

# TEXAS A&M

UNIVERSITY *at* QATAR



2017–2018  
UNDERGRADUATE AND  
GRADUATE CATALOG

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EDITION 140Q

## Purpose of Catalog

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The university catalog provides information about the academic programs of Texas A&M at Qatar to students, prospective students, faculty and staff of the branch campus. 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 [Howdy](#) portal 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. Texas A&M at Qatar reserves the right to change or alter any statement herein without prior notice. This catalog should not be interpreted to allow a student that begins his or her education under the catalog to continue the program under the provisions in the catalog.***

## Accreditation

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Texas A&M University is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award degrees at the bachelor, master, doctorate and professional levels. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, or call +1 (404) 679-4500, for questions about the accreditation of Texas A&M University.

Within the 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 ([www.abet.org](http://www.abet.org)). The electronic systems engineering technology program and the manufacturing and mechanical engineering technology program are accredited by the Engineering Technology Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)). The computer science program is accredited by the Computing Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)).

The Qatar campus is fully accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the bachelor and master levels. The four undergraduate programs at Texas A&M University at Qatar — chemical, electrical, mechanical and petroleum engineering — are accredited by the Engineering Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)).

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## Academic Calendar

### Fall Semester 2017\*

Month	Date	Day of Week	Event
August	13–17	Sunday–Thursday	<b>AGGIE LIFE 101 (required for all new students)</b>
	20	Sunday	First day of fall classes First day to apply for December graduation
	24	Thursday	Last day for adding/dropping courses with no record for the fall semester, 4:30 p.m.
	31	Thursday	Eid Al-Adha student break (no classes)
September	3–5	Sunday–Tuesday	Eid Al-Adha (offices expected to be closed)^*
	3–7	Sunday–Thursday	Eid Al-Adha student break (no classes)
	12	Tuesday	Official census date (12th class day)
	21	Thursday	Last day to change or add major/minor for fall, 4:30 p.m.
	28	Thursday	Last day to apply for December graduation, 4:30 p.m.
	30	Saturday	Undergraduate degree plan approval deadline
October	19	Thursday	Mid-semester grades due by noon, Office of Records Adjustment deadline for degree candidates
November	8	Wednesday	Change of major deadline for spring semester
	12–16	Sunday–Thursday	Fall break (no classes)
	18	Saturday	Bonfire 1999 Remembrance Day
	26	Sunday	Last day for all students to drop courses with no penalty (Q-drop), 4:30 p.m. Last day to officially withdraw from the university, 4:30 p.m.
	27–30	Monday–Thursday	Pre-registration for spring 2018
December	3–7	Sunday–Thursday	Pre-registration for spring 2018
	10	Sunday	Last day of fall semester classes Redefined day — <b>Thursday classes to be held</b>
	11	Monday	Reading day (no classes or finals)
	12–14	Tuesday–Thursday	Fall semester final examinations for all students
	17	Sunday	Fall semester final examinations for all students
	18	Monday	Qatar National Day (offices closed)
	21	Thursday	Final grades due for all students by noon, Office of Records
	24–25	Sunday–Monday	Semester break (offices closed)*

\*Dates subject to change.

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

## Spring Semester 2018\*

Month	Date	Day of Week	Event
December	26	Tuesday	Offices reopen after semester break
January	14	Sunday	Martin Luther King Jr. Day Observance (offices closed/no classes)
	15	Monday	First day of spring classes First day to apply for May graduation
	21	Sunday	Last day for adding/dropping courses with no record for the spring semester, 4:30 p.m.
	30	Tuesday	Official census date (12th class day)
February	11	Sunday	Last day to change or add major/minor for spring, 4:30 p.m.
	13	Tuesday	Qatar National Sports Day (offices closed/no classes)
	15	Thursday	Last day to apply for May graduation, 4:30 p.m.
March	4–8	Sunday–Thursday	Spring break (no classes)
	11	Sunday	Spring semester classes resume
	15	Thursday	Mid-semester grades due by noon, Office of Records Adjustment deadline for degree candidates
April	16	Monday	Last day for all students to drop courses with no penalty (Q-drop), 4:30 p.m. Last day to officially withdraw from the university, 4:30 p.m.
	17–29	Tuesday–Sunday	Pre-registration for summer and fall 2018 terms
	21	Saturday	Aggie Muster
	30	Monday	Last day of spring semester classes Redefined day — <b>Tuesday classes to be held</b>
May	1	Tuesday	Reading day (no classes and no finals)
	2–3	Wednesday–Thursday	Spring semester final examinations
	6–7	Sunday–Monday	Spring semester final examinations
	8	Tuesday	Qatar Foundation Convocation
	9	Wednesday	Final grades due for degree candidates by 9 a.m., Office of Records
	10	Thursday	Commencement Ceremony
	11	Friday	Final grades due for all non-degree candidates by noon, Office of Records

\*Dates subject to change.

## Summer Semester 2018\*

Month	Date	Day of Week	Event
May	16	Wednesday	Projected first day of Ramadan
	20	Sunday	First day of summer classes First day to apply for summer graduation
	23	Wednesday	Official census date (fourth class day) Last day for adding/dropping courses with no record for the summer semester, 4:30 p.m.
June	7	Thursday	Last day to apply for summer graduation, 4:30 p.m.
	13	Wednesday	Adjustment deadline for degree candidates
	14	Thursday	Eid Al-Fitr student break (no classes)
	15	Friday	Projected first day of Eid Al-Fitr
	17–19	Sunday–Tuesday	Eid Al-Fitr (offices expected to be closed)^*
	17–21	Sunday–Thursday	Eid Al-Fitr student break (no classes)
July	4	Wednesday	United States Independence Day Last day for all students to drop courses with no penalty (Q-drop), 4:30 p.m. Last day to officially withdraw from the university, 4:30 p.m.
	15	Sunday	Last day of summer classes Redefined day — <b>Thursday classes to be held</b>
	16	Monday	Reading day (no classes and no finals)
	17–18	Tuesday–Wednesday	Final examinations for summer term
	22	Sunday	Final grades due for summer term by noon, Office of Records
	24	Tuesday	Summer degrees posted

\*Dates subject to change.

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



## Board of Regents

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Cliff Thomas, Chairman .....	Victoria, Texas, USA
Elaine Mendoza, Vice Chairman .....	San Antonio, Texas, USA
Phil Adams .....	Bryan/College Station, Texas, USA
Robert L. “Bob” Albritton .....	Fort Worth, Texas, USA
Anthony G. Buzbee .....	Houston, Texas, USA
Morris E. Foster .....	Austin, Texas, USA
William “Bill” Mahomes, Jr. ....	Dallas, Texas, USA
Tim Leach .....	Midland, Texas, USA
Charles W. Schwartz .....	Houston, Texas, USA
Stephanie Y. Martinez (Student Regent) .....	Laredo, Texas, USA

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Jackie Bell ..... Assistant to the Board of Regents

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John Sharp ..... Chancellor

## Texas A&M University at Qatar Joint Advisory Board Members

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His Excellency Mohammed bin Saleh Al-Sada, Ph.D. ....	Minister of Energy and Industry State of Qatar Chairman
Marwan Khraisheh, Ph.D. ....	Acting Executive Director Qatar Environment and Energy Research Institute
Meigan Aronson, Ph.D. ....	Dean, College of Science Texas A&M University
M. Katherine Banks, Ph.D. ....	Vice Chancellor for Engineering The Texas A&M University System Dean, College of Engineering Texas A&M University Director, Texas A&M Engineering Experiment Station
Olivier Dubrule, Ph.D. ....	Professor Department of Earth Sciences and Engineering Imperial College London
Ahmad Hasnah, Ph.D. ....	President Hamad bin Khalifa University
Robert Gordon Moore, Ph.D. ....	Professor Chemical and Petroleum Engineering Department University of Calgary
G.P. Peterson, Ph.D. ....	President Georgia Institute of Technology
César O. Malavé, Ph.D., P.E. ....	Dean Texas A&M at Qatar Ex-Officio Member

Khaled Ben Letaief, Ph.D. ....	Provost Hamad bin Khalifa University Ex-Officio Member
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## **Texas A&M University at Qatar Administrative Officers**

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Dean .....	César O. Malavé
Associate Dean for Academic Affairs .....	Ioannis Economou
Associate Dean for Research and Executive Director of Development, Engagement and Outreach.....	Hassan S. Bazzi
Assistant Dean for Academic and Student Services .....	Troy O. Bickham
Assistant Dean for Finance and Administrative Services.....	Rosalie Nickles

## **Texas A&M University at Qatar Program Chairs**

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Chemical Engineering Program Chair.....	Patrick Linke
Electrical Engineering Program Chair.....	Haitham Abu-Rub
Liberal Arts Program Chair.....	Zohreh R. Eslami
Mechanical Engineering Program Chair.....	Vijay G. Panchang
Petroleum Engineering Program Chair .....	Michael Bowman
Science Program Chair .....	Edward N. Brothers

## **Texas A&M University Administrative Officers**

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President.....	Michael K. Young
Provost and Executive Vice President.....	Karan L. Watson
Vice Provost .....	Michael J. Benedik
Vice President and Associate Provost for Diversity.....	Christine A. Stanley
Vice President for Brand Development.....	Shane Hinckley
Vice President for Information Technology and Chief Information Officer .....	M. Dee Childs
Acting Associate Provost for Graduate and Professional Studies .....	Mark J. Zoran
Associate Provost for Undergraduate Studies.....	Ann L. Kenimer
Associate Provost for Academic Affairs.....	Michael T. Stephenson
Associate Vice President for Academic Services.....	Joseph P. Pettibon II
Associate Vice President for External Affairs .....	Chad E. Wootton
Associate Vice President for Administration and Academic Affairs .....	Deena J. McConnell

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Dean of Faculties and Associate Provost.....	John R. August
Dean, College of Agriculture and Life Sciences.....	Mark A. Hussey
Dean, College of Architecture .....	Jorge A. Vanegas
Dean, Mays Business School .....	Eli Jones



Dean, College of Dentistry .....	Lawrence E. Wolinsky
Dean, College of Education and Human Development .....	Joyce M. Alexander
Dean, College of Engineering .....	M. Katherine Banks
Interim Dean, College of Geosciences .....	Debbie Thomas
Dean, College of Liberal Arts .....	Pamela R. Matthews
Dean, College of Medicine .....	Carrie L. Byington
Dean, College of Nursing .....	Sharon A. Wilkerson
Dean, Irma Lerma Rangel College of Pharmacy .....	Indra K. Reddy
Dean, School of Public Health .....	Jay Maddock
Dean, College of Science .....	Meigan Aronson
Dean, College of Veterinary Medicine and Biomedical Sciences .....	Eleanor M. Green
Dean, Bush School of Government and Public Service .....	Mark A. Welsh III
Dean, Texas A&M University Libraries .....	David H. Carlson
Dean and COO, Texas A&M University at Qatar .....	César O. Malavé

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Senior Vice President, Texas A&M University Health Science Center .....	Carrie L. Byington
Dean, School of Law .....	Andrew Morriss

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Vice President for Government Relations .....	Michael G. O'Quinn
Senior Vice President and Chief Marketing and Communication Officer .....	Amy B. Smith
Interim Vice President for Research .....	Karen Butler-Perry
Vice President for Student Affairs .....	Daniel J. Pugh, Sr.
Executive Vice President for Finance and Administration and Chief Financial Officer .....	Jerry Strawser
Commandant, Corps of Cadets .....	Joe E. Ramirez, Jr.
Vice President and Chief Operating Officer, Texas A&M University at Galveston .....	Michael E. Fossum
Vice President of Human Resources and Organizational Effectiveness .....	Barbara Abercrombie

## **Admission Statement and Policy on Individuals with Disabling Conditions**

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Texas A&M 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 at Qatar is psychologist Dr. Steve Wilson, Student Affairs, (+974) 4423-0047. Texas A&M provides academic adjustments and auxiliary aides to students with disabling conditions, as defined under the law, who are otherwise qualified to meet the institution's academic requirements. The psychologist coordinates Texas A&M at Qatar's programs and efforts for the benefit of the students covered under the statute.



## **Statement on Harassment and Discrimination**

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Texas A&M provides equal opportunity to all employees, students, applicants for employment or admission, and the public regardless of race, color, religion, sex, national origin, disability, age, genetic information, veteran status, sexual orientation or gender identity. Texas A&M will promptly investigate all complaints of discrimination, sexual harassment and/or related retaliation in accordance with applicable federal and state laws.

Faculty, staff and students should be aware that any form of harassment and any form of illegal discrimination against any individual are 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 Department of Student Affairs at (+974) 4432-0047, faculty members should contact the Office of the Associate Dean of Academic Affairs at (+974) 4423-0015, and staff should contact Human Resources at (+974) 4423-0030.

## **University Student Rules**

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Each student enrolled at Texas A&M 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 [student-rules.tamu.edu](http://student-rules.tamu.edu) for any changes.

2017–2018

# General Information



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# History and Development

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## Mission Statement

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Texas A&M University is dedicated to the discovery, development, communication and application of knowledge in a wide range of academic and professional fields. Its mission of providing the highest quality undergraduate and graduate programs is inseparable from its mission of developing new 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 21st 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 at Qatar generates new knowledge by conducting research and disseminating results. In all of its efforts, Texas A&M at Qatar serves the needs of the State of Qatar and the region through broad expertise.

## History and Development

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Texas A&M, the state's first public institution of higher education, opened for classes in 1876. It is now one of a select few institutions in the nation to hold land grant, sea grant and space grant designations. It is also one of the few universities to host a presidential library. The George Bush Presidential Library and Museum opened in 1997 on a 90-acre tract of land on the west side of campus. The university owes its origin to the Morrill Act approved by Congress on July 2, 1862. This act provided for donation of public land to the states. The land was to be sold at auction, and the proceeds were set aside in a perpetual fund. The act directed that interest from this fund be used to support a college whose "leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and mechanic arts. . . in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

By resolution of the Legislature of the State of Texas in November 1866, Texas agreed to provide for a college under the terms of the Morrill Act, but no such institution was organized until the establishment of the Agricultural and Mechanical College of Texas by act of the Twelfth Texas Legislature on April 17, 1871. The same act appropriated \$75,000 for the erection of buildings and bound the state of Texas to defray all expenses of the college exceeding the annual interest from the endowment. Proceeds from the sale of the 180,000 acres of land scrip received under the Land Grant College Act were invested in \$174,000 of gold frontier defense bonds to Texas, forming a perpetual endowment for the institution. A commission created to locate the institution accepted the offer of 2,416 acres of land from the citizens of Brazos County in 1871, and instruction began in 1876.

As the state of Texas grew, so did its land grant institution. Texas A&M now has a physical plant valued at more than \$1 billion. The campus in College Station includes 5,200 acres and is one of the largest campuses of any major institution of higher education in the nation. The university also operates branch campuses at Galveston and Doha, Qatar, with the latter operating at no expense to the State of Texas. Additionally, the university operates the Soltis Center for Research and Education in San Isidro de Peñas Blancas, Costa Rica. The university also supports global activities for students at the Santa Chiara Study Center in Castiglione Fiorentino, Arezzo, Italy, and maintains an office in Mexico City.

In keeping with the diversified and expanded character of the institution, the 58th Legislature of Texas, on August 23, 1963, changed the name of the Agricultural and Mechanical College of Texas to Texas A&M University.

On September 17, 1971, the designation *sea grant college* was assigned to Texas A&M in recognition of its achievements in oceanographic and marine resource development. Texas A&M was one of the first four institutions nationwide to achieve this distinction. Patterned after the century-old land grant idea, sea grant colleges are federal-state partnerships for furthering marine work through practical research, education and advisory services. The designation clearly establishes the university's leadership relative to marine affairs of the state.

Texas A&M added a third special designation to its credentials on August 31, 1989, when it was named a *space grant college*. This new designation, bestowed by the National Aeronautics and Space Administration, came to the university based on its continuing commitment to space research and its participation in the Texas Space Grant Consortium, a group of 35 institutions that includes universities, industrial organizations, nonprofit organizations and government agencies within Texas under the leadership of Texas A&M, The University of Texas at Austin and the University of Houston.

In addition to its traditional strengths in agriculture and engineering, Texas A&M has established itself as a leader in such newer technological areas as the space, nuclear, computer, biotechnological, oceanographic and marine resource fields. It has also placed added emphasis on the arts and sciences and business and continues to enhance its prominent role in these fields.

A mandatory military component was a part of the land grant designation until the 1950s, and the Corps of Cadets has played an important part in the history and development of Texas A&M. Even though membership in the Corps of Cadets became voluntary in 1965, Texas A&M historically has produced more officers than any other institution in the nation with the exception of the service academies. The university is one of only three institutions with a full-time corps of cadets including ROTC programs leading to commissions in all branches of service — Army, Air Force, Navy, Marine Corps and Coast Guard.

Texas A&M offers a variety of programs in both undergraduate and graduate studies through its academic colleges and schools supported by the Texas A&M University Libraries — Agriculture and Life Sciences, Architecture, The Bush School of Government and Public Service, Mays Business School, Education and Human Development, Engineering, Geosciences, Liberal Arts, Science, and Veterinary Medicine and Biomedical Sciences. Texas A&M University at Galveston is the marine and maritime branch campus of Texas A&M, and Texas A&M at Qatar offers degrees in engineering. In addition, Texas A&M's extensive research efforts in all fields, in conjunction with agricultural and engineering experiment stations, resulted in annual expenditures of approximately \$630 million in



2009, and the university consistently ranks in the top tier of research institutions by the National Science Foundation.

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 a 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.

In 2001, Texas A&M was admitted to the Association of American Universities, the prestigious organization founded in 1900 that restricts its ranks to the nation's premier public and private institutions of higher learning. In 2004, the Kappa of Texas Chapter of Phi Beta Kappa was installed at Texas A&M.

Texas A&M's branch campus in Qatar, part of the 2,500-acre multi-institutional campus known as Education City, formally opened September 7, 2003, offering undergraduate degree programs in chemical engineering, electrical engineering, mechanical engineering and petroleum engineering. The branch campus began offering master's 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 at Qatar, fully funded by the Qatar Foundation for Education, Science and Community Development, provides a unique opportunity for the branch campus to expand its international presence and to provide educational and research opportunities for faculty and students. At the start of the 2016–2017 academic year, the Qatar campus had a student body in excess of 500 undergraduate and graduate students.

## **Qatar Foundation and Education City**

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Founded in 1995 by His Highness Sheikh Hamad bin Khalifa Al-Thani, who was then the emir and now is the father emir, the 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 the 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, the 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, and HEC Paris in 2011, and negotiations with other institutions of higher learning continue. It is also the home of Hamad bin Khalifa University. In addition, the Qatar Science and 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 the Qatar Foundation, which so closely resemble its own commitments to education and community service.



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# University Core Curriculum

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

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

The University Core Curriculum requirements are described in this section. These requirements must be met by every student entering Texas A&M at Qatar on or after the 2014 fall semester. Students entering earlier will be guided by the core curriculum in the catalog upon which they entered the university. Individual degree programs may require that specific courses from the core curriculum be used to satisfy core curriculum requirements. Please check with individual program advisors for details.

In addition to the University Core Curriculum and degree-specific requirements, Texas A&M at Qatar has criteria that must be met by all students in order to receive a degree (see [page 23](#)).



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

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

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

### Communication — 6 SCH

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

### Mathematics — 6 SCH<sup>1</sup>

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

### Life and Physical Sciences — 9 SCH<sup>2</sup>

Courses in this category focus on describing, explaining and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical

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1 Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Mathematics or the Component Area Option Foundational Component Area.

2 Applicable courses are listed in the Texas Higher Education Coordinating Board course inventory as meeting either the Life and Physical Sciences or the Component Area Option Foundational Component Area.

world and on human experiences. The following skills will be addressed in the courses that comprise this area: critical thinking, communication, empirical and quantitative, and teamwork.

### **Language, Philosophy and Culture — 3 SCH**

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

### **Creative Arts — 3 SCH**

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

### **American History — 6 SCH**

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



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

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

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

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

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# Student Learning Outcomes

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Student learning outcomes articulate the knowledge and skills students are expected to gain during their educational experiences. These 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 and prepare to engage in learning for a lifetime.

First and foremost, of course, students are expected 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. This is called *content knowledge*.

The broader institutional student learning outcomes ask students to connect the pieces of their education into a whole that synthesizes what they have learned. Students graduate not only knowing facts and understanding basic concepts but also demonstrating an ability to apply and explain those facts and concepts creatively in new situations. Students gain the skills and knowledge that allow them to thrive in a complex world.

## Baccalaureate

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

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

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

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

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

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

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

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

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

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

- Live and work effectively in a diverse and global society.
- Articulate the value of a diverse and global perspective.
- 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.
- Demonstrate intellectual curiosity.

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

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



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# Undergraduate Degree Information

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## Which Catalog to Follow

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In meeting the requirements for a baccalaureate degree, a student is expected to complete the course and hour requirements as outlined in the catalog in effect at the time he or she first enrolls at Texas A&M. Normally, a student will not be granted a degree based upon completion of the requirements set forth in a catalog more than seven years old. Before changing catalogs, the student must consult his or her academic advisor. A student changes catalogs by filing written notification with his or her dean or designee. 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 [student-rules.tamu.edu](http://student-rules.tamu.edu) for this information.

Whereas each college must retain the flexibility to improve its curriculum, course offerings may be changed during the student's education. If a course required under a previous catalog is no longer offered, a student eligible to graduate according to that catalog should consult his or her academic advisor or dean 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

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

1. Be registered for or have completed all degree requirements by the 60th class day of the fall or spring semester, or the 15th class day of the second summer term, either in residence or at another college or university. Proof of enrollment in any courses taken at another college or university must be provided to the Office of 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 course work attempted at Texas A&M.

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 course work 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 off-campus study programs approved by the student's college may apply upper-division credits earned in the programs toward the residence requirement up to a maximum of 18 semester hours, including hours transferred from another institution as part of one of these programs. These Texas A&M at Qatar off-campus study programs may involve domestic or international institutions and may be taught by Texas A&M faculty or faculty from other institutions. Students choosing to participate in such programs and wishing to apply credits earned from the programs toward the residence requirement must receive college approval prior to the student's participation in the off-campus study program. Students participating in international programs must contact the Academic Services Office for details on how to obtain approval for courses taken outside the United States. Students participating in domestic off-campus programs must contact the dean's office of their college for approval procedures.

6. Complete the University Core Curriculum. Core curriculum courses are listed at [core.tamu.edu](http://core.tamu.edu).

7. Complete the citizenship requirement, which includes at least 6 credit hours in government/political science and at least 6 credit hours in American history. POLS 206 (American National Government) and POLS 207 (State and Local Government) fulfill the government/political science requirement.

Both the government/political science and American history requirements may be met, in whole or in part, by equivalent course work 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 passing 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. Complete the international and cultural diversity requirement (6 credit hours). As individual and national destinies become progressively more interconnected, the ability to survive and succeed is increasingly linked to the development of a more pluralistic, diverse and globally aware populace. Two courses from the list available at [icd.tamu.edu](http://icd.tamu.edu) are to be taken by the student. If a course listed also satisfies a core curriculum requirement, it can be used to satisfy both requirements if the student wishes to do so.
  11. Be formally recommended for graduation by the Faculty Senate after consideration of his or her complete record.
  12. Fulfill any other requirements stipulated by Student Rule 14 ([student-rules.tamu.edu/rule14](http://student-rules.tamu.edu/rule14)).



## Two Degrees

A student pursuing a second baccalaureate degree must complete all university, college and department/curricular requirements for the second degree not covered in the first. All essential work required for a second degree must be defined in advance in writing by the dean or designee of the college granting the second degree. In all such cases, the total semester hours required must be at least 30 hours additional to the greater number required for either degree. At least 12 hours of 300- and 400-level course work must be completed in each field of study.

A student who has previously not been enrolled at Texas A&M University and who is seeking a second degree must have a minimum of 36 hours of 300- and 400-level courses, 12 hours of which must be in the major field of study, in residence at Texas A&M. The student must also meet the citizenship requirements for American history and government/political science.

## 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 via the [Howdy](#) portal.

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

If a minor is offered by a department or academic unit, then the minor is considered to be available to all students as resources permit. The Academic Services Office 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 is 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 per degree 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 Latin honors, a student seeking a baccalaureate degree must enroll in and complete a minimum of 60 semester hours at Texas A&M University, Texas A&M University at Galveston or Texas A&M University at Qatar preceding graduation and have an institutional grade point average equal to or greater than that required for the appropriate category of honors. Course credit received by examination and courses reserved for graduate credit only are excluded from the calculation of the number of hours and grade point average for graduation with Latin 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.

Grade point averages used to determine Latin honors designations are calculated during the final degree audit the day before the ceremonies and include hours and final grades in courses taken during the graduation semester. Latin honors designations will not be changed after the final graduation clearance deadline.

Information regarding other honors designations may be found at [catalog.tamu.edu/undergraduate/honors-undergraduate-research/index.html](http://catalog.tamu.edu/undergraduate/honors-undergraduate-research/index.html).

Please note:

- Students are **not** required to enroll in honors courses to graduate with Latin honors.
- Taking designated honors courses does not mean students will graduate with Latin honors.

**No upper-division student found guilty of academic misconduct may receive *cum laude*, *magna cum laude* or *summa cum laude* honors at graduation.** Upper-division status is defined as having earned 60 or more credit hours, including transfer hours, prior to the date of the violation. This sanction is automatic upon a finding of academic misconduct and is imposed without regard to the severity of other sanctions imposed by the instructor or Honor Council.

For more information, please see the [Aggie Honor System](#) section in the catalog.



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

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Texas A&M's 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'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.

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

At Texas A&M 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 course work 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 graduates.

In addition to dominating the extensive chemical, petroleum and petrochemical

industries, for which Qatar and the rest of the Middle East are 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/programs/chemical-engineering](http://www.qatar.tamu.edu/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 are 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 analog and digital circuits, signals and systems, electronics, electromagnetic fields, and computer architecture during the sophomore and junior years lead to two main elective tracks in the senior year, namely electric power systems and communication. The electric power systems track is designed to train students in the theory and techniques related to electromechanical energy conversion systems, electric power systems 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 courses are designed to enhance student knowledge and skills in developing and maintaining the hardware and software components of modern power 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/programs/ecen](http://www.qatar.tamu.edu/programs/ecen).

## **Mechanical Engineering**

Mechanical engineering (MEEN) at Texas A&M 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/programs/mechanical-engineering](http://www.qatar.tamu.edu/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 have a variety of careers in the upstream oil and gas industry open to them. They include working as geoscientist, petrophysicist, 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 develop 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/programs/petroleum-engineering](http://www.qatar.tamu.edu/programs/petroleum-engineering).

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# Undergraduate Admission

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## Application Information

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The application for undergraduate admission may be found at [www.exploretamuq.com](http://www.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 fall 2017 or spring 2018 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 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. Therefore, Texas A&M 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 at Qatar program depends upon completion of the entire application, submission of the required supporting documents and college entrance test and placement test results, and an interview conducted by members of the Texas A&M at Qatar Admissions Board, if applicable. All of these requirements determine admittance. Texas A&M 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><b>Freshman</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• is a degree-seeking applicant and is without university credit</li> <li><b>or</b></li> <li>• is still in high school, with or without university credit</li> </ul> <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><b>Transfer</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• is a degree-seeking applicant</li> <li>• has graduated from high school or equivalent</li> <li>• has enrolled in a post-secondary institution after graduation from high school</li> <li>• does not have a bachelor's degree</li> <li>• does not qualify for readmission</li> </ul>	Spring Fall	September 1 January 15	October 15 April 1
<p><b>Readmission</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• is a former degree-seeking Texas A&amp;M undergraduate student</li> <li>• does not have a bachelor's degree</li> <li>• did not officially register for the previous semester (excluding summer sessions) at Texas A&amp;M</li> </ul> <p>Readmission does not include applicants whose only previous enrollment at Texas A&amp;M has been as a non-degree student.</p>	Contact the Office of Admissions		
<p><b>Non-degree Undergraduate</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• wishes to take specific undergraduate course work</li> <li>• does not wish to pursue a degree at Texas A&amp;M</li> </ul>	Contact the Office of Records		
<p><b>Transient</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• is a non-degree-seeking applicant</li> <li>• is a high school graduate</li> <li>• may be enrolled in a post-secondary institution</li> <li>• has not been denied admission to Texas A&amp;M at Qatar</li> </ul>	Contact the Office of Records		
<p><b>Postbaccalaureate Undergraduate</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• has a bachelor's degree</li> <li>• wishes to pursue a second undergraduate degree</li> </ul>	Contact the Office of Admissions		
<p><b>Graduate</b> An applicant who:</p> <ul style="list-style-type: none"> <li>• wishes to enroll in a master's degree program</li> <li>• has completed an undergraduate degree</li> </ul>	Contact the Office of Graduate Studies		



## Items Necessary to Complete an Application File

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An application is reviewed to make a decision about admission only after all items listed in this section have been received. The items must be received by the appropriate closing date to assure consideration (please see [page 32](#)).

### Definition of a Complete Freshman Application

To be considered a candidate for freshman admission to Texas A&M 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/curriculum vitae (CV).
8. Reference forms.
9. Application fee.

### Notification of Application Status

Check the applicant information website at [www.qatar.tamu.edu/apply](http://www.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 at Qatar can be found at [www.qatar.tamu.edu/apply](http://www.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 his or her resident permit.

**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 course work taken, credit earned, grades and, if calculated by the school, respective class rank. All will be used as 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 course work, credits earned, grades and class rank, and date of graduation.

Readmission 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 more than one high school should submit official transcripts from each school attended.

Emailed 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 or receive a course grade, or if the course is not transferable. This includes attendance at the ABP and any colleges or universities. Course work 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.

Emailed 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 the paper-based test, a computer-based TOEFL score of 213 or higher, an Internet-based TOEFL score of 80 or higher, and an IELTS overall band score of 6.0 or higher are considered competitive. In lieu of TOEFL or IELTS, university officials may consider as a substitute an SAT-based reading and writing score of 560 (prior to March 2016, 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, challenges faced, and other considerations that will provide 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 the candidate's graduating high school. The [forms](#) can be found online at the Texas A&M at Qatar website.

**9. Application fee**

The application fee is QAR 330, or \$90 USD, payable to Texas A&M 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 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 Course Work**

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.

- Four years of mathematics to include algebra, geometry, algebra II and an advanced mathematics course, with calculus being the preferred subject.
- Four 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.



## How to Be Admitted

Entry into the Texas A&M at Qatar program depends upon completion of the entire application, submission of the required supporting documents and college entrance test and placement test results, and an interview conducted by members of the Admissions Board, if applicable. All of these requirements determine admittance. Admission into the program is highly competitive. Applicants who are high achieving in all areas are most competitive for admission.

Applicants may be admitted one of three ways. **Due to the limited size of the entering class, the number of students accepted from each category is limited.**

### 1. Academic admits

Applicants qualify for academic admission if they:

- Successfully complete the required high school course work and achieve excellent grades.
- Achieve minimum college entrance tests as follows:
  - SAT math score of 670 or ACT math score of 29.
  - IELTS score of 7 or TOEFL score of 100.
  - Students who do not submit TOEFL or IELTS scores must submit a minimum SAT English-based reading and writing score of 660 (prior to March 2016 an SAT critical reading score of 600) and achieve a combined SAT math and critical reading score of 1360, or the ACT English and composite score equivalents.

Students will be admitted according to availability of spots.

### 2. Review admits

If an applicant does not qualify for academic admission, the complete application file will be considered through an extensive holistic review. Factors considered include:

- Academic achievements — class rank, school curriculum and required course work, and college admission test scores.
- Personal achievements — involvement in extracurricular activities, community service, leadership, employment and summer activities, as well as any talents, awards and honors.
- Information shared in essays and resumes.

Students will be admitted according to availability of spots.

### 3. Provisional admission into the Aggie Gateway Program

The program is designed to offer high-achieving students from Qatar and the Gulf Cooperation Council (GCC) (as well as other countries if space is available) who do not quite meet the minimum test scores the chance to enroll in courses at Texas A&M at Qatar for 12 months. Once students meet the criteria of the Aggie Gateway Program, they can become full-time engineering students.

Students will be admitted according to availability of spots.

## **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 or she is still considered to be a freshman.

## **Placement Tests**

Texas A&M 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 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 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 email 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 at Qatar should apply while in their senior or final year of their high school or secondary school program. Candidates are strongly encouraged to take the necessary college entrance examinations before the beginning of their final year in high school or secondary school.

## **Suspected Fraudulent Admission Applications**

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Applicants for admission to Texas A&M 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.

All students applying to Texas A&M are expected to follow the Aggie Code of Honor, which states, "An Aggie does not lie, cheat or steal or tolerate those who do." Applicants found to have misrepresented themselves or submitted false information on the application will receive appropriate disciplinary action, which may include rejection of the application,



withdrawal of any offer of acceptance, cancellation of enrollment, or any other appropriate disciplinary action deemed necessary. In all instances of disciplinary action, the application fee is non-refundable.

Pursuant to the 2017–2018 university catalog and Texas A&M Student Rule 24.4.1, acts of dishonesty include but are not limited to:

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

For prospective undergraduate students (admitted but not enrolled), the initial determination of whether an individual has submitted a fraudulent application will be made by the assistant director of admissions, with a right of appeal to the director of admissions for undergraduate students. For prospective graduate students, initial appeals will be made to the executive director of graduate studies.

For enrolled students, the initial determination of whether a student submitted a fraudulent application will be made by the director of records, with a final right of appeal to the associate dean of academic affairs or assistant dean of academic and student services.

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

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Transfer admission will be considered if the applicant has a successful record of proven academic rigor from a university whose accreditation is recognized by Texas A&M. Applicants wishing to transfer to Texas A&M 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 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 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](http://exploretamuq.com).

### Definition of a Complete Transfer Application

To be considered a candidate for transfer admission to Texas A&M 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 33](#).

### Additional Information for Transfer Applicants

1. At least a 2.0 GPR on course work 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, Withdraw Failing (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 that are transcribed from other colleges or universities may be transferred if sequential course work 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. Course work taken as credit by examination 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 to Another Campus**

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

### **Transfer Course Credit Policies**

Transfer credit on course work completed at the time of application to Texas A&M at Qatar is determined when an official transcript from the originating institution is presented as part of the application for admission or readmission process. An official transcript is required from every post-secondary institution attended (including dual credit earned in high school) even if the applicant did not earn credit or receive a course grade, or if the course is not transferable.

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 Registrar of the institution where the credit was earned. Course content will be determined from the catalog description or the syllabus. The transferability of credit decision will be based on the criteria as specified below. All criteria are to be considered together; for example, criterion 10 may be qualified by criterion 7.

### **Credit from Institutions Accredited by One of the Regional Accrediting Associations**

1. A course that is normally considered as part of 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 at Qatar.
  - b. The course is similar to a course or courses offered for degree credit at Texas A&M.
  - c. The course content is at or above the level of the beginning course in the subject matter offered by Texas A&M.
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 be transferred.
4. Credit for the course must be shown on the official transcript in semester hours or in units that are readily converted to semester hours.
5. A graduate-level course will not be transferred for undergraduate credit unless approved for use in the student's undergraduate degree program by the student's major department and campus dean.
6. Credit-by-examination courses that are transcribed from other colleges or universities may be transferred if sequential course work 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 chair 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 be transferred.
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 at Qatar academic program or Texas A&M 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. The grade point ratio 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 at Qatar grades of W, WF, F, I or U are assigned shall be included; those having grades equivalent to Texas A&M 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 ratio of 2.0 (C average) on the first 30 hours of residence work at Texas A&M.

### **Credit from Foreign Institutions**

Transfer work from institutions following other than the U.S. 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 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 at Qatar equivalency form or the course has been evaluated and approved as transferable to Texas A&M at Qatar. Courses must be equivalent in character and content to courses offered at Texas A&M at Qatar. Credit will not be awarded from international institutions that are not academically accredited by the Ministry of Education or other appropriate authority in the home country.

No English composition courses will be transferred from institutions located in non-English-speaking countries. American history and American political science (government) courses will not transfer from foreign institutions 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 the Registrar at a Texas A&M-recognized university, institute or language training center. Credentials of all language training centers and institutes are carefully checked.

### **Extension and Correspondence Courses**

Students may apply a maximum total of 30 semester hours of approved extension class work and correspondence study toward a degree. Students may apply up to 12 hours of correspondence credit earned through an accredited institution toward the requirements for an undergraduate degree, even though Texas A&M does not offer courses by correspondence.

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 at Qatar differ 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 on the paper-based test, or 100 on the Internet-based test.
2. Have an official IELTS score of 7.0 on the 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 103 or ENGL 104 with a grade of C or better.
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 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

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### Readmission Criteria

Admission decisions for readmission are based on the following:

- GPA on Texas A&M at Qatar course work.
- GPA on course work since leaving Texas A&M at Qatar.
- Desired major.
- Information presented in the application.

If an applicant was previously admitted but did not attend class through the official census date, he or she must apply as either a freshman or transfer student. If a student was previously enrolled but did not attend class through the official census date of the previous long semester, then he or she must apply for readmission. 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 include:

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

Admission decisions for postbaccalaureate undergraduates consider:

- GPA on transferable college course work.
- Completion of prerequisite course work.
- 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 course work and apply within the processing period for the specific session.

Additional requirements to complete a transient-session-only application include:

- A statement explaining why enrollment at Texas A&M is desired.
- An official college transcript showing the latest collegiate course work attempted.

## Course Credit

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### Credit by Examination

Undergraduate students at Texas A&M 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 GPR. The university awards credit for scores on certain tests published by the Advanced Placement (AP) Program, 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. Texas A&M 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 Academic Services Office.
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

Examinations offered by the AP Program are administered during late spring by high schools. Students usually take the examinations after completing 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 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. Students are encouraged to meet with their advisor before they 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
AP Research	3	See academic advisor	1–2
AP Seminar	3	See academic advisor	1–2
Art History	3	ARTS 149	3
	4	ARTS 149, 150	6
Biology	3	BIOL 113, 123	4
	4	BIOL 111, 112	8
Calculus AB	3	MATH 131	3
	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	3	POLS 229	3
Computer Science A	3	CSCE 110	4
Computer Science Principles	3	CSCE 110	4
Economics: Macroeconomics	3	ECON 203	3
Economics: Microeconomics	3	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	3	HIST 102	3
French Language	3	FREN 101, 102	8
	4	FREN 101, 102, 201, 202	14



<b>AP Examination</b>	<b>Minimum Score Required</b>	<b>Texas A&amp;M Course(s)</b>	<b>Credit Hours</b>
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	3	CLAS 121, 122	8
	4	CLAS 121, 122, 221, 222	14
Music Theory	3	MUSC 102	3
Physics 1	3	PHYS 205	4
	4	PHYS 201	4
Physics 2	3	PHYS 205	4
	4	PHYS 202	4
Physics C: Mechanics	3	PHYS 218	4
Physics C: Elect. and Magnetism	3	PHYS 208	4
Psychology	3	PSYC 107	3
Spanish Language	3	SPAN 101, 102	8
	4	SPAN 101, 102, 201	11
	5	SPAN 101, 102, 201, 202	14
Spanish Literature	3	SPAN 202	3
	5	SPAN 202, 320	6
Statistics	3	STAT 301, 302, or 303	3
Studio Art: Drawing	3	ARTS 103	3
	4	ARTS 103, ARTS 111	6
Studio Art: 2D	3	ARTS 103	3
	4	ARTS 103, 111	6
Studio Art: 3D	3	ARTS 103	3
U.S. Government and Politics	3	POLS 206	3
U.S. History	3	HIST 105, 106	6
World History	3	HIST 104	3

\* Students must consult their academic advisor for advice on the number of credits that can be used in their degree program to avoid excess credit accumulation and possible negative effects.



## College-Level Examination Program Computer-Based Testing

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 that 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. Students are encouraged to meet with their advisor before they accept credit.

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

The DSST Program is available to all interested persons. Enrolled undergraduate students and entering freshmen may receive DSST credit for the courses listed below. For more information about the test, please contact the Office of 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. Psych.	47	PSYC 307	3
Principles of Statistics	48	STAT 201 or PSYC 203	3, 4

## International Baccalaureate

Texas A&M, in compliance with SB111, will grant at least 24 semester credit hours of course-specific college credit in subject-appropriate areas on all 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 at Qatar may be subject to the successful completion of the IB diploma.

Entering freshman students should submit their IB transcript to Texas A&M, 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 course work 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 will notify IB applicants of their eligibility to receive credit by posting information on the website [dars.tamu.edu](http://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  
Entering Freshman Class — Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Arabic: Language A or B SL	4	ARAB 101	4
	5	ARAB 101, 102	8
	6	ARAB 101, 102, 201	11
	7	ARAB 101, 102, 201, 202	14
Arabic: Language A or B HL	3	ARAB 101	4
	4	ARAB 101, 102	8
	5	ARAB 101, 102, 201	11
	6	ARAB 101, 102, 201, 202	14
Biology SL	4	BIOL 113/123	4
Biology HL	4	BIOL 111	4
	5	BIOL 111, 112	8
Business Management SL	4	MGMT 309	3
Business Management HL	4	MGMT 309	3
Chemistry SL	4	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	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	CSCE 111	4
Computer Science HL	4	CSCE 111	4
Economics SL	4	ECON 203	3
Economics HL	4	ECON 203	3
English: Language A SL	4	ENGL 104	3
English: Language A HL	4	ENGL 104	3
	5	ENGL 104, 222	6

**International Baccalaureate  
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	11
	6	FREN 101, 102, 201, 202	14
Fundamentals of Music	5	MUSC 102, 202	6
Further Mathematics SL	4	MATH 102	3
	5	MATH 150	4
Geography SL	4	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	11
	6	GERM 101, 102, 201, 202	14
History HL			
Africa	4	HIST 104	3
Americas	4	HIST 105	3
	5	HIST 105, 106	6
E & SE Asia and Oceania	4	HIST 104	3
Europe	4	HIST 102	3
South Asia & Middle East	4	HIST 104	3
History SL			
Islamic History	4	HIST 221/RELS 221	3
Info. Tech. in a Global Society SL	4	PHIL 205	3
Info. Tech. in a Global Society HL	4	PHIL 205	3

**International Baccalaureate  
Entering Freshman Class — Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
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
Italian: Language A or B HL	3	ITAL 101	4
	4	ITAL 101, 102	8
	5	ITAL 101, 102, 201	11
	6	ITAL 101, 102, 201, 202	14
Japanese: 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	11
	6	JAPN 101, 102, 201, 202	14
Latin SL	4	CLAS 121	4
	5	CLAS 121, 122	8
	6	CLAS 121, 122, 221	11
	7	CLAS 121, 122, 221, 222	14
Latin HL	3	CLAS 121	4
	4	CLAS 121, 122	8
	5	CLAS 121, 122, 221	11
	6	CLAS 121, 122, 221, 222	14
Mathematics SL	4	MATH 150	4
Mathematics HL	4	MATH 150	4
	5	MATH 150, 151*	8
Mathematical Methods SL	4	MATH 102	3
	5	MATH 150	4
Mathematical Studies SL	4	MATH 102	3
	5	MATH 150	4
Music SL	4	MUSI 201	3
Music HL	4	MUSI 201	3

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

**International Baccalaureate  
Entering Freshman Class — Credit Policy**

IB Examination	Minimum Score Required	Texas A&M Course(s)	Credit Hours
Other Languages SL	4	MODL 289	4
	5	MODL 289	8
	6	MODL 289	11
	7	MODL 289	14
Other Languages HL	3	MODL 289	4
	4	MODL 289	8
	5	MODL 289	11
	6	MODL 289	14
Philosophy SL	4	PHIL 251	3
Philosophy HL	4	PHIL 251	3
Physics SL	4	PHYS 205	4
Physics HL	4	PHYS 201, 202	4
Psychology SL	4	PSYC 107	3
Psychology HL	4	PSYC 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
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	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	11
	6/7	SPAN 101, 102, 201, 202	14
Theater Arts SL	4	THAR 101	3
Theater Arts HL	4	THAR 101	3
Visual Arts SL	4	ENDS 101	3
Visual Arts HL	4	ENDS 101	3



### 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 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
- CHEM 102/112
- CHEM 107/117
- PHYS 201
- PHYS 202
- PHYS 208
- PHYS 218
- POLS 206
- POLS 207





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# Registration and Academic Status

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Registration for the fall and spring semesters is accomplished at several times. In the preceding fall and spring 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 conferences serve 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 [www.qatar.tamu.edu/students/office-of-records](http://www.qatar.tamu.edu/students/office-of-records).

## 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 at Qatar can be used toward certification of enrollment.

## Undergraduates Registering for Graduate Courses

A senior undergraduate student with a cumulative grade point average 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 vice dean.

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 vice dean. 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 average of less than 3.0 must obtain approval of the academic dean before registering for a course load in excess of 19 hours in a fall or spring semester or 6 hours (7 if part is laboratory) in a summer term.

## Classification

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Each student has a classification that 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 as follows:

<b>Code</b>	<b>Classification Definition</b>
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<b>U0</b>	<b>Undergraduate Non-degree</b>
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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 at Qatar. This includes:

1. Transient students during the fall, spring or summer.
2. Cross-registered students from Education City institutions.
3. 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. 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 course work 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 course work.

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.

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

Code	Classification Definition
U5	<p data-bbox="257 170 626 196"><b>Postbaccalaureate Undergraduate</b></p> <p data-bbox="257 204 1046 291">Students with a recognized baccalaureate degree who wish to complete requirements for a second baccalaureate degree at Texas A&amp;M at Qatar or to complete established Texas A&amp;M at Qatar certification requirements.</p> <p data-bbox="257 300 1046 361">The postbaccalaureate undergraduate classification (U5) has all the privileges and responsibilities of a senior classification (U4).</p> <p data-bbox="257 369 1046 517">Recipients of a Texas A&amp;M 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 data-bbox="257 526 1046 835">A candidate for a second baccalaureate degree must complete all the essential work of the second degree not covered in the first. In all such cases, the total semester hours required must be at least 30 semester hours additional to the greater number required for either degree. To pursue a second baccalaureate degree concurrently with the pursuit of the initial degree, all essential work required for a second degree must be defined in advance in writing by the dean of the college granting the second degree. To pursue a second baccalaureate degree sequentially requires admission to a second bachelor's degree classification. Pursuit of a second baccalaureate degree may be limited or may not be allowed by some colleges.</p>

## Academic Status

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### Distinguished Student and Dean's Honor Roll

An undergraduate student who completes a semester schedule of at least 15 hours or a summer session schedule of at least 12 hours with no grade lower than a C and with a grade point average of not less than 3.5 for the semester or for a summer session shall be designated a distinguished student. A student who, under the same circumstances, achieves a grade point average 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 average of not less than 3.5 for a distinguished student designation and a 3.75 for the 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 at Texas A&M at Qatar after he or she has become scholastically deficient. For university policy regarding scholastic deficiency and scholastic probation, see the Texas A&M University Student Rules at [student-rules.tamu.edu](http://student-rules.tamu.edu).

### Withdrawal from Texas A&M at Qatar

A student wishing to withdraw from Texas A&M at Qatar before the completion of a semester or summer term is required to comply with the official withdrawal procedure. This process is initiated by submitting a request through the Student Withdrawal channel on the My Record tab in the [Howdy](#) portal. 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 Texas A&M at Qatar 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 Texas A&M at Qatar 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 is 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](http://student-rules.tamu.edu).

### Correct Addresses

It is necessary to have a correct physical and permanent residence address on file with Texas A&M at Qatar. Students may change their address on the [Howdy](#) portal. Texas A&M at Qatar assumes no obligation for failure of a student to receive communications if the student has not kept the address current.

Texas A&M at Qatar uses email for official communications with currently enrolled students. It is each student's responsibility to check his or her Texas A&M at Qatar email frequently and consistently.

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# Honor Code and Grading System

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## Aggie Honor System

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

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

All Texas A&M at Qatar students, graduate or 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 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 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 student in particular) who is completing a thesis, record of study, dissertation or 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

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Because students attend a college or university to extend their education, grades are usually taken as an indication of the proficiency of their endeavors. A 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 and other 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 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 Texas A&M at Qatar 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 Form 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 eight-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 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**

1. Undergraduate students
  - a. Undergraduate students may be permitted to take courses in their degree programs at Texas A&M 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 S will be given only for grades of C and above; a grade of U will be given for grades D and F. The hours earned on an S/U basis shall not be included in the designation of distinguished student or dean's honor roll.
2. Graduate students
  - a. Graduate students will not receive graduate degree credit for undergraduate degree courses taken on an S/U 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 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 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 that 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**

For undergraduate students, only the grade earned in course work for which the student was registered at Texas A&M or Texas A&M 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**

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### **Midsemester Report**

Near the middle of the fall and spring semesters, a preliminary report, showing the current progress of all undergraduate students who have completed less than 30 semester credit hours of course work at Texas A&M at Qatar, and of a selected group of other undergraduate students that the academic deans and programs are monitoring, will be made available. Preliminary grades are not recorded on a student's permanent record. Grades are available via the [Howdy](#) portal.

### **Final Grade Report**

End-of-semester final grades are available via the [Howdy](#) 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 via the [Howdy](#) portal 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 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 Texas A&M at Qatar may obtain an official transcript of their completed work, provided they have no financial obligations to Texas A&M at Qatar or the Qatar Foundation. 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 [www.qatar.tamu.edu/students/office-of-records](http://www.qatar.tamu.edu/students/office-of-records) or in person at the Office of Records located on the first floor of the Engineering Building in Education City, Doha, Qatar.



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# Tuition, Fees and Other Financial Information

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## Tuition and Required Fees

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### Tuition and Fees

As a state institution, Texas A&M 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.

Full details on tuition rates are available at [www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships](http://www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships).

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.

### Payment of Tuition and Fees

Students must meet all financial obligations to the university by their due dates. Officials at Texas A&M at Qatar calculate the appropriate tuition and fees of each student enrolled, and the Qatar Foundation issues to each student his or her respective tuition statement. Students are then responsible for making payment to the Qatar Foundation's cashier office. Students will receive their invoices via their Texas A&M at Qatar email addresses. 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 the 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**

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Once students have registered for classes and subsequently wish to withdraw from the university prior to the first day of classes, they 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.
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 for Nonpayment of Tuition or Fees**

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If notified by the Qatar Foundation of nonpayment, the university reserves the right to cancel registration for any semester in which a student is enrolled.

## **Fees for Other Special Items or Services**

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### **Application Fees**

The application-for-admission fee for undergraduate and graduate applicant is: QAR 330, or \$90 USD, and is 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 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. A 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 Texas A&M at Qatar

Once registered for classes, a student is considered officially enrolled unless otherwise restricted from enrolling. Stopping payment to the 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 [www.qatar.tamu.edu/students/office-of-records/student-forms](http://www.qatar.tamu.edu/students/office-of-records/student-forms) 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, and course work may be recorded as incomplete and failed. 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 the 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 Eight-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

#### Five-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%
During the seventh class day or thereafter.....	None



## Financial Assistance/Scholarships

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The 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 Hamad bin Khalifa University financial aid agreement that students sign upon receiving financial assistance. Texas A&M at Qatar submits academic program reports to Hamad bin Khalifa University, following the guidelines of the Family Educational Rights and Privacy Act (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, Hamad bin Khalifa University expects parents to make a maximum effort to assist with college expenses. The financial assistance resources of Hamad bin Khalifa University 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 Hamad bin Khalifa University financial aid and/or for university scholarships. Information about Hamad bin Khalifa University financial aid can be found at [www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships](http://www.qatar.tamu.edu/students/tuition-financial-aid-and-scholarships).

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# Services for Students

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## On-Campus Housing

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Student housing in Education City is available to students enrolled full time at Texas A&M at Qatar on a first-come, first-served basis. Preference is given to those students who do not live in Qatar.

In order to apply for student housing, students must complete a housing request through the Department of Student Affairs. In order to consider the application complete, students must also submit a refundable damage deposit of QAR 2,000.

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.

There are separate residence halls for male and female students.

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

A Qatar Foundation Housing and Residence Life professional (residence hall directors [RHDs]) and student staff (community development advisors [CDAs]) 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 an email to [housing@qf.org.qa](mailto:housing@qf.org.qa), and a Qatar Foundation Student Affairs professional will be in touch to answer any questions.

## Aggie Life 101 for New and Transferring Undergraduates

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Each year, Aggie Life 101 is held for undergraduate students entering Texas A&M at Qatar. New students are required to attend Aggie Life 101 in order to accept their offer of admission and register for classes. Families are encouraged to attend Aggie Life 101 with their students and participate in sessions designed especially for them to learn more about what their student will be experiencing as a new Aggie.

Aggie Life 101 provides students with the tools they will need to get started on their careers at Texas A&M at Qatar and offers a chance to learn about the many opportunities available to members of the Aggie community. During this program, new students will meet with academic advisors, register for their first semester courses, and learn the traditions and values of being a Texas A&M Aggie student. Since their first year is important to their continued success at Texas A&M at Qatar, the program will acquaint new students with student life activities and services available at the university. In addition, Aggie Life 101 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 at Qatar. For questions concerning Aggie Life 101, please contact the Department of Student Affairs at [dsa@qatar.tamu.edu](mailto:dsa@qatar.tamu.edu) or (+974) 4423-0047.

## Academic Advising

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The primary purpose of academic advising at Texas A&M 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.
- Using referrals to other institutional and community support services, where appropriate.

The advising system of Texas A&M 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. All students are required to meet with an academic advisor each semester in order to register for classes in the subsequent semester, or they will be blocked from registration.

## Library

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### The Texas A&M at Qatar Library

The Texas A&M 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 7,000 titles is complemented by a basic collection in the arts and humanities of around 3,000 volumes. Students may also request books and journal articles from the five libraries on the main campus, where there is a print collection of around 5 million volumes.

Extensive online resources are available to students both within the library and on desktop or mobile devices via remote access. This includes more than 100,000 electronic journals and newspaper titles, over 1,000 databases, and more than 1.3 million electronic books.

Students can locate books and thousands of journals by author, title, subject and keyword using the basic online catalog, LibCat, at [libcat.tamu.edu](http://libcat.tamu.edu). Alternately, they can use the time-saving multi-search tool Quick Search, which allows searching of multiple databases at one time.



An experienced librarian is also available Texas hours via online chat, which is a great way to get help when starting a research project. GetItForMe is a document delivery service that supplies print books or electronic copies of journal articles and book chapters free of charge to all students. Print books borrowed from the main campus generally arrive in five to 10 working days. Electronic copy is usually emailed within two working days. Material not available from the main campus libraries can often be obtained either from other libraries in Qatar or around the world. Professional librarians are also available on campus to teach individuals and groups how to use library tools and resources.

More information on the library can be found at [library.qatar.tamu.edu](http://library.qatar.tamu.edu).

## **Information Technology**

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The mission of the Information Technology (IT) department is to provide a robust, secure and innovative environment that supports Texas A&M University at Qatar's goals in teaching and lifelong learning, research, and engagement. IT strives to embody and uphold Texas A&M's tradition of organizational excellence. The department is comprised of five groups that provide over 75 services to faculty, staff and students.

## **Educational Technology**

The Educational Technology group serves faculty and students by promoting and assisting in the use of technology for instruction. Providing systems such as eCampus and Echo360 Lecture Capture, the group also manages classroom technologies and academic software including audiovisual systems.

## **Enterprise Applications**

The Enterprise Applications (EA) group performs business process analysis and develops, administers, and maintains automation to achieve greater efficiencies. EA oversees all electronic communication with the Texas-based administrative systems for student information, financial accounting and payroll, including troubleshooting the processes, applications, and data feeds employed and ensuring secure operation. EA also provides support for many of the university's web resources, including Marhaba, the intranet portal.

## **Network and Security**

The Network and Security group provides and manages the network, telecommunications and security infrastructure of the branch campus. The group ensures compliance with all laws, policies, procedures, guidelines and industry best practices for operating and securing the Texas A&M at Qatar network. The group strives to increase community awareness regarding cyber-security, prevent cyber-attacks, and remediate the effects of viruses, worms, spyware and other malware.

## **Service Desk**

The Service Desk provides a single point of contact for all IT-related queries, service requests and communications. The team provides user orientation and training. The Service Desk proactively communicates information regarding IT services, updates and policies.



## **Systems Engineering**

The Systems Engineering group is responsible for providing computing infrastructure and services. This team maintains and supports mission-critical systems including physical and virtual infrastructure, directory and authentication services, file and database services, e-mail services, data backups and disaster recovery, data center monitoring, desktop and server security, and print services.

## **The Academic Success Collaborative**

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The Academic Success Collaborative (ASC) welcomes all students seeking to enhance their academic skills and to engage in deep learning. The ASC staff, which includes peer tutors and professional writing consultants, offers one-to-one tutoring and small-group collaborations that cover topics/subjects including writing, mathematics, physics, chemistry, core introductory and sophomore-level engineering courses, presentation skills, and digital composing. The ASC team also provides support for students who want to improve their overall study skills. To learn more about ASC, visit [asc.qatar.tamu.edu](http://asc.qatar.tamu.edu).

## **The Association of Former Students**

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[www.AggieNetwork.com](http://www.AggieNetwork.com)

- Aggie Ring.
- Alumni Services, Giving and Events.
- Traveling Aggies.

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# Campus Life

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## Department of Student Affairs

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The mission of the Department of Student Affairs at Texas A&M at Qatar is to create a vibrant campus culture that:

- Embodies the Texas A&M Core Values.
- Resonates with Aggie Spirit.
- Upholds Qatar's unique, rich culture.
- Promotes the holistic and intercultural development of students.
- Prepares students for excellence in the engineering discipline in a diverse global society.

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 at [dsa@qatar.tamu.edu](mailto:dsa@qatar.tamu.edu) or (+974) 4423-0047.

## Student Activities

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The Department of Student Affairs empowers students to organize into recognized clubs and organizations and plan their own campus activities. 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 30-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 course work. The recognized student organizations include the Institute of Electrical and Electronic Engineers, the American Society of Mechanical Engineers, the Society of Petroleum Engineers, the American Institute of Chemical Engineers, the Society of Women Engineers, the Qatari Student Association, 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 men and basketball and soccer for women. Tryouts will be held for these teams each fall semester.

## Leadership Activities

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The Department of Student Affairs offers a wide variety of leadership development programs that provide an excellent opportunity for students to develop personal leadership in a global and intercultural context. The Student Leadership Exchange Program takes place every spring break and allows a group of student leaders from the Doha campus to visit the College Station campus during their spring break and then a group of student leaders from College Station to visit Doha during their spring break. An emphasis is placed on these students using their Aggie connection to communicate across cultural differences and build leadership. The Department of Student Affairs offers service opportunities each year for students to give back to others. The most well known of these is the Aggie

Service Learning Experience, which is an international service trip that allows Aggies to use collective strengths and talents in order to meet an expressed community need while learning about another culture and expanding personal horizons. Additional programs include LeaderShape, which is a six-day residential experience focused on introducing student leadership concepts to all students and challenges them to be a force for change within their student organizations and communities.

## **Student Government Association**

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

SGA consists of three representatives elected from each class, committee chairs, a vice president and the student body president. These officers are elected annually in April. SGA can be reached by email at [SGA@qatar.tamu.edu](mailto:SGA@qatar.tamu.edu).

## **Student Wellness and Counseling**

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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 in 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**

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

Texas A&M 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 crises, 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 CIRT consisting of Texas A&M at Qatar staff to best respond to these critical student incidents. CIRT can be reached at (+974) 4423-0333.

The goals of CIRT 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 that may enhance the quality of life for all those touched by critical incidents.

## **Global Educational Opportunities**

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Higher education is not immune to the trend of globalization. To adapt to this phenomenon and prepare graduates for an increasingly interdependent global community, Texas A&M University at Qatar is committed to providing global learning opportunities for all students. Whether it be study abroad programs, service-learning trips, research abroad, language training, international conferences or workshops, or global leadership programs, students at Texas A&M University at Qatar can choose from a variety of experiences that can increase their cultural competence, expand their global worldview, and augment their marketability in a rapidly globalizing world. Some opportunities on offer are as follows:

### **Study Abroad**

Texas A&M University at Qatar students are able to study in a variety of different locations and countries. The flagship program is an exchange with the Texas A&M main campus in College Station, Texas. This program is offered every semester and the summer session. The program operates as a cohort model, and students are selected through a competitive application process. Texas A&M University at Qatar assists in arranging flights, housing, transportation and university check-ins.

Texas A&M University at Qatar students are also eligible to participate in programs on offer through the Study Abroad Programs Office operated by the main campus. Students can choose from many different disciplines, programs and countries. These programs can differ in length from summer sessions, semester-long programs or intersessions.

### **Faculty-Led Programs**

Every year, Texas A&M faculty lead a group of students on a global academic experience. Traveling with a faculty mentor, a group of students will travel to an international location, be exposed to engineering topics in a global context, and experience a different culture. Often, students will be joined by fellow Texas A&M students from the main campus and students from the host institution. Faculty-led programs provide students a rich experience that can impact their academic and professional careers by providing them with unique networking opportunities and an enriching cultural experience that can assist with increasing cultural competence.

## **Research Exchange for Undergraduates**

Texas A&M University is a division I research institution. Boasting some of the world's renowned faculty, Texas A&M University is known for producing groundbreaking research. Students at Texas A&M University at Qatar are eligible to participate in the Research Exchange for Undergraduates, a program designed to partner Texas A&M at Qatar students with a faculty member on the main campus in College Station. This experience can allow students to understand engineering research in a global context and contribute to the growing field of knowledge. This program will provide students an opportunity to network with faculty members on the main campus, experience a new culture, and have the potential to publish their research.

## **Career Services**

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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, interviewing skills and career readiness. The office also hosts two annual recruiting events, the Career Networking Event at Texas A&M at Qatar and the spring career fair in collaboration with all Education City universities. A variety of guest speakers from industry are hosted each year. Students learn about opportunities in specific companies and on general issues related to the workplace. The Career Services Office provides students with other opportunities for industry engagement ranging from corporate competitions to participation in local and regional conferences.

# Family Educational Rights and Privacy Act of 1974

Texas A&M informs students annually of the Family Educational Rights and Privacy Act (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 Policy Compliance Office of the Department of Education in Washington, D.C., concerning alleged failures by the university to comply with the act.

The FERPA is a federal regulation that 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 their education records.

This policy is designed to meet the FERPA provisions. Texas A&M at Qatar is committed to the good-faith implementation of this policy. Questions may be emailed to [ferpa@tamu.edu](mailto:ferpa@tamu.edu).

If 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 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 an agent of the university that are related to the student.

## Directory Information

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The following directory information may be made public unless the student desires to withhold any or all of this information:

- Student's name.
- Universal Identification Number (UIN).
- Local address.
- Permanent address.
- Email address.
- Local telephone number.
- Permanent telephone number.
- Dates of attendance.
- Program of study.
- Classification.
- Previous institution(s) attended.
- Degrees received.
- 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 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 request 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

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Texas A&M encourages students to exercise all of their rights under the FERPA. Operating under the premise that the educational process is a cooperative venture between a student and the university, Texas A&M emphasizes the following rights of eligible students:

1. The right to inspect and review, with certain limited exceptions, the student's educational 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 the FERPA authorizes disclosure without consent.

One exception that 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 a 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 the FERPA.
4. The right to report violations of the FERPA to the Department of Education.
5. The right to be informed about FERPA rights.

All the rights and protections given students under the 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 that 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 that 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 that 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 that 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 that were placed in the education records of a student prior to January 1, 1975.
6. Confidential letters and statements of recommendation that 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 that the student has never attended.

Any questions concerning FERPA should be directed to the [Office of Records](#).

2017–2018

# Undergraduate Degrees Offered



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# College of Engineering at the College Station Campus

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## Administrative Officers

Vice Chancellor and Dean of Engineering .....	M. Katherine Banks, Ph.D.
Executive Associate Dean .....	Nagamangala K. Anand, Ph.D.
Senior Associate Dean for Academic Affairs.....	Valerie E. Taylor, Ph.D.
Associate Dean for Academic Affairs .....	Prasad Enjeti, Ph.D.
Associate Dean for Academic Affairs .....	John E. Hurtado, Ph.D.
Associate Dean for Academic Affairs, Executive Director Global Programs.....	Mark Weichold, Ph.D.
Senior Associate Dean for Research .....	Dimitris Lagoudas, Ph.D.
Associate Dean for Research .....	Narashimha Reddy, Ph.D.
Assistant Dean for Finance .....	Michelle Mitchell, B.B.A.

## 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 society.

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 the course of these developments. The ever-expanding population and the increased demands for goods and services have imposed new challenges to provide effective solutions while minimizing unwanted side effects. Engineers recognize that all actions taken have respective costs, and that solutions to long-standing societal problems are found 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 the current environment are such that all resources must be used in the best possible manner. Thus, the 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 an engineering program will be technically trained and socially educated, thereby being well prepared to make a significant contribution to the world in which he or she works.

The mission of the College of Engineering is to serve Texas, the 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 faculty achieving the highest levels of academic and research excellence.
- Building upon our traditional partnerships with industry, engineering practitioners and former students to enhance the 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.
- Encouraging and supporting opportunities for students to grow beyond their chosen disciplines by participation in ethics courses, leadership programs, study abroad programs and research.

A student engineer can pursue any one of several degree 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 the M.S. and Ph.D. degrees. Alternatively, the student may select the doctor of engineering program, which is directed toward professional engineering.

Within the 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 ([www.abet.org](http://www.abet.org)). The electronics systems engineering technology program and the manufacturing, mechanical and engineering technology programs are accredited by the Engineering Technology Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)). The computer science program is accredited by the Computing Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)). The chemical, electrical, mechanical and petroleum engineering programs at Texas A&M at Qatar are accredited by the Engineering Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)).



## Curricula in Engineering

The freshman year is identical for degrees in electrical, mechanical and petroleum engineering offered at Texas A&M at Qatar. The freshman year is slightly different for chemical engineering in that students take CHEM 107/117 and CHEM 102/112. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

In addition to the listed freshman year curriculum listed below, students should refer to the specific curriculum for each major for other requirements.

<b>FRESHMAN YEAR*</b>					
<b>First Semester</b>	<b>(Th-Pr)</b>	<b>Cr</b>	<b>Second Semester</b>	<b>(Th-Pr)</b>	<b>Cr</b>
<a href="#">ENGL 104</a> Comp. and Rhetoric <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 107</a> Gen. Chem. for Engr. Stu. <sup>1,3</sup> .....	(3-0)	3
<a href="#">ENGR 111</a> Foundations in Engineering I <sup>1</sup> .....	(1-3)	2	<a href="#">CHEM 117</a> Gen. Chem. for Engr. Stu. Lab <sup>1</sup> .....	(0-3)	1
<a href="#">MATH 151</a> Engineering Mathematics I <sup>1,2</sup> .....	(3-2)	4	<a href="#">ENGR 112</a> Foundations in Engineering II <sup>1</sup> .....	(1-3)	2
<a href="#">PHYS 218</a> Mechanics <sup>1</sup> .....	(3-3)	4	<a href="#">MATH 152</a> Engineering Mathematics II <sup>1</sup> .....	(3-2)	4
University Core Curriculum elective <sup>4</sup> .....		<u>3</u>	<a href="#">PHYS 208</a> Electricity and Optics <sup>1</sup> .....	(3-3)	4
		<u>16</u>	University Core Curriculum elective <sup>4</sup> .....		<u>3</u>
					<u>17</u>

- NOTES:**
1. A grade of C or better is required.
  2. Entering students will be given a math placement test. Test results will be used in selecting the appropriate starting course, which may be at a higher or lower level.
  3. BMEN, CHEN and RHEN require 8 hours of freshman chemistry, which may be satisfied by CHEM 101/CHEM 111 or CHEM 107/CHEM 117 and CHEM 102/CHEM 112, credit by examination (CBE) for CHEM 101/CHEM 111 or CHEM 107/CHEM 117 plus CHEM 102/CHEM 112, or 8 hours of CBE for CHEM 101/CHEM 111 or CHEM 107/CHEM 117 plus CHEM 102/CHEM 112.
  4. Of the 18 hours shown as University Core Curriculum electives, 3 must be from creative arts, 3 from social and behavioral sciences, 6 from American history, and 6 from government/political science. The required 6 hours from international and cultural diversity may be met by courses satisfying the creative arts, social and behavioral sciences, and American history and government and political science requirements if they are also on the approved list of international and cultural diversity courses (see an academic advisor for more information).

## College Prerequisite Policy

The following prerequisite policy applies to any student in a College of Engineering undergraduate degree program and to any student who seeks admission to an undergraduate degree program in the College of Engineering. This policy is in addition to prerequisite policies imposed by the university (Texas A&M University Student Rules). For complete details concerning this policy, students should contact the Academic Services Office.

Students must earn a grade of C or better in all courses identified in each College of Engineering undergraduate degree program and any prerequisites for these courses. If a student earns a grade of D or F in any of these courses, the student is required to repeat the course before enrolling in a more advanced course that has the D/F course as a prerequisite. A student may attempt a course no more than three times, including courses graded Q or W but excluding those graded NG, unless approval has been received from his or her department. A student must complete all prerequisites for a course with a grade of C or better by the start of the semester in which the student plans to enroll in the course.

A student is responsible for checking the prerequisites for each course, in the semester he or she will be enrolled, to ensure the prerequisite requirements have been satisfied. A student who registers for a course for which he/she lacks the necessary prerequisite course(s) and/or the prerequisite grade requirement will be required to drop the course. A student who is told to drop a course and is still enrolled by the deadline set each semester may be administratively dropped by the Academic Services Office. If a student is administratively dropped from a course, the student is responsible for all financial obligations associated with the drop.

## **Curriculum in Chemical Engineering**

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

Program Chair (PC) ..... Patrick Linke, Ph.D.

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

Department Head (DH) ..... M. Nazmul Karim, 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, semiconductor and microelectronics, nanotechnology, and 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 (CHEN) at Texas A&M 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 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.
- Graduates will have the competencies to become leaders in the process industries, business, government and education.
- State-of-the-art facilities, equipment and tools will be provided for teaching and research. Members of the program will participate with 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. Graduates will apply the foundation, depth and breadth of knowledge for successful chemical engineering careers in industry or government.
2. Graduates will apply effective communication, leadership and teaming skills.
3. 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 the 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 the 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
<a href="#">CHEM 107</a> Chemistry for Engineers <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 102</a> Fund. of Chem. II <sup>1</sup> .....	(3-0)	3
<a href="#">CHEM 117</a> Chemistry for Engineers Lab <sup>1</sup> .....	(0-3)	1	<a href="#">CHEM 112</a> Fund. of Chem. Lab II <sup>1</sup> .....	(0-3)	1
<a href="#">ENGL 104</a> Comp. & Rhetoric <sup>2</sup> .....	(3-0)	3	<a href="#">ENGR 112</a> Found. in Engr. II <sup>1</sup> .....	(1-3)	2
<a href="#">ENGR 111</a> Found. in Engr. I <sup>1</sup> .....	(1-3)	2	<a href="#">MATH 152</a> Engr. Math II <sup>1</sup> .....	(3-2)	4
<a href="#">MATH 151</a> Engr. Math I <sup>1,3</sup> .....	(3-2)	4	<a href="#">PHYS 208</a> Elect. and Optics <sup>1</sup> .....	(3-3)	4
<a href="#">PHYS 218</a> Mechanics <sup>1</sup> .....	(3-3)	4	University Core Curriculum elective <sup>4</sup> .....		3
		<u>17</u>			<u>17</u>

**SOPHOMORE YEAR**

<a href="#">CHEM 227</a> Organic Chem. I .....	(3-0)	3	<a href="#">CHEM 228</a> Organic Chem. II.....	(3-0)	3
<a href="#">CHEM 237</a> Organic Lab. I .....	(0-3)	1	<a href="#">CHEM 238</a> Organic Chem. Lab. II .....	(0-3)	1
<a href="#">CHEM 204</a> Elem. Chem. <sup>1</sup> .....	(2-3)	3	<a href="#">CHEM 205</a> CHEN Thermo. I <sup>1</sup> .....	(3-0)	3
<a href="#">MATH 251</a> Engr. Math III .....	(3-0)	3	<a href="#">ENGL 210</a> Scientific and Tech. Writing .....	(3-0)	3
Supporting Course Elective <sup>5</sup> .....		3	<a href="#">MATH 308</a> Diff. Eqns. ....	(3-0)	3
University Core Curriculum elective <sup>4</sup> .....		3	University Core Curriculum elective <sup>4</sup> .....		3
		<u>16</u>			<u>16</u>

**JUNIOR YEAR**

<a href="#">CHEM 316</a> Quant. Analysis .....	(2-0)	2	<a href="#">CHEM 322</a> Phys. Chem. for Engr.....	(3-0)	3
<a href="#">CHEN 304</a> CHEN Fluid Oper. <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 313</a> CHEN Materials <sup>1</sup> .....	(3-0)	3
<a href="#">CHEM 320</a> CHEN Analysis <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 323</a> Heat Transfer Oper. <sup>1</sup> .....	(3-0)	3
<a href="#">CHEN 354</a> CHEN Thermo. II <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 382</a> Bioprocess Engineering <sup>1</sup> .....	(3-0)	3
<a href="#">ENGR 482</a> Ethics and Eng. ....	(2-2)	3	University Core Curriculum elective <sup>4</sup> .....		3
University Core Curriculum elective <sup>4</sup> .....		3			<u>15</u>
		<u>17</u>			

**SENIOR YEAR**

<a href="#">CHEM 414</a> Chem. Engr. Lab. I <sup>1</sup> .....	(0-3)	1	<a href="#">CHEM 426</a> CHEN Plant Design <sup>1</sup> .....	(1-6)	3
<a href="#">CHEM 424</a> CHEN Mass Trans. Ops. <sup>1</sup> .....	(3-0)	3	<a href="#">CHEM 433</a> Chem. Engr. Lab. II <sup>1</sup> .....	(0-3)	1
<a href="#">CHEM 425</a> Proc. Integ., Sim., and Econ. <sup>1</sup> .....	(2-3)	3	<a href="#">CHEM 461</a> Process Dyn. and Control <sup>1</sup> .....	(3-0)	3
<a href="#">CHEM 455</a> Process Safety Engr. <sup>1</sup> .....	(3-0)	3	CHEN Specialty Electives <sup>2</sup> .....		6
<a href="#">CHEM 464</a> Kinetics and Reactor Design <sup>1</sup> .....	(3-0)	3			
<a href="#">CHEM 481</a> CHEN Seminar <sup>1</sup> .....	(0-2)	1			<u>13</u>
University Core Curriculum elective <sup>4</sup> .....		3			
		<u>17</u>			

**Total Credits Required 128**

- NOTES:**
1. A grade of C or better is required.
  2. For a list of approved specialty options, please see the Chemical Engineering Program chair.
  3. Entering students will normally be given a math placement test. Test results will be used to select the appropriate starting courses, which may be at a higher or lower level.
  4. Of the 18 hours shown as University Core Curriculum electives, 3 must be from creative arts, 3 from social and behavioral sciences, 6 from American history, and 6 from government/political science. The required 6 hours from international and cultural diversity may be met by courses satisfying the creative arts, social and behavioral sciences, and American history and government and political science requirements if they are also on the approved list of international and cultural diversity courses (see an academic advisor for more information). In addition, ENGR 482 must be taken.
  5. Elective to be selected between ECEN 215 or MEEN 221.

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



**Curriculum in  
Electrical Engineering**

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

Program Chair (PC) ..... Haitham Abu-Rub, Ph.D.

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

Department Head (DH) ..... Miroslav Begovic, 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 that people interact with on a daily basis. The rapid industrialization and computerization of Qatar's economy are 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 analog and digital circuits, signals and systems, electronics, electromagnetic fields, and computer architecture during the sophomore and junior years lead to two main elective tracks in the senior year. The electric power 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. Both 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/programs/ecen](http://www.qatar.tamu.edu/programs/ecen).

### **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 to:

1. Be competitive in the electrical engineering job market by holding positions of increasing responsibility in industry, business, government and/or educational institutions.
2. Demonstrate knowledge and communication skills through publication of papers, reports, patents and/or technical presentations at local, national and international meetings, or within the professional organization/company graduates are affiliated with.
3. Seek continuous improvement and professional development of technical skills, knowledge and understanding through continuing education, pursuit of advanced degrees, and/or pursuit of professional licenses in their chosen profession.

The extent to which the program is meeting these objectives is periodically assessed through such instruments as alumni surveys and employer/recruiter surveys. The 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 the 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](#))

A grade of C or better is required for the following courses listed in the freshman year: ENGL 104, ENGR 111, MATH 151, PHYS 218, CHEM 107, CHEM 117, ENGR 112, MATH 152 and PHYS 208.

**SOPHOMORE YEAR**

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
<a href="#">ECEN 210</a> Comp. Prog. and Algorithms <sup>3</sup> .....	(3-3)	4	<a href="#">ECEN 214</a> Electrical Circuit Theory <sup>3</sup> .....	(3-3)	4
<a href="#">ECEN 248</a> Intro. to Dig. Sys. Design <sup>3</sup> .....	(3-3)	4	<a href="#">MATH 308</a> Differential Equations <sup>3</sup> .....	(3-0)	3
<a href="#">MATH 251</a> Engineering Mathematics III <sup>3</sup> .....	(3-0)	3	<a href="#">MATH 311</a> Topics in Applied Math I <sup>3</sup> .....	(3-0)	3
University Core Curriculum elective <sup>1</sup> .....	(2-2)	3	University Core Curriculum elective <sup>1</sup> .....	(3-0)	3
University Core Curriculum elective <sup>1</sup> .....	(3-0)	3	University Core Curriculum elective <sup>1</sup> .....	(3-0)	3
		<u>17</u>			<u>16</u>

**JUNIOR YEAR**

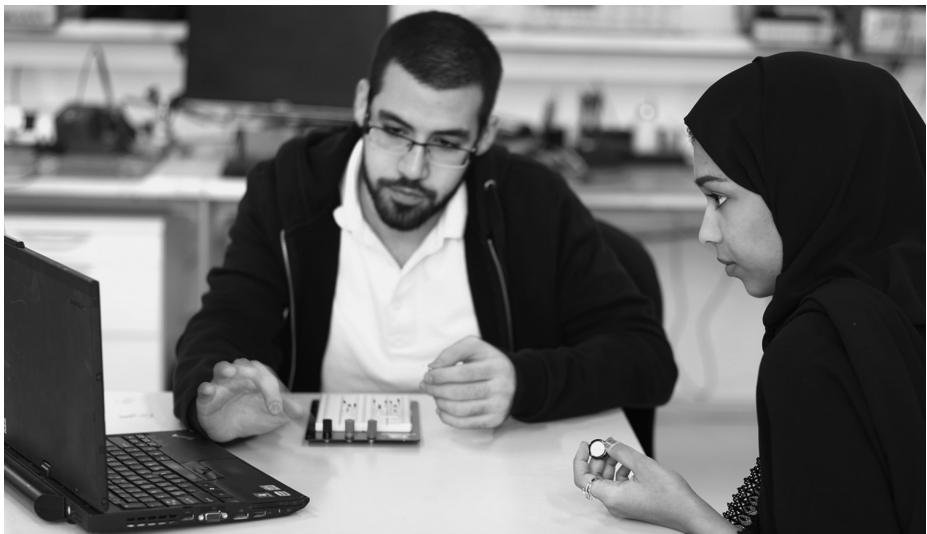
<a href="#">ECEN 314</a> Signals and Systems <sup>3</sup> .....	(3-0)	3	<a href="#">ECEN 303</a> Random Signals and Systems <sup>3</sup> .....	(3-1)	3
<a href="#">ECEN 322</a> Elec. and Magnetic Fields <sup>3</sup> .....	(3-1)	3	<a href="#">ECEN 350</a> Comp. Arch. and Design <sup>3</sup> .....	(3-3)	4
<a href="#">ECEN 325</a> Electronics <sup>3</sup> .....	(3-4)	4	<a href="#">ECEN 370</a> Elec. Props. of Matls. <sup>3</sup> .....	(3-1)	3
<a href="#">ENGL 210</a> Scientific and Tech. Writing .....	(3-0)	3	ECEN elective <sup>2</sup> .....		3
<a href="#">PHYS 222</a> Mod. Physics for Engineers <sup>3</sup> .....	(3-0)	3	Technical elective <sup>2</sup> .....		3
		<u>16</u>			<u>16</u>

**SENIOR YEAR**

<a href="#">ECEN 403</a> Electrical Design Lab I <sup>3</sup> .....	(2-2)	3	<a href="#">ECEN 404</a> Electrical Design Lab II <sup>3</sup> .....	(2-3)	3
ECEN elective <sup>2</sup> .....		3	<a href="#">ENGR 482</a> Ethics and Engineering .....	(2-2)	3
ECEN elective <sup>2</sup> .....		3	ECEN elective <sup>2</sup> .....		3
ECEN elective <sup>2</sup> .....		3	ECEN elective <sup>2</sup> .....		3
ECEN elective <sup>2</sup> .....		3	ECEN elective <sup>2</sup> .....		3
		<u>15</u>			<u>15</u>

**Total Credits Required 128**

- NOTES:**
1. Of the 18 hours shown as University Core Curriculum electives, 3 must be from creative arts, 3 from social and behavioral sciences, 6 from American history, and 6 from government/political science. The required 6 hours from international and cultural diversity may be met by courses satisfying the creative arts, social and behavioral sciences, and American history and government and political science requirements if they are also on the approved list of international and cultural diversity courses (see an academic advisor for more information). In addition, [ENGR 482](#) must be taken.
  2. See an academic advisor for a list of approved electives.
  3. A grade of C or better is required.



**Curriculum in  
Mechanical Engineering**

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

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

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

Department Head (DH) .....Andreas A. Polycarpou, 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, thermal systems analysis, 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 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 objectives of the Mechanical Engineering Program at Texas A&M at Qatar are to produce graduates who, a few years after leaving Texas A&M Qatar will:

1. Have broad engineering experience of increasing complexity to address the evolving needs of the private and public sectors in Qatar, the surrounding regions, and beyond.
2. Have leadership positions in their professional career.
3. Have met new challenges by engaging in professional development, further technical education and/or non-technical education.

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 the following courses listed in the freshman year: ENGL 104, ENGR 111, MATH 151, PHYS 218, CHEM 107, CHEM 117, ENGR 112, MATH 152 and PHYS 208.

### SOPHOMORE YEAR

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
<a href="#">MEEN 210</a> Geometric Modeling for Mechanical Design.....	(1-2)	2	<a href="#">CVEN 305</a> Mechanics of Materials <sup>1</sup> .....	(3-0)	3
<a href="#">MATH 251</a> Engineering Mathematics III <sup>1</sup> .....	(3-0)	3	<a href="#">ECEN 215</a> Prin. of Electrical Engr. <sup>1</sup> .....	(2-2)	3
<a href="#">MEEN 225</a> Engineering Mechanics <sup>1</sup> .....	(2-3)	3	<a href="#">MATH 308</a> Differential Equations <sup>1</sup> .....	(3-0)	3
<a href="#">MEEN 222</a> Materials Science <sup>1</sup> .....	(3-0)	3	<a href="#">MEEN 260</a> Mechanical Measurements <sup>1</sup> .....	(2-3)	3
University Core Curriculum electives <sup>2</sup> .....		6	<a href="#">MEEN 315</a> Prin. of Thermodynamics <sup>1</sup> .....	(3-0)	3
		<u>17</u>			<u>15</u>

### JUNIOR YEAR

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

### SENIOR YEAR

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

**Total Credits Required 128**

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

2. Of the 18 hours shown as University Core Curriculum electives, 3 must be from creative arts, 3 from social and behavioral sciences, 6 from American history, and 6 from government/political science. The required 6 hours from international and cultural diversity may be met by courses satisfying the creative arts, social and behavioral sciences, and American history and government and political science requirements if they are also on the approved list of international and cultural diversity courses (see an academic advisor for more information). In addition, ENGR 482 must be taken.

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) ..... Michael Bowman, Ph.D.

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

Department Head (DH) ..... A. Daniel Hill, 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 at Qatar is to create, preserve, integrate, transfer and apply petroleum engineering knowledge, and to produce capable future engineers and 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.
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 of the Petroleum Engineering Program are to produce graduates who will:

1. Have the technical depth and breadth to enable them to be effective professionals early in their career.
2. Have the knowledge together with relevant communication and interpersonal skills to position them for successful careers as practicing engineers and prospective leaders.

(See [FRESHMAN YEAR](#))

A grade of C or better is required for the following courses listed in the freshman year: ENGL 104, ENGR 111, MATH 151, PHYS 218, CHEM 107, CHEM 117, ENGR 112, MATH 152 and PHYS 208.

**SOPHOMORE YEAR**

First Semester	(Th-Pr)	Cr	Second Semester	(Th-Pr)	Cr
<a href="#">ENGL 210</a> Sc. and Tech. Writing.....	(3-0)	3	<a href="#">CVEN 305</a> Mechanics of Materials.....	(3-0)	3
<a href="#">MATH 251</a> Engineering Mathematics III....	(3-0)	3	<a href="#">GEOL 104</a> Physical Geology <sup>3</sup> .....	(3-3)	4
<a href="#">MEEN 221</a> Statics and Particle Dynamics....	(3-0)	3	<a href="#">MATH 308</a> Differential Equations.....	(3-0)	3
<a href="#">PETE 225</a> Intro to Drilling Systems <sup>3</sup> .....	(2-3)	3	<a href="#">MEEN 315</a> Prin. of Thermodynamics.....	(3-0)	3
University Core Curriculum elective <sup>1</sup> .....		3	<a href="#">PETE 311</a> Reservoir Petrophysics.....	(3-3)	4
		<u>15</u>			<u>17</u>

**JUNIOR YEAR**

<a href="#">GEOL 404</a> Geology of Petroleum.....	(2-3)	3	<a href="#">PETE 321</a> Formation Evaluation.....	(3-3)	4
<a href="#">PETE 301</a> Petr. Engr. Numerical Methods....	(2-3)	3	<a href="#">PETE 323</a> Fund. of Reservoir Engineering...	(3-0)	3
<a href="#">PETE 310</a> Reservoir Fluids.....	(3-3)	4	<a href="#">PETE 324</a> Well Testing.....	(3-0)	3
<a href="#">PETE 314</a> Transport. Processes in Petroleum Production.....	(3-0)	3	<a href="#">PETE 325</a> Petroleum Productions Systems...	(2-3)	3
<a href="#">PETE 353</a> Petroleum Project Evaluation.....	(3-0)	3	<a href="#">PETE 336</a> Petroleum Tech. Pres. I.....	(0-3)	1
		<u>16</u>	<a href="#">PETE 337</a> Junior Student Paper Contest.....		0
			<a href="#">PETE 355</a> Drilling Engineering.....	(3-0)	3
					<u>17</u>

**SENIOR YEAR**

<a href="#">PETE 300</a> Summer Practice.....		0	<a href="#">ENGR 482</a> Ethics and Engineering.....	(3-0)	3
<a href="#">PETE 401</a> Reservoir Simulation.....	(1-3)	2	<a href="#">PETE 402</a> Integrated Asset Development....	(1-6)	3
<a href="#">PETE 404</a> Integrated Reservoir Modeling....	(3-0)	3	<a href="#">PETE 437</a> Senior Student Paper Contest.....		0
<a href="#">PETE 410</a> Production Engineering.....	(3-0)	3	Technical elective <sup>2</sup> .....		3
<a href="#">PETE 436</a> Petroleum Tech. Pres. II.....	(0-3)	1	University Core Curriculum elective <sup>1</sup> .....		3
University Core Curriculum elective <sup>1</sup> .....		3	University Core Curriculum elective <sup>1</sup> .....		3
Technical Elective <sup>2</sup> .....		3			<u>15</u>
		<u>15</u>			

**Total Credits Required 128**

- NOTES:**
1. 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 an academic advisor for more information). In addition, [ENGR 482](#) must be taken.
  2. As approved by the program chair.
  3. A grade of C or better is required.



## Undergraduate Minor Programs

### Minor in Chemical Engineering

The courses listed below constitute the 18 credit hours required for a minor in chemical engineering:

1. CHEN 204 Elementary Chemical Engineering.
2. CHEN 313 Chemical Engineering Materials.
3. CHEN 354 Chemical Engineering Thermodynamics II.
4. CHEM 322 Physical Chemistry for Engineers.
5. CHEN 424 Chemical Engineering Mass Transfer Operations.
6. CHEN 464 Kinetics and Reactor Design.

**Acceptance into the chemical engineering minor:** Engineering majors, minimum GPR of 3.00 with at least 30 earned credits; 200-level prerequisites: CHEM 102/112, PHYS 218 and MATH 152; 300- to 400-level prerequisites: MATH 308, Engineering Majors Thermodynamics, and Engineering Majors Fluids or Transportation.

### Minor in Chemistry

A minor in chemistry should represent course work taken in the discipline beyond courses that might be used to satisfy core curriculum science requirements (8 credits). Therefore, though CHEM 101/111 or CHEM 107/117 and CHEM 102/112 are prerequisites to all of the listed courses, they are not considered part of the minor program. The course work listed (17–20 credits) represents various subdisciplines within the field of chemistry and would give the student an overall knowledge base fitting a minor in chemistry. This is consistent with the statement on minors published by the American Chemical Society.

The student will choose **five** lecture courses (14–15 credits) and **three** laboratory courses (3–5 credits) from categories 1–5 below. The student must take at least one course from **four** of the **five** categories. Students must have a C average in all courses taken for a minor in chemistry. CHEM 491 and 485 credits will not be allowed to count for the minor or be used in the chemistry GPA calculation. Substitution of courses without the CHEM prefix will not be allowed.

1. Organic Chemistry:  
CHEM 227(3), CHEM 237(1), CHEM 228(3) or CHEM 238(1).
2. Analytical Chemistry:  
CHEM 315(3), CHEM 316(2), CHEM 317(2), CHEM 318(1) or CHEM 320(2).  
Students may not count both CHEM 315 and 316.
3. Physical Chemistry:  
CHEM 322(3), CHEM 325(1), CHEM 326(1), CHEM 327(3) or CHEM 328(3).  
Students may not count both CHEM 322 and 327.

4. Inorganic Chemistry:  
CHEM 362(3) or CHEM 383(3).
5. Advanced Chemistry Courses (0–3 credits):  
CHEM 415(3), CHEM 434(2), CHEM 446(3), CHEM 456(3), CHEM 462(3),  
CHEM 464(3), CHEM 433(2), CHEM 466(3), CHEM 470(3) CHEM 483(3) or  
CHEM 489 (1-4).

### **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 314, ECEN 325, ECEN 405 and ECEN 485. Credit 3

**Acceptance in the electrical engineering minor:** A minimum grade point average of 2.75 is required in order to enter the minor. Prerequisite course work includes the calculus sequence, MATH 308 and PHYS 208 or equivalents. Students majoring in computer engineering will not be permitted to minor in electrical engineering since the course work prescribed for the minor is required course work for the computer engineering degree.

**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**

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 (except GEOL 308).
2. GEOL 101, 104 or 320.
3. Remaining courses are to be taken in geology or may include selected courses in geography, geophysics and oceanography, with advisor approval.
4. A minimum of 6 credits must be taken in residence at Texas A&M at Qatar or Texas A&M in College Station.

### **Minor in Mathematics**

The courses listed below constitute 16 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. All 300–400 level MATH courses must be taken at Texas A&M in College Station or Texas A&M at Qatar; no transfer work will be allowed.

1. MATH 152 Engineering Mathematics II. Credit 4.
2. MATH 251 Engineering Mathematics III. Credit 3.
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.

### **Minors in Mechanical Engineering**

The objectives of the mechanical engineering minors are to expand the knowledge of mechanical engineering principles to broader engineering activities and provide non-MEEN students with a specialized aspect of mechanical engineering to enhance their skill set and capabilities within their discipline-specific field. All minors below require a minimum of 15 credit hours. Students must satisfy course prerequisites (C or better), which may or may not apply toward the minor or the student's major degree.

#### **Analysis, Design and Management of Energy Conversion Systems**

MEEN 344 Fluid Mechanics.

MEEN 461 Heat Transfer.

MEEN 421: Thermal Fluid Systems Analysis and Design.

Select two from the following:

1. MEEN 410 Internal Combustion Engines.
2. MEEN 436 HVAC.
3. MEEN 437 Building Energy Analysis.
4. MEEN 472 Gas Dynamics.

#### **Control of Mechanical Systems**

MEEN 363 Dynamics.

MEEN 364 Systems and Control.

MEEN 431 Advanced System Dynamics and Controls.

Select two from the following:

1. MEEN 408 Introduction to Robotics.
2. MEEN 411 Mechanical Controls.
3. MEEN 432 Automotive Engineering.
4. MEEN 433 Mechatronics.
5. MEEN 434 Dynamics and Modeling of Mechatronic Systems.
6. MEEN 459 Mechanical Vibrations.

#### **Design and Simulation of Mechanical Systems**

MEEN 363 Dynamics.

MEEN 368 Solid Mechanics in Mechanical Design.

MEEN 475 Materials in Design.

Select two from the following:

1. MEEN 441 Design of Mechanical Components and Systems.
2. MEEN 442 Computer Aided Engineering.
3. MEEN 444 Finite Element Analysis in Mechanical Engineering.
4. MEEN 448 Fundamentals of Nondestructive Testing.
5. MEEN 460 Corrosion Engineering.
6. MEEN 467 Mechanical Behavior of Materials.

The minimum GPA for an MEEN minor applicant is 3.5. Students may apply as early as their fourth semester but before their seventh semester. Any special considerations must be approved by the mechanical engineering program chair.

### **Minor in Petroleum Engineering**

A total of 18 credit hours listed as core courses will constitute a minor in petroleum engineering. A grade of C or better is required for any course to be used for the minor. The requirements for the minor in petroleum engineering are:

1. GEOL 104.
2. PETE 225, PETE 310, PETE 311 and PETE 325.

Acceptance in the petroleum engineering minor: A minimum GPR of 3.000 with at least 30 hours of Texas A&M resident credit is required to enter the minor.

For additional information, please refer to [engineering.tamu.edu/petroleum/academics/degrees/undergraduate/minor](http://engineering.tamu.edu/petroleum/academics/degrees/undergraduate/minor).

### **Minor in Political Science**

A 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.
2. Nine additional hours of POLS courses.
3. A minimum of 6 hours at the 300- to 400-level.
4. No more than 3 hours of POLS 485.

### **Minor in Physics**

A minor in physics requires a minimum of 17 credits hours. The requirements for the minor in physics are:

1. PHYS 218, PHYS 208 and PHYS 221.
2. PHYS 222 or PHYS 309.
3. Three credits in a physics elective at the 300–400 level. Please select from PHYS 300–499 or ASTR 314 in consultation with an advisor.
4. A minimum grade of C or better in all courses.

2017–2018

# Supporting Academic Programs



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# College of Geosciences

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

Program Chair (PC) ..... Michael Bowman, Ph.D.

## Administrative Officers at College Station Campus

Interim Dean.....Deborah J. Thomas, Ph.D.

Executive Associate Dean and

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

Associate Dean for Academic Affairs .....Christian Brannstrom, Ph.D.

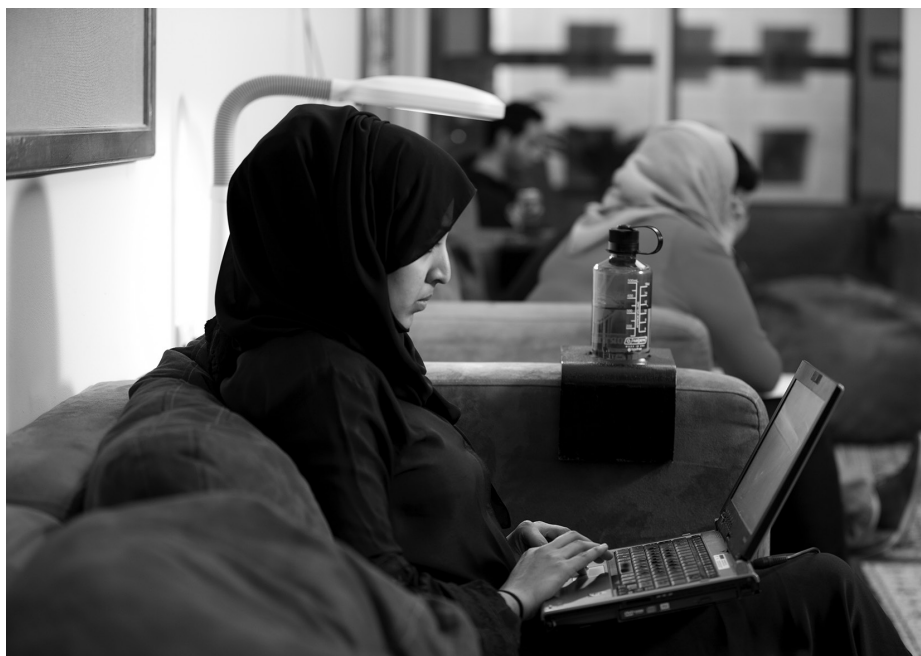
Associate Dean for Diversity and Climate ..... Eric Riggs, Ph.D.

Assistant Dean for Finance and Administration..... Barbara Bayer

## General Statement

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Students at Texas A&M at Qatar will have the opportunity to take courses in two areas within the College of Geosciences. Geology, the major focus, 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 may also be offered. This deals primarily with the physics of the solid earth, from the measurement and understanding of its internal structure and physical properties, to plate motions and their effect on continents and ocean basins, to detection of its natural resources through remote sensing.



# College of Liberal Arts

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

Program Chair (PC) ..... Zohreh R. Eslami, Ph.D.

## Administrative Officers at College Station Campus

Dean ..... Pamela Matthews, Ph.D.  
 Associate Dean ..... Srividya Ramasubramanian, Ph.D.  
 Associate Dean ..... Steven M. Oberhelman, Ph.D.  
 Associate Dean ..... Patricia A. Hurley, Ph.D.  
 Associate Dean ..... Gerianne Alexander, Ph.D.  
 Associate Dean ..... Paul Wellman, Ph.D.  
 Associate Dean ..... Leroy Dorsey, Ph.D.  
 Assistant Dean ..... Cheryl L. Hanks, 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 that 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 identities.



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# College of Science

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

Program Chair (PC) ..... Edward N. Brothers, Ph.D.

## Administrative Officers at College Station Campus

Dean ..... Meigan Aronson, Ph.D.  
 Associate Dean for Research ..... James Batteas, Ph.D.  
 Assistant Dean for Student Affairs ..... Yvette Hester, Ph.D.  
 Associate Dean for Faculty Affairs and Graduate Studies ..... Mark J. Zoran, Ph.D.  
 Associate Dean for External Relations ..... Marlan O. Scully, Ph.D.  
 Associate Dean for Strategic Planning ..... Sherry J. Yennello, Ph.D.  
 Associate Dean for International Programs ..... Paulo Lima-Filho, Ph.D.  
 Associate Dean for Undergraduate Programs ..... Lucas Macri, Ph.D.  
 Senior Advisor to the Dean ..... W. Michael Kemp, Ph.D.

## Curricula in Chemistry

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An understanding of chemistry is critical to an understanding of life and its associated activities. Chemistry and chemical principles profoundly influence the way we live, communicate and interact with one another, so it is little wonder that a strong background in chemistry provides a solid foundation for a variety of careers of major importance in the 21st century. Chemistry is uniquely positioned at the crossroads 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

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

## Curricula in Physics

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Physics is the science that 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 subnuclear 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 that 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.



2017–2018

# Graduate Studies



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# Graduate Studies

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## Administrative Structure

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

**Office of Graduate and Professional Studies (OGAPS).** Located on the main campus, the OGAPS 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 Graduate Studies (OGS).** Located on the Qatar campus, OGS is a support resource for all graduate education locally. As a liaison, OGS ensures student and administration adherence to OGAPS and university rules. All activities of graduate students at Texas A&M at Qatar should be coordinated through OGS and the students' academic programs.

**Academic Programs and Departments.** Texas A&M 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 regard to graduate studies. Rules and requirements of a student's academic programs are identical to those of the corresponding academic departments on the main campus.

Once a graduate student is accepted, OGAPS and OGS assist and facilitate progression toward completion of a graduate degree through maintenance of all official documents. OGAPS 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 OGAPS, but the Office of the Registrar in College Station or the Office of Records in Qatar is responsible for issuing all transcripts.

## Ombudsperson for Graduate Education

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The ombudsperson for graduate education assists graduate students, faculty, staff and administrators in resolving graduate student conflicts, disputes or complaints on an informal basis. 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 is available to support the processes of graduate education by providing open and accessible assistance to all parties — students, faculty, staff and administrators.

The ombudsperson for graduate education is available to assist graduate students when:

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

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 [catalog.tamu.edu](http://catalog.tamu.edu).



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# Graduate Degree Programs

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## Chemical Engineering

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Texas A&M at Qatar offers two graduate degrees in chemical engineering: the master of science (M.S.), thesis option only; and the master of engineering (M.Eng.). The M.S. degree program includes a significant research component in addition to graduate course work. Information about specific program course work and examinations is available upon request and at [www.qatar.tamu.edu/programs/chemical-engineering](http://www.qatar.tamu.edu/programs/chemical-engineering).

Some research areas available within the program include process safety, water and environmental management, desalination, gas-to-liquid conversion, applied 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

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The master of science 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 eight-week summer semester. Upon recommendation of the student's advisory committee or program chair, if appropriate, and with approval of the Office of Graduate and Professional Studies, a student may be granted exemption from this requirement. Such a petition, however, must be approved prior to the student's registration for the final 9 credit hours of required course work.

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 course work, the student will consult with the program chair of his or her major or the chair of the graduate committee 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 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. Only graduate faculty members located at Texas A&M

campuses may serve as chair of a student's advisory committee. Other graduate faculty members located off campus may serve as a member or co-chair (but not chair) with a member as the chair. 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 is near completion of the degree and wants the chair to continue to serve in this role, the student is responsible for securing a current member of the university graduate faculty, from the student's academic program and located on the Qatar campus, to serve as the co-chair of the committee. The department head may request in writing to the Associate provost for graduate and professional studies that a faculty member who is on an approved leave of absence or has voluntarily separated from the university be allowed to continue to serve in the role of chair of a student's advisory committee without a co-chair for up to one year. The student should be near completion of the degree. Extensions beyond the one-year period can be granted with additional approval of the dean.

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, is responsible for advising the student on academic matters and, in the case of academic deficiency, initiating recommendations to the Office of Graduate and Professional 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 and Professional 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 Document Processing Submission System located at [ogsdpss.tamu.edu](https://ogsdpss.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 course work 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. No changes can be made to the degree plan once the student's Request for Final Examination or Request for Final Examination Exemption is approved by the Office of Graduate and Professional Studies.

### Credit Requirement

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

### Transfer of Credit

A student who has earned 12 hours of graduate credit in residence at Texas A&M (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 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. Course work **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 course work 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 course work was taken must be sent directly to the Office of Records on the Qatar campus.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course to be transferred was taken prior to the conferral of a degree at the transfer institution, a letter from the registrar at that institution stating that the course was not applied for credit toward the degree must be submitted to the Office of Graduate Studies.

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 that may be considered for transfer credit is the greater of 12 hours or one-third 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 (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 postbaccalaureate non-degree (G6) classification at Texas A&M (Qatar or College Station) that may be considered for application to the degree plan is 12.
3. Not more than 12 hours may be used in any combination of the following categories:
  - Not more than 8 hours of 684 (Professional Internship) and/or
  - Not more than 8 hours of 685 (Directed Studies) and
  - Not more than 3 hours of 690 (Theory of Research) and
  - Not more than 3 hours of 695 (Graduate Mentoring Seminar I).
4. A maximum of 2 hours of Seminar (681) is allowed.
5. A maximum of 9 hours of advanced undergraduate courses (300 or 400 level) is allowed.
6. 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 course work. Each week of course work must include at least 15 contact hours.
7. Continuing education courses may not be used for graduate credit.
8. Extension courses are not acceptable for credit.

Exceptions will 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 course work other than 691 (Research) is required to be in continuous registration until all requirements for the degree have been completed. See "Continuous Registration Requirements" on [page 130](#).

### **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 and Professional Studies at least 20 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 and Biosafety at +1 (979) 458-1467 to address questions about all research compliance responsibilities. Additional information can also be obtained at [rcb.tamu.edu](http://rcb.tamu.edu).



## Thesis Defense/Final Examination

A student must pass a final examination by dates announced each semester or summer term in the Office of Graduate and Professional Studies calendar. **The Office of Graduate and Professional 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) that 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 (Qatar or College Station campus) and have achieved a grade of C or better. All course work on the degree plan must have been completed with the exception of those hours for which the student is 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 and Professional Studies according to published deadlines.

A request for permission to hold and announce the final examination must be submitted to the Office of Graduate and Professional Studies a **minimum of 10 working days in advance** of the scheduled date for the examination. Examinations that are not completed and reported as satisfactory to the Office of Graduate and Professional 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

## Steps to Fulfill Master's Degree Requirements

1	Meet with departmental graduate advisor to plan course of study for first semester.	➔	<p><b>When:</b> Before first semester registration.</p> <p><b>Approved by:</b> Graduate advisor or chair of the intercollegiate faculty.</p>
2	Establish advisory committee. Submit a degree plan.*	➔	<p><b>When:</b> Prior to the deadline imposed by the student's college and no later than 90 days prior to final oral or thesis defense.</p> <p><b>Approved by:</b> Advisory committee, department head or chair of the intercollegiate faculty, and Office of Graduate and Professional Studies (OGAPS).</p>
3	If thesis is required, submit thesis proposal to the Office of Graduate and Professional Studies.	➔	<p><b>When:</b> At least 20 working days prior to the submission of the Request for the Final Examination.</p> <p><b>Approved by:</b> Advisory committee, department head or chair of the intercollegiate faculty, and OGAPS.</p>
4	Apply for degree**; pay graduation fee.	➔	<p><b>When:</b> During the first week of the final semester; see Texas A&amp;M at Qatar academic calendar.</p>
5	Check to be sure degree program and advisory committee are up to date and all ELPE requirements (if applicable) and course work are complete.	➔	<p><b>When:</b> Well before submitting request to schedule final examination.</p>

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 at Texas A&M at Qatar 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 option 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 program chair of the student's major program, and the Office of Graduate and Professional 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

6	Complete residence requirement.	➔	<b>When:</b> If applicable, before or during final semester. <b>Approved by:</b> OGAPS.
7	Submit request for permission to schedule final examination.	➔	<b>When:</b> Must be received by OGAPS at least 10 working days before exam date. See OGAPS calendar for deadlines. <b>Approved by:</b> Advisory committee, department head or chair of the intercollegiate faculty, and OGAPS.
8	Successfully complete final examination.	➔	<b>When:</b> The Report of the Final Examination should be submitted to OGAPS within 10 days following the exam. <b>Approved by:</b> Advisory committee and OGAPS.
9	If required, upload one approved final copy of thesis as a single PDF file ( <a href="http://ogaps.tamu.edu">ogaps.tamu.edu</a> ) and submit signed approval form to the Office of Graduate and Professional Studies.	➔	<b>When:</b> See OGAPS calendar for deadlines. <b>Approved by:</b> Advisory committee, department head or chair of the intercollegiate faculty, and OGAPS.
10	Graduation; arrange for cap and gown.	➔	For more information, contact the Office of Records or visit <a href="http://www.qatar.tamu.edu/students/office-of-records/graduation">www.qatar.tamu.edu/students/office-of-records/graduation</a> .

\* The online Document Processing Submission System is located at [ogsdps.tamu.edu](http://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/students/office-of-records/graduation](http://www.qatar.tamu.edu/students/office-of-records/graduation).

the student is currently enrolled. If a student has completed all required degree plan course work, 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 (one 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, the significance and the 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 [ogaps.tamu.edu](http://ogaps.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 in electronic format as a single PDF

file. The PDF file must be uploaded at [ogaps.tamu.edu](http://ogaps.tamu.edu). Additionally, a signed approval form must be brought or mailed to the Office of Graduate and Professional Studies. 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 and Professional Studies calendar (see “Time Limit” statement below). These dates also can be accessed at [ogaps.tamu.edu/New-Current-Students](http://ogaps.tamu.edu/New-Current-Students).

Before a student can be cleared by Thesis and Dissertation Services, 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 Office of Graduate and Professional Studies because of excessive corrections needed 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 for the student 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 (Graduate Mentoring Seminar I) 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 course work that 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 eight-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 student's [Howdy portal](#), and by submitting the supplemental application form and paying the required graduation fee to the Office of Records 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 supplemental application can be found at [www.qatar.tamu.edu/students/office-of-records/graduation](http://www.qatar.tamu.edu/students/office-of-records/graduation).

### **The Degree of Master of Engineering**

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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, majoring in his or her particular field of engineering.

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 and enrolling for course work, the student will consult with the program graduate advisor or the program chair concerning appointment of the chair of his or her advisory committee. The student's advisory committee for the master of engineering degree will consist of at least one member of the graduate faculty. Typically, this member may be the departmental graduate advisor and will serve as the student's committee chair, or the departmental graduate advisor may appoint/approve another departmental faculty member to serve as the appropriate chair of the student's

advisory committee. Depending on the departmental policy, additional committee members may be required. If additional committee members are deemed necessary by the department, the 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. Only graduate faculty members located at Texas A&M at Qatar may serve as chair of a student's advisory committee. Other graduate faculty members located off campus may serve as a member or co-chair (but not chair), with a member as the chair. The chair of the committee, who usually has immediate supervision of the student's degree program, has the responsibility 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 in this role, the student is responsible for securing a current member of the university graduate faculty, from his/her academic program and located on the Texas A&M at Qatar campus, to serve as the co-chair of the committee. If the committee chair is on an approved leave of absence, he or she can remain as chair without a co-chair for up to one year with written approval of the program chair or chair of the intercollegiate faculty. Extensions beyond the one-year period can be granted with additional approval of the dean.

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 or professional paper and is registered for courses such as 684, 692 or 693, the student may request, in writing, that the department head appoint an alternate advisory committee chair during the interim period.

The duties of the committee include responsibility for the proposed degree plan, any professional study or project, and the final examination. In addition, the committee, as a group and as individual members, is responsible for counseling the student on academic matters and, in the case of academic deficiency, initiating recommendations to the Office of Graduate Studies.

The committee members' 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 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 and Professional 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 Document Processing Submission System located at [ogsdpps.tamu.edu](https://ogsdpps.tamu.edu).

Additional course work 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. No 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 (Qatar or College Station) may be authorized to transfer courses in excess of the limits prescribed above 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 preceding section apply. Course work **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 course work 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 course work was taken must be sent directly to the Office of Records on the Qatar campus.

Courses used toward a degree at another institution may not be applied for graduate credit. If the course to be transferred was taken prior to the conferral of a degree at the transfer institution, a letter from the registrar at that institution stating that the course was not applied for credit toward the degree must be submitted to the Office of Graduate Studies.

Grades for courses completed at other institutions are not included in computing the GPR.



### **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 that may be considered for transfer credit is the greater of 12 hours or one-third 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 (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 postbaccalaureate non-degree (G6) classification at Texas A&M (Qatar or College Station campus) that 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 (Graduate Mentoring Seminar I).
4. A maximum of 2 hours of Seminar (681) is allowed.
5. A maximum of 9 hours of advanced undergraduate courses (300 or 400 level) is allowed.
6. 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 course work. Each week of course work must include at least 15 contact hours.
7. No credit hours of 691 (Research) may be used.
8. Continuing education courses may not be used for graduate credit.
9. 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 course work that 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 and Professional Studies calendar unless the student has been exempted from the examination. The Office of Graduate and Professional 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 and Professional Studies by the deadline announced for the student's final semester (or semester of graduation) in the Office of Graduate and Professional Studies calendar. Please see the Office of Graduate and Professional Studies at [ogaps.tamu.edu/New-Current-Students](http://ogaps.tamu.edu/New-Current-Students).

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) that 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 (Qatar or College Station campus) and have achieved a grade of C or better. All course work on the degree plan must have been completed with the exception of those hours for which the student is registered. Additionally, all English language proficiency requirements must be satisfied prior to scheduling the examination.

A request for permission to hold and announce the final examination must be submitted to the Office of Graduate and Professional Studies a minimum of 10 working days in advance of the scheduled date for the examination. Examinations that are not completed and reported as satisfactory to the Office of Graduate and Professional 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**

Graduate degrees are conferred at the close of each regular semester and eight-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 student's [Howdy](#) portal, and by submitting the supplemental application form and paying the required graduation fee to the Office of Records no later than the deadline listed in the academic calendar each term. Cancellations 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 supplemental application can be found at [www.qatar.tamu.edu/students/office-of-records/graduation](http://www.qatar.tamu.edu/students/office-of-records/graduation).

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# Graduate Admission

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## Admission

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Admissions information, including access to the online application for admission (during admission periods), is available at [www.qatar.tamu.edu/admissions/graduate-admissions/](http://www.qatar.tamu.edu/admissions/graduate-admissions/). Additional information may be obtained by calling (+974) 4423-0135, 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 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

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An applicant from another country 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 TOEFL, the IELTS or the PTE Academic exam. All exams are offered at locations around the world. Applications for these exams together with additional information about these examinations may be found on their websites; TOEFL information may be obtained at [www.ets.org/toefl](http://www.ets.org/toefl), IELTS information from [www.ielts.org](http://www.ielts.org), and PTE Academic from [pearsonpte.com](http://pearsonpte.com). Applicants from non-English-speaking countries must present a TOEFL score of at least 550 paper based or 80 Internet based, an IELTS score of at least 6.0 overall band, or a PTE Academic score of 53 to be admitted to graduate studies. An applicant may be exempt from the English language proficiency requirements by completing all credits of a baccalaureate degree or higher in the United States or scoring a 400 or 146 (on the new scale) or higher on the Verbal section of the GRE. Additionally, applicants from the following countries will be exempt from the English language proficiency requirement for admission and considered English Language Proficiency Verified:

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

Some programs reserve the right to require a TOEFL/IELTS/PTE Academic 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.** More information regarding the English language requirements may be found at [ogaps.tamu.edu](http://ogaps.tamu.edu).

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 one of the following:

- A TOEFL score of at least 80 on TOEFL iBT (550 paper-based).
- An IELTS score of at least 6.0.
- A GRE Verbal Reasoning score of at least 146 (400 on the old scale).
- A GMAT Verbal score of at least 22.
- A PTE Academic score of at least 53.
- Alternative verification from the Office of Graduate and Professional Studies via a departmental request. An international graduate student holding a master's degree from an accredited U.S. institution qualifies for alternative verification.

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 one of the following:

- Scoring at least 80 on each of the sections (reading, listening, written composition, and oral skills) of the English Language Proficiency Examination.
- Obtaining grades of A or B in English Language Institute courses (reading, listening, written composition and oral skills) at the 300 level or higher.
- Alternative certification from the Office of Graduate and Professional Studies via a departmental request.

A student who has received a baccalaureate degree following four years of study at an accredited U.S. institution or institutions qualifies for alternative certification. All other requests for alternative certification require strong department justification and review in compliance with Office of Graduate and Professional Studies policies and guidelines.

An international 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 and Professional Studies. The Office of Graduate and Professional Studies will determine on a case-by-case basis whether verification or certification is granted.



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# Registration and Academic Status

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## General Information

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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. Students should consult the section on English proficiency requirements for information about additional requirements.

## Full-Time Status

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

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

A Q grade or W grade does not count toward the certification of enrollment status.

## Maximum Schedule

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

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

**Eight-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 Graduate Studies on the Qatar campus.



## Continuous Registration Requirements

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A student in a graduate degree program requiring a thesis, dissertation, internship or record of study who has completed all course work 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 1 and maximum of 4 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 eight-week summer semester for at least 1 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 his or her 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 and Professional Studies. If a break in enrollment occurs for one academic year or longer, the student must apply for readmission to the graduate degree program through the Office of Graduate Studies.

## Leave of Absence

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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 and Professional Studies. If the dean of graduate and professional 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 and professional 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
<p><b>G6</b></p>	<p><b>Postbaccalaureate Non-degree</b></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 course work 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. An application submitted within one month of registration may be processed in time to begin that semester or term.</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 course work 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>
<p><b>G7</b></p>	<p><b>Graduate, Master's</b></p> <p>G7 classification denotes admission to a master's-level program of study.</p>



2017–2018

# Course Descriptions

Undergraduate and Graduate



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# Undergraduate Course Descriptions

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

Figures in parentheses following the course title indicate the clock hours per week devoted to theory and practice, respectively. Theory includes recitations and lectures; practice includes work done in the laboratory, shop, drawing room or field. The unit of credit is the semester hour, which involves one hour of theory or from two to four hours of practice per week for one semester of 15 weeks. When courses are cross-listed, credit cannot be received for both courses. Any course may be withdrawn from the session offerings in case the number of registrations is too small to justify offering the course.

Note: Where department head is listed in the course descriptions, the academic program chair (PC) at Texas A&M at Qatar serves as proxy for the department head in College Station.

## Anthropology (ANTH)

- 201. Introduction to Anthropology. (3-0). Credit 3.** An introduction to the discipline of anthropology through the examination of its four subfields: archaeology, physical anthropology, sociocultural anthropology and linguistics.
- 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** A. I. A. Abdel-Wahab, M. Castier, I. G. Economou, N. O. Elbashir, P. Linke (PC), M. N. Nounou; **Research Professor** D. B. Bukur; **Associate Professor** L. Véchet; **Assistant Professor** K. E. Kakosimos; **Instructional Associate Professor** G. H. Salama

- 204. Elementary Chemical Engineering. (2-3). Credit 3.** Solution of elementary problems by application of mass balances, energy balances, and equilibrium relationships. Prerequisites: Grade of C or better in CHEM 102, CHEM 112, ENGR 112, MATH 152 and PHYS 218; admission to chemical engineering major; or approval of instructor.
- 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. Prerequisite: CHEN 204.
- 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 204 with a grade of C or better; CHEN 205 or concurrent enrollment; MATH 308 with a grade of C or better.

- 313. Chemical Engineering Materials. (3-0). Credit 3.** Overview of materials science with particular emphasis on classes of materials relevant to chemical engineers. Prerequisites: Grade of C or better in CHEN 204, MATH 251 or concurrent enrollment, and CHEN 205 or concurrent enrollment; or approval of department.
- 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 with a grade of C or better; MATH 308 with a grade of C or better; or approval of department.
- 323. Chemical Engineering Heat Transfer Operations. (3-0). Credit 3.** Heat transfer operations. Prerequisites: Grade of C or better in CHEN 205 and 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 and MATH 308 with a grade of C or better; or approval of department.
- 382. Bioprocess Engineering. (3-0). Credit 3.** Application of engineering principles to design of biocatalysts and bioprocesses. Prerequisites: CHEN 205 with a grade of C or better; junior or senior classification.
- 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: Grade of C or better in CHEN 323 and ENGL 210.
- 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; or approval of instructor.
- 425. Process Integration, Simulation and Economics. (2-3). Credit 3.** Integration, simulation, and economic methods involved in the design of chemical processes and equipment. Prerequisites: Grade of C or better in CHEN 320, CHEN 323, CHEN 354, and CHEN 424 or concurrent enrollment.
- 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: Grade of C or better in CHEN 425 and CHEN 464.
- 433. Chemical Engineering Laboratory II. (0-3). Credit 1.** Laboratory work based on CHEN 424, 461 and 464. Prerequisites: Grade of C or better in CHEN 414, CHEN 424, CHEN 461 and CHEN 464.
- 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, and 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, and 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. Prerequisites: Grade of C or better in CHEN 320 and CHEN 464 or concurrent enrollment.
- 464. Kinetics and Reactor Design. (3-0). Credit 3.** Introduction to kinetics of reactions and application of fundamental principles to design and operation of commercial reactors. Prerequisites: Grade of C or better in CHEN 320, CHEN 323, and CHEN 424 or concurrent enrollment, or approval of department.
- 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. Bioreactor Engineering. (3-0). Credit 3.** Fundamentals of microbial and enzyme kinetics; basic biochemical reaction theory and reactor systems; heterogeneous reactions and transport considerations in enzyme and cell reactors, and immobilized systems; bioreactor design considerations in bioprocessing. Prerequisites: CHEN 282 or CHEN 382 or BAEN 302; junior or senior classification in engineering or approval of instructor.
- 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), and 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: Junior or senior classification in chemical engineering; ENGL 210 with a grade of C or better.
- 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** H. S. Bazzi, A. Bengali; **Visiting Professor** S. Zarić; **Associate Professor** E. N. Brothers (PC); **Assistant Professor** S. Madrahimov

- 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.** Methods of chemical analysis; chemical equilibrium; basic chemical instrumentation. 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 analytical lab, including chemical analyses by volumetric and gravimetric methods; introduction to chemical measurements by spectroscopic and separations techniques and associated instrumentation. 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: A grade of C or better in 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.
- 335. Intercultural Communication. (3-0). Credit 3.** Communication variables in intercultural contexts including culture and meaning, nonverbal styles across cultures, patterns of symbolic transfer, culture shock and communication, values in intercultural dialogue. Prerequisite: Junior or senior classification.

## Electrical Engineering (ECEN)

**Professors** H. A. Abu-Rub (PC), H. M. Alnuweiri, J. J. Boutros, A. Ghrayeb, H. N. Nounou, K. A. Qaraqe, E. Serpedin; **Associate Professors** S. Ahmed, R. Balog, J. Ji; **Assistant Professor** B. Ahmed

- 210. Computer Programming and Algorithms. (3-3). Credit 4.** 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, and 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, CHEM 107 and CHEM 117 with a grade of C or better; MATH 308 with a grade of C or better or concurrent enrollment.
- 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: MATH 251 and PHYS 208 with a grade of C or better.
- 248. Introduction to Digital Systems Design. (3-3). Credit 4.** Combinational and sequential digital system design techniques; design of practical digital systems. Prerequisite: MATH 152 and PHYS 208 with a grade of C or better.
- 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 a 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: Grade of C or better in MATH 308; junior or senior classification.
- 314. Signals and Systems. (3-1). Credit 3.** Introduction to the continuous-time and discrete-time signals and systems; time domain characterization of linear time-invariant systems; Fourier analysis; filtering; sampling; modulation techniques for communication systems. Prerequisites: Grade of C or better in ECEN 214; MATH 308; junior or senior classification.
- 322. Electric and Magnetic Fields. (3-1). Credit 3.** Vector analysis, Maxwell's equations, wave propagation in unbounded regions, reflection and refraction of waves, and transmission line theory; introduction to waveguides and antennas. Prerequisites: ECEN 214; PHYS 208 and MATH 311 with a grade of C or better; 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. Prerequisites: MATH 311 with a grade of C or better; ECEN 314 with a grade of C or better, 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, and active filters. Prerequisites: Grade of C or better in ECEN 314 and 325; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 248; junior or senior classification. 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. Prerequisites: Grade of C or better in PHYS 222; junior or senior classification.
- 403. Electrical Design Laboratory I. (2-3). 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: COMM 205 or COMM 243 or ENGL 210; grade of C or better in ECEN 314, ECEN 325 and ECEN 350; grade of C or better in ECEN 303, ECEN 322, ECEN 370 or grade of C or better in CSCE 315, ECEN 449, STAT 211 or ECEN 303; 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: Grade of C or better in ECEN 403; senior classification.
- 410. Medical Imaging. (3-2). Credit 4.** Fundamentals of physics and the engineering principles of medical imaging systems; focus on magnetic resonance imaging, x-ray computer tomography, ultrasonography, optical imaging and nuclear medicine; includes systems, sources, energy tissue interaction, image formation and clinical examples; virtual labs, on- and off-campus lab tours. Prerequisites: Grade of C or better in MATH 222 or MATH 251 or MATH 253; ECEN 444 or grade of C or better in ECEN 314; junior or senior classification.
- 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: Grade of C or better in ECEN 314 and MATH 308; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 314; junior or senior classification.
- 447. Digital Image Processing. (3-3). Credit 4.** Improvement of pictorial information using spatial and frequency domain techniques; two-dimensional discrete Fourier transform; image filtering, enhancement, restoration, compression; image processing project. Prerequisites: Grade of C or better in ECEN 314; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 248; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 322; junior or senior classification.

- 455. Digital Communications. (3-3). Credit 4.** Digital transmission of information through stochastic channels; analog-to-dialog 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. Prerequisites: Grade of C or better in ECEN 314 and ECEN 303 or STAT 211; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 215 or ECEN 314; junior or senior classification.
- 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. Prerequisites: Grade of C or better in ECEN 215 or ECEN 314; junior or senior classification.
- 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. Prerequisites: 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. Prerequisites: Grade of C or better in ECEN 322; junior or senior classification.
- 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 0 to 4.** Research conducted under the direction of a 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.

## Engineering (ENGR)

- 101. Energy: Resources, Utilization and Importance to Society. (3-2). 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 150 or MATH 151; admission to the 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 or registration therein; admission to the College of Engineering.

- 181. Engineering Honors Seminar I. (1-0). Credit 1.** Survey of interdisciplinary topics related to the professional practice of engineering; seminars with practicing professionals in industry and government. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Certificate in engineering honors membership; freshman or sophomore classification.
- 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.
- 302. Study Abroad at Texas A&M at Qatar. Credit 0 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 Honors Seminar III. (1-0). Credit 1.** Exploration of research and development opportunities; university and industry research; research commercialization. To be taken on a satisfactory/unsatisfactory basis. Prerequisites: Certificate in engineering honors membership; 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.
- 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.

## Engineering Design Graphics (ENDG)

- 105. Engineering Graphics. (1-3). Credit 2.** Graphical approach to the engineering design process as applied to products; methods of graphical communications, three-dimensional geometry, working drawings, data analysis, computer graphics, introduction to team dynamics and creative problem solving.

## English (ENGL)

**Assistant Professor** S. Hillman; **Instructional Associate Professors** M. Telfaci, J. Williams; **Instructional Assistant Professors** A. Hodges, D. Rasmussen, L. Rudd, 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 freshman and sophomore students only.
- 210. Technical and Business Writing. (3-0). Credit 3.** Focus on writing for professional settings; correspondence and researched reports fundamental to the technical and business workplace — memoranda, business letters, research proposals and presentations, use of graphical and document design; emphasis on audience awareness, clarity of communication and collaborative teamwork.
- 219. Literature and the Other Arts. (3-0). Credit 3.** Imaginative literature in conversation with aesthetic principles and such other arts as painting, sculpture, architecture, film and music.
- 251. Introduction to Film Analysis. (3-0). Credit 3.** Fundamental aspects of film analysis and criticism.

## 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, and 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. Prerequisites: CHEM 107 and CHEM 117; PHYS 218; 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 104 or GEOL 150 or equivalent; MATH 151, MATH 152 and PHYS 218.\*
- 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)

- 413. Near-surface Geophysics. (3-0). Credit 3.** Fundamentals of traditional and emergent surface and borehole geophysical methods, as they are applied to shallow (less than 100 meters) subsurface investigations; emphasis on electrical, magnetic and electromagnetic methods; seismic reflection and crosswell tomography. Prerequisites: GEOL 101 or GEOL 104; MATH 251; or approval of instructor.
- 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; Assistant Professor M. van de Logt; Visiting Assistant Professor H.W. Lee**

- 105. History of the United States. (3-0). Credit 3.** Colonial heritage; Revolution; adoption of the 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.

## Health (HLTH)

- 236. Race, Ethnicity and Health. (3-0). Credit 3.** Explore in-depth the racial, ethnic and cultural dimensions that underlie health and health disparities; emphasis on culture, social economic status and governmental policies as they influence the adaptation of health practices.

## 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; overview of various aspects of manufacturing systems; includes using Excel and VBA in coding and evaluating models related to production systems and other industrial engineering applications. Corequisites: MMET 181; STAT 211. Prerequisite: C SCE 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.
- 440. Systems Thinking. (3-0). Credit 3.** Introduction to the systems thinking process, systems of systems, and the fundamental considerations associated with the engineering of large-scale systems, or systems engineering including systems modeling, design, and the system development process. Prerequisites: MATH 304 or approval of instructor; junior or senior classification.
- 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.

### Interdisciplinary Studies (INST)

Professor Z. Eslami (PC)

- 222. Foundations of Education in a Multicultural Society. (3-0). Credit 3.** Historical, philosophical and cultural foundations of education emphasizing education for a multicultural society.

### Kinesiology (KINE)

- 198. Health and Fitness Activity. (0-2). Credit 1.** Half lecture; half activity; student choice of designated fitness or strength-related activities; lecture portion covers current health topics.
- 199. Required Physical Activity. (0-2). Credit 1.** 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 classification in liberal arts or approval of instructor.

### Mathematics (MATH)

Professors G. Chen, M. B. Elgindi, T. Huang, N. Mir, E. Titi; **Visiting Professor** R. A. Lorentz; **Associate Professor** A. El-Guindy; **Assistant Professor** R. Khan; **Senior Lecturer** R. Gibson, Y. Soukiasian

- 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 Texas A&M University 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, or concurrent enrollment; knowledge of computer algebra systems.
- 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)

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

- 210. Geometric Modeling for Mechanical Design. (1-2). Credit 2.** Foundations of geometric modeling as applied to mechanical design through use of modern computer-aided design (CAD) and physical prototyping tools; basics of systematic design methodology; geometric visualization concepts: multiview orthographic, isometric, oblique, perspective; three-dimensional representations, surface and solid modeling; dimensioning and tolerancing; rapid prototyping using 3D printing. Prerequisites: Mechanical engineering major; ENGR 111.
- 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: For non-MEEN majors; admission to 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.
- 225. Engineering Mechanics. (2-2). Credit 3.** Application of the laws of classical mechanics to simplified, plausibly real-world problems of interest to mechanical engineering, including the analysis of cables, frames, trusses, beams, machines and mechanisms. Prerequisites: MEEN major; MATH 251 or MATH 253 or registration therein; 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 225, 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 225; MATH 251 or MATH 253; junior or senior classification.
- 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 225 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; MEEN 210 or concurrent enrollment
- 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 210, MEEN 222, MEEN 260, CVEN 305; junior or senior classification.
- 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 225, MATH 308; MEEN 357 or concurrent enrollment; CVEN 305 or concurrent enrollment.
- 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, 361, 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, 361, 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 algorithms, 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 the 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 the 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. Prerequisites: 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. Prerequisites: 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 the 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.** Examination of music from an ethnomusicological perspective focusing on musical performance and the complex interrelationship of music to culture, society and daily life; examination of music from a variety of cultures through a series of case studies. Prerequisite: Junior or senior classification or approval of instructor.

## **Petroleum Engineering (PETE)**

**Professors** M. Bowman (PC), N. Elbashir, D. Guerillot; **Adjunct Professor** N. AlMohannadi; **Associate Professors** M. Amani, A. Retnanto; **Visiting Associate Professor** E. Ponce Da Motta; **Assistant Professors** N. Alyafei, A. Rahman, T. Seers, Y. Wang; **Instructional Assistant Professor** M. Fadlelmula

- 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. Introduction to Drilling Systems. (2-3). Credit 3.** 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: Grade of C or better in ENGR 112, MATH 152 and PHYS 218.
- 285. Directed Studies. Credit 1 to 4.** Special problems in various areas of petroleum engineering assigned to individual students or to groups. Prerequisite: Approval of department head.
- 289. Special Topics in... Credit 1 to 4.** Selected topics in an identified area of petroleum engineering. May be repeated for credit. Prerequisite: Approval of instructor.
- 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: Grade of C or better in CHEM 107 and CHEM 117; MATH 251, MEEN 315, and PETE 311. Corequisite: MATH 308.
- 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 interactions such as adsorption and absorption. Prerequisites: MATH 251, and PHYS 208 with a grade of C or better. Corequisite: GEOL 104.
- 314. Transport Processes in Petroleum Production. (3-0). Credit 3.** Basics and applications 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 (heat conduction, convection, heat exchangers); emphasis on analogies and similarities within mass, energy and momentum transport. Prerequisites: MEEN 315; junior or senior classification; petroleum engineering majors only; or approval of instructor.
- 321. Formation Evaluation. (3-3). Credit 4.** Well-log interpretation for formation evaluation of hydrocarbon-bearing reservoirs; basic rock physics principles; theory of tool operation; analysis of open hole logs and core measurements to estimate hydrocarbon reserves and petrophysical properties of the formation such as porosity, net pay thickness, water/hydrocarbon saturation, permeability and saturation-dependent capillary pressure; formation evaluation of clay-free and shaly-sand formations as well as basic introduction to formation evaluation of organic-shale formations. Prerequisites: PETE 301, PETE 310, PETE 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. Fundamentals of Reservoir Engineering. (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; introduction and performance analysis of unconventional reservoirs. Prerequisites: PETE 301, PETE 310 and PETE 311; GEOL 404; junior or senior classification; petroleum engineering majors only; or approval of instructor.
- 324. Well Testing. (3-0). Credit 3.** Analysis of well performance under varied reservoir conditions including evaluation of unsteady, pseudo-steady and steady state flow; well testing methods used to determine well and reservoir parameters; applications to conventional and unconventional wells producing gas and/or liquids; fundamentals of preparing and operating well test equipment to monitor, measure and gather samples for evaluating well performance. Prerequisites: PETE 301, PETE 310, PETE 311; GEOL 404; junior or senior classification; petroleum engineering majors only; or approval of instructor.

- 325. Petroleum Production Systems. (2-3). Credit 3.** Petroleum operation and oil field equipment including onshore and offshore production systems; wellbore inflow and outflow and backpressure analysis; down-hole completion and sand control equipment; artificial lift equipment and design; stimulation, workover/completion nomenclature; flow assurance; produced fluids, fluid separation and metering, safety systems, pressure boosting and monitoring. Prerequisites: PETE 301, PETE 310 and PETE 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 proposal on a subject related to petroleum technology and an oral presentation of the proposal in a formal technical conference format. Prerequisites: COMM 203, COMM 205 or ENGL 210; junior or senior classification.
- 336. Petroleum Technical Presentations I. (0-3). Credit 1.** Preparation of a written technical paper on a subject related to petroleum technology. Prerequisite: ENGL 210; junior or senior classification; petroleum engineering majors only; or approval of department head.
- 337. Junior Student Paper Contest. No Credit.** Presentation of a technical proposal on a subject related to petroleum technology judged by petroleum professionals at the junior level departmental student paper contest. Must be taken on a satisfactory/unsatisfactory basis. Prerequisite: PETE 335.
- 353. Petroleum Project Evaluation. (3-0). Credit 3.** Economic analysis and investment decision methods in petroleum and mineral extraction industries; depletion, petroleum taxation regulations, and projects of the type found in the industry; mineral project evaluation case studies. Corequisites: PETE 301, PETE 310.
- 355. Drilling Engineering. (3-0). Credit 3.** Design and evaluation of well drilling systems; identification and solution of drilling problems; wellbore hydraulics, well control, casing design; well cementing directional drilling, offshore drilling. Prerequisites: CVEN 305, PETE 225 and PETE 314. Corequisites: PETE 321, PETE 325.
- 401. Reservoir Simulation. (1-3). Credit 2.** 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, PETE 321, PETE 323, PETE 324 and PETE 353.
- 402. Integrated Asset Development. (1-6). Credit 3.** Capstone design encompassing previously acquired skills; project teams formed to solve practical petroleum engineering problems using current tools; technical content of the projects may include any combination of drilling and completion, formation evaluation, inflow/outflow design and analysis, and application of reservoir engineering principles. Prerequisites: PETE 355, PETE 401, PETE 404 and PETE 410.
- 404. Integrated Reservoir Modeling. (3-0). Credit 3.** Geophysical, geological, petrophysical and engineering data with geostatistical methods to create reservoir descriptions for dynamic reservoir modeling (simulation); geostatistical concepts such as variogram modeling, kriging and sequential Gaussian simulation; combines several techniques to quantify uncertainty in a realistic dynamic reservoir simulation. Corequisite: PETE 401.
- 406. High Performance Drilling Design and Operational Practices. (3-0). Credit 3.** Preparation in achieving differentiating drilling performance in the most complex wells; includes training in the underlying physics of each type of performance limiter and real-time and engineering practices to address the limitation; performance management workflows and change models required to effectively change the way organizations conduct work essential in achieving higher performance. Prerequisite: PETE 355.
- 410. Production Engineering. (3-0). Credit 3.** Fundamental production engineering design, evaluation and optimization for oil and gas producing well; well deliverability; formation damage and skin analysis; well completion selection; technologies that improve oil and gas well performance including artificial lift and well stimulation. Prerequisites: PETE 321, PETE 323, PETE 324 and PETE 325.
- 412. Surface Production Facilities. (3-0). Credit 3.** Overview of separation and treatment of production fluid; fundamentals of gas-liquid separation; design and performance analysis of two- and three-phase separators; oil desalting, sweetening and stabilization; water treatment; overview of gas separation, dehydration and sweetening. Prerequisite: Senior classification and approval of instructor.

- 416. Solving Common Production Engineering Problems. (3-0). Credit 3.** Application of petroleum engineering tools, methods and techniques to solve real problems that petroleum engineers encounter in producing individual wells; focus primarily on problems associated with single-phase gas wells and uses Microsoft Excel to solve many of these problems. Prerequisite: PETE 410.
- 435. Technical Presentations II. (1-0). Credits 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. Prerequisites: PETE 335; satisfactory performance in junior student paper contest.
- 436. Petroleum Technical Presentations II. (0-3). 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. Prerequisites: PETE 336; senior classification; petroleum engineering majors only; or approval of department head.
- 437. Senior Student Paper Contest. No credit.** Presentation of a technical petroleum engineering topic judged by petroleum professionals at the senior level departmental student paper contest. Must be taken on a satisfactory/unsatisfactory basis. Prerequisite: PETE 435. Corequisite: PETE 436.
- 458. Energy and Sustainability. (3-0). Credit 3.** Energy resources and use with emphasis on long-term sustainability; considers fossil, nuclear and alternative energy sources, electricity and transportation, energy conversions, energy efficiency, energy security, and energy policy and environmental impact.
- 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. Belic, W. Krolikowski, H. Nha; **Research Professor** O. Bouhali; **Associate Professor** S. Tzortzakakis

- 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.
- 221. Optics and Thermal Physics. (3-0). Credit 3.** Wave motion and sound, geometrical and physical optics, kinetic theory of gases, laws of thermodynamics. Prerequisites: PHYS 208, MATH 152 or MATH 172; registration in MATH 221 and MATH 308.
- 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.

- 491. Research. Credit 0 to 4.** Research conducted under the direction of a faculty member in physics. May be repeated 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.

### **Political Science (POLS)**

**Associate Professors** H. Bashir, J. Rogers; **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.

### **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)**

- 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. Credit 0 to 3.** 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. May be taken two times for credit. Prerequisite: Freshman classification or approval of instructor.



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# Graduate Course Descriptions

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All graduate courses offered at Texas A&M at Qatar 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 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.

## 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. Fundamentals and 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 461 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.
- 634. Multiphase Reactors. (3-0). Credit 3.** Laboratory reactors; mixing phenomena in multiphase reactors; tracer techniques in chemical reactor characterization; trickle bed reactors; two-phase and three-phase fluidized bed reactors; bubble columns; slurry reactors. Prerequisite: CHEN 624 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 or approval of instructor.
- 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.
- 645. Thermodynamics of Oil and Gas and Water Systems. (3-0). Credit 3.** Techniques to predict the thermodynamic properties of oil and gas and aqueous saline systems; characterization of petroleum fluids; effect of surface tension and confinement; gas hydrate formation, and thermodynamic models for aqueous electrolyte and their application to phase equilibrium calculations. 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. Prerequisite: 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 the 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 and instructor.
- 689. Special Topics in. . . Credit 1 to 4.** Selected topics in particular areas of chemical engineering. May be repeated for credit. Prerequisite: 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.

2017–2018

**Faculty**  
Undergraduate and Graduate



**TEXAS A&M**  
UNIVERSITY *at* QATAR

EDITION 140Q

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# Undergraduate Faculty

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- Abu-Rub, Haitham**, Professor. Electrical and Computer Engineering. Ph.D., Gdansk University, 2004.
- Ahmed, Beena**, Assistant Professor. Electrical and Computer Engineering. Ph.D., University of New South Wales, 2004.
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**Lee, Hyun Wu**, Visiting Assistant Professor. History. Ph.D., Texas A&M University, 2014.

**Linke, Patrick**, Professor. Chemical Engineering. Ph.D., University of Manchester, 2001.

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**Masad, Eyad**, Professor. Mechanical Engineering. Ph.D., Washington State University, 1998.

**Mir, Nordine**, Professor. Mathematics. Ph.D., University of Rouen, 1998.

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