferred at the close of each regular semester and 8-week summer semester. A candidate for an advanced degree who expects to complete his/her work at the end of a given semester must apply for graduation by submitting the electronic application for degree via Howdy, submitting the supplemental application form to the Office of Records, and by paying the required graduation fee in the finance office no later than the deadline listed in the academic calendar each term. A cancellation made after the application deadline will not receive a refund of the diploma fee.

Graduate Admission

Admission

Admissions information, including access to the online application for admission (during admission periods) is available at gradstudies.qatar.tamu.edu. Additional information may be obtained by calling +974.4423.0079, or by visiting the Office of Research and Graduate Studies at the Engineering Building located in Education City, Doha, Qatar. To be considered a candidate for 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. Required documents may include the following:

1. Completed application
2. Passport copy (resident permit if required)
3. Official college/university transcripts
4. Official test scores (GRE, TOEFL, or IELTS)
5. Statement of Purpose
6. Resume/Curriculum Vitae
7. Letters of Recommendation
8. Application fee

International Admission Status

An applicant from a country other than the United States seeking admission to graduate studies must meet the same requirements for admission as applicants from the United States. In addition, he or she must demonstrate the ability to read, write, speak, and understand the English language. A prospective student whose native language is not English may take either the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) exam. Both exams are offered at locations around the world. Applications for these exams together with additional information about these examinations may be found on their web sites; TOEFL information may be obtained at www.ets.org/toefl and IELTS information from www.ielts.org. Currently, the TOEFL is offered in more than 200 locations around the world, and the IELTS is offered in more than 400 world-wide venues. Applicants from non-English speaking countries must present a TOEFL score of at least 213 computer-based, 80 Internet-based or an IELTS score of at least 6.0 overall band to be admitted to graduate studies. An applicant may be exempt from the TOEFL requirements by completing all credits of a baccalaureate degree or higher in the United States or scoring a 400 or higher on the Verbal section of the GRE. Additionally, applicants from the following countries will be exempt from the TOEFL requirement:

American Samoa	Dominica	Liberia
Australia	Grenada	New Zealand
Bahamas	Grand Cayman	Sierra Leone
Barbados	Guyana	Trinidad/Tobago
Belize	Ireland	United Kingdom
Canada (except Quebec)	Jamaica	U.S. Pacific Trust

Some programs reserve the right to require a TOEFL score even though it may be waived by one of the above criteria.

English Language Proficiency Requirements

An international graduate student whose native language is not English must fulfill an English proficiency requirement, through either English Proficiency Verification or English Language Certification. This proficiency requirement should be met early in a student's program, and it must be completed before scheduling either the final examination for the master's degree or the preliminary examination for the doctoral degree.

Two levels of English Proficiency Status for a graduate student include: English Proficiency Verified and English Proficiency Certified. English Proficiency Certification is required, by the State of Texas, before a graduate student is eligible to serve as a Graduate Assistant-Teaching, or any other position considered to be a teaching position (e.g., instructor, lecturer, etc.). All other students must be either English Proficiency Verified or English Proficiency Certified.

English Proficiency Verification can be achieved by presenting:

- a TOEFL score of at least 213 computer-based (80 Internet-based), or
- an IELTS score of at least 6.0, or
- a GRE Verbal score of at least 146 (400 for tests taken before 1 August 2011), or
- a GMAT Verbal score of at least 22.

An individual may be exempt from the TOEFL requirements by completing all credits of a four-year baccalaureate degree or higher in the United States.

Individual colleges may choose to establish minimum TOEFL standards that exceed the University minimum for English Proficiency Verification. Scores from TOEFL examinations administered more than two years before submission of the application for admission shall not be eligible for English Proficiency Verification.

English Proficiency Certification can be achieved by:

- scoring at least 80 on each of the sections of the English Language Proficiency Examination (ELPE),
- obtaining grades of A or B in English Language Institute (ELI) courses at the 300-level or higher, or
- requesting alternative certification by the Office of Graduate Studies. A student who has received a baccalaureate degree following four years of study at an accredited U.S. institution will qualify automatically for English Proficiency Certification under this alternative.

A graduate student who has completed an equivalent English training program at an institution other than Texas A&M may request English Proficiency Verification or Certification. Verification or Certification is requested through the program graduate advisor. The student should provide the program graduate advisor with documentation to support Verification or Certification. If the program concurs with the request, the program graduate advisor will submit a letter recommending and requesting Verification or Certification (with documentation attached) to the Office of Graduate Studies. The Office of Graduate Studies will determine on a case-by-case basis whether Verification or Certification is granted.



Registration and Academic Status

General Information

Before registering for the first time, a student should seek assistance from the program graduate advisor representing the field of his or her major interest. This advisor will assist in planning the student's first registration.

Full-Time Status

A graduate student is considered full-time if he or she is registered for a minimum of:

- 9 semester credit hours during a fall or spring semester;
- 6 semester credit hours in a 8-week summer semester; or
- 3 semester credit hours in each five-week summer term.

Dropping a course before the 12th class day does not count toward full-time status and will not appear on a certification of enrollment status.

Maximum Schedule

Fall/Spring: A graduate student may register for a maximum of 15 hours.

5-week summer session: A graduate student may register for a maximum of 6 hours.

8-week summer session: A graduate student may register for a maximum of 12 hours.

To register for more than the maximum number of hours for any term, the student should contact the Office of Research and Graduate Students on the Qatar campus.



Continuous Registration Requirements

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

To qualify for In Absentia registration, a student must not have access to or use facilities or properties belonging to or under the jurisdiction of The Texas A&M University System at any time during the semester or summer term for which he or she is enrolled. A student who qualifies for In Absentia registration is required to register each subsequent fall and spring semester for a minimum of one and maximum of four credit hours of 691, 684, 685, or 692. Programs may have additional or higher requirements.

A student who is subject to In Residence registration (i.e., on campus) is required to register each subsequent fall and spring semester and each 8-week summer semester for at least one credit hour. University programs may have additional or higher requirements. Unless a student plans to take examinations, or use University resources including any interaction with their graduate committee, registration during the summer will not be required to fulfill the continuous registration requirement. However, programs may have additional or higher requirements.

A student who does not comply with the continuous registration requirement will be blocked from registration. He/she will be allowed to register only after receiving a favorable recommendation from a program review committee (not the student's advisory committee), the endorsement of the program chair and the approval of the Office of Graduate Studies.

A student holding an assistantship or fellowship must be registered full time.

Leave of Absence

Under unusual circumstances, a student may petition for a leave of absence. The entire advisory committee, if formed, and the program chair must approve the petition and send it to the Office of Graduate Studies. If the Dean of Graduate Studies approves the petition, the registration requirement will be set aside during the period of leave. Leaves will be granted only under conditions that require the suspension of all activities associated with pursuing the degree. For certain types of approved leave, such as medical, the time period for the completion of the degree will stop with the leave and begin when the student returns to the program. Other types of leave may not stop the time limit for the degree. A student should refer to the sections on Time Limits for master's programs. A leave of absence is granted for one year. In case of extenuating circumstances, the leave of absence can be extended by the student's committee and the Dean of Graduate Studies. A student who returns to the University after an approved leave of absence will not be required to submit an application for readmission to the Office of Graduate Admission.

Classification

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

CODE	CLASSIFICATION DEFINITION
G6	<p>Postbaccalaureate Non-degree</p> <p>Postbaccalaureate non-degree classification is intended for a student with a baccalaureate degree from an institution of higher education.</p> <p>If at a later date, a postbaccalaureate non-degree student decides to pursue a graduate degree, the student must understand that limitations may be placed on coursework taken while in G6 status. Specifically, the student must understand that a program may decide whether or not to accept any G6 work toward the student's graduate degree; however, with the approval of the student's graduate advisor, the program chair and the Office of Graduate Studies, a maximum of 12 credit hours taken in postbaccalaureate non-degree status may be used on a student's degree plan. Admission to postbaccalaureate non-degree status does not establish eligibility for admission to degree-seeking status. A postbaccalaureate non-degree student is not eligible to register for 691 Research hours.</p> <p>An application for a postbaccalaureate non-degree classification is handled on a first come, first served basis.</p> <p>Enrollment of a G6 student in courses may be limited by program policies. Each postbaccalaureate non-degree student must be reviewed by his or her program of affiliation for continuation at the end of each semester.</p> <p>A postbaccalaureate non-degree student must maintain at least a 3.000 GPR on all coursework attempted to remain eligible to register. University programs may have additional and higher requirements.</p> <p>For the scholastically deficient postbaccalaureate non-degree student (G6 classification), the student's home program shall determine eligibility, and it is the program's responsibility to place a registration block on these students.</p>
G7	<p>Graduate, Master's</p> <p>G7 classification denotes admission to a masters level program of study.</p>



2013–2014

Course Descriptions

Undergraduate and Graduate

Undergraduate Course Descriptions

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 chair at Texas A&M University at Qatar serves as proxy for the department head in College Station.

Anthropology (ANTH)

- 210. Social and Cultural Anthropology. (3-0). Credit 3.** Evolution of cultures; differences, similarities and effects of material and non-material culture on economic, social and political organization.

Chemical Engineering (CHEN)

Professors D. B. Bukur, M. Castier, I. G. Economou, K. R. Hall, P. Linke, B. R. Palmer (PC); **Associate Professors** A. I. A. Abdel-Wahab, N. O. Elbashir, M. N. Nounou; **Assistant Professors** K. E. Kakosimos, L. Véchet; **Senior Lecturer** G. H. Salama

- 204. Elementary Chemical Engineering. (3-0). 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: CHEN 204; 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 or approval of instructor.

- 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 or registration therein; CHEN 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: CHEN 320, CHEN 323 or registration therein; CHEN 354.
- 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 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.
- 457. Environmental Engineering. (3-0). Credit 3.** Overview of environmental engineering for chemical engineers; analyzing and solving environmental problems associated with engineered systems; emphasis on water/wastewater quality and treatment, air pollution control, and soil and hazardous waste management; includes guest lectures and field trips. Prerequisites: CHEN 304 and CHEN 354 or approval of instructor; junior or senior classification.
- 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.
- 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.
- 476. Applied Catalysis. (3-0). Credit 3.** Principles of catalysis and applications to industrial reactions; catalyst preparation, methods for catalyst characterization, deactivation mechanisms and regeneration techniques, catalyst testing (laboratory and industrial reactors), fundamentals of kinetics of heterogeneous reactions; applications to selected industrial processes. Prerequisites: CHEN 354; CHEN 464 or registration therein; junior or senior classification.
- 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)

Professors A. Bengali; **Visiting Professor** D. G. Seapy, S. Zarić; **Associate Professor** H. S. Bazzi (PC); **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, CHEM 107 or their equivalent. Concurrent enrollment in CHEM 112.
- 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. Concurrent enrollment in CHEM 117.
- 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, CHEM 104 or CHEM 112, CHEM 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 231 or 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 112 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.

Communication (COMM)

- 205. Communication for Technical Professions. (3-0). Credit 3.** Design and presentation of oral reports for technical professions; incorporation of visual and graphic materials into presentation required; written reports required. Prerequisite: ENGL 104.

Electrical Engineering (ECEN)

Professors H. A. Abu-Rub, H. M. Alnuweiri (PC), J. J. Boutros, A. Ghrayeb, C. Nguyen, K. A. Qaraqe, M. H. Weichold; **Associate Professors** S. Ahmed, H. N. Nounou, M. A. R. Saghir; **Lecturer** B. Ahmed

- 210. Computer Programming and Algorithms. (3-1). Credit 3** Introduction to C language and common algorithms; computer systems; simple C programs; basic language constructs file I/O; modular programming and functions; arrays and matrices; pointers and strings; simple data structures; searching, sorting, and numerical algorithms; algorithmic complexity. Prerequisite: Sophomore classification in an engineering major.
- 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; admission to upper level in an engineering major. Corequisite: MATH 308.
- 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. (3-1). 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: MATH 308; junior or senior classification.
- 314. Signals and Systems. (3-0). 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. (3-1). 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; PHYS 208; junior or senior classification.
- 325. Electronics. (3-4). 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. (3-1). 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.
- 403. Electrical Design Laboratory I. (2-2). Credit 3.** Application of design process and project engineering as practiced in industry; team approach to the design process; development of a project proposal; proposed; project implemented in ECEN 404. Prerequisites: ECEN 214, 314, 325; ENGL 210, 241 or 301 or COMM 203 or 205; senior classification.
- 404. Electrical Design Laboratory II. (2-3). Credit 3.** Continuation of ECEN 403; application of the design process and project engineering as practiced in industry; team approach to the design process; completion of project based on proposal from ECEN 403; includes testing, evaluation and report writing. Prerequisites: ECEN 403, senior classification and approval of project.
- 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. (3-3). Credit 4.** 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 (DSP) chips; fundamental compromises amongst computational accuracy, speed and cost; real-time implementation of filtering, audio, image and video processing algorithms; rapid prototyping via MATLAB/Simulink. Prerequisites: ECEN 444; junior or senior classification.
- 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.
- 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.

- 479. Wireless Communication Laboratory. (0-3). Credit 1.** Application of theoretical concepts learned in ECEN 478; includes weekly experiments using NI PXI and Matlab. Prerequisite: ECEN 478 or registration therein; 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.

Dwight Look College of Engineering (ENGR)

Professor of Mechanical Engineering E. Masad; **Lecturer of Electrical and Computer Engineering** 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.
- 181. Manufacturing and Assembly Processes I. (2-3). Credit 3.** A survey of metal manufacturing processes; traditional machining, non-traditional machining, welding, fabrication, casting and assembly. Prerequisite: ENDG 105 or ENGR 111 or registration therein.
- 281. Engineering Honors Seminar II. (1-0). Credit 1.** Introduction to research and development in both university and industry settings. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Certificate in engineering honors membership; ENGR 181.
- 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.
- 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.

English (ENGL)

Assistant Professor L. Seawright; **Visiting Assistant Professor** L. Rudd; **Senior Lecturers** L.J. Salter, N. Small, J. Williams; **Lecturer** C. E. Farmer, D. Rasmussen, M. Tafefici, S. Ward

- 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. Introduction to Film Analysis. (3-0). Credit 3.** Fundamental aspects of film analysis and criticism. Prerequisite: ENGL 104.

Geology (GEOL)

- 104. Physical Geology. (3-3). Credit 4.** Earth materials, structures, external and internal characteristics; physical processes at work upon or within the planet; 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 Texas A&M at Qatar, 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)

- 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.
- 470. Computational Geophysics. (3-0). Credit 3.** Techniques used in the study of geophysical processes, including heat and chemical transport in the Earth, rock deformation and viscous fluid flow; development of conservation laws, relevant boundary conditions and analytical solutions; introduction to numerical solutions. Prerequisites: GEOL 101 or GEOL 104; MATH 308; or approval of instructor.

History (HIST)

Professor T. O. Bickham (PC); **Assistant Professor** M. van de Logt; **Visiting Assistant Professor** M. K. Beauchamp

- 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.
- 230. American Military History, 1609 to Present. (3-0). Credit 3.** Main events, personalities and technologies related to American military history.
- 258. American Indian History. (3-0). Credit 3.** Survey of American Indian history; Pre-Columbian, First Contact, Colonial Conquest, Differentiation between cultural groups; Reservation period, twentieth-century self-determination, and Pan-Indianism.
- 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; includes the use of Excel and VBA. Co-requisites: ENTC 181; STAT 211. Prerequisite: CSCE 206.
- 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.
- 411. Engineering Management Techniques. (3-0). Credit 3.** Techniques relating to managing engineering activities; engineer's transition into management; engineering managerial functions; motivation of individual and group behavior; productivity assessment/improvement; managing the quality function and communications. Prerequisite: Senior classification in industrial engineering.
- 489. Special Topics in... Credit 1 to 5.** In-depth study of areas of current student interest and recent advances; normally used for first time offering of a new course. Prerequisite: Approval of instructor.

Kinesiology (KINE)

Instructional Assistant Professor J. Campbell; **Assistant Lecturer** K. Campbell

- 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.

College of Liberal Arts (LBAR)

- 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.

Mathematics (MATH)

Professors M. B. Elgindi, T. Huang, N. Mir; **Visiting Professor** R. A. Lorentz; **Assistant Professors** A. El-Guindy, R. Khan; **Senior Lecturer** A. Belmonte, Jr.; **Lecturer** R. Dufresne

- 150. Functions, Trigonometry and Linear Systems. (3-2). Credit 4.** Graphs, functions, college algebra and trigonometry, linear systems and vectors.
- 151. Engineering Mathematics I. (3-2). Credit 4.** Rectangular coordinates, vectors, analytical geometry, functions, limits, derivatives of functions, applications, integration, computer algebra. MATH 171 designed to be a more demanding version of this course. Prerequisite: MATH 150 or equivalent or acceptable score on TAMU Math Placement Exam. Credit will not be given for more than one of MATH 131, 142, 147, 151, and 171.
- 152. Engineering Mathematics II. (3-2). Credit 4.** 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. MATH 172 designed to be a more demanding version of this course. Prerequisite: MATH 151 or equivalent. Credit will not be given for more than one of MATH 148, MATH 152 and MATH 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, Green's and Stokes' theorems. MATH 221 designed to be a more demanding version of this course. Prerequisite: MATH 148, MATH 152, or MATH 172. Credit will not be given for more than one of MATH 221, MATH 251, and MATH 253.
- 308. Differential Equations. (3-0). Credit 3.** Ordinary differential equations, solutions in series, solutions using Laplace transforms, systems of differential equations. Prerequisites: MATH 221, MATH 251, or MATH 253; 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, MATH 251, or MATH 253; MATH 308 or concurrent enrollment; junior or senior classification or approval of instructor. Credit will not be given for more than one of MATH 304, MATH 309, MATH 311, and MATH 323.
- 411. Mathematical Probability. (3-0). Credit 3.** Probability spaces, discrete and continuous random variables, special distributions, joint distributions, expectations, law of large numbers, the central limit theorem. Prerequisite: MATH 148, MATH 152, or MATH 172.
- 414. Fourier Series and Wavelets. (3-0). Credit 3.** Fourier series and wavelets with applications to data compression and signal processing. Prerequisite: MATH 304, MATH 309, MATH 311, or MATH 323.

Mechanical Engineering (MEEN)

Professors S. El-Borgi, I. Hassan, M. Karkoub, E. A. Masad, V. G. Panchang (PC), H. R. Parsaei; **Associate Professor** N. Ozalp; **Visiting Associate Professor** M. Schuller; **Assistant Professors** B. Guo, B. Mansoor, A. Ruimi, R. Sadr; R. Tafreshi

- 221. Statics and Particle Dynamics. (3-0). 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 107/117; PHYS 218.
- 260. Mechanical Measurements. (2-3). Credit 3.** Introduction to the basic principles of engineering experimentation including: instrumentation and measurement techniques, signal processing and data acquisition, statistical data 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. (3-0). 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 MATH 253; junior or senior classification.
- 333. Project Management for Engineers. (3-0). Credit 3.** Basic project management for engineering undergraduates, project development and economic justification; estimating; scheduling; network methods; critical path analysis; earned value management; recycling and rework; project organizational structures; project risk assessment; resource allocation; ethics; characteristics of project managers. Prerequisite: Junior or senior classification in Dwight Look College of Engineering. Cross-listed with CVEN 333 and ISEN 333.
- 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. (3-0). Credit 3.** Selection of materials and manufacturing processes in design; emphasis on mechanical properties of materials; microstructure production and control; manufacturing processes for producing various shapes for components and structures; use of design methodology. Prerequisites: MEEN 222, MEEN 260; CVEN 305; junior or senior classification; or approval of instructor.
- 361. Materials and Manufacturing in Design Laboratory. (0-3). Credit 1.** Experiments in materials characterization and manufacturing processes; emphasis on material mechanical properties; microstructure production and control; manufacturing processes for producing various shapes for components and structures. Prerequisites: MEEN 222, MEEN 260; CVEN 305; MEEN 360 or registration therein; junior or senior classification or approval of instructor.
- 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 221; MATH 308; MEEN 357 or CVEN 302, or registration therein; CVEN 305, or registration therein.

- 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 Texas A&M at Qatar.)*
- 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 Texas A&M at Qatar.)*

- 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: MEEN 368 or approval of instructor.
- 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.
- 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. Sound and Vibration Measurements. (3-0). Credit 3.** Basic acoustics, review of vibration theory, wave propagation in vibrating systems, sound radiation from vibrating systems, sound and vibration sensors and instrumentation, data acquisition systems, measurement techniques, spectral analysis, spatial FFT analysis, design of experiments with vibro-acoustic systems, applications. 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 and MEEN 361 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 345, 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 and MEEN 361.
- 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 and MEEN 361; CVEN 305. (*Note: satisfies stem course requirement at Texas A&M at Qatar.*)

- 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.
- 491. Research. Credit 1 to 4.** Research conducted under the direction of faculty member in mechanical engineering. May be repeated 2 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.

Music (MUSC)

- 324. Music in World Cultures. (3-0). Credit 3.** Examines music from an ethnomusicological perspective focusing on musical performance and the complex interrelationship of music to culture, society, and daily life; surveys music from a variety of cultures through a series of case studies.

Petroleum Engineering (PETE)

Professors M. A. Aggour, V. C. Kelessidis (PC); **Associate Professors** S. G. Aljuhani, M. Amani, M. Fraim, A. Gupta; **Visiting Associate Professor** A. Retnanto

- 201. Introduction to Petroleum Engineering. (1-0). Credit 1.** Overview and history of the petroleum industry and petroleum engineering, nature of oil and gas reservoirs, exploration and drilling, formation evaluation, well completions and production, surface facilities, reservoir mechanics, improved oil recovery; impact of ethical, societal, environmental considerations; career development resources, including professional society. Prerequisite: Approval of department head.
- 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 areas 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: MATH 308, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 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; MEEN 315; MATH 308 or registration therein, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 311. Reservoir Petrophysics. (3-3). Credit 4.** Systematic theoretical and laboratory study of physical properties of petroleum reservoir rocks; lithology, porosity, elastic properties, strength, acoustic properties, electrical properties, relative and effective permeability, fluid saturations, capillary characteristics, and rock-fluid interaction. Prerequisites: MATH 251; PHYS 218; GEOL 104 or registration therein; junior or senior classification, petroleum engineering majors only; or approval of instructor.

- 314. Transport Processes in Petroleum Production. (3-0). Credit 3.** Theory and application of fluid mechanics (statics; mass, energy, momentum balances; laminar and turbulent flow, Reynolds Number, Moody diagram; non-Newtonian fluid flow; multi-phase flow; flow in porous media, non-Darcy flow); heat transfer: transport phenomena analogies; analysis and selection of pumps, compressors and heat exchangers. Prerequisites: MEEN 315, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 321. Formation Evaluation. (3-3). Credit 4.** Well logging methods and evaluation of well logs for formation evaluation; basic logging principles, theory of tool operation, open hole log analysis to estimate rock and fluid properties, including porosity, net pay thickness and saturation; capillary pressure-saturation relationships, shaly sand analysis, core-log integration and resource determination. Prerequisites: PETE 301, 310, 311; GEOL 404; junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 322. Geostatistics. (3-0). Credit 3.** Introduction to geostatistics; basic concepts in probability and univariate statistics; bivariate statistics and spatial relationship; covariance and correlation; second order stationarity; variogram estimation and modeling; spatial estimation and reservoir modeling; simple and ordinary kriging; uncertainty analysis; estimation versus conditional simulation; sequential Gaussian simulation. Prerequisites: Senior classification, petroleum engineering majors only; 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 waterfloods; enhanced oil recovery processes; design of optimal recovery processes. Prerequisites: PETE 301, 310 311; GEOL 404, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 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, 311; GEOL 404, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 325. Petroleum Production Systems. (1-3). Credit 2.** Introduction to production operations and oil field equipment multiphase flow in pipes, bottomhole 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, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 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 or senior classification, petroleum engineering majors only; or approval of department head.
- 400. Reservoir Description. (2-3). Credit 3.** An integrated reservoir characterization and design 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: Junior or senior classification or approval of instructor. Cross-listed with GEOL 400.
- 401. Reservoir Simulation. (2-3). Credit 3.** Solution of production and reservoir engineering problems using state-of-the-art commercial reservoir simulation software, using data commonly available in industry; emphasis on reservoir description, reservoir model design and calibration, production forecasting and optimization, economic analysis and decision making under uncertainty. Prerequisites: PETE 310, 321, 323, 324, 325, 403, senior classification, petroleum engineering majors only; or approval of instructor.
- 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, 311, 314, junior or senior classification, petroleum engineering majors only; or approval of instructor.
- 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 225, 321, 325, 403, senior classification, petroleum engineering majors only; or approval of instructor.

- 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.
- 416. Production Enhancement. (3-0). Credit 3.** Design, diagnosis and solution of production problems, and optimization of the technologies that increase oil and gas well performance, integration of the different elements of a production system to maximize recovery from a field. 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 at the departmental student paper contest held during the same academic year. Prerequisites: PETE 335, satisfactory performance in PETE 335 student paper contest, senior classification, petroleum engineering majors only; or approval of department head.
- 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.

Philosophy (PHIL)

- 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; conflicts of interest; emphasis on developing the capacity for independent ethical analysis of real and hypothetical cases. Prerequisite: Junior classification. Cross-listed with ENGR 482.

Physics (PHYS)

Professors M. Abou Ghantous, M. Belic; **Associate Professor** H. Nha

- 208. Electricity and Optics. (3-3). Credit 4.** Continuation of PHYS 218. Electricity, magnetism, and introduction to optics. Primarily for students in science and engineering. Prerequisites: PHYS 218; MATH 152 or 172 or registration therein.
- 218. 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 PHYS 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)

Associate Professor J. Rogers; **Assistant Professors** H. Bashir, T. Kent; **Visiting Assistant Professor** P. Gray

- 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.
- 229. Introduction to Comparative Politics. (3-0). Credit 3.** A comparison of political institutions, processes and issues across a wide variety of political systems.
- 231. Introduction to World Politics. (3-0). Credit 3.** Analysis of contemporary world from point of view of nation-state; political problems, factors involved in foreign policies and relations of nations.
- 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.
- 365. Asian Governments and Politics. (3-0) Credit 3.** Contemporary political systems of Asia, political institutions, actors and processes. Prerequisite: POLS 206 or approval of department head.

Sociology (SOCI)

- 207. Introduction to Gender and Society. (3-0). Credit 3.** Similarities and differences between females and males in a number of cultures throughout the world, sociological analysis of gender in relation to social structure.

Student Learning Center (STLC)

Lecturers C. Farmer, D. Rasmussen, M. Telfaci, S. Ward

- 001. Basic Mathematical Skills. Credit 1 to 3.** Developmental instruction in mathematics; includes the integers and rational numbers and applications, exponents, polynomials, solution of equations, graphing, elementary geometry and reasoning skills. May not be used for credit toward a degree.
- 002. Basic Writing Skills. Credit 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.
- 289. Special Topics in... Credit 1 to 4.** Selected topics in academic development and improvement. Prerequisite: Approval of coordinator.

Undergraduate Studies
(UGST)

181. First Year Seminar. (1-0). Credit 1. Seminar on various contemporary topics; introduction to high quality college instruction and research; focus on writing, speaking, discussion and research; open to all majors; restricted to first-time-in-college students and limited in size to provide small class experience. Prerequisite: Freshman classification or approval of instructor.

Graduate Course Descriptions

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

Chemical Engineering (CHEN)

- 601. Chemical Engineering Laboratory Safety and Health. (1-0). Credit 1.** Control of hazards associated with chemical engineering research laboratories and the chemical process industry; causes and prevention of accidents, emergency procedures, safety codes, health effects of toxic substances and experimental design for safety. Prerequisite: Graduate classification.
- 604. Chemical Engineering Process Analysis I. (3-0). Credit 3.** Development and analysis of chemical process models that involve systems of algebraic equations, ordinary differential equations and partial differential equations. Prerequisite: MATH 308 or approval of instructor.
- 623. Applications of Thermodynamics to Chemical Engineers (3-0) Credit 3.** Application of thermodynamics to chemical engineering operations and processes. Prerequisite: CHEN 354 or approval of instructor.
- 624. Chemical Engineering Kinetics and Reactor Design (3-0). Credit 3.** Rates and Mechanisms of chemical reactions. Thermal and Catalytic reactions both homogeneous and heterogeneous. Prerequisite: CHEN 464 or approval of instructor.
- 629. Advanced Transport Phenomena (3-0). Credit 3.** Principles of transfer of momentum, energy and mass studied by application to advanced chemical engineering problems. Theoretical analogy of these three modes of transfer. Prerequisite CHEN 424 or approval of instructor.
- 631. Process Dynamics and Advanced Process Control. (3-0). Credit 3.** Modeling, analysis, and simulation of linear and nonlinear process systems; model-based control techniques for achieving desired process dynamics. Prerequisite: CHEN 461 or approval of instructor.
- 633. Thermodynamics and Kinetics of Confined Fluids. (3-0). Credit 3.** Emphasis on fluids, adsorption phenomena (theory and applications), phase transitions in confined fluids (capillary condensation and freezing), the behavior of confined water, reactions in confinement, and applications. Prerequisite: CHEN 623 or approval of instructor.
- 641. Polymer Engineering. (3-0). Credit 3.** Principles and practice of polymer structure, synthesis, reaction mechanisms and kinetics; polymer characterization, chemical and physical properties degradation and recycling, melt and solid mechanical and rheological properties. Technology of production and processing operations. Prerequisite: Graduate classification.
- 643. Applied Statistical Mechanics of fluids. (3-0). Credit 3.** Application of molecular theories and computer simulation techniques to describe the thermodynamics and transport properties of fluids and fluid mixtures. Prerequisite: CHEN 623 or approval of instructor.
- 655. Process Safety Engineering. (3-0). Credit 3.** Applications of engineering principles to process hazards analysis including source and dispersion modeling, emergency relief systems, fire and explosion prevention and mitigation, hazard identification, risk assessment, process safety management, etc. Prerequisite: Approval of instructor. Cross-listed with SENG 655.
- 658. 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, extraction, chemical oxidation, biodegradation. Prerequisite: Graduate classification in engineering.

- 660. Quantitative Risk Analysis. (3-0). Credit 3.** Fundamental concepts, techniques, and applications of risk analysis and risk-informed decision making for engineering students. Practical uses of probabilistic methods are demonstrated in exercises and case studies from diverse engineering areas. Prerequisites: Graduate or Senior status. Cross-listed with SENG 660 and ISEN 660.
- 661. Optimization of Chemical Engineering Processes. (3-0). Credit 3.** Methods of optimization applied to the design and control of chemical engineering processes. Prerequisite: Approval of instructor.
- 665. Sustainable Design of Chemical Processes. (3-0). Credit 3.** Sustainability in chemical engineering; includes sustainable approaches to design and development of processes, products, energy usage; issues and roles of chemical engineers, service learning. Prerequisite: Graduate and senior level in engineering or approval of instructor.
- 681. Seminar. (1-0). Credit 1.** Presentations and discussions covering problems of current importance in chemical engineering research.
- 684. Professional Internship. Credit 1 to 4 each semester.** Engineering research experience in industrial setting away from Texas A&M campus; projects supervised jointly by faculty and industrial representative. Prerequisite: Graduate classification.
- 685. Directed Studies. Credit 1 to 12.** Limited investigations in fields other than those chosen for thesis or dissertation research and not covered by other formal courses. Prerequisite: Approval of department head.
- 689. Special Topics In. . Credit 1 to 4.** Selected topics in particular areas of chemical engineering. May be repeated for credit. Prerequisites: Approval of department head and instructor.
- 691. Research. Credit 1 or more each semester.** Research for thesis or dissertation. Prerequisite: Approval of department head.
- 695. Graduate Mentoring Seminar. (1-0). Credit 1.** Develop student skills in assessment, expose students to education in classroom setting. Prerequisites: 4 chemical engineering core graduate courses; graduate advisor approval.

Industrial Engineering (ISEN)

- 667. Engineering Economy. (3-0). Credit 3.** Fundamental concepts and advanced techniques of engineering economic analysis; evaluation of alternative capital investments considering income taxes, depreciation and inflation; discounted cash flow analysis of competing projects, breakeven analysis and determination of rate of return on investment. Risk and uncertainty in engineering analysis. Prerequisite: ISEN 303 or approval of instructor.



2013–2014

Faculty

Undergraduate and Graduate

Undergraduate 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., Associate Professor of Chemical Engineering; and holder of the Itochu Professorship in 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, Professor of Physics. (2009) B.S., Lebanese University, 1969; M.S., USM-Grenoble (France), 1970; Ph.D., USM-Grenoble (France), 1974.

Abu-Rub, Haitham A., Professor of Electrical and Computer Engineering; and IEEE Senior Member. (2006, 2012) M.S., Gdynia Maritime University (Poland), 1990; Ph.D., Gdansk University of Technology (Poland), 1995; Ph.D., Gdansk University (Poland), 2004.

Aggour, Mohamed A., Professor of Petroleum Engineering. (2009) B.S., Alexandria University (Egypt), 1967; Ph.D., University of Manitoba (Canada), 1978.

Ahmed, Beena, Lecturer of Electrical and Computer Engineering. (2007) B.Sc. Engg., University of Engineering and Technology, (Pakistan), 1993; Ph.D., University of New South Wales, (Australia), 2004.

Ahmed, Shehab, Associate Professor of Electrical and Computer Engineering. (2007) B.S., Alexandria University (Egypt), 1999; M.S.E.E., Texas A&M University, 2000; Ph.D., Texas A&M University, 2007.

Al-Qaradawi, Ilham Y., Adjunct Professor of Physics. (2011) B.Sc., Qatar University, 1981; M.Sc., Bedford College, University of London, 1984; Ph.D., Royal Holloway College, University of London, 1991.

Al Sadooni, Fadhil N., Adjunct Professor of Petroleum Engineering. (2013) B.Sc., Baghdad University, 1974; Ph.D., University of Bristol, 1978.

Aljuhani, Salem G., Associate Professor of Petroleum Engineering. (2010) B.S., King Fahd University of Petroleum and Minerals, 1989; M.S., University of Southern California, 1992; Ph.D., University of Texas, 1999.

Alnuweiri, Hussein M., Professor of Electrical and Computer Engineering. (2007) B.S., King Fahd University of Petroleum & Minerals (Saudi Arabia), 1983; M.S., University of Petroleum & Minerals (Saudi Arabia), 1984; Ph.D., University of Southern California, 1989.

Alouini, Mohamed-Slim, Adjunct Professor of Electrical and Computer Engineering; and IEEE Fellow. (2005, 2009) Diplome d'Ingenieur, Ecole Nationale Supérieure des Télécommunications Paris (France), 1993; Diplome d'Etudes Approfondies (DEA) Degree, Université Pierre et Marie Curie (France), 1993; M.S.E.E., Georgia Institute of Technology, 1995; Ph.D., California Institute of Technology, 1998; Habilitation a Diriger des Recherches, Université Pierre et Marie Curie (France), 2003.

Amani, Mahmood, Associate Professor of Petroleum Engineering. (1989, 2006) B.S., Wichita State University, 1986; M.S., Texas A&M University-Kingsville, 1988; Ph.D., Texas A&M University, 1997.

- Anastas, Paul T.**, Adjunct Professor of Chemistry; and Holder of the QAFCO Chair in Green Chemistry and Green Engineering. (2013) B.S., University of Massachusetts, 1984; Ph.D., Brandeis University, 1989.
- Atilhan, Mert**, Adjunct Assistant Professor in Chemical Engineering. (2012) B.Sc., Ege University (Turkey), 2002; M.S., Texas A&M University, 2004; Ph.D., Texas A&M University, 2007.
- Bashir, Hassan**, Assistant Professor of Political Science. (2007, 2008) B.A., University of the Punjab, Lahore, Pakistan, 1991; M.S., Quaid-e-Azam University, Islamabad, 1994; Ph.D., Texas A&M University, 2008.
- Bazzi, Hassan S.**, Associate Professor of Chemistry. (2004, 2009) B.S., American University of Beirut, 1996; M.S., American University of Beirut, 1998; Ph.D., McGill University, 2003.
- Beauchamp, Michael K.**, Visiting Assistant Professor in History. (2011) B.A., University of Dallas, 1998; M.A., Texas A&M University, 2002; Ph.D., Texas A&M University, 2009.
- Belic, Milivoj**, Professor of Physics. (1995, 2009) B.S., University of Belgrade (Yugoslavia), 1974; Ph.D., The City College of New York, 1980.
- Belmonte, Arthur, Jr.**, Senior Lecturer in Mathematics. (1993, 2008) B.S., Michigan State University, 1978; M.S., Texas A&M University, 1986.
- Bengali, Ashfaq**, Professor of Chemistry. (2006, 2011) B.A., Carleton College, 1986; Ph.D., University of Minnesota, 1992.
- Bickham, Troy O.**, Professor of History. (2003, 2013) B.A., William Jewell College, 1995; M.Phil., Oxford University, 1997; D.Phil., Oxford University, 2001.
- Boutros, Joseph J.**, Professor of Electrical and Computer Engineering. (2007) Diplôme d'Ingénieur, Ecole Nationale Supérieure des Télécommunications Paris (France), 1992; Ph.D., Ecole Nationale Supérieure des Télécommunications Paris (France), 1996.
- Brothers, Edward N.**, Assistant Professor of Chemistry. (2008) B.S., Rochester Institute of Technology, 1997; Ph.D., The Pennsylvania State University, 2004.
- Bryant, John A.**, Associate Professor of Construction Science. (1998, 2003) B.S., New Mexico State University, Las Cruces, New Mexico, 1982; M.S., University of Texas at El Paso, 1987; Ph.D., Texas A&M University, 1995.
- Bukur, Dragomir B.**, Professor of Chemical Engineering; and Senior TEES Fellow and Holder of the Joe M. Nesbitt Professorship in Chemical Engineering. (1981, 2006) Dipl. Ing., University of Belgrade, 1970; M.S., University of Minnesota, 1972; Ph.D., University of Minnesota, 1974.
- Campbell, John**, Instructional Assistant Professor of Health and Kinesiology. (2007, 2013) B.S., Texas A&M University, 1997; M.Ed., Texas State University, 2005.
- Campbell, Kelli**, Assistant Lecturer of Kinesiology. (2013) B.B.A., Texas A&M University, 2000; M.S., Texas A&M University, 2000.
- Castier, Marcelo**, Professor of Chemical Engineering. (2010) B.Sc., Federal University of Rio de Janeiro (Brazil), 1981; M.Sc., Federal University of Rio de Janeiro, 1985; Ph.D., Technical University of Denmark, 1988.
- Cath, Adam E.**, Associate Professor of Library. (2010, 2013) B.A., University of Canterbury (New Zealand), 1991; Victoria University of Wellington, 1995.

- Dufresne, Raelene**, Lecturer of Mathematics. (2010) B.S., Saint Mary's University (Canada), 1993; B.Ed., University of Western Ontario, 1998; MMath, University of Waterloo (Canada), 1995.
- Economou, Ioannis G.**, Professor of Chemical Engineering. (2013) DiplChemEng, National Technical University of Athens (Greece), 1987; Ph.D., The Johns Hopkins University, 1992.
- El-Borgi, Sami**, Professor of Mechanical Engineering. (2012, 2013) B.S., Ohio State University, 1985; M.S., Northwestern University, 1987; Ph.D., Cornell University, 1992.
- El-Guindy, Ahmad**, Assistant Professor of Mathematics. (2010) B.Sc., Cairo University, 1998; M.A., University of Wisconsin-Madison, 2003; M.S., University of Wisconsin-Madison, 2004; Ph.D., University of Wisconsin-Madison, 2004.
- Elbashir, Nimir O.**, Associate Professor of Chemical Engineering. (2008, 2012) B.S., University of Khartoum, 1994; M.E., Universiti Teknologi Malaysia, 1998; Ph.D., Auburn University, 2004.
- Elgindi, Mohamed B.M.**, Professor of Mathematics. (2011) B.S., Alexandria University (Egypt), 1975; M.S., Queen Mary College, University of London, 1978; Ph.D., Michigan State University, 1987.
- Farmer, Curtis E.**, Lecturer of Liberal Arts. (1998, 2003) B.A., Texas A&M University, 1978; M.I.A., Columbia University, 1981; Cert. West European Studies, Columbia University, 1981.
- Fraim, Michael L.**, Associate Professor. (2011) B.S., Texas A&M University, 1985; M.S., Texas A&M University, 1988; Ph.D., Texas A&M University, 1989.
- Gehman, Scott**, Adjunct Lecturer in Liberal Arts. (2012) B.M., M.M., Rice University, 1981; D.M.A, Rice University, 1991.
- Ghrayeb, Ali**, Professor of Electrical and Computer Engineering. (2011) B.S., University of Jordan, 1994; M.S., New Mexico State University, 1996; Ph.D., University of Arizona, 2000.
- Gray, Phillip W.**, Visiting Assistant Professor of Political Science. (2012) B.A., University of Dayton, 2000; Ph.D., Texas A&M University, 2006.
- Grubbs, Robert H.**, Adjunct Professor of Chemistry. (2012) B.S., University of Florida, 1963; Ph.D., Columbia University, 1968.
- Guo, Bing**, Assistant Professor of Mechanical Engineering. (2013) B.S. Tsinghua University (China), 1993; Ph.D. Tsinghua University (China), 1998.
- Gupta, Anuj**, P.E., Associate Professor of Petroleum Engineering. (2008) B.E., University of Delhi, 1983; M.S., University of Texas at Austin, 1987; Ph.D., University of Texas at Austin, 1991.
- Hall, Kenneth R.**, P.E., Associate Dean for Research and Graduate Studies and Professor of Chemical Engineering; TEES Division Director at Qatar; TEES Senior Fellow; and Holder of the Jack E. and Frances Brown Chair in Engineering. (1974, 2012) B.S., University of Tulsa, 1962; M.S., University of California, 1964; Ph.D., University of Oklahoma., 1967.
- Hassan, Ibrahim**, Professor of Mechanical Engineering. (2013) B.Eng., Assiut University (Egypt), 1984; M.Sc., Assiut University (Egypt), 1989; Ph.D., Manitoba University, 1995.
- Huang, Tingwen**, Professor of Mathematics. (2003, 2009) B.S., Southwest University, 1990; M.S., Sichuan University, 1993; Ph.D., Texas A&M University, 2002.

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