جامعة
حمد بن خليفة
HAMAD BIN KHALIFA
UNIVERSITY

عضو في مؤسسة قطر
Member of Qatar Foundation

2025 – 2026
University Catalog

HOME

Hamad Bin Khalifa University (HBKU) a member of Qatar Foundation for Education, Science, and Community Development (QF), was founded in 2010 to continue fulfilling QF's vision of unlocking human potential. HBKU is a homegrown research and graduate studies University that acts as a catalyst for positive transformation in Qatar and the region while having a global impact.

Located within Education City, HBKU seeks to provide unparalleled opportunities where inquiry and discovery are integral to teaching and learning at all levels utilizing a multidisciplinary approach across all focus areas.

HBKU is committed to actively contribute to achieving the Qatar National Vision 2030 by building and cultivating human capacity through an enriching academic experience and an innovative research ecosystem. Through applying creativity to knowledge, students will have the opportunity to discover innovative solutions that are locally relevant and have a global impact.

At Hamad Bin Khalifa University – our students, faculty, staff, partners, and leadership – all share a common belief in the power of higher education and research to make a positive impact in the development of nations. For more information, click here (https://www.hbku.edu.qa/en/about/).

About the Catalog

The online catalog is an academic planning resource provided for informational purposes only and does not constitute a contract. Information was current at the time of publication and is subject to change.

Who to Contact

General questions about the Academic Catalog can be directed to the Registrar Office at Registraroffice@hbku.edu.qa

TABLE OF CONTENTS

ACADEMIC CALENDAR

The 2025-2026 Approved Academic Calendar

*** Summer semesters will be listed based on approval of the Provost.*

Date	Action
Sunday, August 17, 2025	New student Registration
Sunday, August 17, 2025	Start of advising week for new students
Wednesday, August 19, 2025	New graduate Student Orientation(Tentative)
Sunday, August 24, 2025	Fall classes begin
Sunday, August 24, 2025	Open Add/Drop Week
Thursday, August 28, 2025	Last Day to submit approved "Transfer Credit Requests" to the Registrar's Office - Fall
Thursday, August 28, 2025	Last Day to receive Audit requests for non-HBKU students
Thursday, September 04, 2025	Last Day to add a course on-line for graduate students
Thursday, September 04, 2025	Last Day to drop a course without it appearing on record with no financial penalty
Thursday, September 11, 2025	Last Day to add a regular class at the Registrar Office with instructor, program coordinator and Dean's approval
Thursday, September 11, 2025	Last Day to apply for Leave of Absence
Thursday, September 18, 2025	Deadline to drop or withdraw courses with a 25% tuition penalty
Sunday, September 21, 2025	Fall Graduation Application open online
Thursday, October 2, 2025	Last Day to withdraw a courses with a 50% tuition penalty
Sunday, October 12, 2025	Fall break – no classes
Sunday, October 19, 2025	Fall Classes resume
Thursday, October 27, 2025	Open information sessions for Fall Graduates
Thursday, November 06, 2025	Last day to complete graduation application for Fall graduates
Thursday, November 6, 2025	Deadline to drop or withdraw courses with a 75% tuition penalty
Friday, November 7, 2025	Start of 100% financial penalty for withdrawn courses
Sunday, November 16, 2025	Financial holds to be placed on student records for outstanding payments (Fall)
Thursday, November 20, 2025	Last day to withdraw a course with a grade of (W)
Thursday, November 20, 2025	Official Spring 2026 Class schedule available online
Sunday, November 23, 2025	Course Evaluations Live for Fall semester
Sunday, November 23, 2025	Registration for Spring opens
Sunday, November 23, 2025	Deadline to submit Change of Major Forms to The Registrar's Office (to be applicable the following semester)
Thursday, December 4, 2025	Deadline to complete Pro-Quest and Similarity Index for Fall Graduates
Thursday, December 4, 2025	Deadline to complete Fall course evaluations
Thursday, December 4, 2025	Last day of classes
Sunday, December 7, 2025	Final exam week
Sunday, December 7, 2025	Deadlines to receive exams results (Qualifying & Candidacy)
Sunday, December 7, 2025	Deadline to complete University Clearance for Fall Graduates
Thursday, December 11, 2025	Deadline For Pending Incomplete Grades to Become Failing Grades (Grades for courses taken in Spring)
Wednesday, December 17, 2025	Final grades available online
Thursday, December 18, 2025	Qatar National Day
Thursday, January 1, 2026	Fall Diplomas and Graduation Statements available
Sunday, January 04, 2026	Spring Semester Classes Begin
Thursday, January 8, 2026	Deadline to submit approved "Transfer Credit Requests" to the Registrar's Office - Spring
Thursday, January 8, 2026	Deadline to receive Audit requests for non-HBKU students for Spring 2024
Thursday, January 15, 2026	Last day to add a regular class on-line
Thursday, January 15, 2026	Deadline to drop courses without financial penalty
Thursday, January 15, 2026	Last day to drop a course without it appearing on record
Thursday, January 15, 2026	Last day to update N grades before an (F) is applied for late Fall grades
Thursday, January 22, 2026	Last day to apply for Leave of Absence for Spring 2026

Thursday, January 22, 2026	Last day to add a regular class at the Registrar Office with instructor, program coordinator and Dean's approval
Thursday, January 29, 2026	Deadline to drop or withdraw courses with a 25% tuition penalty
Sunday, February 01, 2026	Spring Graduation Application Open online
Tuesday, February 10, 2026	Qatar National Sports Day – no classes
Thursday, February 12, 2026	Deadline to drop or withdraw courses with a 50% tuition penalty
Sunday, February 22, 2026	Spring Break – no classes
Sunday, March 1, 2026	Spring Classes resume post spring break
Tuesday, March 03, 2026	Open information sessions for Graduates
Sunday, March 15, 2026	Deadline to complete graduation application for Spring graduates
Thursday, March 19, 2026	Deadline to drop or withdraw courses with a 75% tuition penalty
Friday, March 20, 2026	Start of 100% financial penalty for dropped courses
Friday, March 20, 2026	Eid Al Fitr (Tentative)
Sunday, March 29, 2026	Spring Classes resume post Eid Alfitr
Sunday, April 5, 2026	Financial holds to be placed on student records for outstanding payments (Spring 2025)
Thursday, April 09, 2026	Last day to drop a course with a grade of (W)
Thursday, April 09, 2026	Official Fall 2026 class schedule available online
Sunday, April 12, 2026	Course Evaluations Live for Spring semester
Sunday, April 12, 2026	Last day for college to validate the list of Spring graduates
Sunday, April 12, 2026	Registration for Fall and Summer Starts
Wednesday, April 22, 2026	Last day to submit "Change of Major Form" to The Registrar's Office (to be applicable the following semester)
Thursday, April 23, 2026	Deadline to complete Pro-Quest and Similarity Index for Spring Graduates
Thursday, April 23, 2026	Last day to complete Spring course evaluations
Thursday, April 23, 2026	Last day of classes
Sunday, April 26, 2026	Final exam week
Sunday, April 26, 2026	Last Day to complete University Clearance for Spring Graduates
Sunday, April 26, 2026	Last Day to receive exams results (Qualifying & Candidacy)
Sunday, May 3, 2026	Final grades submission by faculty
Tuesday, May 05, 2026	Qatar Foundation Convocation (Tentative)
Thursday, May 07, 2026	Final grades available online
Sunday, May 10, 2026	HBKU Graduation 2025 (Tentative)
Sunday, May 10, 2026	Eid Al Adha (Tentative)
Monday, June 1, 2026	Spring Diplomas and Graduation Statements available

GENERAL INFORMATION

About the University

Hamad Bin Khalifa University (HBKU), a member of Qatar Foundation for Education, Science, and Community Development (QF), was founded in 2010 to continue fulfilling QF's vision of unlocking human potential. HBKU is a homegrown research and graduate studies University that acts as a catalyst for positive transformation in Qatar and the region while having a global impact.

Located within Education City, HBKU seeks to provide unparalleled opportunities where inquiry and discovery are integral to teaching and learning at all levels utilizing a multidisciplinary approach across all focus areas.

HBKU is committed to actively contribute to achieving the Qatar National Vision 2030 by building and cultivating human capacity through an enriching academic experience and an innovative research ecosystem. Through applying creativity to knowledge, students will have the opportunity to discover innovative solutions that are locally relevant and have a global impact.

At Hamad Bin Khalifa University – our students, faculty, staff, partners, and leadership – all share a common belief in the power of higher education and research to make a positive impact in the development of nations.

For more information, click here (https://www.hbku.edu.qa/en/about-hamad-bin-khalifa-university/).

Admission

At Hamad Bin Khalifa University, our people are our greatest strength, and when you enroll on an academic program at HBKU you become part of a thriving community that is committed to excellence and innovation. Freshman Admission Requirements.

To learn about the admission requirements for each of our programs, click here (https://www.hbku.edu.qa/en/admissions/).

HBKU Registrar's Office

The office provides students, faculty, advisors, and administrators with services pertaining to registration, courses scheduling, maintenance of the university catalog, and management of student records as well as issuing official student documents. The Registrar's Office provides these instructions every semester to cover the updates and new instructions for the registration process.

For information on the functions offered by the Registrar's Office, click here (https://www.hbku.edu.qa/en/academics/registrars-office/).

Tuition and Fees

The tuition at HBKU is assessed on a credit hour basis. For detailed information on cost of each academic program, click here (https://www.hbku.edu.qa/en/tuition-fees/).

Scholarships

Hamad Bin Khalifa University is dedicated to assisting students in navigating financial support for their degrees.

Information on financial support for Bachelor's degrees please contact: fao@qf.org.qa

Graduate student scholarships may include a tuition waiver applied to reduce the tuition costs for the students and a stipend paid directly to the student. Generally, graduate students receiving a stipend would also be provided with a tuition waiver.

Tuition Waivers

Tuition waivers are standardized across HBKU. Self-sponsored graduate students are only eligible for a discounted tuition rate of 2,000 QAR per credit hour based on financial need. These guidelines do not apply to students funded by external sources. Students should follow the policies of their sponsors as applicable.For more information on scholarship , tuition waivers click here (https://www.hbku.edu.qa/en/scholarship/).

Academic Policies

The university Academic Policies govern processes related to students, faculty and various functions of the university. For the full listing of the Academic policies relevant to this catalog, click here (https://www.hbku.edu.qa/en/academic-policies/).

ACADEMIC DEGREES

Program	Degrees & Graduate Certificates	College	Division
Computer Engineering, Bachelor of Science (p. 106)	Bachelors	College of Science and Engineering	Information and Computing Technology
Counseling Psychology, Master of Arts (p. 58)	Masters	College of Islamic Studies	Islamic Studies
Applied Islamic Ethics, Master of Arts (p. 57)	Masters	College of Islamic Studies	Islamic Studies
Biological and Biomedical Sciences, Master of Science (p. 32)	Masters	College of Health and Life Sciences	Biological and Biomedical Sciences
Biological and Biomedical Sciences, PhD (p. 34)	Doctoral	College of Health and Life Sciences	Biological and Biomedical Sciences
Biopsychology and Neuroscience, Master Of Science (p. 33)	Masters	College of Health and Life Sciences	Biological and Biomedical Sciences
Biopsychology and Neuroscience,Phd (p. 35)	Doctoral	College of Health and Life Sciences	Biological and Biomedical Sciences
Chemical Engineering, Bachelor of Science (p. 115)	Bachelors	College of Science and Engineering	Sustainable Development
Computer Science and Engineering, PhD (p. 108)	Doctoral	College of Science and Engineering	Information and Computing Technology
Contemporary Islamic Studies, Master of Arts (p. 57)	Masters	College of Islamic Studies	Islamic Studies
Cybersecurity, Master of Science (p. 111)	Masters	College of Science and Engineering	Information and Computing Technology
Data Science and Engineering, Master of Science (p. 112)	Masters	College of Science and Engineering	Information and Computing Technology
Digital Humanities and Societies, Master of Arts (p. 21)	Masters	College of Humanities and Social Sciences	Middle Eastern Studies
Electrical Engineering,Bachelor of Science (p. 109)	Bachelors	College of Science and Engineering	Information and Computing Technology
Exercise Science, Master of Science (p. 35)	Masters	College of Health and Life Sciences	Exercise Science
Genomics and Precision Medicine, Master of Science (p. 36)	Masters	College of Health and Life Sciences	Genomics and Precision Medicine
Genomics and Precision Medicine, PhD (p. 37)	Doctoral	College of Health and Life Sciences	Genomics and Precision Medicine
Global Health Policy, MGH (p. 127)	Masters	College of Public Policy	Public Policy
Health Management, Master of Data Analytics (p. 113)	Masters	College of Science and Engineering	Information and Computing Technology
Health Management, Master of Information Systems (p. 114)	Masters	College of Science and Engineering	Information and Computing Technology
Humanities and Social Sciences, PhD (p. 20)	Doctoral	College of Humanities and Social Sciences	Humanities and Social Sciences
Intercultural Communication, Master of Arts (p. 22)	Masters	College of Humanities and Social Sciences	Translation and Interpreting Studies
International Economic and Business Law, L.L.M (p. 68)	Masters	College of Law	Law
International Law and Foreign Affairs, L.L.M (p. 69)	Masters	College of Law	Law
Islam and Global Affairs, Master of Arts (p. 60)	Masters	College of Islamic Studies	Islamic Studies
Islamic Art, Architecture and Urbanism, Master of Science (p. 60)	Masters	College of Islamic Studies	Islamic Studies

Islamic Finance and Economy, PhD (p. 54)	Doctoral	College of Islamic Studies	Islamic Finance
Islamic Finance, Graduate Certificate (p. 56)	Graduate Certificate	College of Islamic Studies	Islamic Finance
Islamic Finance, Master of Science (p. 55)	Masters	College of Islamic Studies	Islamic Finance
Islamic Psychology and Psychotherapy, Graduate Certificate (p. 63)	Graduate Certificate	College of Islamic Studies	Islamic Studies
Islamic Studies, Graduate Certificate (p. 62)	Graduate Certificate	College of Islamic Studies	Islamic Studies
Islamic Studies, PhD (p. 61)	Doctoral	College of Islamic Studies	Islamic Studies
Juris Doctor (p. 70)	Doctoral	College of Law	Law
Law, Doctor of Juridical Science (S.J.D) (p. 71)	Doctoral	College of Law	Law
Logistics and Supply Chain Management, Master of Science (p. 102)	Masters	College of Science and Engineering	Engineering Management and Decision Sciences
Logistics and Supply Chain Management, PhD (p. 105)	Doctoral	College of Science and Engineering	Engineering Management and Decision Sciences
Mechanical Engineering, Bachelor of Science (p. 103)	Bachelors	College of Science and Engineering	Engineering Management and Decision Sciences
Public Policy, MPP (p. 125)	Masters	College of Public Policy	Public Policy
Social Policy and Program Evaluation, MSPPE (p. 126)	Masters	College of Public Policy	Public Policy
Sport and Entertainment Management, Master of Science (p. 105)	Masters	College of Science and Engineering	Engineering Management and Decision Sciences
Sustainable Energy, Master of Science (p. 116)	Masters	College of Science and Engineering	Sustainable Development
Sustainable Energy, PhD (p. 118)	Doctoral	College of Science and Engineering	Sustainable Development
Sustainable Environment, Master of Science (p. 119)	Masters	College of Science and Engineering	Sustainable Development
Sustainable Environment, PhD (p. 120)	Doctoral	College of Science and Engineering	Sustainable Development
Translation for the Creative Industries, Master of Arts (p. 23)	Masters	College of Humanities and Social Sciences	Translation and Interpreting Studies
Women, Society and Development, Master of Arts (p. 21)	Masters	College of Humanities and Social Sciences	Middle Eastern Studies

A

- Applied Islamic Ethics, Master of Arts (p. 57)

B

- Biological and Biomedical Sciences, Master of Science (p. 32)
- Biological and Biomedical Sciences, PhD (p. 34)
- Biopsychology and Neuroscience, Master Of Science (p. 33)
- Biopsychology and Neuroscience,Phd (p. 35)

C

- Chemical Engineering, Bachelor of Science (p. 115)
- Computer Engineering, Bachelor of Science (p. 106)
- Computer Science and Engineering, PhD (p. 108)
- Contemporary Islamic Studies, Master of Arts (p. 57)
- Counseling Psychology, Master of Arts (p. 58)
- Cybersecurity, Master of Science (p. 111)

D

- Data Science and Engineering, Master of Science (p. 112)
- Digital Humanities and Societies, Master of Arts (p. 21)

E

- Electrical Engineering,Bachelor of Science (p. 109)
- Exercise Science, Master of Science (p. 35)

G

- Genomics and Precision Medicine, Master of Science (p. 36)
- Genomics and Precision Medicine, PhD (p. 37)
- Global Health Policy, MGH (p. 127)

H

- Health Management, Master of Data Analytics (p. 113)
- Health Management, Master of Information Systems (p. 114)
- Humanities and Social Sciences, PhD (p. 20)

I

J

L

M

P

S

T

W

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES (CHSS)

The College of Humanities and Social Sciences (CHSS) was established with a vision to enrich society in Qatar and across the wider world with transformative educational experiences that bridge disciplinary boundaries, and offer the academic community opportunities to engage in innovative research and collaboration. The college aspires to nurture a diverse body of academically grounded and socially responsible global citizens, whose versatility will enable them to navigate the complexities of today's world and become tomorrow`s leaders.

For more information, click here (https://www.hbku.edu.qa/en/chss/about/).

Programs

- Digital Humanities and Societies, Master of Arts (p. 21)
- Humanities and Social Sciences, PhD (p. 20)
- Intercultural Communication, Master of Arts (p. 22)
- Translation for the Creative Industries, Master of Arts (p. 23)
- Women, Society and Development, Master of Arts (p. 21)

Courses

Arabic

ARAB 150 Arabic for Professional Communication **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to develop proficiency in spoken and written Arabic and to enhance student's communication skills in professional settings. It focuses on building language competence and performance through learning essential vocabulary, grammar structures, cultural insights, and practical application in professional settings. Emphasis will be placed on developing listening, speaking, reading, and writing skills with a focus on professional conversations, intercultural nuances, and formal presentations. Interactive activities such as role-plays, group discussions, and multimedia resources are utilized to reinforce language skills and understanding. The course introduces foundational translation strategies that facilitate intercultural understanding between Arabic and students' languages.

ARAB 152 Arabic Linguistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Arabic Linguistics is a foundation course designed for students with little or no background in Linguistics. It aims at introducing students to the grammatical system of Arabic, focusing on morphology (word formation) and syntax (sentence structure), levels of meaning (semantics), cohesion as well as the social aspects of Arabic language use and how language varies depending on factors like dialect, register, and social context.

Chinese

CHN 211 Chinese Beginner 1 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

There are two main pillars of this beginner 1 course: the pinyin system for pronunciation and the basic radicals for recognizing the most frequently used Chinese characters. Students are to practice pinyin until they can record what they hear in Chinese and turn them into characters in a machine-assisted application for recognition. In this regard, mastering basic radicals help students choose right words. The main goal of the course is to lay a solid foundation for further Chinese learning.

CHN 212 Chinese Beginner 2 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

In this course, students will expand vocabulary, acquire basic sentence structures and patterns, and learn new expressions and grammatical points through repeating the key words in the texts and applying them to communicative situations. The course is designed for students to recognize more Chinese characters and their related vocabulary. Social media such as WeChat and WhatsApp are used to input pinyin and then choose targeted words, in order to increase students' recognition speed and accuracy of Chinese characters.

Communication

COMM 110 Language, Identity, and Communication in Qatar **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course examines the relationship between language, identity, and communication in the Gulf, focusing on Qatar. Students will explore how different language practices reflect and shape the cultural identities of diverse ethnic, national, and social groups. The dynamics of multilingualism, language ideologies, and policies will be analyzed in the context of migration, globalization, and modernization. Special attention is given to Arabic multiglossia, and the roles of English and other migrant languages in shaping both linguistic practices and identities, as well as intercultural communication in the region. Through interactive discussions, language documentation activities, and community-engagement projects, students will critically engage with Qatar's sociolinguistic landscape, enhancing their multilingual communication skills and understanding of how language shapes identities.

COMM 115 Language and Islamic Identities **3 Credits**
Grade Mode: Standard Letter

Digital Humanities & Societies

DHS 622 Digital Communication and Media **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Digital communication has transformed many aspects of representation and broadcasting, challenging existing roles, methodologies and practices of the media industry. This course will examine both theoretical and practical aspects of digital media and communication. Through real-life examples and case studies focusing on the Middle East, students will explore the impact of user-generated content and social media, the role of digital cultures in political transformations, the effect of mass digitization, and challenges in digital publishing.

DHS 623 Methods in Digital Humanities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The Digital Humanities is a huge and growing field spanning many disciplines and skill sets. The focus of this course is on tools and methods that allow students to collect, create and analyze textual corpora as purveyors of stories, information. This is the point of view often taken by analysts who work for universities, think tanks and intelligence agencies who seek to understand cultural trends and mindsets from volumes of digital texts. For such analysts, close reading is an indispensable part of their work and computing tools help focus their reading while reading helps refine their understanding of the computer output. The course will give students intensive practice with methods and tools for collecting and analyzing corpora of text at the word and sentence level, and with working with large scalable dictionaries. The students will be also introduced to an array of practical Digital Humanities Tools and Applications

DHS 624 The Global Digital Transformation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the dynamics and implications of digital transformation from a global comparative perspective, engaging with case studies and trends across international contexts, including the Middle East, Europe, East Asia, and North America. Students will critically explore how digital innovations are reshaping political economies, redefining the role of the state, and transforming international relations and foreign policy. Topics include the rise of artificial intelligence, digital governance frameworks, data ethics, and the geopolitical implications of digital technologies.

DHS 651 Emerging Technologies and Applications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

There is now widespread recognition that digital technologies have profoundly changed the way we produce content, share information, interact with each other's, develop and commercialize products and services, create knowledge or financial value, while defining new environments for these functions to flourish. The course discovers how political, social, economic, financial powers and knowledge are reshaped in our contemporary digital era. The course introduces students to the need of digitalization, continuously developing platforms and the fundamental knowledge of emerging new realities.

DHS 652 Digital Publishing and Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides students with a comprehensive foundation of layout and design principles to integrate digital media essential for effective print-based and web based business publications. The students will learn the graphic terminology, type specification, and evolution of the printed piece from concept to final printed project. An overview of the industry standard software will be introduced to understand the basics of web pages creation, page layout and design and various methods of reproduction for print and electronic delivery.

DHS 654 Civil Society and Digital Activism **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to study how the 'cyberspace' theory and 'new media' have empowered societies to impose change and development on regional or global scales in a variety of domains. The course introduces the students to the effective role of social media ranging from websites, social networking apps, and collaborative platforms to promote and state positions toward theoretical fields, such as: empowerment of minorities, racism, feminism, global crises, climate and environmental change, emerging industries, peer-to-peer production, urbanism, and self-development.

DHS 655 Exploring Digital Heritage Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses the needs of a growing cultural heritage industry; it provides opportunities to develop skills in which the material or tangible objects and digital culture relate. The course focuses on a wide spectrum of topics, starting with archaeology, arts, museum collections, historical data archiving, and built heritage. This course explores the techniques of how the tangible heritage is represented, transmitted and perceived in the digital world

DHS 656 Introduction to Human Language Technologies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is an introduction to the most important problems involved in Human Language Technologies (HLT) with a focus on the Arabic language. We will present the techniques and resources used and the theories they are based on. The course includes an overview of Natural Language applications. We will also explore the relationship between language and technology including language learning and speech technologies. Topics include machine translation, automatic speech recognition and generation, dialog systems as well as language technologies

DHS 657 Coding for Humanities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will provide students the technical skills necessary to conduct quantitative research in digital humanities and societies. In particular, this course will introduce students to the basic coding skills needed to be considered in any professional career nowadays. As an introductory programming course, we will introduce common practices to extract and collect raw data from a variety of digital sources, to organize, clean, explore, analyze, visualize and interpret such data, and to infer sensible information and draw conclusions

DHS 658 Digital Resources in the Humanities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores a broad spectrum of perspectives on the digital humanities engage with a variety of digital humanities tools in order to choose the most appropriate technology to facilitate different work in different situations in order to develop familiarity with a range of digital humanities projects, as well as the ability to evaluate the tools and methods involved in creating those projects and become more thoughtful.

DHS 659 Digital Innovation and Transformation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides analytical tools and frameworks to help students gaining a sound understanding of the potential and place of new developments and knowledge production in social media and digital industries. Students will appreciate the importance of innovation as a target and the way knowledge management will contribute to this innovation. Students will see knowledge as a commodity and how this commodity can be managed

DHS 660 Digital Disinformation and Propaganda in the Middle East and North Africa **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This module combines practical and academic skills for students with no prior knowledge of the region to engage with contemporary debate on the ideas of digital propaganda, PR, and surveillance. It is designed for those interested in being able to tackle concerns about fake news, media distortions, and information hegemony in both the Middle East and the wider global context. The course consists of lectures, class discussions/seminars and student presentations. The module is suitable for interdisciplinary pathways, and incorporate current debates in both media and politics

DHS 661 Digital Writing **3 Credits**
Grade Mode: Standard Letter

The course is called “Digital Writing” because it will employ state of the art technology that allows students to investigate their writing patterns in terms of topical structure and the various textural gestures (stance, sentiment, emotion, mood, register cues, genres cues) writers can use to embellish the topical structure.

DHS 662 Arabic Natural Language Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an in-depth exploration of Natural Language Processing (NLP) with a focus on the Arabic language. Students will examine the unique linguistic features of Arabic, including its script, morphology, syntax and how these influence computational processing. The course covers essential NLP tasks such as tokenization, morphological analysis, and syntactic parsing emphasizing challenges and solutions specific to Arabic. Through theoretical study and practical assignments, students will gain the skills necessary to develop and evaluate NLP applications tailored for Arabic.

DHS 669 Independent Research Project **3 Credits**
Grade Mode: Pass/Non Pass

The Digital Humanities and Societies program requires students to either undertake an internship or an independent research project. This course allows students to explore their specific research interests within a relative field through a research agenda. The student will work closely with academic advisor and supervisor to implement this project within a given time period. The project may be capitalized on for the purposes of the thesis.

DHS 691 Internship **3 Credits**
Grade Mode: Pass/Non Pass

The Digital Humanities and Societies program requires students to either undertake an internship or an independent research project. This course allows students to explore their specific research interests within a relative field through a research agenda. The student will work closely with academic advisor and supervisor to implement this project within a given time period. The project may be capitalized on for the purposes of the thesis.

DHS 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Designed like an independent study, this course supports students in their endeavor to conduct research in the field of Digital Humanities. Students can produce a research-based thesis or a project-based thesis of up to 15,000 words or equivalent. The thesis should showcase the student's ability to collect/assess data, build an argument; and critically apply the main theories in their area of study. The thesis is an opportunity for students to gain the requisite skills necessary for writing a publishable article.

Economics

ECON 110 Economic Principles **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to essential concepts and tools used in microeconomic and macroeconomic analysis. Microeconomics deals with the behaviour of individual economic agents (persons, households and businesses) and shows how resources are allocated by the price mechanism through the interaction of consumer and producer decisions (demand and supply forces) under different market structures. Macroeconomics, however, deals with economics at an aggregate level focusing on such topics as the determinants of national income and economic growth, and the effects of fiscal and monetary policies on unemployment and inflation under different exchange rate regimes.

English

ENGL 101 English for Academic Purposes **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course builds a strong foundation in academic reading, writing, and grammar in preparation for ENGL 114. Students will improve vocabulary, reading comprehension, and critical thinking through text analysis. Writing instruction emphasizes the writing process, organization, and clarity. Speaking and listening skills are developed through class discussions, presentations, and collaborative projects.

ENGL 114 Composition and Rhetoric **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course focuses on the creation of referential and persuasive researched essays. Students will develop their analytical reading ability, critical thinking, and library research skills. Through various writing assignments and activities, the course aims to enhance students' ability to construct well-supported arguments and effectively communicate their ideas.

ENGL 115 Creative and Digital Writing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to develop students' fluency with major patterns of English prose, patterns that underlie the range of genres of English (e.g., journals profiles, plays, histories, fiction, exposition, scenic writing, technical writing, instructions, computer documentation, business policy, and argument). Students learn how mastery of these patterns creates powerful experiences for readers, and learn to recognize, discuss, and produce these patterns in a supportive and friendly workshop atmosphere. Students will learn that language "errors" (in grammar, word choice, sentence arrangement, and paragraph arrangement) are best noticed and treated as "bumps" that hinder the reader's understanding or enjoyment of the text.

ENGL 220 Technical Writing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course provides engineering students with the essential skills for effective technical communication. Focusing on the principles and practices of technical writing, students will learn to produce clear, concise, and well-organized documents, including reports, manuals, and technical proposals. The course emphasizes the importance of audience analysis, proper documentation, and the integration of visuals to enhance understanding. Through practical assignments and projects, students will develop the ability to convey complex technical information accurately and persuasively.

French

FREN 211 French Beginner 1 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The French Beginner 1 course is designed to provide learners with sufficient linguistic competencies to understand and use daily expressions frequently used in any part of the French-speaking world with the goal of satisfying immediate needs. This course corresponds to A1.1 of the Common European Framework of Reference for Languages (CEFR) and Novice Low-Mid on the scale of the American Council of Teaching Foreign Languages.

FREN 212 French Beginner 2 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This French Beginner 2 course continues the Beginner series and builds upon French Beginner 1. It is designed to provide learners with the linguistic competencies to understand and use a wider range of daily expressions frequently used in any part of the French-speaking world with the goal of satisfying immediate needs. This course corresponds to A1.2 of the Common European Framework of Reference for Languages (CEFR) and to Novice High on the scale of the American Council of Teaching Foreign Languages (ACTFL).

History

HIST 107 World History **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the global past from the emergence of agriculture to the challenges of the contemporary period. Students will examine key events, and themes that have shaped human society, focusing on the interactions and interconnections between various civilizations across time and space. The course places equal emphasis on the histories of the Middle East, East Asia, Africa, and the Western world. Students will develop an understanding of political, economic, social, cultural, and environmental aspects of world history. The course cultivates critical thinking, and historical reasoning enabling students to interpret the complexities of our shared human experience.

Humanities and Social Sciences

HSS 701 Proseminar **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The proseminar is designed to introduce first-year PhD students to cutting-edge research across the humanities and social sciences through presentations from a rotating selection of visiting scholars. In addition to expanding conceptual knowledge, these seminars provide a forum for students to be exposed to key issues in the research process. Students also build critical analysis abilities, synthesize across disciplines, and hone clear communication skills through focused activities.

HSS 702 Advanced Research Methods **3 Credits**
Grade Mode: Standard Letter

This course prepares doctoral students to design and implement interdisciplinary research in Humanities and Social Sciences. They may do research for degree requirements (thesis) or as independent research projects. The course, therefore, discusses research paradigms, including ontological, epistemological, and axiological issues related to the choice of methodology. As such, the course examines the foundations of qualitative, quantitative, and mixed methods research, and the ethical issues related to research. These discussions will help student to link broader theoretical and conceptual perspectives and alternative research approaches through which to generate knowledge, construct ideas and present various arguments.

HSS 706 Doctoral Independent Study **3 Credits**
Grade Mode: Pass/Non Pass

This course focuses on the student's research proposal and an initial exploration of the literature review. Under the supervision of their supervisor, Students are expected to finalize the writing of an extended thesis proposal of 8000 words (excluding the references) that will include the following sections: The background of the research, the rationale and motivation for their proposed research, the proposed theoretical framework and an initial literature review section.

HSS 710 Informal Political Culture in the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a platform for reevaluating political culture by focusing on its informal, unofficial, and independent aspects, diverging from the conventional perspective that predominantly associates political culture with state agencies and institutions. In the Middle East, a significant aspect of the state-society divide is reflected in how individuals perceive politics and how they form and refine their perceptions of it. Through a thorough exploration of 15 distinct yet interconnected subtopics, this course seeks to emphasize the coexistence, contradictions, and interactions between formal and informal dynamics within the Middle East.

HSS 720 Explorations in Interdisciplinarity **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the ways in which interdisciplinarity is practiced in the Humanities and Social Sciences. Students will be exposed to research projects undertaken across contemporary fields of knowledge – including but not limited to the digital humanities, intercultural communication, translation and interpreting, cultural heritage, women and gender studies, sciences and technology studies – and yet inheriting from traditional "disciplines" that have founded the Humanities and Social Sciences (philosophy, literature, linguistics, law, sociology, political science, etc.). Class discussion will be tailored towards mapping the different types of knowledge integration and their tension with knowledge specialization (mono-, anti-, multi-, inter-, trans-disciplinarity). Exposure and discussion, the two pillars of this course, will equip students to critically reflect on the potentials and limitations of interdisciplinarity in the endeavor to bridge the gap between Society and the Humanities and Social Sciences.

HSS 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Humanities

HUMN 105 Global Cinema **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to film analysis and criticism through the history and theory of global cinema. We consider various artistic, social, and cultural movements that have impacted cinema worldwide, focusing on the historical, socio-political, and international contexts of film production, circulation, and reception. Particular attention will be paid to transnational, diasporic, postcolonial, and regional contexts. Through research and intellectual inquiry, this course develops critical thinking, ethical reasoning, and cultural analysis. Students will strengthen their written, visual, and oral communication abilities through presentations, group projects, and creative applications of visual and cinematic design.

HUMN 110 Moral Reasoning and Decision-Making **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces moral reasoning within the Islamic tradition, tracing its evolution from discipline-centered to interdisciplinary approaches. Students explore principles and priorities of moral reasoning, considering goal-oriented and value-oriented ethics. The course also examines contemporary perspectives, emphasizing the context of the ethicist and reconfiguration of sources for determining what is good and bad. Through analysis and practical exercises, students learn to evaluate and present arguments, supporting viable options in case studies. Designed to equip undergraduates with essential moral reasoning skills, it prepares them to engage with ethical dilemmas across contexts.

HUMN 111 Data Methods for Digital Humanities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Data Methods for Digital Humanities introduces students to the fundamental techniques of data collection and annotation in the context of digital humanities research. Participants will learn how to gather and prepare data for analysis using popular tools such as Voyant and Ant Conc. The course will cover various methods for collecting data from digital sources, cleaning and preprocessing text, and annotating data for specific research objectives. Students will gain hands-on experience working with these tools to analyze and visualize patterns in textual data.

HUMN 113 Art and Visual Culture **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on Museums located in the Middle East and North Africa as sites for cultural, historical and political memory, where art and visual culture are exhibited, archived, and stored. Historically, museums have been closely linked to national identity as they are shaped by people's cultural and artistic production. The course activities will include visits to the multiple museums in Doha as case studies for the display of art and visual culture such as paintings, sculptures, murals, and much more. The syllabus will draw upon theories and concepts in art history and the archiving of visual culture at museums.

HUMN 114 Cinema and Musical Culture in the Arab World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on contemporary cinema and musical culture in the Arab world specifically in their representation of the timely and much debated topics of Travel, Migration and Dislocation from the homeland. The course will include feature and documentary films, songs, and lyrics by Arab artists who live in the Arab world and the diaspora. The aim is to engage students with cinematic and musical works which have challenged the Western stereotypical images of migrants from the Arab world and have depicted a more realistic and humane visual illustration of migration and dislocation.

HUMN 116 Beyond Oil, Gucci, and Karak **3 Credits**
Grade Mode: Standard Letter

This interdisciplinary course covers the six GCC countries—Qatar, Kuwait, Oman, Bahrain, Saudi Arabia, and the UAE—exploring the rich literary traditions of the Arabian Gulf (Khaleej). Students will study a variety of literary texts such as Bedouin oral poetry, short stories and novellas that reflect the region's unique cultural, social, and historical contexts, alongside other artistic expressions such as music, folklore, and popular television dramas that have made an impact on the Arab world. Themes that will be explored include language and identity, gender, tradition versus modernity, statelessness, migration, and the impacts of oil, globalization, and westernization on Gulf societies. Through critical discussions, guest speakers, and trips to cultural centers and festivals, students will gain a deeper understanding of how Khaleeji literature, art and culture reflect and shape social values, gender roles, and the intersection of local and global identities.

Intercultural Communication

ICC 600 Foundations, Critical Approaches and Future Challenges in Intercultural Communication **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces scholarly approaches to the study of intercultural communication that have been developed since the inception of this field of enquiry (including religion, ethnicity, race, nationality and ethics). Through discriminating, critical engagement with theory and its scholarly and practical applications, students will think critically and reflectively about the complexity and implications of the choices that intercultural communication actors have to make across settings and will be encouraged to identify the key challenges that lie ahead for intercultural communication in our multicultural societies.

ICC 601 Research in Intercultural Communication: Tools and Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course prepares students to conduct research in Intercultural Communication with the necessary research methods and tools provided by Humanities and Social Sciences. Epistemological foundations of qualitative and quantitative research and major ethical and political issues in research will be provided. Linkages between broader theoretical and conceptual issues and alternative hypotheses will be provided to organize knowledge, construct ideas and present various arguments. Hands-on experiences for research design, data collection and analysis, and writing of research findings will be provided.

ICC 602 Managing Communication in Intercultural Settings **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the challenge of managing communication across national, religious, occupational, gender boundaries in different intercultural settings and to equip them to develop the right skills and mindset to approach intercultural communication.

ICC 603 Intercultural Communication in the Community: Mediation & Interpreting **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course prepares students to work as intercultural communication actors in community settings, with a particular focus on health care, social services, non-governmental settings, where intercultural communication is key to avoid cultural, linguistic and systemic discrimination. Students will be introduced to the ethical questions raised by intercultural communication in these settings, to the main differences between the role of mediators and interpreters (the two main intercultural communication-related occupations in community settings) and will extensively practice their intercultural mediation and interpreting skills

ICC 604 Discourse and Communication Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course engages students in examining and applying the basic concepts of stylistics and discourse analysis to different communication contexts, text types and genres. The course is intended to enhance students' competence in analyzing and manipulating grammatical, stylistic and rhetorical features of language in multimodal communicative situations. Students will gain insight into, and develop the necessary skills to apply, the different tools and approaches to discourse analysis in various social and cultural settings.

ICC 605 Intercultural Communication in Organizations: Consulting & Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course prepares students to work as intercultural communication actors in the profit and non-profit sectors, with a particular focus on business where intercultural communication is key to face the challenges posed by cultural difference to Human Resources, organizational communication, public relations processes. Students will be introduced to the possible difficulties posed by cultural differences in organizations, and will acquire the necessary consulting and management skills to engage in intercultural negotiations and in diverse teams.

ICC 621 Intercultural Communication in Digital Media **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will develop media literacy to access and evaluate content development and sharing on digital and social media platforms. Research on content creation and its impact on intercultural settings in Qatar will be core. It will offer opportunities for app development, fit for communication processes on Qatari and MENA platforms. Interdisciplinary reflection on the intercultural aspects of digital media will be enhanced in the framework of digital content creation and e-applications to critically approaching identity, acculturation and intercultural communication.

ICC 622 Intercultural Conflict Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will reflect on the challenges of today`s increased global cross-border communication between different cultures and specifically on the communication processes that can be used during interactions in conflict situations between different cultures. Communication strategies will be analyzed. It will explore conflict prone dimensions in intercultural interactions, and design methods for successful communication in conflict situations. As a case study, it will analyze and test cultural management strategies in multicultural business environments and the methods of efficient problem solving.

ICC 623 Mediation Interpreting in Healthcare **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is offered in the format of the Bridging the Gap Medical Interpreters training offered by WCM-Q and is designed by the US Public Health Services to improve access to healthcare. To meet the need of Qatar's diversified population and to conform to accreditation standards, this WCM-Q based course offers Interpreter skills, Medical Interpreters Code of Ethics, Role of Medical Mediator Interpreters in healthcare settings, Culture and its impact on interpreting, Communication skills and appropriate advocacy, and Medical terminology.

ICC 624 Intercultural Competence in Healthcare **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

At the end of this joint TISD-WCM-Q course, students will be able to value the impact of diversity in healthcare particularly in Qatar. Define in contemporary terms: culture, cultural competence, patient-centered care and cultural humility. Differentiate between cultural competence and patient-centered care. Describe how culture influences both patients and provider's interactions and expectations. Recognize the effect of bias and stereotyping on healthcare quality and describe strategies to reduce their effect.

ICC 625 Diversity, Inclusion and Access **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The widespread notion of equality of opportunities requires that the issue of discrimination and inclusion be studied so as to find solutions for barriers that hinder people from full access to basic spheres of life, such as healthcare, education, employment, information, culture and/or entertainment. This course aims at introducing students to issues of Diversity, Inclusion and Accessibility from the slant of communication and (dis)ability, leading them to develop innovative communication strategies to enhance equitable access solutions in diverse contexts.

ICC 626 Arab Culture: Dynamics of Change and Resistance **3 Credits**
Grade Mode: Standard Letter

This course explores the dynamic interplay of continuity, change, and resistance in Arab culture across history, society, and politics. It examines tensions between tradition and modernity, globalization and localization, highlighting how both traditionalism and modernism act as forms of resistance. Through historical and contemporary case studies, students analyze how religion, nationalism, colonialism, and modernization have shaped Arab cultural expression and identity, revealing an ongoing struggle between preserving heritage and embracing transformation

ICC 660 Independent Research Project **3 Credits**
Grade Mode: Pass/Non Pass

The Intercultural Communication program requires students to either undertake an internship or an independent research project. This course allows students to explore their specific research interests within intercultural communication studies. The student will work closely with the supervisor to implement this project within a given time period. The project may be capitalized on for the purposes of the thesis.

ICC 691 Internship **3 Credits**
Grade Mode: Pass/Non Pass

ICC 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Middle Eastern

ME 611 History, Politics and Cultures of the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course takes a cultural and historical approach to politics of the Middle East; it investigates the nature of political authority and the complex relationship between religion, traditions, social movements, class structures, and the challenges Middle East societies faced from colonialism and globalization. The course provides a critical appraisal of normative paradigms and approaches through which the Middle East has been studied, the narratives covering its history, how knowledge has been organized, and the repercussions of particular approaches and theories.

ME 613 Social, Economic and Development Theory **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the major theoretical paradigms in critical social theory and economic development. It gives focus to assumptions made on social and economic development, and examines the evolution of different schools of thought and theoretical constructs. The approach of the course is interdisciplinary, combining insights from sociology, economics, political science and history. It applies models and methodologies through which historical processes can be conceptualized with respect to the ideological frameworks that guide social power and development policy.

LITR 110 World Literature and the Modern World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course challenges traditional Eurocentric narratives of world literature and global integration by exploring how non-European cultures laid the intellectual, cultural, and literary foundations for global culture, literature, and modernity. Beginning with the Islamic Golden Age, we examine how key figures from the Arab world, such as Ibn Tufayl, Ibn Battuta, and Ibn Rushd, influenced the early development of the novel, philosophy, and social thought. By emphasizing the contributions of civilizations from the Islamic world, India, and Africa, students discuss how global modernity was shaped by cross-cultural exchange, translations, and a wide range of technological advancements. The course offers a postcolonial critique of world and "classic" literature, proposing that global literary and cultural heritage owes much to a diverse range of innovations and intellectual contributions.

ME 611 History, Politics and Cultures of the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course takes a cultural and historical approach to politics of the Middle East; it investigates the nature of political authority and the complex relationship between religion, traditions, social movements, class structures, and the challenges Middle East societies faced from colonialism and globalization. The course provides a critical appraisal of normative paradigms and approaches through which the Middle East has been studied, the narratives covering its history, how knowledge has been organized, and the repercussions of particular approaches and theories.

ME 613 Social, Economic and Development Theory **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the major theoretical paradigms in critical social theory and economic development. It gives focus to assumptions made on social and economic development, and examines the evolution of different schools of thought and theoretical constructs. The approach of the course is interdisciplinary, combining insights from sociology, economics, political science and history. It applies models and methodologies through which historical processes can be conceptualized with respect to the ideological frameworks that guide social power and development policy.

SOCI 101 Introduction to Sociology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces fundamental sociological concepts, theories, and methods to foster a foundational understanding in the systematic study of societal structures, dynamics, and human behavior. Exploring topics like socialization, social stratification, and institutions, this course examines the ways in which individuals and societal structures interact, and how larger structures of power and culture shape opportunities, attitudes, and norms. Students will learn what it means to have a 'sociological imagination' and develop critical thinking skills to analyze a broad range of contemporary social issues. This course fosters a deeper appreciation for the social world, equipping students with insights applicable across disciplines.

SOCI 105 AI and Society **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the profound impact of artificial intelligence on modern society. Students will analyze the ethical, social, economic, and legal implications of AI technologies. Through critical discussions and case studies, participants will gain insights into how AI influences decision-making, privacy, security, and employment. The course also delves into the opportunities and challenges AI presents, empowering students to engage with emerging technologies in an informed and responsible manner.

SOCI 111 Community Service and Engagement **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the principles and practices of community service through an Islamic lens, emphasizing the significance of civic responsibility in local and global contexts. Students will learn how to develop effective strategies for social welfare, empower marginalized communities, and foster intercultural understanding. This course combines theoretical insights with practical fieldwork, enabling students to engage directly with community projects and develop a holistic perspective on global citizenship, rooted in Islamic ethical frameworks and sustainable development principles.

SOCI 115 Comparative Theories and Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course presents students with an array of social scientific methodological approaches. The course outlines the connections between method and theory and between epistemology and ontology. It discusses the strengths and potentials as well as drawbacks and limitations of various approaches. It highlights the potential power of well-established Islamic schools of thought to contribute to current issues in the social sciences. The course allows students to compare and contrast Islamic and Western research methodologies. It provides students with a toolbox that they can use to analyze existing scholarship, engage questions of human sciences, and develop theoretically informed research projects.

SOCI 117 Technology, Innovation, and Society **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

"Technology, Innovation and Society" explores the complex interplay between technological advancements, innovative practices, and their profound impact on society. Students will critically examine how technology shapes and is shaped by social, economic, political, and cultural factors. Through interdisciplinary perspectives, this course will analyze topics such as the history of technological change, the role of innovation in addressing global challenges, ethical considerations surrounding emerging technologies, and the future of work in a rapidly evolving technological landscape.

SOCI 137 Global Citizenship and Social Responsibility **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the intersections between global citizenship and social responsibility in the polity and in civil society, at global, regional and local levels. It introduces students to the challenges of environmental destruction, climate change, and conflict, in an interconnected and deterritorialized world. With a particular focus the ethics and politics of global citizenship, it prepares students to think critically about their social responsibility as global citizens, and to address the contemporary challenges posed to our planet and humanity towards social justice.

SOCI 140 Global Citizenship through Environmental Humanities **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

This course explores how literature, art, and other cultural narratives shape our understanding of pressing environmental challenges in the 21st century. Special attention will be given to how Qatar's rapid growth, natural gas reserves, and sustainability initiatives shape its environmental narrative, while also connecting these local concerns to broader global perspectives. By analyzing how storytelling in the humanities addresses ecological crises, the course fosters critical thinking about global citizenship, social responsibility, and sustainable futures that balance ecological health and human development.

SOCI 142 Impactful Leadership and Social Innovation for a Sustainable Future **3 Credits**
Grade Mode: Standard Letter

This course explores how young leaders can drive change in the face of global challenges like climate change, social inequity, and digital transformation. Students will learn about leadership styles, ethical decision-making, and the power of community activism. Projects will include developing innovative solutions for real-world problems and collaborating with local and global organizations to make a tangible impact.

Social Sciences

SS 600 Thinking and Practicing Interdisciplinarity in the Humanities and the Social Sciences **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will introduce students to the hackneyed and complex notion of interdisciplinarity and to the ways in which it has been theorized in Interdisciplinarity Studies and practiced in Women, Digital and Translation Studies. It will invite students to develop their interdisciplinary skills in critical and reflexive ways.

SS 612 Research Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The Research Methods course is an essential component of the MA in Digital Humanities program, designed to equip students with the necessary skills and knowledge to conduct rigorous research in the field. The course covers a wide range of research methods, including both qualitative and quantitative approaches, and provides hands-on experience using R for data analysis and visualization. Students will learn how to identify research problems, formulate research questions, conduct secondary research, and understand research integrity and ethics. The course also explores the use of Large Language Models (LLMs) in research and their potential applications in Digital Humanities. By the end of the course, students will have a solid foundation in research methods and be prepared to apply their skills to real-world research projects.

SS 662 The Gulf States and the International Order **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course analyses the contemporary Gulf States from the perspectives of politics, political sociology, economics and international relations. It seeks to locate the states in an international context in order to identify and evaluate the manner in which their policies have evolved. This course will seek to achieve this through an interdisciplinary analysis of the subject manner. It gives focus to the challenges faced and policy responses. The course will conclude with an examination of the challenges of economic, political and security reform in the Gulf States.

Spanish

SPAN 211 Spanish Beginner 1 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The “Beginner 1 Spanish course” is designed for the beginner students with no previous experience in Spanish. The main objectives of this course are to help students develop effective communication skills in Spanish through the elementary development of the four basic language skills (listening, speaking, reading and writing), while focusing on and critically examining cultural aspects, values and other aspects of everyday life in Spanish-speaking nations. Spanish will be the language of instruction.

SPAN 212 Spanish Beginner 2 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course continues the Beginner series and builds upon Spanish Beginner 1. The main objectives of this course are to help students develop effective communication skills in Spanish through the elementary development of the four basic language skills (listening, speaking, reading and writing. During the course, students learn to give instructions about how to get somewhere and describe places; ask for and tell the time and talk about schedules; talk about daily routines and how often they do something; talk about tastes and preferences, and talk about recently past actions.

Translation Studies

TCI 601 Research Methods and Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course prepares students with the necessary research methods and techniques to conduct, evaluate and communicate research. The course examines the epistemological foundations of qualitative and quantitative research, in addition to ethical and political factors in research. It familiarizes students with research design, research methods and data collection. It also introduces linkages between broader theoretical and conceptual perspectives and alternative approaches through which to organize knowledge, construct ideas and present various arguments.

TCI 611 Translation Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the main approaches in the field of Translation Studies. It follows a chronological trajectory of the development of the major theories in the field, including theories of equivalence, translation products and processes, functionalist approaches, discourse and register analysis, systems theories, narrative theory, norm theory and descriptive translation studies. This course invites students to think critically and reflectively about the complexity and implications of the choices they have to make as translators and scholars.

TCI 612 Transcreation Skills and Practices **1.5 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Transcreation Skills and Practices is a foundation practice-oriented course designed for students with little or no background in transcreation, especially for the creative industries. It aims at developing in students the essential skills and knowledge to perform transcreation tasks to the required standard in this class, in classes running in parallel and later in other more advanced courses. Transcreation practical work focuses on many text types and genres, such as literary, media, advertising, performing arts, museums, and audiovisual texts.

TCI 613 Arabic Stylistics **1.5 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course primarily aims to engage translation students in analysing Arabic morphologically, syntactically, semantically, pragmatically, and stylistically with the potential to enhance their appreciation of and competence in manipulating various grammatical, stylistic, and rhetorical features and devices of Modern Standard Arabic (MSA). Students are taught to comprehend prose in MSA. Special emphasis is placed on key linguistic features within different genres of MSA. Through practical exercises, students will learn the main issues that should be given full consideration by translation students while dealing with different texts for translation purposes.

TCI 615 Translation Practices and Tools **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This is mainly a practical course that introduces students to a selection of language technology tools with a focus on their professional practice. These will range from widely used open access CAT tools to the industry standard RWS TRADOS (Getting Started level). Students will create and manage translation memories and terminological databases, which will improve the accuracy, consistency and quality of their translation. They will also integrate the use of corpora into their translation practice, which will allow them to study language behaviour by analysing large text collections. Finally, they will reflect on the role of machine translation and post-editing and their application in the translation process.

TCI 623 Creative Industries, Economy and Sustainability **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will address the creative industries as “cycles of creating, producing, and distributing goods and services that use creativity and intellectual capital as primary inputs” (UNCTAD). Students will be given an overview of how creative industries in the Arts, Media, Heritage, and functional creations comprise a set of knowledge-based activities that produce tangible goods and intangible intellectual or artistic services with creative content, economic value, and market objectives.

TCI 624 Subtitling **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This is a largely practical course that introduces students to the technique of interlingual subtitling and SDH. Students will be introduced to the temporal and spatial constraints, timing, condensation, verbal and non- cues, appropriate punctuation, positioning and segmentation. Students will be encouraged to analyse how subtitles function as a form of inter-semiotic communication and inter-linguistic mediation and reflect on the implications of choosing the most appropriate strategies. Students will also explore methods of handling culture-specific difficulties of audiovisual texts in interlingual subtitling.

TCI 626 Intersensory Mediation for the Creative Industries **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

In this course, students move beyond traditional notions of translation to address accessibility, both as a sub-discipline of Translation Studies, and a topic at the intersection of multiple scientific and technical domains. During the course they acquire factual, conceptual and procedural knowledge that will support their work as researchers or professional service providers of multiformat resources and sensory experiences to enhance people’s access to information and culture.

TCI 627 Voicing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This unit introduces students to the translation and adaptation of dialogue in preparation for either non-lip-synched dubbing, voice over or Audio Description. Students will learn to work with and create scripts and deal with a wide range of linguistic, cultural, semiotic and technical issues faced when producing a dubbing/voicing script. Students will work with a range of different multimodal products including documentaries, interviews, cartoons, paintings, movies etc.

TCI 633 Trends in Translation and Creativity Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to more recent scholarly approaches to the study of translation and creativity. The course follows a thematic overview of the major theories in the field of TS in relation to specific creative industries. This is done in a constant dialogue with other disciplines such as cultural studies, theatre studies, film studies, human interaction studies, among others. Through discriminating, critical engagement with theory and its scholarly and practical applications, this course invites students to think critically and reflectively about the complexity and implications of the choices they have to make as translators/mediators and scholars.

TCI 690 Capstone Project **1-6 Credits**
Grade Mode: Pass/Non Pass

TCI 691 Internship **3 Credits**
Grade Mode: Pass/Non Pass

TCI 695 Master's Thesis Hours **0-6 Credits**
Grade Mode: Pass/Non Pass

Women, Society & Development

WSD 621 Introduction to Women and Gender Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Providing an overview of core concepts, debates and developments in the field of women and gender studies, this course underscores shifting paradigms (e.g. from ‘women’ to ‘gender’ studies) in our theoretical understanding of the subject. Themes, such as intersectionality, the social construction of gender, transnationalism, solidarity, patriarchy, discrimination, empowerment, embodiment, performativity etc., are highlighted through an interdisciplinary framework that positions gender within various power structures institutionalized in the media, political sphere, labor market and/or field of cultural production.

WSD 622 Women, Work and Economic Development in the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course evaluates economic development theories from a gender perspective focused on the role of women in the MENA region. Providing a critical overview of women in the workforce, the course questions the institutional context in which gender is articulated in the household sphere and in the labor market. The persistent gender gaps in labor force participation rates (against rising educational outcomes for women) is also considered from a perspective which contrasts the modern discourse with its regional, historical antecedents.

WSD 623 Research Methods in Womens and Gender Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will familiarize and equip students with research methods and skills relevant to women and gender studies. It focuses on qualitative methods, and draws from feminist approaches to science, epistemology and knowledge production. Students will receive training in re-search design, concepts, methods (interviews, participant observation, etc.), ethical requirements, critical writing skills. The course will enable students to evaluate different methods and assess their relevance to their own research projects. The course aims at developing a well-designed research proposal.

WSD 651 The Anthropology of Gender in the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Students are expected to analyze core themes characterizing the field, such as the honor and shame complex, Islamic feminism, relational selves, patriarchal bargains, kinship, etc. While focused on gender and women's issues in the Middle East, the subject will also be linked to the core developments in the field of anthropology, such as the shift from neo-positivist to interpretive and reflex Feminist Perspective stances.

WSD 652 Women, Law and Citizenship **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Designed to study the connection between society, culture, and law, this course examines citizenship, women, gender and family law. It asks whether laws pertaining to women and gender can be universalized. It also questions whether gendered law is a product of cultural, economic or political forces. What are the differences between positive, natural and customary laws? What is "full legal equality" and what role does context play in determining legal priorities? Do theories of liberation, equality and citizenship meet practice?

WSD 653 Gender and Digital Cultures **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates innovative gender theory perspectives pertaining to the digital realm. Studying social media, digital activism, digital human relationship platforms and sexuality, we consider the impact of the latter on gender narratives, representation and embodiment in real-life urban and rural social environments. Students will learn how digital technologies challenge current understandings of gender theories, provoke new forms of knowledge in the digital realm and work to transform systems of gender oppression.

WSD 655 Women, State and Modernity in the Arab World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Exploring the interrelations between women, the state and modernity, this course critically appraises the tensions surrounding the transformation in the status of Arab women. Modernity and nationhood are given special consideration as the driving ideologies framing gender relations in the region today. Engaging with the issues requires zooming in on the gendered legacies of colonialism, nation-state building; state feminism; the debate on 'authenticity'; religious and secular movements; patriarchal bargains; and gendered violence and war.

WSD 656 Family and Kinship in the Middle East **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course traces the history of the family in the Middle East, from pre-modern to modern times. A comparative lens is cast on dominant forms of kinship (tribes and clans) in their urban, rural and Bedouin settings. The impact of modernization, globalization and modern economies on kinship institutions is also examined in terms of the rise of the individual and the nuclear family. The concomitant discourse provoked on gendered identities, reproduction and sexuality is the focus of research and discussion.

WSD 657 Women, Media and Communication **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the intersection of media and feminist theory by investigating the portrayal of Arab women in both Middle Eastern and global media. Coverage of such topics as sex trafficking, rape, domestic violence, religion, and local/regional politics is analyzed alongside claims of the marginalization of feminine voices and narratives. Lastly, students will consider the role of women in producing media and the barriers they continue to face when entering media.

WSD 658 Special Topics in Women Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Introducing students to timely, innovative and cutting-edge topics, methods and theories in the field of Arab Women's Studies, this course is research-led. As such, its precise content will depend on the expertise of faculty and the research interests of students. The scope of research is thus wide, ranging from topical subjects, such as women's participation in the Arab revolutions, to pioneering feminist research methods, such as auto-ethnography, to state-of-the-art theoretical developments in the field of women and gender studies.

WSD 659 Independent Research Project **3 Credits**
Grade Mode: Pass/Non Pass

The Women, Society and Development program requires students to either undertake an internship or an independent research project. This course allows students to explore their specific research interests within a relative field through a research agenda. The student will work closely with academic advisor and supervisor to implement this project within a given time period. The project may be capitalized on for the purposes of the thesis

WSD 660 Women in Comparative World Religions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Providing an introduction to the academic and comparative study of the world's religious traditions through gendered analysis, this course engages in a thematic examination of the beliefs, practices, institutions, and cultural expressions of the World' major Religions. It will address how sacred power, sacred story, ritual, sacred space and time, religious experience, religious ethics and morality shape women's lives. What is the relationship between gender, religion, politics, and social conflict across and between religious traditions?

WSD 661 Women in World History **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an overarching survey of world history, from the ancient to the early-modern eras, exploring several key themes in the fields of gender and identity studies. The goal of the course is to assist students in understanding the critical significance of gender, sexuality, and identity to historical world events and to the ways in which they continue to impinge on the contemporary world.

WSD 662 Women and Gender in the Literature and Cinema of the Middle East and North Africa **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores various strands of feminist conceptual frameworks with a focus on Women's Studies and Feminist Studies in the MENA region. The aim is to integrate feminist theory with a selection of literary and cinematic works produced mainly by women writers and filmmakers in this region (including a few films made by male filmmakers), in order to investigate the cultural, social and political significance of their creative expressions, and the extent to which these works address issues at stake in their societies.

WSD 670 Gulf Feminism **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces feminist movements in the Arabian Gulf, by providing an overview of feminist movements in the MENA region, then focusing on the specificities of women in the Gulf. It will introduce main authors, themes, and debates about women's rights in the Arabian Gulf, with an in-depth focus on the intersections between Feminism and postcolonial theory.

WSD 691 Internship **3 Credits**
Grade Mode: Pass/Non Pass

The Women, Society and Development program requires students to either undertake an internship of do an independent research project. This internship course is the opportunity to skills within a workplace setting, and also to gain experience in an organization, which is focused on issues relating to the degree program's scope.

WSD 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Designed like an Independent Research Project, this course supports students in their endeavor to conduct research in the field of Arab women studies. Students can produce a research-based thesis or a project-based thesis of up to 15,000 words. The thesis should showcase the student's ability to collect/assess data, build an argument; and critically apply the main theories in their area of study. The thesis is an opportunity for students to gain the requisite skills necessary for writing a publishable article.

Humanities and Social Sciences

Programs

- Humanities and Social Sciences, PhD (p. 20)

Humanities and Social Sciences, PhD

The Doctor of Philosophy (PhD) in Humanities and Social Sciences is the first degree of its kind in Qatar, and one of the few in the world providing students with the philosophical and technical grounding to design and tailor their own interdisciplinary program while being able to specialize through a dissertation.

For more information, click here (https://www.hbku.edu.qa/en/chss/phd-humanities-social-sciences/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
HSS 701	Proseminar	3
HSS 702	Advanced Research Methods	3
HSS 706	Doctoral Independent Study	3
HSS 720	Explorations in Interdisciplinarity	3
Subtotal		12
Free Electives		
Select two courses from any College at HBKU:		6
Free Elective 1		
Free Elective 2		
Subtotal		6
Dissertation		
HSS 890	Dissertation Hours	0-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
Total Hours		**60**

Study Plan

First Year		
First Semester		**Hours**
HSS 701	Proseminar	3
HSS 702	Advanced Research Methods	3
Elective 1		3
	Semester Hours	**9**
Second Semester		
HSS 706	Doctoral Independent Study	3
HSS 720	Explorations in Interdisciplinarity	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
HSS 890	Dissertation Hours	6
	Semester Hours	**6**
Second Semester		
HSS 890	Dissertation Hours	6
	Semester Hours	**6**
Third Year		
First Semester		
HSS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
HSS 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
HSS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
HSS 890	Dissertation Hours	3
	Semester Hours	**3**
	Total Hours	**60**

Middle Eastern Studies

Programs

- Digital Humanities and Societies, Master of Arts (p. 21)
- Women, Society and Development, Master of Arts (p. 21)

Digital Humanities and Societies, Master of Arts

A two-year program focusing on the study of digital technologies and their effect on aspects of human culture, with an emphasis on digital methods and trends and practices in digital culture.

The MA in Digital Humanities and Societies is a two-year program that allows participants to study the Middle East's digital culture from a scholarly and digital research perspective.

For more information, click here (https://www.hbku.edu.qa/en/chss/ma-digital-humanities-societies/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
DHS 622	Digital Communication and Media	3
DHS 623	Methods in Digital Humanities	3
DHS 624	The Global Digital Transformation	3
ME 611	History, Politics and Cultures of the Middle East	3
ME 613	Social, Economic and Development Theory	3
SS 612	Research Methods	3
Subtotal		18
Elective Courses		
Select two of the following:		6
DHS 651	Emerging Technologies and Applications	
DHS 652	Digital Publishing and Design	
DHS 654	Civil Society and Digital Activism	
DHS 655	Exploring Digital Heritage Methods	
DHS 656	Introduction to Human Language Technologies	
DHS 657	Coding for Humanities	
DHS 658	Digital Resources in the Humanities	
DHS 659	Digital Innovation and Transformation	
DHS 660	Digital Disinformation and Propaganda in the Middle East and North Africa	
DHS 661	Digital Writing	
DHS 662	Arabic Natural Language Processing	
SS 600	Thinking and Practicing Interdisciplinarity in the Humanities and the Social Sciences	
TSD 628	Terminology	
WSD 653	Gender and Digital Cultures	
WSD 662	Women and Gender in the Literature and Cinema of the Middle East and North Africa	
Subtotal		6
Internship or Project		
DHS 691	Internship	3
or DHS 669	Independent Research Project	
Subtotal		3
Thesis		
DHS 695	Master's Thesis Hours	0-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	
Total		**36**

Study Plan

First Year		
First Semester		**Hours**
DHS 623	Methods in Digital Humanities	3
ME 611	History, Politics and Cultures of the Middle East	3
SS 612	Research Methods	3
	Semester Hours	**9**
Second Semester		
DHS 622	Digital Communication and Media	3
DHS 624	The Global Digital Transformation	3
ME 613	Social, Economic and Development Theory	3
	Semester Hours	**9**
Second Year		
First Semester		
DHS 669 or DHS 691	Independent Research Project or Internship	3
DHS 695	Master's Thesis Hours	3
Elective 1		3
Elective 2		3
	Semester Hours	**12**
Second Semester		
DHS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Women, Society and Development, Master of Arts

A two-year program focusing on women's studies in general and Arab women in particular. It draws from a variety of disciplines, including economic and social theory; development and policy studies; and law and communication studies.

For more information, click here (https://www.hbku.edu.qa/en/chss/ma-women-society-development/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
ME 611	History, Politics and Cultures of the Middle East	3
ME 613	Social, Economic and Development Theory	3
WSD 621	Introduction to Women and Gender Studies	3
WSD 622	Women, Work and Economic Development in the Middle East	3
WSD 623	Research Methods in Womens and Gender Studies	3
Subtotal		15
Elective Courses		
Select three of the following:		9
DHS 623	Methods in Digital Humanities	

DHS 660	Digital Disinformation and Propaganda in the Middle East and North Africa	
DHS 661	Digital Writing	
SS 600	Thinking and Practicing Interdisciplinarity in the Humanities and the Social Sciences	
SS 662	The Gulf States and the International Order	
TSD 628	Terminology	
WSD 651	The Anthropology of Gender in the Middle East	
WSD 652	Women, Law and Citizenship	
WSD 653	Gender and Digital Cultures	
WSD 655	Women, State and Modernity in the Arab World	
WSD 656	Family and Kinship in the Middle East	
WSD 657	Women, Media and Communication	
WSD 658	Special Topics in Women Studies	
WSD 660	Women in Comparative World Religions	
WSD 661	Women in World History	
WSD 662	Women and Gender in the Literature and Cinema of the Middle East and North Africa	
WSD 670	Gulf Feminism	
Subtotal		9
Internship or Project		
WSD 691	Internship	3
or WSD 659	Independent Research Project	
Subtotal		3
Thesis		
WSD 695	Master's Thesis Hours	0-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Subtotal		0
Total Hours		**36**

Study Plan

First Year		
First Semester		**Hours**
ME 611	History, Politics and Cultures of the Middle East	3
WSD 621	Introduction to Women and Gender Studies	3
WSD 623	Research Methods in Womens and Gender Studies	3
	Semester Hours	**9**
Second Semester		
ME 613	Social, Economic and Development Theory	3
WSD 622	Women, Work and Economic Development in the Middle East	3
Elective 1		3
	Semester Hours	**9**
Third Semester		
WSD 659 or WSD 691	Independent Research Project or Internship	3
	Semester Hours	**3**
Second Year		
First Semester		
WSD 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Semester		
WSD 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Department of Language, Culture and Communication (LCC)

The Department of Language, Culture and Communication (LCC) leads an ambitious strategy for graduate education in the region, delivering a unique set of programs to train leading professionals working between Arabic and English in all areas of translation. Combining academic rigor with the development of the vocational skills demanded by industry and institutional employers, TII (https://tii.qa/)'s suite of graduate programs, offered by LCC, are validated by the University of Geneva and provide graduates with a competitive edge in the freelance, corporate, and institutional marketplaces.

For more information, click here (https://www.hbku.edu.qa/en/chss/center/department-language-culture-communication/).

Programs

- Intercultural Communication, Master of Arts (p. 22)
- Translation for the Creative Industries, Master of Arts (p. 23)

Intercultural Communication, Master of Arts

The MA in Intercultural Communication (MAICC) offered by Hamad Bin Khalifa University's College of Humanities and Social Sciences (CHSS) is the first degree of its kind in Qatar. Students in this program will engage in research, education, and outreach with a view to understanding the challenges of today's changing intercultural settings in Qatar and worldwide.

The program aims to respond to these changed societal demands, including the need for court interpreting, community interpreting, and medical interpreting – the three mediational forms of interpreting in intercultural settings and work environments that are specific to Qatar. The program will also offer courses on intercultural communication and the use of digital technologies to achieve effective intercultural communication in an inclusive and accessible society.

Additionally, research in the intercultural communication field will generate new policies and e-applications geared towards implementing the outcomes of the distinct features of the program. These program outcomes will lead to the creation of innovative applications fit for heading transformative changes in Qatar and globally.

For more information, click here (https://www.hbku.edu.qa/en/chss/ma-intercultural-communication/).

Requirements

Minimum hours required to complete program 39 CH

Code	Title	Hours
Core Courses		
ICC 600	Foundations, Critical Approaches and Future Challenges in Intercultural Communication	3
ICC 601	Research in Intercultural Communication: Tools and Methods	3

ICC 602	Managing Communication in Intercultural Settings	3
ICC 603	Intercultural Communication in the Community: Mediation & Interpreting	3
ICC 604	Discourse and Communication Analysis	3
ICC 605	Intercultural Communication in Organizations: Consulting & Management	3
Subtotal		18
Elective Courses		
Select three of the following:		9
TR 613	Arabic Stylistics for Translators	
TSD 624	Translation Technologies	
TSD 656	Intercultural Translation	
DHS 651	Emerging Technologies and Applications	
DHS 659	Digital Innovation and Transformation	
WSD 653	Gender and Digital Cultures	
WSD 656	Family and Kinship in the Middle East	
ICC 621	Intercultural Communication in Digital Media	
ICC 622	Intercultural Conflict Management	
ICC 623	Mediation Interpreting in Healthcare	
ICC 624	Intercultural Competence in Healthcare	
ICC 625	Diversity, Inclusion and Access	
ICC 626	Arab Culture: Dynamics of Change and Resistance	
Or can take any course from CHSS or WCM-Q as electives		
Subtotal		9
Internship or Project		
ICC 691	Internship	
or		
ICC 660	Independent Research Project	
Subtotal		3
Thesis		
ICC 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**39**

Study Plan

First Year		
First Semester		**Hours**
ICC 600	Foundations, Critical Approaches and Future Challenges in Intercultural Communication	3
ICC 602	Managing Communication in Intercultural Settings	3
ICC 604	Discourse and Communication Analysis	3
	Semester Hours	**9**
Second Semester		
ICC 601	Research in Intercultural Communication: Tools and Methods	3
ICC 603	Intercultural Communication in the Community: Mediation & Interpreting	3
ICC 605	Intercultural Communication in Organizations: Consulting & Management	3
	Semester Hours	**9**
Second Year		
First Semester		
Select one of the following:		3
ICC 660	Independent Research Project	
ICC 691	Internship	
ICC 695	Master's Thesis Hours	3
Elective 1		3
Elective 2		3
	Semester Hours	**12**
Second Semester		
ICC 695	Master's Thesis Hours	6
Elective 3		3
	Semester Hours	**9**
	Total Hours	**39**

Translation for the Creative Industries, Master of Arts

The MA in Translation for the Creative Industries (MA-TCI) program is designed to prepare students for emerging translation markets. It focuses on innovative, transdisciplinary approaches in high demand in the ever#growing creative economies. The flourishing field of interdisciplinary translation combines fundamental practical orientations with applied research in various domains.

Taking creative industries as a focus area, the program addresses technical and technological issues in addition to linguistic, cultural, and ideological issues. In the MATCI program, socially oriented scholars will find ample space for applied research with an impact in domains such as television, the arts, and cultural and educational contexts.

For more information, click here (https://www.hbku.edu.qa/en/chss/ma-translation-creative-industries/).

Requirements

Minimum hours required to complete program 36 CH

Thesis Track

Code	Title	Hours
Core Courses		
TCI 601	Research Methods and Design	3
TCI 611	Translation Studies	3
TCI 612	Transcreation Skills and Practices	1.5
TCI 613	Arabic Stylistics	1.5
TCI 615	Translation Practices and Tools	3
TCI 623	Creative Industries, Economy and Sustainability	3
TCI 633	Trends in Translation and Creativity Studies	3
Subtotal		18
Elective Courses		**6**
TCI 624	Subtitling	
TCI 626	Intersensory Mediation for the Creative Industries	
TCI 627	Voicing	
Internship or Project		*3*
TCI 691	Internship	
Or TCI 669	Independent Research Project	
Thesis		**9**
TCI 695	Master's Thesis Hours	
Non-Course Requirements		
699	Thesis Defense	
Total Hours		**36**

Project Track

Code	Title	Hours
Core Courses		
TCI 611	Translation Studies	3
TCI 612	Transcreation Skills and Practices	1.5
TCI 613	Arabic Stylistics	1.5
TCI 615	Translation Practices and Tools	3
TCI 623	Creative Industries, Economy and Sustainability	3
TCI 632	Project Management	3
TCI 634	Trends in Mediation in the Creative Industries	3
Subtotal		18
Elective Courses		9
TCI 624	Subtitling	
TCI 626	Intersensory Mediation for the Creative Industries	
TCI 627	Voicing	
ICC 600	Foundations, Critical Approaches and Future Challenges in Intercultural Communication	
ICC 602	Managing Communication in Intercultural Settings	
ICC 604	Discourse and Communication Analysis	
Internship or Independent Project		*3*
ICC 691	Internship	
Or TCI 669	Independent Research Project	
Project		6
TCI 690	Capstone Project	
Total Hours		**36**

Thesis Track

First Year		
First Semester		**Hours**
TCI 611	Translation Studies	3
TCI 612	Transcreation Skills and Practices	1.5
TCI 613	Arabic Stylistics	1.5
TCI 615	Translation Practices and Tools	3
	Semester Hours	**9**
Second Semester		
TCI 601	Research Methods and Design	3
TCI 633	Trends in Translation and Creativity Studies	3
TCI 623	Creative Industries, Economy and Sustainability	3
Elective 1		3
	Semester Hours	**12**
Second Year		
First Semester		
TCI 691	Internship	3
or TCI 669	Independent Research Project	
Elective 2		3
TCI 695	Master's Thesis Hours	3
	Semester Hours	**9**
Second Semester		
TCI 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Project Track

Second Semester		**Hours**
TCI 690	Capstone Project	3
Elective 3		3
	Semester Hours	**6**
First Year		
First Semester		
TCI 611	Translation Studies	3
TCI 612	Transcreation Skills and Practices	1.5
TCI 613	Arabic Stylistics	1.5
TCI 615	Translation Practices and Tools	3
	Semester Hours	**9**
Second Semester		
TCI 623	Creative Industries, Economy and Sustainability	3
TCI 632	Project Management	3
TCI 634	Trends in Mediation in the Creative Industries	3
Elective 1		3
	Semester Hours	**12**
Second Year		
First Semester		
TCI 691	Internship	3
Elective 2		3
TCI 690	Capstone Project	3
	Semester Hours	**9**
	Total Hours	**36**

School of Economics and Management (SEM)

The School of Economics and Management (SEM) is a dynamic academic hub dedicated to preparing the next generation of economists, policymakers, and business leaders.

Rooted in the pillars of innovation, sustainability, and interdisciplinary excellence, SEM offers cutting-edge graduate programs that equip students with advanced analytical, digital, and leadership skills. Its curriculum blends economics, big data, AI, fintech, and entrepreneurship to address global and regional challenges.

For more information, (https://www.hbku.edu.qa/en/sem/)click here (https://www.hbku.edu.qa/en/sem/). (https://www.hbku.edu.qa/en/sem/)

Programs

- Economics, Master of Science (p. 25)

ECON 110 Economic Principles **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to essential concepts and tools used in microeconomic and macroeconomic analysis. Microeconomics deals with the behaviour of individual economic agents (persons, households and businesses) and shows how resources are allocated by the price mechanism through the interaction of consumer and producer decisions (demand and supply forces) under different market structures. Macroeconomics, however, deals with economics at an aggregate level focusing on such topics as the determinants of national income and economic growth, and the effects of fiscal and monetary policies on unemployment and inflation under different exchange rate regimes.

ECON 215 Economic Analysis for Engineering **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 161

This course introduces students to the fundamental principles of economic analysis with a focus on their application in engineering contexts. Students will learn to assess the economic viability of engineering projects, considering factors such as cost estimation, financial forecasting, and risk analysis.

ECON 601 Microeconomics: Theory & Applications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the foundational concepts and tools of microeconomic analysis as they apply to real-world decision-making. Designed for economic analysts and policy professionals, it deepens understanding of market behavior, pricing, and strategic interaction. Key topics include elasticity, consumer choice, cost and production, labor markets, monopoly, and game theory. Through a combination of theoretical insights and applied case studies, participants will develop practical modeling skills, apply data-driven approaches, and conduct policy analysis to interpret and influence economic outcomes in both private and public sector contexts.

ECON 602 Macro and Monetary Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This module introduces the core concepts and analytical tools of modern macroeconomics. It examines how aggregate outcomes such as economic growth, inflation, unemployment, and trade balances are determined and shaped by fiscal and monetary policy. Students gain a practical understanding of how economies function, how shocks transmit across markets, and how data and case studies can be used to analyse macroeconomic trends and policy implications using Stata.

ECON 603 Applied Econometrics 1 **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to core econometric methods and their practical application in empirical economic research. Students will learn how to build, estimate, and interpret econometric models using real-world data. Topics include multiple regression analysis, hypothesis testing, time series models, panel data methods, and volatility modelling. The emphasis is on applying techniques to real-world data using STATA, developing critical analytical skills, formulating and evaluating econometric models and translating empirical results into policy-relevant insights.

ECON 604 Research Methods in Economics & Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course equips MSc Economics students with essential research skills for rigorous inquiry in economics and finance. It covers research design, qualitative and quantitative methods, data sources, analytics techniques, and ethical research practices. Students learn to formulate research questions, design robust empirical strategies, analyze economic and financial data, and critically evaluate academic and policy-oriented studies to support evidence-based economic, financial, and sustainability-focused decision-making.

ECON 609 Economics of Climate Risk & ESG **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the economics of climate risk and Environmental, Social, and Governance (ESG) analytics, focusing on how climate-related risks and sustainability factors influence markets, investment decisions, and corporate value. Students will apply economic theories to assess physical and transition risks, analyze ESG metrics, and evaluate policy impacts. Key topics include carbon accounting, greenhouse gas measurement, and net-zero transition strategies. Through case studies, quantitative modelling, and emerging technologies such as AI and blockchain, participants will design strategies to manage risks, screen investment portfolios, and align incentives with global sustainability goals.

ECON 615 International Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This elective MSc module provides a rigorous and policy-relevant introduction to international economics, with a strong focus on international trade. Building on students' microeconomic and econometric foundations, it develops the theoretical and empirical tools needed to understand why countries trade, what they trade, and who gains or loses. The module covers classical and modern trade theories, links them to real-world evidence, and examines trade policy, WTO rules, and contemporary challenges shaping the global trading system.

ECON 619 Financial Economics **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

This module offers a comprehensive understanding of the behavior of stocks, portfolios, and derivatives in modern financial markets. It develops the theoretical foundations of optimal portfolio selection, investment decision-making, and the valuation and use of derivatives for risk management and hedging. By integrating theoretical analysis with empirical applications, the course equips students with analytical and technical skills to understand asset pricing, asset allocation, and the role of financial markets in the wider economy.

ECON 690 Capstone Project **6 Credits**
Grade Mode: Pass/Non Pass

ECON 695 Master's Thesis Hours **0-6 Credits**
Grade Mode: Pass/Non Pass

Economics, Master of Science

The Master of Science in Economics is a two-year program uniquely designed to combine economics, data analytics, and sustainability, making it the first of its kind in Qatar. Tailored to the evolving demands of the job market, this innovative graduate program equips students with advanced technical skills and practical knowledge essential for thriving in a data-driven digital economy. It aligns seamlessly with priority economic clusters outlined in Qatar's Third National Development Strategy (NDS3).

For more information, click here (https://www.hbku.edu.qa/en/msc-economics/).

Requirements

Thesis Track

Minimum hours required to complete program 36 CH

Code	Title	Hours
Common Core Courses		
ECON 601	Microeconomics: Theory & Applications	3
ECON 602	Macro and Monetary Economics	3
ECON 603	Applied Econometrics 1	3
ECON 604	Research Methods in Economics & Finance	3
Subtotal		12
Economic Field Courses (6 CH)		*6*
ECON 615	International Economics	
ECON 619	Financial Economics	
Track Courses		*9*
Track 1 : Standard Track		
For students who choose the standard track, no specialization will be indicated		
Any 3 Courses		
Track 2: Data Analytics Track		
ECON 605	Data Science Tools & Appl. for Economics & Finance	
ECON 606	Programming for Blockchain & Smart Contracts	
ECON 607	AI & Machine Learning for Economics & Finance	
ECON 608	Economics of AI, FinTech & Crypto Currency	
Track 3: Sustainability Track		
ECON 609	Economics of Climate Risk & ESG	
ECON 610	Economics of Sustainability	
ECON 611	Political Economy of Global Energy Markets	
ECON 612	Economic Modelling of Sustainability Challenges	
Thesis		*9*
ECON 695	Master's Thesis Hours	
Total Hours		**36**

Project Track

Minimum hours required to complete program 36 CH

Code	Title	Hours
Common Core Courses		
ECON 601	Microeconomics: Theory & Applications	3
ECON 602	Macro and Monetary Economics	3
ECON 603	Applied Econometrics 1	3
ECON 604	Research Methods in Economics & Finance	3
Subtotal		12
Economic Field Courses (6 CH)		*6*
ECON 615	International Economics	
ECON 619	Financial Economics	
Track Courses		*9*
Track 1 : Standard Track		
For students who choose the standard track, no specialization will be indicated		
Any 3 Courses		
Track 2: Data Analytics Track		
ECON 605	Data Science Tools & Appl. for Economics & Finance	
ECON 606	Programming for Blockchain & Smart Contracts	
ECON 607	AI & Machine Learning for Economics & Finance	
ECON 608	Economics of AI, FinTech & Crypto Currency	
Track 3: Sustainability Track		
ECON 609	Economics of Climate Risk & ESG	
ECON 610	Economics of Sustainability	
ECON 611	Political Economy of Global Energy Markets	
ECON 612	Economic Modelling of Sustainability Challenges	
Additional Elective		*3*
Project		*6*
ECON 690	Capstone Project	
Total Hours		**36**

College of Health and Life Sciences (CHLS)

The College of Health and Life Sciences (CHLS) provides essential educational and research training to future leaders in the fields of biomedical sciences, genomics, and precision medicine. The college embodies a multidisciplinary learning approach to research and discovery, and aims to become a dedicated hub of knowledge-sharing in the area of health and life sciences. Its programs integrate scientific expertise by combining a seasoned collective of research partners within the university with esteemed external clinical and health science partners.

For more information, click here (https://www.hbku.edu.qa/en/chls/).

Programs

- Biological and Biomedical Sciences (p. 32)
  - Biological and Biomedical Sciences, Master of Science (p. 32)
  - Biological and Biomedical Sciences, PhD (p. 34)
  - Biopsychology and Neuroscience, Master Of Science (p. 33)
  - Biopsychology and Neuroscience,Phd (p. 35)
- Exercise Science (p. 35)
  - Exercise Science, Master of Science (p. 35)
- Genomics and Precision Medicine (p. 36)
  - Genomics and Precision Medicine, Master of Science (p. 36)
  - Genomics and Precision Medicine, PhD (p. 37)

Courses

BIOL 101 Biology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course,#offered by the College of Life Sciences at Hamad Bin Khalifa University#will serve as an introduction to the fundamental principles of biology, with a specialized focus on biochemistry and molecular biology tailored for undergraduate engineering students. The students will explore the intricate biochemical processes and molecular mechanisms that underpin biological systems and will cover essential topics such as biomolecules, enzyme kinetics, metabolism, cellular signaling, and genetic regulation. Emphasis will be placed on understanding the structure-function relationships of biomolecules and the dynamic interactions within cells and organisms. This course will prepare students for further studies in biologically inspired engineering disciplines and equip them with the necessary tools to contribute to advancements in interdisciplinary fields.

BNS 601 Research Methods and Ethics in Biopsychology and Neuroscience **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

his course will introduce students to a range of methodologies and ethical considerations of research in neuroscience and create a forum for discussion and critical thinking. The methods section of the course will include visualizing brain structures, assessing and manipulating neuronal activity, in vivo stereotaxic neurosurgery, and neuroimaging technologies. The second section will tackle ethical aspects of using neurotechnology in medical and jurisdictional settings such as modulation of the human “brain/mind”, early signs of neurological and psychiatric diseases, evidence of awareness in patients in vegetative stage, or evidence of criminal culpability.

BNS 607 Biopsychology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers advanced concepts in cancer biology. The course begins with a focus on the cell death pathways, transformation of normal to cancer cells and subcellular changes within cancer cells, including non-coding RNA and epigenetic changes. It then covers the cancer cell environment and how cells metastasize. There is a special focus on how the immune system interacts with cancer cells. Finally, the course will present important tools for cancer research and anti-cancer drug development.

BNS 695 Master's Thesis Hours **0-6 Credits**
Grade Mode: Pass/Non Pass

BNS 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Core Life Sciences

CLS 600 Techniques in Biochemistry **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to train students in a range of standard biochemical and cellular biology techniques that are in routine use in a functioning biochemistry laboratory. The course combines lectures illustrating the scientific principles underlying a particular technique with hands-on experience of the methodology in the laboratory. Techniques include protein expression, purification, gel analysis, protein structure and cell culture.

CLS 625 Applied Biostatistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The aim of this course is to introduce the fundamental biostatistical concepts to life science students. It aims to give an overview of the statistical and computational ideas required for analysis methods in biological sciences, and provide hands-on experience in analysis. This course does not assume that the student has a background in mathematics and computer science, but introduces all necessary background during the course. The course is appropriate for graduate students and researchers in health and life sciences.

CLS 661 Special Topics in Biosensors **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Over the past 20 years, the field of bio-sensing technology has had a profound impact on both laboratory research as well as commercial activities. With the advance of semiconductor and nanofabrication technologies, bio-technological application-specific integrated circuits (ASICs) have become a major trend in research as well as industry. Examples include DNA sensing, microelectrode measurement array systems for in-vitro and in-vivo physiological research at the cellular level. Bio-sensing has had a major impact on different fields including, E-health systems, genome research and drug development.

CLS 706 Independent Studies **3 Credits**
Grade Mode: Standard Letter

Independent Studies allow students to examine a variety of timely, cutting-edge research areas in life sciences. Taught by our faculty, research scientists from our research institutes or associated industries, this course allows students to keep up with novel trends and topics in the field.

CLS 711 Development and Diseases of The Nervous System 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The aim of the course is to unfold the processes that underlie the formation and disorders the nervous system at the molecular, cellular and circuitry levels. The course will focus on genes/proteins and signaling pathways involved in neural induction, neural tube closure, patterning of the nervous system, neurogenesis, neuronal migration, axon pathfinding, as well as formation and refinement of synapses. Both physiological and pathological conditions will be addressed.

CLS 726 Proteomics in Precision Medicine 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

Personalized medicine has revolutionized the medical practice, and to achieve its goals today we are not only dependent on genomics but also on the proteomics for accurate diagnosis and efficient treatments. Thus, there is a growing demand for proteomics-based learning and applications in the field of basic and clinical research. The course 'Proteomics in precision medicine' will bridge this knowledge gap in the GPM program by teaching the students key concepts of proteomics and the overall applications and limitations.

CLS 751 Molecular Mechanisms of Cancer and Their Applications 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course will introduce students to the molecular mechanisms that lead to cancer development. It will describe the methods used to study these mechanisms and how they can be exploited in cancer diagnostics and therapy.

Epidemiology

EPID 700 Introduction to Epidemiology 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The major purpose of this core course is to introduce students to the discipline of epidemiology and its application to public health issues and practice.

Exercise Science

EXSC 695 Master's Thesis Hours 1-6 Credits
Grade Mode: Pass/Non Pass

Full time work in a laboratory to perform experiments related to the MS Thesis dissertation. Thesis research is an essential component of the graduate degree in Exercise Science at HBKU. All students are required to engage in thesis research.

EXSC 700 Physical Activity and Health: Epidemiology, Research and Practice 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

An introduction to physical activity epidemiology with an emphasis on the relationships between exercise and health for promotion of physical activity in clinical and public health settings.

EXSC 710 Behavioral Aspects of Physical Activity 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The major goal of this course is to increase your understanding of the role that behavioral factors play in physical activity and exercise. The first part of the course covers major behavioral and psychological theories that have been applied to exercise and physical activity. The second part of the course covers behaviorally oriented interventions to promote physical activity and exercise. Issues unique to children, older adults, women, and people of color will be highlighted. The final part of the course covers the impact of physical activity and exercise on mental health outcomes. This section includes an overview of the role that depression plays in morbidity and mortality.

EXSC 731 Mechanisms of Motor Skill Performance 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

A study of theories and mechanisms in human movement. Focus is on analysis of principles and systems of gross motor control and learning.

EXSC 732 Applied Biomechanics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The focus of this course is to apply general principles of mechanics and physics to analyze human movement. Students will develop an understanding of forces within muscles, the strength properties of bones, the variety of joint designs and resulting different degrees of freedom, and how these initiate and control human movement. Basic mechanics (statics, kinematics, and kinetics) will be studied in two and three dimensions. The biomechanics of human walking and running gait will be investigated

EXSC 742 Clinical Exercise Testing 1 Credit
Grade Mode: Standard Letter, Audit/Non Audit

This course is a clinical exercise laboratory course intended for the student with little or no exercise science laboratory experience. In this course students will acquire the basic knowledge of clinical exercise testing with an overall emphasis on physiological measurement and interpretation of data.

EXSC 743 Lab Measurements for Exercise Testing 1 Credit
Grade Mode: Standard Letter, Audit/Non Audit

This course expands the student's knowledge of exercise testing through the biochemical determination of plasma variables and how these variables may change during or following exercise. The course emphasizes the importance of matching a biochemical response to the physiological measurements during exercise testing.

EXSC 780 Physiology of Exercise 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

Physiological responses to exercise: skeletal muscle structure and function, cardiorespiratory function, physiological determinants of exercise performance, and training adaptations.

EXSC 781 Physiology, Exercise and Disease 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide students with the basic understanding of physiological adaptations to exercise and disease as it relates to the study of the nervous system, the skeletal muscular system, the cardiovascular system and the gastrointestinal system.

EXSC 784 Cardiopulmonary Exercise Testing and Prescription 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course will instruct the students in the physiological background and theory underlying cardiopulmonary exercise testing, and provide hands on practical experience in laboratory methods of cardiopulmonary exercise testing, lung function and ECG. General principles of exercise prescription and programming will also be covered

EXSC 787 Research Methods and Design for Exercise Science 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The major goal of this course is to provide an in-depth examination of research concepts, terminology, experimental, non-experimental, and epidemiological designs, internal and external validity, methods for establishing causality and investigating associations, and application of designs to test hypotheses in research of exercise science-related outcomes. Examples will be drawn from numerous disciplines, with the primary emphasis placed on those dealing with topics directly related to exercise science. Students will be required to read, critically evaluate, and discuss research articles and conceptual papers. Issues unique to different research designs will be highlighted. Students should have a basic understanding of statistics (e.g., variance, correlation). While statistics will not be discussed in this class, the overlay of statistics and research design cannot be separated.

Genomics & Precision Medicine

GPM 601 Research Methods and Ethics in Health and Genomics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to provide a comprehensive overview on research ethics, scientific thinking, and academic writing as well as guidelines for study design and good research practice. The course will also offer state-of-the-art knowledge relating to novel methods in genomics, precision medicine, and health analytics.

GPM 602 Clinical Applications in Genomics and Precision Medicine 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course covers fundamental concepts in the application of genomic and precision medicine in a clinical context. Included are modules on relevant technologies with emphasis on data interpretation for clinical outcome, drug design, as well as problem based learning components in clinical genomics and precision medicine

GPM 604 Advanced Genetics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The course covers important concepts and principles in genetics, such as inheritance, developmental processes, genetic variability, genetic mapping of diseases as well as genetic testing, DNA sequencing technologies, and treatment approaches to genetically inherited diseases.

GPM 607 Molecular Pathology 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course covers current concepts in molecular pathology and their application in translational research and diagnostics, with particular emphasis on the molecular pathology of cancer, cardiovascular, neurological and infectious disease.

GPM 695 Master's Thesis Hours 1-6 Credits
Grade Mode: Pass/Non Pass

Full time work in a laboratory to perform experiments related to the MS Thesis dissertation. Thesis research is an essential component of the graduate degree in Biological and Biomedical Sciences at HBKU. All students are required to engage in thesis research.

GPM 705 Introduction to Data Science 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

Genomics and precision medicine require handling, exploring and understanding large data sets. This course aims to introduce students to basic concepts from probability, statistical inference, linear regression and machine learning using R. No previous knowledge of programming is required, as the course will introduce basic programming concepts and through examples will enable students to ask the right questions, perform their own analyses and visualize the results effectively. The course will provide the students with hands-on programming experience.

GPM 720 Pharmacogenomics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course covers fundamental concepts in the field of Pharmcogenomics and how it will help in the realization of personalized medicine. It will include the basic principles of drug discovery and design, pharmacology, pharmacogenetics and pharmacogenomics applied to several disease conditions.

GPM 721 Bioinformatics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The course will convey the fundamentals of bioinformatics methods for genomics data analysis to life science students. It aims to communicate the computational ideas behind key analysis methods in genomics and to provide practical training in using web-based tools and bioinformatics software packages in R. It will enable students to perform basic analysis steps for sequencing data. This course does not assume that the student has a background in mathematics and computer science, but rather introduces mathematical concepts and/or programming languages, as they are needed.

GPM 733 Epigenetics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

GPM 733 is an elective epigenetic course. The course will provide an introduction to various epigenetic mechanisms and explain how they determine chromatin architecture and control gene expression. This is important to understand transcriptional regulation particularly during development, as well as during stem cell (re)programming. In addition, the course will cover how epigenetic alterations can cause aberrant silencing or activation of genes that can have an influence on health and disease. An acquaintance with the field of epigenetics is essential for a major in Genomics and Precision Medicine.

GPM 890 Dissertation Hours 1-9 Credits
Grade Mode: Pass/Non Pass

Full time work in a laboratory to perform experiments related to the PhD Thesis dissertation. Thesis research is an essential component of the graduate degree in Biological and Biomedical Sciences at HBKU. All students are required to engage in thesis research.

HELT 115 Health and Wellness in Modern Society **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course, offered by the College of Life Sciences at Hamad Bin Khalifa University, is tailored for engineering undergraduates to understand the pivotal role of health and wellness in modern society. Integrating basic biological sciences, precision medicine, exercise science, neuroscience, and nutrition, the course highlights how these areas impact physical and mental well-being. Students will learn to apply these concepts to improve individual and community health. Through interactive lectures and practical projects, future engineers will be equipped to incorporate health considerations into their professional practice and daily lives, fostering a holistic approach to engineering and societal contributions.

Life Sciences

LS 601 Research Methods and Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is a foundational course for graduate students who will be engaged in research with a focus on health sciences and precision medicine. It provides students with advanced discussions on ethics and ethical misconduct, intellectual property and environmental health and safety as well as scientific thought and design of experiments. A focus of the course is to transition students from textbooks to primary literature as their main source of information.

LS 603 Advanced Molecular Biology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course covers the important principles in Molecular Biology, including the replication of DNA, how DNA is converted to RNA, how RNA is modified, transported and regulated, and finally how it is converted to protein. Through the use of primary literature papers, students will gain a current understanding of these subjects.

LS 605 Advanced Cell Biology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course builds on the knowledge students acquired in Advanced Molecular Biology and covers the important principles of Cell Biology, the study of the basic unit of life. By relying heavily on recently published seminal scientific papers, students will acquire an accurate understanding of the current research progress in key areas in cell biology.

LS 607 Advanced Human Physiology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on how the human body functions as an integrated system in which cells, tissues, and organs interact to maintain a healthy body. It covers the anatomy and physiology of cardiovascular, respiratory, muscle, renal, gut and endocrine systems. The course also highlights the pathophysiology of some disease conditions.

LS 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Full time work in a laboratory to perform experiments related to the MS Thesis dissertation. Thesis research is an essential component of the graduate degree in Biological and Biomedical Sciences at HBKU. All students are required to engage in thesis research.

LS 701 Research Seminar **0 Credits**
Grade Mode: Pass/Non Pass

The HBKU Life Science Seminar Series engages students, local researchers, and scientists to catalyze information exchange and networking among researchers for the advancement of life science research in Qatar.

LS 708 Advanced Neuroscience **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This graduate course will provide knowledge on fundamental principles that encompass the multidisciplinary field of neuroscience. This will include basic principles of membrane excitability, neuronal information transfer and storage, neuropharmacology, neurodevelopment, sensory systems physiology, behavior and clinical manifestations. Focus on each of these topic areas will include interactive lectures together with development of critical thinking via review and discussion of recent scientific articles that are advancing the field. The course material encompasses molecular, cellular tissue and systems level physiology in each of the sub-discipline areas. Emphasis will be on providing a solid foundation in basic principles to prepare those conducting research in neuroscience to implement the transdisciplinary information in innovative ways.

LS 709 Molecular and Cellular Biology of Neurodegenerative Diseases **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will engage students in a detailed exploration of the most important neurological disorders, including Alzheimer's disease (AD), Parkinson's disease (PD), Huntington's disease (HD) and prion diseases. With an initial focus on clinical descriptions for each condition, an in-depth discussion on current hypotheses about the mechanisms underlying these diseases will constitute the bulk of this course.

LS 710 Cancer Biology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers advanced concepts in cancer biology. The course begins with a focus on the cell death pathways, transformation of normal to cancer cells and subcellular changes within cancer cells, including non-coding RNA and epigenetic changes. It then covers the cancer cell environment and how cells metastasize. There is a special focus on how the immune system interacts with cancer cells. Finally, the course will present important tools for cancer research and anti-cancer drug development.

LS 712 Cancer Immunology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Cancer Immunotherapy was selected by "Science" journal as the breakthrough of the year for 2013, which placed it in the company of the first cloned mammal and the complete sequencing of the human genome. Cancer immunology is now one of the most active areas of cancer research and has prompted the development of several important novel therapies currently in use, including cytokine-based therapies, vaccine therapies, and monoclonal antibody therapies. It aims to understand the interaction between immune system and cancer cells, and to discover innovative cancer immunotherapies to treat and retard progression of the disease. This course covers the important aspects of cancer immunology including immune surveillance/editing theory, immune evasion, immunopathogenesis of cancer and tumor antigens. In addition, the different immunotherapeutic approaches of cancer, including T-cell therapy, antibody-based therapies and cancer vaccines will be covered.

LS 713 Behavior, Learning and Memory **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the biological foundations of behavior, learning, and memory through a multidisciplinary neuroscience approach. Key topics include brain-behavior relationships, neural circuits, synaptic plasticity, and molecular mechanisms of memory formation. Students will engage with both theoretical concepts and demonstration sessions on behavioral neuroscience research. The course features observation-based learning of modern neuroscience techniques including behavioral tracking, optogenetics, and disease modeling approaches. Through evaluation of scientific literature and real-world applications, students will develop critical thinking skills in behavioral neuroscience.

LS 714 Scientific Communication and Professional Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course will cover key concepts in effective scientific communication, both written and oral. It will also address aspects of CV and cover letter preparation for academia and industry. In addition, it will provide the skills needed in mentoring, establishing collaborations and getting funded in academia.

LS 715 Physiopathological Mechanisms of Neurogenetic Diseases **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is intended for graduate students interested in gaining a detailed understanding of molecular mechanisms underlying physiopathological mechanism of genetic diseases related to synapses and muscles. Throughout the course, the focus will be on understanding the experimental approaches that produced current knowledge. Students will be assigned recent research papers as their primary reading materials. About 2/3 of the classes will be lectures by the instructor and 1/3 will be student led discussions of papers.

LS 716 Advanced Techniques in Biomedical Sciences **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to provide students with both the theoretical and practical knowledge necessary to apply laboratory techniques to their own research projects. It covers a range of techniques, from conventional methods to advanced approaches and model systems commonly used in biomedical research, including tissue culture, cell imaging, and the analysis of DNA, RNA, and proteins. The course emphasizes how to apply these techniques to specific research questions, as well as the critical analysis of the resulting laboratory data.

LS 730 Mechanobiology in Health and Disease **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers key principles in mechanobiology, the study of how mechanical environment and cues affect cellular behavior, and how these signals are communicated through mechanotransduction. This course will focus on our most up-to-date understanding of this rapidly growing area of biology and rely heavily on recently published seminal publications.

LS 740 Stem Cell Biology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is intended as an introduction and in-depth discussion focused on the biology of stem cells. The course will introduce the features of stem cells and basic mechanisms regulating their self-renewal and pluripotency. In addition, the course will focus on selected examples of adult stem cells with an introduction to translational medicine approaches involving stem cell biology. Major emphasis will be placed on how advances in stem cell biology and tissue engineering can be applied to the use of embryonic and adult stem cells in regenerative medicine. In addition to these topics, students will be introduced to the ethical, regulatory, and legal issues related to stem cell research.

LS 741 Signal Transduction in Health and Diseases **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course will engage students in the concepts of signal transduction, and how the signaling pathways drive different physiological as well as pathological conditions such as diabetes, cancer, and neurological disorders.

LS 742 Advances in Human Metabolism and Disease **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course will provide an in-depth analysis of the relationships between metabolism and important human diseases. It will focus on the pathways of intermediary metabolism by which all cells synthesize and degrade carbohydrates, lipids (fats) and proteins; and discuss how these pathways are regulated by effector molecules and by hormones in living systems. Much of the emphasis will be on how several human disorders such as obesity, diabetes, cardiovascular disease, the metabolic syndrome and cancer arise from defects in metabolic pathways.

LS 751 Immunology and Immunogenomics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses important concepts in immunology and gives students a broad knowledge base from which they can continue to learn advanced concepts and pursue research in any aspect within the field. The course also covers concepts in immunogenetics including how genetic defects affect immune responses, resulting in diverse phenotypes or consequences. The course will start with lectures 2 hours a week to teach fundamental concepts, then continue starting week 9 with 5 hours/week of hands-on training/practical on experimental methods/tools in immunology as well as student journal club presentations. Lastly, the course will conclude with a workshop on immunogenetics and inborn errors of immunity by guest lecturers from IMAGINE Institute, Paris, France. The course assumes basic knowledge of cell and molecular biology.

LS 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Full time work in a laboratory to perform experiments related to the PhD Thesis dissertation. Thesis research is an essential component of the graduate degree in Biological and Biomedical Sciences at HBKU. All students are required to engage in thesis research.

PSYC 101 Introduction to Psychology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces engineering undergraduates to the fundamental principles of psychology. Covering key topics such as cognitive processes, emotional regulation, development, social behavior, and mental health, students will gain a comprehensive understanding of human behavior and mental functions. Emphasizing the relevance of psychological concepts in engineering, the course explores how psychological principles can enhance problem-solving, team collaboration, and user-centered design. Through lectures, discussions, and practical assignments, students will develop critical thinking skills and an appreciation for the psychological factors influencing human interactions and technological advancements.

STAT 501 Introduction to Statistics and Research Method **3 Credits**
Grade Mode: Standard Letter

This course is a foundational course for graduate students who will be engaged in biomedical sciences research. It provides students with basic statistical knowledge, power calculation and project design Advanced discussions on ethics and ethical misconduct, intellectual property and environmental health and safety as well as scientific thought, and design of experiments are also covered. A focus of the course is to transition students from textbooks to primary literature as their main source of information.

Biological and Biomedical Sciences

Programs

Biological and Biomedical Sciences, Master of Science

The Master of Science in Biological and Biomedical Sciences (BBS) is a multidisciplinary graduate program that aims to train the next generation of leaders in biomedical sciences.

The Master's offer students an education that provides them with an advanced level of knowledge – particularly in applied areas of biological and biomedical sciences – and helps them develop critical and independent reasoning skills.

For more information, click here (https://www.hbku.edu.qa/en/chls/ms-biological-biomedical/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
LS 601	Research Methods and Ethics	3
LS 603	Advanced Molecular Biology	3
LS 605	Advanced Cell Biology	3
LS 607	Advanced Human Physiology	3
CLS 625	Applied Biostatistics	3
Subtotal		15
Elective Courses		
Select one of the following Options:		9
Option 1: Select three electives		
Option 2: Select two elective courses of the following + one free elective from the list below:		
LS 708	Advanced Neuroscience	
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	
LS 710	Cancer Biology	
LS 712	Cancer Immunology	
LS 713	Behavior, Learning and Memory	
LS 714	Scientific Communication and Professional Development	
LS 715	Physiopathological Mechanisms of Neurogenetic Diseases	
LS 740	Stem Cell Biology	
LS 741	Signal Transduction in Health and Diseases	
LS 742	Advances in Human Metabolism and Disease	
LS 751	Immunology and Immunogenomics	
GPM 604	Advanced Genetics	
CLS 600	Techniques in Biochemistry	
CLS 661	Special Topics in Biosensors	
CLS 711	Development and Diseases of The Nervous System	
CLS 706	Independent Studies	
Free Electives		
AIE 633	Islamic Bioethics	
CLS 726	Proteomics in Precision Medicine	
CLS 751	Molecular Mechanisms of Cancer and Their Applications	
CSE 785	Innovation Entrepreneurship and Leadership I	

EPID 700	Introduction to Epidemiology	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 731	Mechanisms of Motor Skill Performance	
EXSC 780	Physiology of Exercise	
GPM 602	Clinical Applications in Genomics and Precision Medicine	
GPM 607	Molecular Pathology	
GPM 720	Pharmacogenomics	
GPM 721	Bioinformatics	
GPM 733	Epigenetics	
Subtotal		9
Seminar		
Must pass twice		
LS 701	Research Seminar	0
Subtotal		0
Thesis		
LS 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

First Year		
First Semester		**Hours**
CLS 625	Applied Biostatistics	3
LS 601	Research Methods and Ethics	3
LS 607	Advanced Human Physiology	3
LS 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
LS 603	Advanced Molecular Biology	3
LS 605	Advanced Cell Biology	3
LS 701	Research Seminar	0
Elective 1		3
	Semester Hours	**9**
Second Year		
First Semester		
LS 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Semester		
LS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Biopsychology and Neuroscience, Master Of Science

The Master of Science in Biopsychology and Neuroscience aims to build human capacity and train the next generation of researchers in the field of Neuroscience and Mental Health. The master's degree provides the students with knowledge of the biological foundations of neurological and psychiatric diseases. It also helps them develop critical and independent reasoning skills.

For more information, click here (https://www.hbku.edu.qa/en/chls/ms-biopsychology-neuroscience/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
BNS 601	Research Methods and Ethics in Biopsychology and Neuroscience	3
BNS 607	Biopsychology	3
CLS 625	Applied Biostatistics	3
CLS 711	Development and Diseases of The Nervous System	3
LS 708	Advanced Neuroscience	3
Subtotal		15
Elective Courses		9
LS 713	Behavior, Learning and Memory	
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	
Free Electives		
LS 603	Advanced Molecular Biology	
LS 714	Scientific Communication and Professional Development	
GPM 604	Advanced Genetics	
GPM 721	Bioinformatics	
GPM 733	Epigenetics	
GPM 720	Pharmacogenomics	
EXSC 710	Behavioral Aspects of Physical Activity	
LS 740	Stem Cell Biology	
Seminar		
LS 701	Research Seminar	
Thesis		9
BNS 695	Master's Thesis Hours	
Total Hours		**33**

First Year		
First Semester		**Hours**
BNS 601	Research Methods and Ethics in Biopsychology and Neuroscience	3
LS 708	Advanced Neuroscience	3
CLS 711	Development and Diseases of The Nervous System	3
LS 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
CLS 625	Applied Biostatistics	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
BNS 607	Biopsychology	3
BNS 695	Master's Thesis Hours	3
Elective 3		3
	Semester Hours	**9**
Second Semester		
BNS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Biological and Biomedical Sciences, PhD

The Master of Science and PhD programs in Biological and Biomedical Sciences (BBS) are multidisciplinary graduate programs that aim to train the next generation of leaders in biomedical sciences.

The Master's and PhD degree paths offer students an education that provides them with an advanced level of knowledge – particularly in applied areas of biological and biomedical sciences – and helps them develop critical and independent reasoning skills.

For more information, click here (https://www.hbku.edu.qa/en/chls/phd-biological-biomedical/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
LS 601	Research Methods and Ethics	3
CLS 625	Applied Biostatistics	3
LS 716	Advanced Techniques in Biomedical Sciences	3
Subtotal		9
Elective Courses		
Select three of the following:		9
CLS 600	Techniques in Biochemistry	
CLS 661	Special Topics in Biosensors	
CLS 706	Independent Studies	
CLS 711	Development and Diseases of The Nervous System	
GPM 604	Advanced Genetics	
LS 603	Advanced Molecular Biology	
LS 605	Advanced Cell Biology	
LS 607	Advanced Human Physiology	
LS 708	Advanced Neuroscience	
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	
LS 710	Cancer Biology	
LS 712	Cancer Immunology	
LS 713	Behavior, Learning and Memory	
LS 714	Scientific Communication and Professional Development	
LS 715	Physiopathological Mechanisms of Neurogenetic Diseases	
LS 730	Mechanobiology in Health and Disease	
LS 740	Stem Cell Biology	
LS 741	Signal Transduction in Health and Diseases	
LS 742	Advances in Human Metabolism and Disease	
LS 751	Immunology and Immunogenomics	
Subtotal		9
Free Electives		
Can select a maximum of one of the following:		
AIE 633	Islamic Bioethics	
CLS 726	Proteomics in Precision Medicine	
CLS 751	Molecular Mechanisms of Cancer and Their Applications	
CSE 785	Innovation Entrepreneurship and Leadership I	
EPID 700	Introduction to Epidemiology	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 731	Mechanisms of Motor Skill Performance	
EXSC 780	Physiology of Exercise	
GPM 602	Clinical Applications in Genomics and Precision Medicine	
GPM 607	Molecular Pathology	
GPM 720	Pharmacogenomics	
GPM 721	Bioinformatics	
GPM 733	Epigenetics	
Seminar		
Must pass twice		
LS 701	Research Seminar	0
Subtotal		0
Dissertation		
LS 890	Dissertation Hours	1-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
799	Candidacy Exam	0
790	Qualifying Exam	0
Total Hours		60

Study Plan

First Year		
First Semester		**Hours**
CLS 625	Applied Biostatistics	3
LS 601	Research Methods and Ethics	3
LS 701	Research Seminar	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
LS 701	Research Seminar	0
LS 716	Advanced Techniques in Biomedical Sciences	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
LS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LS 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
LS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LS 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
LS 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Biopsychology and Neuroscience,Phd

The PhD program in Biopsychology and Neuroscience (BNS) is a multidisciplinary graduate program that aims at training the next generation of leaders in Neuroscience. The BNS program is designed to enhance the research capacity and mental health care in Qatar, by providing students with the necessary skills and knowledge to tackle complex problems related to mental health and behavior.

For more information, click here (https://www.hbku.edu.qa/en/chls/phd-biopsychology-neuroscience/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
LS 708	Advanced Neuroscience	3
CLS 711	Development and Diseases of The Nervous System	3
Subtotal		6
Elective Courses		
LS 713	Behavior, Learning and Memory	3
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	3
BNS 607	Biopsychology	3
Free Electives		
LS 603	Advanced Molecular Biology	3
LS 740	Stem Cell Biology	3
LS 714	Scientific Communication and Professional Development	3
GPM 604	Advanced Genetics	3
GPM 721	Bioinformatics	3
GPM 733	Epigenetics	3
GPM 720	Pharmacogenomics	3
EXSC 710	Behavioral Aspects of Physical Activity	3
Seminar		
LS 701	Research Seminar	0
Thesis		
BNS 890	Dissertation Hours	9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	
799	Candidacy Exam	
Total		**60**

First Year		
First Semester		**Hours**
LS 708	Advanced Neuroscience	3
CLS 711	Development and Diseases of The Nervous System	3
LS 701	Research Seminar	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
Elective 2		3
Elective 3		3
Elective 4		3
LS 701	Research Seminar	0
	Semester Hours	**9**
Second Year		
First Semester		
BNS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
BNS 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
BNS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
BNS 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
BNS 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Exercise Science

Programs

- Exercise Science, Master of Science (p. 35)

Exercise Science, Master of Science

The Master of Science (MS) in Exercise Science is offered by CHLS, working toward a joint degree with the number 1 ranked graduate Exercise Science program in the United States of America, offered by the Arnold School of Public Health at the University of South Carolina (USC).

Capitalizing on the recognized strengths of the USC program, the MS in Exercise Science will establish within Qatar and the MENA region a top-ranked educational and research degree program in exercise science. The program aligns with the objectives of the Qatar National Vision 2030 and the National Health Strategy 2018-2022, aiming to promote healthy lifestyles and enhance the health and welfare of the people of Qatar.

The MS in Exercise Science program is the only graduate program in exercise science in Qatar and prepares students for a spectrum of health-related specialties and professions within the field of Exercise Science.

For more information, click here (https://www.hbku.edu.qa/en/chls/ma-science-exercise-science/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
CLS 625	Applied Biostatistics	3
EXSC 780	Physiology of Exercise	3
EXSC 787	Research Methods and Design for Exercise Science	3
PUBH 700	Perspectives in Public Health [1]	3

Select one of the following:		3
EXSC 700	Physical Activity and Health: Epidemiology, Research and Practice	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 731	Mechanisms of Motor Skill Performance	
EXSC 777	Endocrinology of Exercise and Health [1]	
Subtotal		15
Elective Courses		
Students may take up to 6 credits from CHLS courses in addition to courses below:		12
EPID 700	Introduction to Epidemiology	
EXSC 700	Physical Activity and Health: Epidemiology, Research and Practice	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 731	Mechanisms of Motor Skill Performance	
EXSC 742	Clinical Exercise Testing	
EXSC 743	Lab Measurements for Exercise Testing	
EXSC 777	Endocrinology of Exercise and Health [1]	
EXSC 781	Physiology, Exercise and Disease	
EXSC 784	Cardiopulmonary Exercise Testing and Prescription	
EXSC 732	Applied Biomechanics	
Subtotal		12
Thesis		
EXSC 695	Master's Thesis Hours	1-6
Subtotal		6
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

[1] Courses offered by the University of South Carolina

Study Plan

First Year		
First Semester		**Hours**
CLS 625	Applied Biostatistics	3
EXSC 732	Applied Biomechanics	3
EXSC 780	Physiology of Exercise	3
PUBH 700	Perspectives in Public Health	3
	Semester Hours	**12**
Second Semester		
EXSC 787	Research Methods and Design for Exercise Science	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3
EXSC 695	Master's Thesis Hours	3
	Semester Hours	**9**
Second Semester		
EXSC 695	Master's Thesis Hours	3
	Semester Hours	**3**
	Total Hours	**33**

Genomics and Precision Medicine

Programs

- Genomics and Precision Medicine, Master of Science (p. 36)
- Genomics and Precision Medicine, PhD (p. 37)

Genomics and Precision Medicine, Master of Science

HBKU's Genomics and Precision Medicine (GPM) programs are multidisciplinary graduate courses that have been designed to prepare the next generation of professionals and leaders, who will help implement the use of precision and personalized medicine in the healthcare system.

The Master of Science and PhD degree paths in GPM offer students advanced knowledge and training in state-of-the-art information gathering and analysis technologies in order to integrate "omics" – the branch of biology that deals with data on global changes at the molecular level in patients – with clinical data.

For more information, click here (https://www.hbku.edu.qa/en/chls/ms-genomics-precision-medicine/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
GPM 601	Research Methods and Ethics in Health and Genomics	3
GPM 602	Clinical Applications in Genomics and Precision Medicine	3
GPM 607	Molecular Pathology	3
GPM 604	Advanced Genetics	3
CLS 625	Applied Biostatistics	3
Subtotal		15
Elective Courses		
Select one of the following Options:		9
Option 1: Select three electives		
Option 2: Select two elective courses of the following + one free elective from the list below:		
AIE 633	Islamic Bioethics	
CLS 600	Techniques in Biochemistry	
CLS 726	Proteomics in Precision Medicine	
CLS 751	Molecular Mechanisms of Cancer and Their Applications	
DSEG 660	Applied Deep Learning	
DSEG 760	Machine Learning	
GPM 720	Pharmacogenomics	
GPM 721	Bioinformatics	
GPM 733	Epigenetics	
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 716	Data Science Tools and Applications	
LAW 753	Healthcare Law	
LS 603	Advanced Molecular Biology	

LS 607	Advanced Human Physiology	
LS 714	Scientific Communication and Professional Development	
CLS 706	Independent Studies	
Subtotal		9
Free Electives		
CLS 661	Special Topics in Biosensors	
CLS 711	Development and Diseases of The Nervous System	
CSE 785	Innovation Entrepreneurship and Leadership I	
EPID 700	Introduction to Epidemiology	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 780	Physiology of Exercise	
LS 605	Advanced Cell Biology	
LS 708	Advanced Neuroscience	
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	
LS 710	Cancer Biology	
LS 712	Cancer Immunology	
LS 713	Behavior, Learning and Memory	
LS 715	Physiopathological Mechanisms of Neurogenetic Diseases	
LS 740	Stem Cell Biology	
LS 741	Signal Transduction in Health and Diseases	
LS 742	Advances in Human Metabolism and Disease	
LS 751	Immunology and Immunogenomics	
Seminar		
Must pass twice		
LS 701	Research Seminar	0
Subtotal		0
Thesis		
GPM 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	
Total		**33**

Study Plan

First Year		
First Semester		**Hours**
CLS 625	Applied Biostatistics	3
GPM 601	Research Methods and Ethics in Health and Genomics	3
GPM 604	Advanced Genetics	3
LS 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
GPM 602	Clinical Applications in Genomics and Precision Medicine	3
GPM 607	Molecular Pathology	3
LS 701	Research Seminar	0
Elective 1		3
	Semester Hours	**9**
Second Year		
First Semester		
GPM 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Semester		
GPM 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Genomics and Precision Medicine, PhD

HBKU's Genomics and Precision Medicine (GPM) programs are multidisciplinary graduate courses that have been designed to prepare the next generation of professionals and leaders, who will help implement the use of precision and personalized medicine in the healthcare system.

The Master of Science and PhD degree paths in GPM offer students advanced knowledge and training in state-of-the-art information gathering and analysis technologies in order to integrate "omics" – the branch of biology that deals with data on global changes at the molecular level in patients – with clinical data.

For more information, click here (https://www.hbku.edu.qa/en/chls/phd-genomics-precision-medicine/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
GPM 705	Introduction to Data Science	3
Subtotal		3
Elective Courses		
Select five of the following:		15
AIE 633	Islamic Bioethics	
CLS 600	Techniques in Biochemistry	
CLS 625	Applied Biostatistics	
CLS 726	Proteomics in Precision Medicine	
CLS 751	Molecular Mechanisms of Cancer and Their Applications	
DSEG 660	Applied Deep Learning	
DSEG 760	Machine Learning	
GPM 601	Research Methods and Ethics in Health and Genomics	
GPM 602	Clinical Applications in Genomics and Precision Medicine	
GPM 604	Advanced Genetics	
GPM 607	Molecular Pathology	
GPM 720	Pharmacogenomics	
GPM 721	Bioinformatics	
GPM 733	Epigenetics	
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 716	Data Science Tools and Applications	
LAW 753	Healthcare Law	
LS 603	Advanced Molecular Biology	
LS 607	Advanced Human Physiology	

LS 714	Scientific Communication and Professional Development	
CLS 706	Independent Studies	
Subtotal		15
Free Electives		
Can select a maximum of one of the following:		
CLS 661	Special Topics in Biosensors	
CLS 711	Development and Diseases of The Nervous System	
CSE 785	Innovation Entrepreneurship and Leadership I	
EPID 700	Introduction to Epidemiology	
EXSC 710	Behavioral Aspects of Physical Activity	
EXSC 780	Physiology of Exercise	
LS 605	Advanced Cell Biology	
LS 708	Advanced Neuroscience	
LS 709	Molecular and Cellular Biology of Neurodegenerative Diseases	
LS 710	Cancer Biology	
LS 712	Cancer Immunology	
LS 713	Behavior, Learning and Memory	
LS 715	Physiopathological Mechanisms of Neurogenetic Diseases	
LS 740	Stem Cell Biology	
LS 741	Signal Transduction in Health and Diseases	
LS 742	Advances in Human Metabolism and Disease	
LS 751	Immunology and Immunogenomics	
Seminar		
Must pass twice		
LS 701	Research Seminar	0
Subtotal		0
Dissertation		
GPM 890	Dissertation Hours	1-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	
799	Candidacy Exam	
790	Qualifying Exam	
Total Hours		**60**

Study Plan

First Year		
First Semester		**Hours**
LS 701	Research Seminar	0
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Semester		
GPM 705	Introduction to Data Science	3
LS 701	Research Seminar	0
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Year		
First Semester		
GPM 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
GPM 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
GPM 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
GPM 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
GPM 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

College of Islamic Studies (CIS)

The College of Islamic Studies (CIS) was established as a home for contemporary Islamic studies and to provide a unique platform for faculty and students to contribute to intellectual debates on Islam in a global context.

For more information, click here (https://www.hbku.edu.qa/en/cis/about/).

Programs

- Islamic Finance (p. 54)
  - Islamic Finance and Economy, PhD (p. 54)
  - Islamic Finance, Graduate Certificate (p. 56)
  - Islamic Finance, Master of Science (p. 55)
- Islamic Psychology and Psychotherapy, Graduate Certificate (p. 63)
- Islamic Studies (p. 57)
  - Counseling Psychology, Master of Arts (p. 58)
  - Applied Islamic Ethics, Master of Arts (p. 57)
  - Comparative Primary Education, Graduate Teaching Certificate (https://catalog.hbku.edu.qa/academic-degrees/cis/isd/ce-ced/)
  - Contemporary Islamic Studies, Master of Arts (p. 57)
  - Islam and Global Affairs, Master of Arts (p. 60)
  - Islamic Art, Architecture and Urbanism, Master of Science (p. 60)
  - Islamic Studies, Graduate Certificate (p. 62)
  - Islamic Studies, PhD (p. 61)

Courses

Applied Islamic Ethics

AIE 610 Islamic Ethics: Mapping the Field **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers key concepts, theoretical principles, and doctrines of Islamic Ethics. The course examines how these principles and their applications can address contemporary issues related to various fields including finance and business, social and political affairs, inter-cultural issues, as well as biomedical sciences. By the end of the course, students will work on developing a framework for ethical reasoning around a specific ethical dilemma, as part of the training in problem-solving.

AIE 611 Research Methods and Sources on Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course teaches students how to work with the major sources and methodological approaches in ethics research. The particular focus is on research-based writing. After situating Islamic studies and ethics in the broader context of academic research, basic research skills will be reviewed and applied. The course provides an overview of methodological approaches and major sources on ethics and leads students to develop a research proposal on ethics.

AIE 630 Scriptural Ethics: Ethics in Quran and Sunna **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a foundation in Scriptural ethics by examining various approaches to the two major scriptural sources in Islam, namely the “Qur’an” and the “Hadith”. In Quranic ethics, attention will be given to morality in Quranic discourse and commentaries. As for Sunna, morality in canonical collections of Hadith will be examined. The relationship between these two sources of ethics is analyzed through the lens of classical and modern scholarship.

AIE 631 Theological and philosophical Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course presents a comprehensive survey of ethics in the Islamic theology and philosophy. The main focus here is to examine the anthological and epistemological questions related to ethics. This course covers different theological approaches to the human action, obligation (taklīf) and ethical judging. In the philosophical part the course covers the main Greek ethical themes and its effect on the classical Islamic philosophy and the later developments. In this course students will get knowledge about the history, concepts, doctrines, and philosophers in the Islamic tradition. It is not only discusses the classical period but also on the modern and contemporary trends of moral philosophy.

AIE 632 Ethical Reasoning and Moral Decision-Making **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers reasoning in the Islamic tradition, covering shifts from discipline-centered reasoning to interdisciplinary reasoning. It examines the principles and priorities of ethical reasoning, the arguments for a goal-oriented or a value-oriented approach to ethics, the contemporary emphasis on the context of the ethicist and reconfiguring the sources of knowing good and bad. The course examines how to critically analyze argumentation in ethical judgments in applied case studies.

AIE 633 Islamic Bioethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course is a rigorous engagement with the nascent field of Islamic Bioethics. On the one hand, the attempt here is to do service to the field of Bioethics by maintaining the rich meaning of the term bioethics - an ethics concerned with bios (literally life). We examine biomedical sciences and the value systems that shape and guide the scientific enterprise within the larger context of planetary health, climate change and environmental concerns. On the other hand, this broad approach to Bioethics is linked with the richness of the Islamic tradition, according to which ethical questions and dilemmas should ideally be approached at their macro levels and through the prism of communitarian and responsibility-oriented, rather than individualistic, perspectives.

AIE 634 Ethics of Migration and Human Rights **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course analyzes the relationship between Islam and migration in an ethical and contemporary context. Two semi-autonomous areas will be explored, namely: 1) Forced Migration (displaced, asylum seekers and refugees) and 2) Voluntary Migration (economic migrants). Theoretically, the course will compare migration discourses in Islam with modern western theories of migration with particular focus on international human and labor rights conventions. Students will be given applied case studies to analyze and provide innovative solutions that include gender-based problems of migration.

AIE 635 Business Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers both theoretical and applied ethics in business, and a critical analysis comparing Western business ethics, Islamic tradition and contemporary field of Islamic economics. First, the general conceptual field asks: "What is Islamic in Islamic finance, Islamic economics and Islamic banking?" Second, the ethical foundations of business, based upon perspectives from Islamic law and the new field called business ethics. The third dimension will challenge students to apply the ethical principles to practical applications in individual and organizational behavior from the region.

AIE 636 Peace, War and Political Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will introduce the multiple dimensions of Islamic ethics in politics, peace and war from a comparative perspective. It covers theoretical and applied aspects while addressing historical and contemporary political values. The first part discusses issues related to state and society, including the public good, political legitimacy and good governance. The second part locates Islamic political ethics within the broader global context, shedding light on the borders of the Muslim moral community with the challenge of consistency, humanism and ethical pluralism. The third part focuses on the ethics of peace and war in historical and contemporary discourses.

AIE 637 Gender and Islamic Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will familiarize students with the principles of gender research. It contains four parts. 1. Feminist Theory: from liberal feminism to Marxist, post-structural and post-colonial feminism; feminist epistemology and its explanatory power. 2. Masculinity Theory: covering the theorization of hegemonic masculinity and subsequent critiques and modifications. Specific focus will be on masculinity in the Muslim world. 3. Islam & Gender as an ethical approach: the Islamic perception of gender and related concepts such as matrimony personal status and equality. 4. Contemporary Gender Issues in the Islamic world: ethics and feminism, a woman's right to her own body, gender bias in politics, law, media, and empowerment policies

AIE 640 Islamic Ethics of Pandemics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides the students interested in Islamic Ethics with the necessary knowledge and skills to critically engage with the global bioethical discourse on pandemic including covid-19. It will be divided into five main parts: (1) historical overview of the ethical discussions on early plagues, (2) the types of ethical approaches and discourses on covid-19, (3) key ethical issues, (4) critical reading of relevant texts and (5) writing a research paper.

AIE 641 Islamic Ethics and Artificial Intelligence **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on the moral questions raised by Artificial Intelligence (AI). It will be of interest for a wide range of students who are curious to understand how the rich Islamic moral tradition engages with global ethical discussions on cutting-edge technologies. It comprises five main parts: (1) Prelude: Artificial Intelligence (AI) & AI moral discourse (2) Governing policies and principles (3) Philosophical foundations & challenges (4) Main issues, approaches and applied fields, and (5) Research Paper.

AIE 660 Tutorial **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Tutorial students will have one-on-one in-depth supervised reading of key and impactful writings (classics) in the field of Islamic Ethics. The program will make use of the research output and publications of CILE, including the Journal of Islamic Ethics and the book series Studies in Islamic Ethics, giving students access to (and reviews of) the key publications in the field. The tutorial may be used as a remedial program to assist students who are having difficulties in keeping up with readings. It may also be used to assist students in thesis-related problems.

AIE 661 Internship **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The Internship is a program tailored for the students' future work-plans. Students will benefit from existing approved institutions that may later provide them with employment opportunities after graduation.

AIE 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Arabic

ARA 501 Arabic Language and Culture Learning - Beginner Level **0 Credits**
Grade Mode: Pass/Non Pass

Learners will be guided to understand the elements of the language, the exposure between them and the language will be through writing, by comprehending written symbols or images of letters and their sounds. To distinguish between vocabularies in the context used initially and then linking them in sentences and paragraphs. Aiming to understand the logic of the syntax and understand the grammar in a functional manner; to reach the desired competence in the skills of listening, speaking, reading and writing.

ARA 502 Arabic Language and Culture Learning - Intermediate Level **0 Credits**
Grade Mode: Pass/Non Pass

Students acquire a higher level of vocabulary and grammar through more advanced contexts and sets of cognitively and culturally rich texts. Texts on Arab history, contemporary issues, famous Arab personalities and landmarks, will be presented to provide a rich and varied dictionary. Students study fragmented press texts from newspapers published in Arabic on various topics such as: environment, politics, economics, community affairs and topics that suit the potential of students in order to help them to produce their own texts.

ARA 503 Arabic Language and Culture Learning - Advanced Level **0 Credits**
Grade Mode: Pass/Non Pass

Student receive a wide range of high-level texts representing the Arab civilization and Arab thought, texts that address the current state of affairs in the world. All of this is invested in the service of conversation and writing, so that students take the greatest role in creating their texts and 'adopting' the language in dialogues derived from Arab societies, and then presenting them orally or in writing. Students will speak on important topics of diverse economic, social and political dimensions.

Contemporary Islamic Studies

CIS 501 Maxims of Islamic Law (Jurisprudence) **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers a thorough exploration of rules in Islamic Law, distinguishing between different types of rules and studying their authoritativeness, generality, and comprehensiveness. It covers the history of maxims in Islamic Law, major jurisprudential maxims and their inclusivity of other maxims, the rule of custom, and the public interest Islamic maxim. The course also discusses higher objectives of Shariah and jurisprudential reasoning, and their relationship with the principles of jurisprudence framework. Lastly, the course examines the higher objectives of Shariah in the constitutional field and human rights.

CIS 502 Contemporary Religious Issues **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course is concerned with studying the Islamic faith and its features and is concerned with identifying the science of theology and its impact on the contemporary world and its place, then weighing the ideas of extremism with the balance of revelation and reason.

CIS 503 The Fiqh (Islamic Jurisprudence) of Worship and its Contemporary Developments **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the different aspects of Islamic worship, including prayer, fasting, zakat, hajj, and the philosophy of worship in Islam. The course focuses on the agreed-upon rulings of prayer, fasting, and zakat among major Islamic schools of thought, along with their significance from various perspectives. The course also delves into the provisions, status, and benefits of hajj and a comparative view of Islamic worship. Discussions on the texts of the major Islamic schools of thought provide a deeper understanding of the topics. The course also explores the educational, behavioral, and social benefits of zakat.

CIS 504 The Fiqh (Islamic Jurisprudence) of Family Law and its Contemporary Developments **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a detailed overview of family jurisprudence, Where it covers its most important issues, in classical and contemporary books, such as marriage, divorce, Khul', Faskh, Rajah, Iddah, al-Ihdad, Breastfeeding, Custody, Family maintenance, etc. The course is also concerned with studying the provisions of these issues and their implication, and the difference between them, in addition to Explaining their dimensions from the perspective of contemporary social studies.

CIS 505 The Histography of Islamic Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the basics of Islamic jurisprudence, including its sources, development, and methods of ijtihad. Students will learn about the history and development of the science of jurisprudence, its most important books, trends, and figures. The course will also explore the principles of jurisprudence, their modern relevance, and rules of legal text interpretation. Lastly, the course will discuss attempts to renew principles of jurisprudence in the Islamic world and offer perspectives from both Islamic and Western viewpoints.

CIS 600 Foundations of Islamic Thought **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides an in-depth investigation of multiple intellectual traditions and debates within Islamic Civilization before the onset of modernity. The course is based on readings of key primary texts in philosophy, theology, law, Sufism and social thought. The course identifies major trends and directions of Islamic scholarship, demonstrates connections between fields of knowledge, highlights the changing cultural assumptions that have historically shaped the discourse of Muslim scholars, and explores the contemporary relevance of their works.

CIS 601 Contemporary Quran and Hadith Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a contemporary treatment of the major scriptural sources in Islam, the Quran and the Hadith, and the salient methodologies for working with them. The course examines competing epistemological approaches to the history, composition, and content of these sources, as well as the interplay between them. Contemporary methodologies for working with these sources and their function in modern Muslim societies are then analyzed.

CIS 602 Applied Research Methodologies in Islamic Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces students to the field of Islamic studies and teaches them how to design and prepare a research project which makes a meaningful contribution to this field and the particular focus of this course is on research-based paper writing. After situating Islamic studies in the broader context of academic disciplines, basic research skills will be reviewed and applied in the context of a self-identified research project. Major approaches in the field of Islamic studies will be surveyed taking the case of canonical prayer and significant contributions to the ongoing debates about Orientalism will be reviewed.

CIS 607 Islamic Thought and Postcolonial Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course will focus on the development of decolonial and postcolonial studies and their applications to the study of Islamic Thought and society, including debates around orientalism and women's studies. Through the study and analysis of key texts, students will engage significant trends in traditional and modern scholarship, navigate critically through the relevant academic literature, and analyze methodological developments in Religious Studies and Islamic Studies.

CIS 608 The Media and Muslim Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the surprisingly close relationships between the forces of media and religion in what is arguably a "secular" age. It will closely examine the evolution of ubiquitous religious content and examine how it relates to Muslim society. The course also considers qualitative methods in analyzing major media narratives that that include such topics as the use of digital media by a variety of Muslim groups, reactions and counter-reactions to extremism and Western discourses appropriating Islam for political advantage

CIS 609 Islam and Politics in the Muslim World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines relations between Islam and politics in the contemporary Muslim world. The course surveys foundational texts, and classical theories of political order, as well as key notions of Western political thought. On this basis, the course provides a contextualized analysis of central debates about the political order, while situating them in the evolving structure of the Muslim world.

CIS 611 Scientific Thought in Muslim Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the scientific tradition that developed in Islamicate societies and the complex interaction between scriptural revelation and experimental discovery. It traces the development of scientific enquiry that occurred due to interactions with the ancient traditions of learning and consequently, how the innovations that resulted may have influenced European scientific thinking. The rise of modern science in Muslim societies will be discussed and the epistemological challenges it presents will be explored through a series of subjects such as evolution and cosmology.

CIS 612 Muslim Societies in Diaspora **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Diasporic Muslim communities have existed throughout history and while diasporic communities are integral part of Islam, they have often been considered a case apart. In the context of globalization, their specificity appears more limited than before. Taking diverse cases from the past and present, this course examines the formation of diasporas and their role in the spread of Islam, changing relations to the 'homeland' and the broader Muslim community, legal problematics relating to the minority condition, and the interplay of culture and religion in the formation of their identity.

CIS 613 Modern History of the Muslim World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course offers an introduction into the history of the modern Muslim world with a focus on the Middle East and the Gulf region in particular. It surveys the emergence of the contemporary state-system since the early 19th century in relation to broader processes of social and cultural transformation. It retraces changes on the levels of identity and spatial organization and examines the competing visions of legitimate political order which continue to structure Muslim polities today. Looking at various nationalist and Islamic movements, the course examines the interplay between modernization policies, social change and intellectual developments, introducing students to key analytical concepts for their study.

CIS 615 Non-Textual Legal Sources **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course provides a comprehensive treatment of the sources of Islamic law that are disputed with Islamic legal theory and clarifies their significance in contemporary ijtihad. The course clarifies the need for such sources as a criterion for deducing legal rulings in a way that counters the evident errors of literalism that characterize religious extremism. Thus, the course discusses the following non-textual legal sources: the action of the Prophetic Companions, public interest and its categories, juristic preference and its types customary practice preemptive prohibition, Madinan practice and the presumption of continuance.

CIS 616 Fatwa, Family and Society **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses the fatwas related to the most significant contemporary issues concerning the family and society. It focuses on a methodological study of fatwa issuance, including the principles and modality of assessing such fatwas, while also considering the higher objectives of the shari'a and the changing practices of both families and societies. The course discusses issues such as the financial excesses of marriage expenses, divorce and spinsterhood, female employment, and the wife's rights to the family assets, from the perspective of Islamic jurisprudence and contemporary social studies.

CIS 617 Islamic jurisprudence, Politics and the State **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course concerns the relationship between Islamic jurisprudence, politics and the state and covers three main debates: Islamic jurisprudence and political authority; politics and the law, and Islamic jurisprudence and the state. The first debate examines jurisprudential theories regarding society, the rulings related to political authority and the ruler, the effect of political change of the jurist and his understanding of his relationship with the state. It also discusses contemporary attempts to synthesize the political discourse that existed before the notion of the modern, nation state, and those that were produced consequently. The second debate concerns the difference between politics and Islamic political theory, the ethical principles that guide politics, and the application of public interest to politics. The third debate is related to differing manifestations of political authority such as the state and the caliphate, and how such concepts impact on subsequent Islamic legal rulings, whether they be in theory or in practice.

CIS 618 The Higher Objectives of Sharia and Public Interest **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses the historical development, the most important writings and the theoretical methodologies, developed regarding higher objectives of the shari'a. It also sheds light on the importance of the higher objectives and their role in facilitating ijtihad as a tool to determine the scope and range of public interest. The course highlights the prerequisites required for the application of the higher objectives and elaborates how contemporary thinkers have applied these concepts. The course also discusses how the higher objectives may be applied in contemporary Muslim societies to address a range of critical issues such as: human rights, social justice, security and the preservation of human dignity.

CIS 619 Text and Context: Comparative Textual Readings **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses the relationship between text and context through a variety of jurisprudential texts that display multifarious perspectives and views. The course focusses on the methodological tools required to critically analyze the intent of the authors, engage with their thinking, and place them in their historical, social and political context. Through selected texts, the course navigates a number of legal cases disputed across the ages, elaborates the Islamic legal perspective regarding them and compares them to prior systems such as Roman law and pre-Islamic norms.

CIS 620 Nawazil and Novel Legal Issues **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses the most significant contemporary social issues that affect both the family and society such as smoking, sexual harassment, domestic violence and suicide. The course highlights the social dimension of such issues and proposes how they may be resolved using a variety of jurisprudential methodologies. The course emphasizes a practical approach and combines current sociological studies with innovative legal applications.

CIS 621 Personal Earnings and Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses various categories of financial transactions in Islamic law and demonstrates how jurists historically dealt with such issues. The course also links the higher objectives of the shari'a to these financial cases and shows how they have been applied in a contemporary context, particularly in the financial sector and in Islamic banking. The course distinguishes the objectives and reasons for such legal rulings from the financial perspective, and provides actual examples from the contemporary context, to suggest novel solutions to innovative financial transactions that are common in the modern age.

CIS 622 Social Justice, Community Welfare and Sustainable Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

In a global context marked by growing inequality and precariousness, social justice has emerged as a major policy concern and popular demand around the world. This course highlights the resources available in the Islamic tradition to advance issues of social justice. The course shows how concerns about social justice were integral to classical Islamic legal scholarship, explores how Islamic concepts might improve on current practices of development and humanitarianism, and examines the challenges that modern structures (capitalism, the modern state, and globalization) pose to innovative solutions.

CIS 623 Muslim Social and Political Systems and Institutions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses Muslim social and political systems and institutions both in their historical contexts and in contemporary society. Such institutions have laid a heavy emphasis on both religious ethics and social values and this course engages with how they have had a positive effect on both the public sphere and social development. Islamic legal theory may be viewed as being at the core of Muslim social and political systems and institutions and the course evaluates the intrinsic relationship between this legal framework and social development in Muslim societies.

CIS 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

This course provides students the opportunity to develop and design a research project related to their field of specialization. As part of process, the student will initially develop a research question and defend a research proposal related to their chosen topic. Then the student will undertake the research, writing a dissertation that will be defended in an oral examination. The student's work in this course will be supervised by a qualified faculty member with related expertise to the research area selected.

CIS 705 Islam and Modernity **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces students to institutions, concepts and processes centrally associated with modernity. Focusing on the fields of knowledge, government and economy, the course investigates what is new and distinctive about modern societal contexts. It will examine fields of conflict which have emerged in these contexts. Trajectories of modernity will be investigated in a comparative perspective.

CIS 707 Islamic Law and Society **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides an interdisciplinary exploration of law and society in the Muslim world from medieval to modern times. It presents the main figures and institutions of Islamic legal authority, showing how they have adapted to changing configurations of power. The course discusses various approaches to the study of law in society through case-studies ranging from crime and punishment, marriage and divorce, and economic practice. Particular attention is paid to the study of law and society in the contemporary Muslim world.

CIS 710 Muslim Encounters with Other Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course proposes to introduce students to the overarching principles that have generally governed Muslim interaction with various non-Muslim societies and how diverse Muslims communities have traditionally interpreted these principles under similar and varying circumstances. The course will highlight some of the best practices that Muslims were able to develop in their interaction with other societies which might be taken into consideration by non-Muslim communities in their encounter with others. Furthermore, contemporary models of successful interaction between religious communities would be examined to see what challenges they pose to Muslim communities and to what extent Muslims can benefit from such models.

Islamic Art & Architecture

IAA 600 Independent Project Modelling **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This is an advanced-level course promoting practice-based learning and the development of problem-solving techniques, critical thinking skills and innovative practices to serve cultural institutions, governmental organizations or businesses. It offers the students an opportunity to work autonomously on a project of their choosing related to their chosen specialization. Students may choose a topic, art object, or a theme of relevance to cultural issues and societal needs, to be devised with the approval of their supervisor. This may involve engagement with industry or cultural organizations to deliver a small-scale tailored projects to suit their needs; the detailed investigation of a single object at the Museum of Islamic Art, using knowledge acquired in other parts of the program; or the creation of a display based on object replicas or images in the atrium of the College of Islamic Studies with a view to disseminating their knowledge to the broader HBKU community.

IAA 610 Research and Design Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers a comprehensive understanding of basic principles of research techniques and writing in architecture. Emphasis is placed on methodological and presentational aspects of architectural and built environment research. Fundamental aspects of communicating research are introduced, including writing and presenting research findings and concluding statements. It also involves knowledge of differentiating between research, reports, articles and critical essays; an investigation of various methods for descriptive, analytical, explanatory, and critical research. Research projects focus on applying research techniques and tools in visual, social and technical terms. An integral component of the course involves the development of a thesis proposal where students utilize selected research tools and techniques in shaping their research proposals.

IAA 611 History of Islamic Art and Architecture I (650-1250) **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is an introduction to the art and architecture of the Islamic world from the emergence of Islam in the 7th century until the Mongol invasion of Iraq and Iran in the mid-13th century. It focuses on major monuments and developments in the arts, such as calligraphy, mosaics and ceramics, under the Umayyad Empire, the Abbasids, and their successor states in the vast regions between North Africa and the Iranian world. In each context, objects and buildings will be studied both in relation to each other and as witnesses of the social life and cultural sensitivities of their time, using insights from textual sources. Issues of interpretation will be critically considered.

IAA 612 Ahkam al-Bunyan-Building Ordinances **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course delves into influential Islamic texts, exploring works like Kitab al-I'lan bi Ahkam al-Bunyan, fatawa of Ibn Abd al-Rafi, and Al-Wansharisi's al-Mi'yar al-Mughrib. It examines how Islamic jurisprudence intersects with urban planning, analyzing the historical impact of Quranic and Sunnah principles on land use and legal disputes. Students gain a deep understanding of Islamic urbanism, fostering critical thinking and preparing them for challenges in architecture and urban development by bridging theoretical knowledge with practical application.

IAA 613 Interpreting Environments: Habitat Values and Sustainable **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores how Islamic teachings relate to contemporary environmental issues and sustainable practices. It covers sustainability, land use, and Islamic perspectives on natural resource management and environmental ethics. Students gain insights into historical and theological foundations of environmental stewardship in Islam, addressing modern challenges like resource depletion and pollution. The course encourages critical thinking on applying these principles to current environmental problems, fostering responsibility in fields like urban planning and architecture for sustainable development and ethical decision-making.

IAA 623 History of Islamic Art and Architecture II (1250-1900) **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is an introduction to the art and architecture of the Islamic world from the Mongol invasion of Iraq and Iran in the mid-13th century until the fall of the Ottoman and Qajar empires in the early 20th century. It investigates such topics as the emergence of a new synthesis under the Ilkhanid and Timurid dynasties in Iran and Central Asia; the art and architecture of the Mamluk Sultanate in Egypt and Syria; and the three early modern empires of the Ottomans in the Mediterranean world, the Safavids in Iran and the Mughals in India. In each context, objects and buildings will be studied both in relation to each other and as witnesses of the social life and cultural sensitivities of their time, using insights from textual sources. Issues of interpretation will be critically considered.

IAA 625 Survey of Architectural Typologies of the Islamic World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to instill in the student a broad awareness of the diversity and the main achievements of Islamic architecture and the various typologies developed from the beginnings of Islam. It offers a chronological development of art and architecture in selected notable regions, the wide surveys will highlight the development of architectural designs of the Islamic world from the 7th through the 19th centuries, utilizing a wide spectrum of materials and production. The course examines the built form, functions, and activities relevant to the social, historical and cultural contexts, patterns of use, and evolving meanings attributed to buildings by their communities.

IAA 631 Islamic Objects and Manuscripts **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers students an opportunity to build up skills specific to key media in Islamic art, such as manuscripts, textiles and carpets, mosaics, woodwork, ceramics, metalwork and glasswork. It will involve hands-on sessions with objects at the Museum of Islamic Arts in Doha. Students will thus gain direct exposure to these different types of object and knowledge of published resources to aid their rigorous analysis.

IAA 632 Museum and Exhibition Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course equips students with critical and practical skills to approach the display of Islamic in the context of museums. Issues related to the politics and socio-cultural context of display will be combined with aspects of exhibition planning, management and public interaction. This course provides an academic exposure toward the mechanisms of objects and art display in museums and exhibitions. The aim of the course is to explore and synthesize aspects of exhibition planning, management and public interaction either for physical and virtual museums. The course will covers systems and techniques of critical writing for exhibitions and displays for Islamic arts and objects. Students will gain the methods of organizing galleries and teaching spaces; this will include mounting displays and organization plus techniques and requirements for evaluating museum events and visits.

IAA 633 Mosque Architecture Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the architecture of mosques in different regions from the Andalusia, North Africa, Middle East, Fareast, and contemporary mosques in western cultures. Different aspects of old and contemporary mosques are introduced highlighting the mosque as a building type that became a symbol that functions as a point of reference, and provides an umbrella under which people of a common belief may unite and interact for legitimate human activities. This course develops design propositions from a close and critical engagement with significant built and un-built architectural and mosques exemplars. Working with changing and enduring values and associated questions of style, longevity and contemporaneity, students design a mosque project that anticipate future needs and respond to existing built fabric. Reflective and analytical drawings of precedents inform the production of projects that engage with cultural and disciplinary histories. Constraints for designing mosques are discussed with supporting cases that address typological issues, detailed design, ornamentation, and the impact on the surrounding community.

IAA 634 Islamic Architecture and Urbanism in the 20th & 21st Centuries **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

Connecting the architecture of the Arab world to various interrelated issues such as Westernization, modernization, and the relationship between the architect and the state. This course discusses the evolution of architecture in the eastern Arab world during the 20th and 21st centuries. Its geographic scope emphasizes Egypt, the Arabian Peninsula, and the Fertile Crescent. The course examines the production of certain works of architecture in the region as creative undertakings that address specific functional programs and physical givens ranging from technological conditions to climatic factors. It also presents the architecture of the region within the context of prevailing social, cultural, economic, and political forces while taking into account the urban transformations that took place in the 19 century worldwide and in many Islamic cities as well as issues of East-West interactions, modernity, tradition and heritage. The course links that architecture to the volatile conditions that have defined the evolution of the region during the period under consideration, and that have given the region considerable (and some would argue disproportionate) weight within the context of international politics.

IAA 635 Contemporary Cities for Muslim Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers a series of positional interpretations and discussions of contemporary architecture in Muslim communities. It addresses the irony of identity, tradition, and modernity by critically outlining a number of aspects related to the status of architecture in selected Muslim cities including Aleppo, Cairo, Doha, Dubai, and other cities. Through a reading of trends that emerged over the three decades, students will be introduced to the concepts of Pan#Arabism, Mediterranean# ism and middle eastern#ism, post traditionalism, post colonialism, globalization, post#globalization, and the space of flows and their implications on the shaping of architectural identity in Muslim communities.

IAA 636 Globalization, Cities and Urban Policies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Middle Eastern and Gulf cities currently seem to be heavily under construction and rapidly globalizing. Some Gulf cities have been at the forefront of developing into a postmodern city, and other cities in the region have been presenting themselves as attractive locations and global hubs. While some are considered as Port cities, they are outstanding examples of integration into global networks. Evidently, economic ambitions – from fostering trade and production to stimulating tourism, sports and leisure industries – are important factors behind this. However, this brave new world is not without new ruptures, deepening fractures and increasing inequalities. Thus, this course will deal with manifold dimensions of contemporary urban development in the Middle East, with specific focus on the cities of the Arabian Gulf, including economic aspects and social consequences. To situate and interpret these case studies, the course will also engage in understanding and debating theoretical and conceptual approaches and recent interdisciplinary findings from comparative perspectives.

IAA 641 Urban Interventions in Historic Islamic Cities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a comprehensive discussion of the changes in urban land use and the socio#economic structure of urban settings in Muslim countries. Goals, plans and operations of adaptive re#use and regeneration of traditional as well as modern districts are discussed. Case studies from historic Middle Eastern and European cities are analytically presented. The course involves a theoretical basis for the understanding of design in the built environment, and an appreciation of the evolving integration of aspects of design and regeneration in different types of environments. The theoretical material will include consideration of aesthetics, urban morphology, rural settlement, design methods and sustainable development, and will encourage multi# disciplinary and critical perspectives on these aspects.

IAA 642 Physical Spaces and Spatial Humanities in Digital Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Since the development of various digital gazetteers, physical environments and spaces have been involved in the digital humanities studies to examine the people's interaction and viability of spaces in digital forms. This module will explore this new phenomenon from a dual standpoint: (1) attention will be paid to the way our perception of physical and digital spaces evolved over the last years following the massive adoption of digital tools and platforms in our daily life and (2) the course will study how digital technologies interact with a spatially enabled database to retrieve and display results, and how they can add map-based interactive elements to various digital platforms. In this course, students will study how geographic information from history, archaeology and Cultural Heritage is organized using the appropriate digital tools in relation to 'place making and consumption'. By using spatial data, students will elucidate people's behavior and interactions toward the physical environments and help in reshaping liable places to suit the societal needs and traditions. In order to reach successful and reliable results, the course will look at the basics of digital imaging, Geographic Information System (GIS), Space Syntax Analysis, and 'Volunteered Geographic Information' which underpins the maps on our tablets and smartphones, and consider how geography features in digital literary and textual analysis.

IAA 643 Types and Typologies of Domestic Architecture **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the domestic sphere in an Islamic context. It aims to familiarize students with the history, structure, and social use of residential forms in areas that are now a part of Arabia, North Africa and Egypt, Greater Syria, Iran, Iraq, Turkey and the Ottoman Balkans. The course involves an overview of the ways these spaces have been imaged and imagined in art, literature, films, and scholarly texts. This course starts with the development of an aspirational design brief that accurately registers the culture and needs of existing and /or potential users. Skills are developed in the respectful apprehension of cultural and physical diversity and in the effective deployment of domestic architecture. Methods of communication that are accessible to lay audiences and which convey experiential qualities are employed at all stages of the design process in order to know how domestic architecture in Islamic societies contributed to the understanding of typological processes, urban fabric, and organisms.

IAA 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Research Based or Design Project Based Thesis in Islamic Art, Architecture, and Urbanism: - This course counts 6 credit hours and is part of the core requirements. Either thesis students will be asked to consider potential topics for a research based or a project based work, preferably related to the core research themes adopted by the concentration chosen. Thesis will be required to be a substantial research piece, and to meet the normal international standards for this level of academic study. - Students who are eligible for undertaking a design#based project of similar standard and length to the research thesis, although the specific requirements may vary according to the topic chosen. - Notably, students enrolled in a track will be required to select a thesis topic that relates directly to the concentration of such a track. Students will be allocated a supervisor early in the third semester, and will develop their thesis proposals by the end of the semester as part of the research methods class. They are expected to have undertaken significant preliminary research on the topic by the end of the fourth semester.

Islamic Finance (IFI)

IFI 605 Islamic Financial Contracts **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides a rigorous introduction to applied corporate finance from the perspective of financial managers who are responsible for making significant investment and financing decisions. Students will also be exposed to critical views of corporate finance from an Islamic finance perspective. Major topics covered include capital budgeting, capital structure, corporate valuation, corporate restructuring, merger and acquisitions, dividend policies, and application of real options in corporate finance.

IFI 606 Islamic Economics and Development in Theory and Practice **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides students with an opportunity to use the tools of analysis they have learned in mainstream economics to analyze behavior in an economy where Shariah and Islamic Ethics run supreme. The course prepares the student to critically examine the theoretical development in Islamic economics. This course provides students skills and knowledge in order to analyze existing economic and development policies within an Islamic framework.

IFI 607 Islamic Banking and Financial Markets **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a comprehensive analytical orientation on the foundational principles of Islamic banking and financial markets and value-based intermediation. The course compares the Islamic financial markets with conventional mechanisms with specific reference to liquidity instruments, asset and risk management. This course exposes students to the fundamental principles underlying modern Islamic finance, as well as modern practices prevailing in this industry.

IFI 608 Strategic Management in Islamic Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, QFIS Legacy

This course introduces a strategic management perspective to Islamic finance in a holistic way by integrating various specialized functions such as marketing, finance, accounting, economic, management information systems, and human resource management. Some of the topics include competitive strategy, industry analysis, global competitiveness, international management, strategies for adjusting to the social, political, and economic environment, approaches for developing and implementing strategic plans in organizations, managerial values and ethics, and social issues in business.

IFI 615 Islamic Corporate Finance and Financial Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides a rigorous introduction to corporate finance from the perspective of financial managers who are responsible for making significant investment and financing decisions. The course also equips students with the knowledge to utilize the tools of finance, economics, and Islamic financial contracts to design, develop, and implement innovative financial instruments and strategies in a way that is compliant with the shariah. Students will also be exposed to critical views of corporate finance and financial engineering from an Islamic finance perspective.

IFI 691 Internship **3 Credits**
Grade Mode: Standard Letter

This course helps students willing to pursue a career in the industry to work on an industry related project. This elective also supports the collaboration initiatives with the industry whereby industry-related research projects could be sourced from the industry. Students complete an individual project with external clients whereby they are able to put together what has previously been learnt in the study program.

IFI 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

IFI 701 Analysis of Financial Statements with Applications to Islamic Banks **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course teaches the tools for assessing the past performance and future prospects of Islamic banks, conventional banks, and other nonfinancial firms using financial statements. The course covers techniques that are often used by financiers for evaluating credit and investment decisions; by corporate managers for assessing efficiency, performance and new opportunities; and by industry analysts, observers and regulators. Prior knowledge of accounting and finance is helpful but not necessary. Topics include: financial ratios; profitability analysis; risk analysis; forecasting financial statements; valuation models.

IFI 702 Sustainable Finance & Impact Investing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides a rigorous introduction to sustainable Finance and impact Investing from the perspective of financial managers who are responsible for making significant investment and financing decisions. Students will also be exposed to critical views of sustainable Finance and impact Investing from an Islamic finance perspective. Major topics covered include green finance, sustainable and responsible investing, green and SRI sukuk, blended finance and venture philanthropy.

IFI 703 Islamic Economics and Sustainable Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides students with an opportunity to use the tools of analysis they have learned in mainstream economics to analyze behavior in an economy where Shari'ah and Islamic Ethics run supreme. The course prepares the student to critically examine the theoretical development in Islamic economics and sustainable development. This course provides students with skills and knowledge to analyze existing economic and development policies within an Islamic framework.

IFI 704 Applied Quantitative Methods in Islamic Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course focuses on applied quantitative and econometric techniques for finance using financial calculators and computer software. Topics include: Net Present Value; Amortization Schedules; Descriptive Statistics; Probability; Inferential Statistics; Hypothesis Testing; Classical Linear Regression; Time-Series Modeling; Volatility Modeling; Panel Data; Empirical Research; Excel-based Financial Modeling

IFI 705 Legal, Regulatory and Institutional Aspects of Islamic Finance **3 Credits**
Grade Mode: Standard Letter

This course helps students analyze legal, institutional, regulatory,and supervisory issues related to Islamic financial institutions (IFIs).Topics include financial stability, risks in IFIs, legal and regulatory contextualization of the development of Islamic financial services, corporate governance, Shari'ah governance, financial inclusion, SDGs and IFIs, national and international financial regulatory and supervisory frameworks and institutions, and country experiences.

IFI 706 Independent Studies **3 Credits**
Grade Mode: Standard Letter

Independent Studies course enables a more personalized study plan and allow more space for more research which is tailored toward students' career and research aspirations and is more linked to their field and background. This course comprises a supervised research project supported and complemented by class and supervisory discussions. It is designed for students to undertake original research in a selected area of Islamic finance and economics.

IFI 707 Islamic asset, Funds & Portfolio Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces students to recent and emerging developments in the Islamic and responsible asset and mutual fund management universe. It applies the modern technique to build, implement, and assess optimal Sharia-compliant portfolios in the equity, Sukuk, and equity-Sukuk hybrid markets. Contemporary and emerging trends in responsible investments such as ESG concerns and technological revolution such as Fintechs. The course is a companion of Islamic Corporate Finance but can also be beneficial as a standalone elective course.

IFI 708 Selected Topics in Applied Econometrics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course builds on the quantitative techniques in Islamic Finance by extending students quantitative research skills to an advanced level and to expose them to the various databases in Islamic Finance. This course will also present an advanced treatment of econometric principles for cross sectional, time series and panel data sets. The theoretical skills of measurement will be accompanied with the functional skills of software packages and combined with the practical knowledge to be able to make precise policy implication.

IFI 709 Behavioural Islamic Economics & Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes students to behavioural economics and its applications in the Islamic Finance. Behavioural Economics helps understanding how psychological aspects like emotions and group dynamics influence economic decisions. The course has two main objectives: 1) Reviewing main evidence provided by psychological and experimental economics on violations of classical economic assumptions such as perfect rationality, self-interest, time consistency, etc.; 2) Providing behavioural insights in explaining anomalies in different fields of economics such as Industrial Organization, Labour Markets, and Finance.

IFI 710 Fintech and its Islamic Finance Applications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

IT-enabled innovations have reshaped the finance industry, leading to the emergence of Fintech. Big data analytics have changed how financial information is disseminated, processed and analysed. Individuals and institutions which are able to leverage the new IT to analyse the big financial data will have a leading edge in academia and in practice. It seeks to equip students with these highly coveted skills in the market with the applications to Islamic and sustainable finance instruments like P2P lending and Blockchain

IFI 800 Circular Economy and Comprehensive Development: An Islamic Perspective **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to strengthen the students' analytical ability when dealing with theoretical and empirical issues in the areas of Islamic comprehensive development and other related Islamic economic growth topics. The course prepares the student to participate effectively in the theoretical progress of development theories and economic paradigms in general and to propose innovative economic and development policies within an Islamic perspective. In the light of Maqasid Al Sharia, Qatar National Vision and UN Sustainable Development Goals the course prepares students in understanding the modalities, challenges and opportunities of transforming economies from linear to circular

IFI 801 Entrepreneurship, Ethics and Sustainability **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course aims at equipping the student with a deep understanding of the pivotal role played by the entrepreneurs in developing businesses and promoting inclusive and sustainable economic growth and wealth. Entrepreneurship is a vision combined with abilities and skills to put together economic resources in such a manner that create benefit for the society. The course is designed to embed entrepreneurship with ethics and love of fellow human beings and other species to achieve the vision of "being mercy" for all. The course uses Islamic social finance as a support and enabling institutional mechanism in developing social enterprises.

IFI 802 Applied Econometrics **0 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to present and discuss the most important statistical methods in applied economics and finance relevant for emerging economies cantered on local aspirations. In the course students are expected to learn and be able to apply the different types of appropriate and relevant econometric techniques in their research.

IFI 803 Islamic Financial Structuring: Strategies and Contracts **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims at equipping the students with tools of engineering and structuring Islamic finance contracts for different needs of economies transforming from linear to circular and in the rapidly changing market, technological and regulatory environment. Students will be able to link the design of financial contracts with the needs of a circular economy. Students will learn structure green, social and sustainable financial products meeting the needs for liquidity management, personal finance, SME finance, bridge finance, and long-term finance etc. The course also elaborates on alternative Sukuk structures and the choices of different bases for designing Sukuk such as contract combination.

IFI 804 Applied Topics in Usul al Fiqh and Maqasid Al Sharia **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces students to the methodology of Ijtihad in Islamic law so that they will know the bases of Sharia financial rules and the way these are derived from the sources. The course intents to help students to understand the bases of differences in Islamic Fiqh schools, the reasons why jurists differ and the weight of different legal opinions. This course also aims to equip students with the necessary knowledge of the most important concepts in Maqasid al Sharia and their applications in Islamic finance and policy implication for economic transformation from linear to circular economies.

IFI 810 Advanced Corporate Finance and Investment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will provide the students with sound theoretical and empirical knowledge and techniques of corporate finance with applications to Islamic finance and circular economy. The aim is to increase the students' curiosity for research topics in this field and sharpen their critical perspective with respect to corporate finance issues. Upon successful completion of the course, the students will be able to both understand and analyze terminologies and explore the frontiers of modern corporate finance and corporate governance.

IFI 811 Advanced Topics in Micro and Macro Economics: Islamic Perspectives **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will focus on the analytical tools of modern Microeconomics and Macroeconomics and analyze strategic behavior of rational decision making in situations of conflict and other interactions. It also attempts to equip students with the macroeconomic frontier issues relevant for their research in area of policies on Islamic banking and finance and Islamic economics

IFI 812 International Islamic Economic and Financial Relations **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The aim of this course is to enable the student to understand contemporary development in the theories and practices of international economics, economics of international giants and international institution, international financial relations and their interactions with domestic policies and developments

IFI 813 Islamic Social Finance and Empowerment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The third sector translated into social finance plays a very important role in the economies of many countries and the Islamic system gives it a very prominent role in correcting the inequalities that result from the functional distribution of wealth and income. This course aims at putting forward deep understanding of the economics of Islamic philanthropy as it includes ethical and application issues in addition to Islamic human rights of the vulnerable and deprived in the society. The course builds on the venture philanthropy concept to develop socially responsible micro and medium businesses in the circular economy.

IFI 814 Islamic Economic History and Thought **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims at developing critical thinking for developing innovative solutions and approaches by looking at history of thought and institutions in an objective way. Students shall raise critical questions and try linking these with current practices and offer guided solutions.

IFI 815 Governance Legal and Regulatory Issues of Islamic Financial Institutions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to prepare the students to understand the institutional building blocks and the architectural foundations as well as financial infrastructures that are needed for the working of a sound and resilient Islamic financial services industry. It aims to enable the students to understand why and how Islamic financial services are regulated and the legal environment under which Islamic financial services are being offered all over the world. The students will be able to critically asses the Sharia governance process for a circular economy. Students are expected to undertake case studies about the state of integrated reporting.

IFI 816 Advanced Risk Management of Islamic Financial Institutions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to provide better understanding of various types of risks that are embedded with the banking business in general and relate these to the risks underlying the Islamic banks and financial institutions; understand the importance of risk management in the banking industry in general and in the Islamic banking industry in particular.

IFI 817 Financial Analysis and Portfolio Modelling **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to enable the students to analyze financial statements of companies, NGOs (for example, Waqf) and financial institutions, especially banks from various perspectives including that of investor or potential investor, lender (bank credit analysis), manager (to improve performance) and donor (to ensure effectiveness of charitable programs). The course also aims to give a thorough grounding in portfolio management and evaluation/assessment. While there are different topics that must be analyzed or studied on investment companies, the course focuses on the most recent innovations in asset allocation with a special view on the practical implementation of asset allocation models and their evaluation from the perspectives of Islamic finance.

IFI 821 Advanced Topics in Islamic and Sustainable Economy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course enables students to explore the theories, models, and constructs related to the study and practice in sustainability. The course introduces students to the current state of knowledge on various topics including theories and models of growth and sustainable development, analysis & application in traditional and Islamic perspective; comprehensive human development and linkages between QNV, SDGs and Maqasid Al-Sharia; environmental concerns, the linear production, and circular production models.

IFI 822 Advanced Topics in Islamic and Sustainable Finance 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes our PhD student to the latest empirical research in Islamic and Sustainable Finance. This will help them to identify relevant gaps and new research questions in the literature which requires answers through further research. The course includes advanced readings in selected topics in Islamic and Sustainable Finance. The course will provide profound knowledge in Islamic and sustainable finance and enable students to navigate to navigate the research literature and develop their own research agenda.

IFI 823 Advanced Research Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course is designed to aid graduate students to improve their writing and research skills and is specific to Islamic and Sustainable Finance. It includes an overview of the writing mechanics and process, how to properly conduct research, cite sources and guidelines for writing papers. This course is more suitable for students who want to conduct a dissertation using qualitative and quantitative research techniques and extend the basic knowledge students learned in the general research methods course.

IFI 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Islamic Global Affairs

IGA 600 Islamic Worldview **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The onset of modernity shook the Muslim world reigniting debates and sparking renewed commitments and conceptualizations on the meaning and essence of an Islamic worldview. This course provides a foundation for understanding the Islamic worldview in comparison to other competing ideologies, such as liberalism, secularism and human rights. It examines some of the contemporary challenges, obstacles and opportunities for the Islamic worldview in the context of terrorism, globalization and universalism. Furthermore, it explores the real and perceived contestations between the modern and the Islamic worldview and the tangible impact this has on global affairs.

IGA 605 Research Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides training in research methods from the perspective of the social sciences and Islamic studies. It aims to equip students with an understanding of the foundations of social scientific research. Students will be introduced to a range of core research skills that are necessary to undertaking research and designing research projects in various settings.

IGA 611 Introduction to Islam and Global Affairs **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the fundamental theories and concepts in understanding the nexus of Islam and global affairs. The course presents fun framework for understanding, practicing, and evaluating development, peacebuilding, human rights, governance and institutional reform, sustainability, global health, and related areas. It will begin by examining both the Western and Islamic theories and conceptual frameworks and provide a cross-disciplinary examination of issues central to global affairs, with a particular grounding in theories of international relations.

IGA 612 Global Inequalities **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course examines various manifestations of global inequalities such as poverty, access to employment, basic human services, etc. The course sheds light on the state of Muslim economies and their performance in meeting United Nation Sustainable Development Goals and other globally accepted indicators of development. Furthermore, the course looks into the role of Islamic beliefs, values and ethics in addressing the challenges brought by global inequalities.

IGA 613 Islam, Conflict Transformation and Peacebuilding **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is introduces the students to the theories and practices of peace studies. It examines various theoretical and conceptual frameworks that shape the field and assesses their applicability within different contexts. The course also highlights critical issues that are directly related to the practices of peacebuilding and conflict transformation.

IGA 622 Islam and Global Governance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces students to the structures and actors of international Muslim organizational work against the background of the emergence of world polity structures since the early 20th century. It surveys the development of multilateral cooperation structures such as the United Nation and its affiliates and the range of Muslim organizational work ranging from international cooperation in different fields to educational and relief organizations.

IGA 627 Special Topics in Islam and Global Affairs **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses a wide spectrum of topics which may vary based on the time it is offered. Depending on the specific interests of the cohort, global trends and Integrative Lab Projects in partnership with global organizations affiliated with the IGA program, the course intends to equip students with pressing challenges, issues and areas that are of critical importance for Islam and Global Affairs.

IGA 628 Globalization & Faith Based Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the locus of faith based development as a form of protecting and promoting human security as a concept distinct from national security. Faith based development and the role religious organizations have been playing through transnational actors—from global elites to NGOs, intergovernmental organizations to supranational bodies—work together to promote human wellbeing fostered by faith based mechanisms, agenda and tools. The course emphasizes particular attention to integral human development and community building that promotes alternative forms of security in a transforming global order.

IGA 629 Humanitarian Actions in the Muslim World **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course aims to provide students with an interdisciplinary introduction to the processes, events and policy debates shaping responses to war-related humanitarian crises, including emergency interventions in situations of ongoing-armed conflict, and post-conflict recovery in the Muslim world. It enables students to make independent, critical and constructive contributions to humanitarian policies and the implementation of humanitarian activities. The course will analyze humanitarian responses with a particular focus on the Muslim World offering insights into the complexity of local realities in afflicted regions.

IGA 689 Integrative Lab **3 Credits**
Grade Mode: Audit/Non Audit, Pass/Non Pass

Under the supervision of a faculty member, student is assigned to work in collaboration with a local or an international organization or a similar entity and conduct research that is useful for the thesis project undertaken.

IGA 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

ISLM 105 Scriptural Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores Scriptural ethics in Islam, focusing on the Qur'an and the Sunnah. Students analyze Quranic ethics, examining moral terminology and theories. Additionally, the course investigates key values, moral concepts, and sources in the Sunnah from canonical Hadith collections. Ethical inquiries encompass both classical and modern scholarship, addressing methodological questions and encouraging close engagement with the scriptures. Designed to provide undergraduates with a foundational understanding of Scriptural ethics, it prepares them for critical reflection on moral issues in contemporary society.

ISLM 106 Philosophy, Theology, and Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores ethics in Islamic theology and philosophy, covering ontological and epistemological inquiries, perspectives on human action, obligation (taklīf), and ethical judgments. Students analyze fundamental ethical themes in Greek philosophy and their impact on classical Islamic thought. They gain insight into historical context, key concepts, significant works, and prominent philosophers in the classical Islamic tradition, alongside contemporary moral philosophy. Designed to foster critical thinking and ethical reasoning skills, it provides undergraduates with a comprehensive understanding of ethics in Islamic theology and philosophy, relevant to contemporary issues.

ISLM 117 Islamic Art and Architecture **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the arts and architecture of classical Islamic civilization from 610 CE to the present. The students will learn about the diverse regional traditions of the Muslim world through coursework and original sources. The goal is to comprehend how art and architecture emerged from religious and cultural contexts. We will explore how Islamic architecture benefits society through its social, environmental, cultural, and functional aspects. This course will apply architectural theory to analyze the typology of historical Islamic buildings.

Islamic Studies

IST 621 Sustainable Islamic Urbanism: Past and Present **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, QFIS Legacy

This course offers a contemporary understanding of the Muslim city. It draws heavily on the writings of key scholars and the way in which each has developed his/her thoughts on the role of Islam in shaping the urban form, and the overall built environment. The course covers issues that pertain to Islamic perspectives to urban spatial structures, the physical aspects of the urban form, and the role of the socio-cultural factors and legal system in the formation of Muslim cities. This course is the equivalent of UDA 620

IST 800 Research Methods in Islamic Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course familiarizes students with the essential research methodologies in Islamic Studies needed to write effective seminar papers, dissertation proposals, and dissertations at the doctoral level. Students will refine their analytical skills to design and deliver original and innovative research projects. The course focusses on the concepts, language, methods, and applications of research that will facilitate the formulation clear thesis questions. More practically it will familiarize students with the conventions of transliteration, citation, bibliography, literature reviews and textual analysis.

IST 801 Comparative Islamic Theology and Philosophy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course engages with the central themes of classical Islamic philosophy and theology and assesses its effect on the culture of Muslim life from the seventh century to the present. Students will learn the history, concepts, doctrines, and philosophers in the Islamic tradition, including modern contemporary trends in Islamic philosophy and theology. The course also addresses primary concepts promoted in the Islamic philosophy and theology, such as Divine Nature and the Existence of God, Ethics, and Epistemology and Divine Discourse, and their manifestation in various doctrinal standpoints.

IST 802 Comparative Theories in the Study of Religion **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will present a variety of epistemological and methodological approaches to the study of religions in academic discourse, with a focus on how these perspectives relate to Islamic studies, and how they may be employed in graduate research. Such approaches include those of phenomenology, psychology, history, sociology, anthropology, postcolonial and de-colonial studies and women's studies. The course will also will explore a range of pertinent themes, including but not limited to, religious experience, the sacred and the profane, pilgrimage and ritual, tolerance, co-existence, and the "other", and myth and mysticism.

IST 803 Sources and Methodology of Islamic Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This discusses the incremental evolution of Islamic legal theory to contextualize the juristic contributions of the foremost personalities who played a major role in its genesis. The course examines the sources of Islamic law (al-masadir), its evidence (al-adilla), its guiding principles (al-usul), its jurisprudential maxims (al-qawa'id) and its underlying objectives (al-maqasid), which underpin the structure of Islamic legal theory.

IST 804 Comparative Quranic Exegesis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course equips students with the necessary tools to analyze the Quranic text using the latest developments in Quranic Studies. It critically examines the collection, compilation, and standardization of the Quran, exploring its main features, structure, and themes. Methodologies in Quran Studies are applied to key topics including the nature of God, the relationship between the Divine and humanity, prophethood and other religions, as well as death and the afterlife. Furthermore, the course delves into Quranic teachings on pressing issues like jihad and warfare, social justice, and gender relations.

IST 805 Sources and Methodology of Hadith **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course is composed of three essential parts: the first examines the Prophetic Personality as it is represented in Islam's primary textual sources of the Qur'an and Hadith. Emphasis is laid upon the genesis of Hadith as a genre within Islamic learning and its position as one of the fundamental sciences of this tradition. The second part discusses the genre of biographical writing concerning the Prophetic Personality and in particular, stresses the importance of sirah literature. The final part of the course focuses on the methodology of Hadith literature.

IST 806 The Islamic City **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

"Madinah" refers to the Islamic city founded by Prophet Muhammad (622-632). It signifies comprehensive knowledge encompassing legal, ethical, social, political, and religious aspects, surpassing individual experiences. The term embodies authority, submission, obedience, conformity, and consensus, shaping the nature of the Islamic City. As a culmination of generations' urban experiences, Madinah serves as a basis for critical reflection and reevaluation of the interdependent conditions of urban existence.

IST 807 Comparative Applied Islamic Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course consists of three parts. Part one focuses on the foundational aspects of Islamic Ethics, including key contributions and theoretical principles. Part two explores the practical application of these principles to contemporary topics such as bioethics, socio-political issues, inter-religious and inter-cultural themes. The final part trains students in conducting research that embraces the interdisciplinary nature of the field and effectively addresses the ethical dilemmas arising in the modern age.

IST 808 Globalization and Muslim Societies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course presents an overview of the key social and political issues currently facing the Muslim world. It is divided into four parts. First, it examines the transformation of traditional communal Muslim societies into modern nation states. Second, it analyzes the era of globalization and global governance and the variegated impact throughout the Muslim world. Third, it explores the different facets of humanitarianism, migration, and the refugee crisis in Muslim societies. Lastly, it analyzes the Muslim world in relation to the United Nations' Sustainable Development Goals.

IST 809 Family and Society in Islam **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to gender and family topics in Islamic foundational texts and Muslim societies across different time periods. It explores how religious sources portray sex, sexuality, and family dynamics. Additionally, the course examines historical and sociological studies on gender and family in various eras and locations, spanning from the early days of Islam to the present. It critically engages with contentious issues such as gender and religious leadership, financial matters, sexual expression, spousal relations, and laws related to marriage and divorce.

IST 810 Islam, Environment and Sustainability **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course instructs students how to address the critical issue of climate change and develop models for sustainability from within the Islamic tradition. The course addresses the state of the environmental crisis and analyzes its philosophical underpinnings, which are then juxtaposed with the manner in which the relationship between God, humanity and the natural environment is presented in the classical Islamic sources. The course analyzes the development of contemporary "ecotheologies" and the movements towards sustainability and environmental justice in the Muslim world.

IST 811 Translating Arabic-Islamic Texts **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses the issues involved in the translation of Islam's primary sacred texts and their associated fields of learning. It examines the translation of a range of Islamic texts in a number of disciplines such as Islamic jurisprudence (fiqh), scholastic theology (kalam) Arab philosophy (falsafa) and mysticism (tasawwuf). The course identifies the plethora of problems of various levels and layers of meaning in terms of equivalence and transfer of intended message in the translations and will train students in the process of translation assessment.

IST 812 Islamic Manuscript Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers a comprehensive exploration of manuscript arts spanning the early days of Islam to the early modern era. It delves into the study of materials such as binding and paper, as well as the layout, scripts, and decoration of manuscripts. Students will learn how to assess and read handwritten Arabic texts predating the 20th century. The course provides training in codicology, enabling students to describe the physical aspects of manuscripts. Additionally, it covers reading various texts, surveying Arabic manuscript collections through printed catalogs and online databases, and techniques for preserving and digitizing manuscripts.

IST 813 Graduate Seminar in Islamic Studies **3 Credits**
Grade Mode: Standard Letter

The seminar presents a theoretical or practical topic proposed by the faculty beyond what is offered in existing courses. The seminar is exploratory and relates to the ongoing research of the instructor. It requires active and critical participation from the students with regard to discussions of the source material in the light of relevant theoretical and methodological approaches.

IST 814 Readings in Usul Al-Fiqh **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the development of the Arab-Islamic Intellectual tradition and traces the genesis of jurisprudential learning by examining the influence of Islam's primary sacred texts and how they shaped the religion's legal history. The literary production of this evolution will then be discussed by selectively examining a range of texts concerning the principles of Islamic jurisprudence (Usul al-Fiqh).

IST 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Islamic Studies Foundation

ISF 602 Principles and Objectives of Islamic Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the students to the methodology of Ijtihad in Islamic law through the study of principles and objectives of Islamic law. The course introduces the students to the various Sharia sources and explains to them how Sharia financial rules are derived from the sources. The course is also designed to help students understand the bases of differences in Islamic Fiqh schools, the reasons why jurists differ, and the weight of different legal opinions. This course also aims to equip students with the necessary knowledge of the most important concepts in Maqasid al Sharia and their applications in Islamic finance.

ISF 605 Research Methods **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

The course is designed to aid graduate students to improve their writing and research skills and is specific to Islamic and Sustainable Finance. It includes an overview of the writing mechanics and process, how to properly conduct research, cite sources and guidelines for writing papers. This course is more suitable for students who want to conduct a dissertation using qualitative and quantitative research techniques and extend the basic knowledge students learned in the general research methods course.

PSYC 101 Introduction to Psychology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces engineering undergraduates to the fundamental principles of psychology. Covering key topics such as cognitive processes, emotional regulation, development, social behavior, and mental health, students will gain a comprehensive understanding of human behavior and mental functions. Emphasizing the relevance of psychological concepts in engineering, the course explores how psychological principles can enhance problem-solving, team collaboration, and user-centered design. Through lectures, discussions, and practical assignments, students will develop critical thinking skills and an appreciation for the psychological factors influencing human interactions and technological advancements.

PSYC 600 Introduction to Psychology in the Islamic Tradition **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the Islamic intellectual heritage in relation to psychology. It familiarizes students with classical Islamic scholarly literature, drawing from primary sources such as Tibb, Falsafa, Tasawwuf, Kalam, and Fiqh. The course combines lectures, reading original texts with commentary, classroom discussions, and critical thinking exercises. It emphasizes comparative analysis between classical Islamic texts and modern psychology, encouraging students to examine convergence and divergence, and explore potential theoretical developments and clinical applications through critical thinking and synthesis of disparate knowledge

PSYC 601 Foundations of Islamic Sciences **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the foundations of Islamic sciences, providing students with a comprehensive understanding of core disciplines. It covers the aims, scope, and methods of each discipline, including Quran, Hadith, Islamic law, Discursive theology (Kalam), and the science of Islamic spirituality (Tasawwuf). Auxiliary sciences like philosophy, logic, and medicine will also be discussed. The course explores connections between these Islamic disciplines and the field of psychology, enabling students to grasp the interplay between them. It serves as a foundational knowledge base for understanding Islamic sciences and their relationship to psychology.

PSYC 602 Psychopathology & Diagnosis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will introduce participants to the assessment, diagnosis, and treatment of mental disorders as defined by the Diagnostic and Statistical Manual of Mental Disorders, 5th Edition, DSM-5, (2013) classification system. In addition to differential diagnosis using the DSM-5, the course will address the current understanding of etiology, prevention, and treatment issues related to psychopathology.

PSYC 603 Appraisal & Psychological Assessment Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers psychological and cognitive assessment techniques, including standardized and non-standardized methods like norm-referenced and criterion-referenced assessment, performance assessment, environmental assessment, tests, inventories, psychological testing, behavioral observations, and clinical interviewing. It aims to develop students' skills in creating psychological/cognitive profiles for clients, integrating data from different assessment methods to address diagnostic and referral questions, and writing comprehensive reports suited to the referring source's needs.

PSYC 604 Introduction to Psychotherapy & Counseling Theories **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an overview of counseling theories and practices, emphasizing their philosophical and theoretical foundations. It explores mainstream counseling theories and then delves into Islamically integrative orientations to psychotherapy, including Islamic epistemology and an ontological framework of the human psyche. Students will learn how to conceptualize and treat psychological disorders using Islamically integrative models, targeting cognitive, behavioral, spiritual, and emotional aspects of the human psyche. Concrete skills and therapeutic goals related to Islamic cognitive restructuring, behavioral reformation, spiritual growth, and emotional regulation will be demonstrated.

PSYC 605 Cross-Cultural Psychotherapy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on client diversity and challenges cultural biases in mental health services. It examines ethnographic, demographic, and status variables and explores multicultural psychotherapy models, cultural identity development, and the impact of culture on psychopathology, health, well-being, and service delivery. Students learn skills for cultural attunement, adapting interventions, and considering cultural factors in diagnosis and assessment. The course aims to promote awareness and sensitivity to diverse populations, ensuring culturally appropriate and effective mental health care.

PSYC 606 Group Therapy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the fundamental principles of group dynamics and their application in group therapy. It examines the formation, sustainability, and dynamics of groups, as well as how change is facilitated by the group leader. The course covers the different phases of group development, including factors such as composition, structure, selection, preparation, and overall group process. While focusing on general group concepts, the course also explores various theoretical approaches to group therapy. An experiential component is included, allowing students to participate in a group process experience as members, enhancing their learning and understanding.

PSYC 607 Ethics, Professional & Legal Issues in Psychology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the ethical and legal aspects of psychology and counseling. It covers various domains, including ethical guidelines, mental health laws, ethical case studies, and best practices. Students will learn about Islamic ethical guidelines and the conduct expected of mental health practitioners. The course explores ethical dilemmas that arise at the intersection of Islamic values and international professional codes of ethics, emphasizing strategies for reconciliation. Students will reflect on and develop their professional identity as mental health care providers throughout the course.

PSYC 608 Career & School Counseling **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an introduction to career and school counseling, covering theories, assessment tools, and their application in various educational and vocational settings. It includes career development theories, vocational counseling, decision-making models, career planning, and sources of educational and occupational information. The course also explores mental health needs of students in different school settings, including etiology, symptomology, treatment approaches, and crisis intervention strategies. Additionally, it covers socio-emotional program development, curriculum consultation, and strategies for supporting students' well-being in early childhood, elementary, middle, and high school settings.

PSYC 609 Substance Abuse and Addictions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide a supportive, structured learning environment for acquiring substance use and addictive behavior counseling skills. The course will provide students with an understanding of correlates of physiological and psychological effects of drugs and the significance of treatment planning in diverse settings. It will help student use the knowledge of individual, group, and family counseling strategies as they are applied to behavior change and relapse prevention. Students will learn about the diagnostic criteria of substance use and addictive behavior, models of etiology, and approaches to treatment.

PSYC 690 Project **6 Credits**
Grade Mode: Pass/Non Pass

Students will be expected to complete a project.

PSYC 691 Internship **3-6 Credits**
Grade Mode: Pass/Non Pass

This internship is a capstone experience designed to provide mental health counseling students opportunities to use and apply the knowledge, concepts and skills acquired in their graduate program. Interns take on the role(s) of a counselor at their placement site(s). They will engage in a full range of activities, including intake, assessment, diagnosis, and individual and group counseling. Six hundred on-site clock hours are required, and weekly faculty supervision is provided on an individual and group basis, as well as on-site supervision by a licensed practitioner. Students receive a Pass/Fail grade for course.

PSYC 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

Students will be expected to conduct a thesis. They will develop a research question, identify aims, and select appropriate methods informed by the research methods class in order to answer their research questions.

PSYC 697 Practicum **1 Credit**
Grade Mode: Pass/Non Pass

This initial practicum is an introductory experience field placement designed to provide counseling psychology students opportunities to begin to use and apply the knowledge, concepts and skills acquired in their graduate program. Interns take on the role(s) of a psychotherapist at their placement site(s). They will engage in an initial range of activities, including intake, assessment, diagnosis, and begin some therapy sessions. One hundred (100) on-site clock hours are required, and weekly faculty supervision is provided on an individual and group basis, as well as on-site supervision by a licensed practitioner. Students receive a Pass/Fail grade for course.

PSYC 700 Marital and Family Therapy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an overview of the development and conceptualizations of marital and family therapy. It explores different theories used in the field, including various schools of family therapy, and addresses current trends and issues in marriage and family therapy with a specific focus on the Muslim family. The course examines Islamic Family and marital therapy models, emphasizing the reinforcement of Islamic family values and the integration of Islamically oriented strategies and interventions to enhance marriages and strengthen the family unit.

PSYC 702 Advanced Techniques & Interventions **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This advanced course expands on the Introduction to Psychotherapy & Counseling Theories, focusing on Islamically-integrated psychotherapy. Students explore the practical application of these principles in different therapeutic contexts and pathologies using case vignettes. They engage in discussions, present their own cases, and collaborate on treatment goals. The course emphasizes the development of integrative skills and techniques for addressing psychological disorders within an Islamic framework. Advanced interventions targeting cognition, behavior, spirit, and emotions are covered, including adaptations of mainstream and Islamic approaches. Complex case demonstrations and the nuances of providing psychological care within an Islamic context are explored, and hands-on components enhance the learning experience.

PSYC 703 Human Growth & Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the comprehensive development of individuals across the lifespan, encompassing physical, cognitive, social, emotional, spiritual, and moral aspects. The influence of significant contexts such as family, schools, cultures, and peer groups on development is explored. Students will gain insights into major life transitions and an extensive understanding of development within each stage. The course incorporates major theoretical perspectives from developmental and Islamic psychology. It also focuses on culturally appropriate interventions and assessments supported by research to promote the growth and development of clients in psychotherapy. Practical applications in the helping professions are integrated into both readings and in-class content.

PSYC 707 Research and Program Evaluation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to quantitative and qualitative research methods in counseling psychology. It covers the language, tools, and principles of various research methods, statistics, and program evaluation. Topics include needs assessments, survey and interview data collection, statistical analysis, and Islamic epistemology for interpreting data in counseling psychology research. The course emphasizes the grading and evaluation of self-report data, with a focus on research tools validated in Muslim populations. Students will gain skills in identifying, appraising, reconciling, and interpreting data to address research questions in counseling psychology.

Islamic Finance

Programs

- Islamic Finance and Economy, PhD (p. 54)
- Islamic Finance, Graduate Certificate (p. 56)
- Islamic Finance, Master of Science (p. 55)

Islamic Finance and Economy, PhD

The PhD in Islamic Finance and Economy is an innovative multidisciplinary program that provides students with the required analytical and research skills to understand, analyze, and interpret the workings of the rapidly expanding Islamic financial services and market sectors, and to tackle their emerging challenges and opportunities. The program is centered on the national priorities as set out in the Qatar National Vision 2030, on the local aspirations as enshrined in the objectives of the Shari'a, and on global targets such as the UN Sustainable Development Goals.

For more information, click here (https://www.hbku.edu.qa/en/cis/phdife/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
IFI 802	Applied Econometrics	0
IFI 804	Applied Topics in Usul al Fiqh and Maqasid Al Sharia	3
IFI 821	Advanced Topics in Islamic and Sustainable Economy	3

IFI 822	Advanced Topics in Islamic and Sustainable Finance	3
IFI 823	Advanced Research Methods	3
Subtotal		12
Elective Courses		
Select two of the following:		6
IFI 606	Islamic Economics and Development in Theory and Practice	
IFI 608	Strategic Management in Islamic Finance	
IFI 702	Sustainable Finance & Impact Investing	
IFI 704	Applied Quantitative Methods in Islamic Finance	
IFI 706	Independent Studies	
IFI 708	Selected Topics in Applied Econometrics	
IFI 709	Behavioural Islamic Economics & Finance	
IFI 710	Fintech and its Islamic Finance Applications	
IFI 800	Circular Economy and Comprehensive Development: An Islamic Perspective	
IFI 801	Entrepreneurship, Ethics and Sustainability	
IFI 803	Islamic Financial Structuring: Strategies and Contracts	
IFI 810	Advanced Corporate Finance and Investment	
IFI 811	Advanced Topics in Micro and Macro Economics: Islamic Perspectives	
IFI 812	International Islamic Economic and Financial Relations	
IFI 813	Islamic Social Finance and Empowerment	
IFI 814	Islamic Economic History and Thought	
IFI 815	Governance Legal and Regulatory Issues of Islamic Financial Institutions	
IFI 816	Advanced Risk Management of Islamic Financial Institutions	
IFI 817	Financial Analysis and Portfolio Modelling	
Subtotal		6
Dissertation		
IFI 890	Dissertation Hours	1-9
Subtotal		42
Non-Course Requirements		
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
899	Dissertation Defense	0
Total		**60**

Study Plan

First Year		
First Semester		**Hours**
IFI 802	Applied Econometrics	0
IFI 804	Applied Topics in Usul al Fiqh and Maqasid Al Sharia	3
IFI 821	Advanced Topics in Islamic and Sustainable Economy	3
	Semester Hours	**6**
Second Semester		
IFI 822	Advanced Topics in Islamic and Sustainable Finance	3
IFI 823	Advanced Research Methods	3
Elective 1		3
	Semester Hours	**9**
Second Year		
First Semester		
IFI 890	Dissertation Hours	9
Elective 2		3
	Semester Hours	**12**
Second Semester		
IFI 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
IFI 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
IFI 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
IFI 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Islamic Finance, Master of Science

The MSc in Islamic Finance is a specialized program that teaches qualitative and quantitative methods of analysis in both Islamic and conventional finance. The mixed philosophy of the program enables graduates to attain the skills needed to understand the global financial system, and proposes viable alternatives to existing models, by blending guidance from Shari'a with modern scientific knowledge and the techniques of economics and finance.

For more information, click here (https://www.hbku.edu.qa/en/cis/msif/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Common Core Courses		
ISF 605	Research Methods	3
IFI 605	Islamic Financial Contracts	3
IFI 607	Islamic Banking and Financial Markets	3
IFI 615	Islamic Corporate Finance and Financial Engineering	3
Subtotal		12
Concentrations		
Select one of the following Concentrations:		6
Concentration 1: Sustainable Finance		
Concentration Core Courses:		
IFI 702	Sustainable Finance & Impact Investing	
IFI 703	Islamic Economics and Sustainable Development	
Concentration 2: Islamic Finance		
Concentration Core Courses:		
IFI 701	Analysis of Financial Statements with Applications to Islamic Banks	
IFI 707	Islamic asset, Funds & Portfolio Management	
Subtotal		6
Elective Courses		
Select three of the following		9
ISF 602	Principles and Objectives of Islamic Law	
IFI 606	Islamic Economics and Development in Theory and Practice	
IFI 608	Strategic Management in Islamic Finance	

IFI 691	Internship	
IFI 704	Applied Quantitative Methods in Islamic Finance	
IFI 706	Independent Studies	
IFI 709	Behavioural Islamic Economics & Finance	
IFI 710	Fintech and its Islamic Finance Applications	
IFI 800	Circular Economy and Comprehensive Development: An Islamic Perspective	
IFI 801	Entrepreneurship, Ethics and Sustainability	
IFI 803	Islamic Financial Structuring: Strategies and Contracts	
IFI 810	Advanced Corporate Finance and Investment	
IFI 811	Advanced Topics in Micro and Macro Economics: Islamic Perspectives	
IFI 812	International Islamic Economic and Financial Relations	
IFI 813	Islamic Social Finance and Empowerment	
IFI 814	Islamic Economic History and Thought	
IFI 815	Governance Legal and Regulatory Issues of Islamic Financial Institutions	
IFI 816	Advanced Risk Management of Islamic Financial Institutions	
IFI 817	Financial Analysis and Portfolio Modelling	
Subtotal		9
Thesis		
IFI 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**36**

Study Plan

Concentration 1: Sustainable Finance

First Year		
First Semester		**Hours**
ISF 605	Research Methods	3
IFI 607	Islamic Banking and Financial Markets	3
IFI 615	Islamic Corporate Finance and Financial Engineering	3
	Semester Hours	**9**
Second Semester		
IFI 605	Islamic Financial Contracts	3
IFI 702	Sustainable Finance & Impact Investing	3
IFI 703	Islamic Economics and Sustainable Development	3
	Semester Hours	**9**
Second Year		
First Semester		
IFI 695	Master's Thesis Hours	3
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**12**
Second Semester		
IFI 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Concentration 2 : Islamic Finance

First Year		
First Semester		**Hours**
ISF 605	Research Methods	3
IFI 607	Islamic Banking and Financial Markets	3
IFI 615	Islamic Corporate Finance and Financial Engineering	3
	Semester Hours	**9**
Second Semester		
IFI 701	Analysis of Financial Statements with Applications to Islamic Banks	3
IFI 605	Islamic Financial Contracts	3
Elective 1		3
	Semester Hours	**9**
Second Year		
First Semester		
IFI 707	Islamic asset, Funds & Portfolio Management	3
IFI 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
	Semester Hours	**12**
Second Semester		
IFI 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Islamic Finance, Graduate Certificate

The Graduate Certificate in Islamic Finance is an opportunity crafted for individuals seeking to improve their knowledge and skills in this field and caters to a diverse range of academic and professional social science backgrounds. It provides training in the requisite skills to operate effectively in the Islamic finance market, as well as in-depth knowledge of Islamic finance principles and practices. The program is open to students in any academic discipline, and provides career-advancement opportunities for finance-based professionals. It also serves as a bridge program for students who may consider pursuing a master's degree in Islamic Finance at the college.

For more information, click here (https://www.hbku.edu.qa/en/cis/gcif/).

Requirements

Minimum hours required to complete program 18 CH

Code	Title	Hours
Core Courses		
IFI 605	Islamic Financial Contracts	3
IFI 607	Islamic Banking and Financial Markets	3
IFI 615	Islamic Corporate Finance and Financial Engineering	3
Subtotal		9
Elective Courses		
Select three of the following:		9
IFI 608	Strategic Management in Islamic Finance	
IFI 701	Analysis of Financial Statements with Applications to Islamic Banks	
IFI 702	Sustainable Finance & Impact Investing	
IFI 703	Islamic Economics and Sustainable Development	
IFI 704	Applied Quantitative Methods in Islamic Finance	

IFI 705	Legal, Regulatory and Institutional Aspects of Islamic Finance	
IFI 707	Islamic asset, Funds & Portfolio Management	
IFI 709	Behavioural Islamic Economics & Finance	
IFI 710	Fintech and its Islamic Finance Applications	
ISF 602	Principles and Objectives of Islamic Law	
ISF 605	Research Methods	
Total		**18**

First Year

First Semester		**Hours**
IFI 605	Islamic Financial Contracts	3
IFI 607	Islamic Banking and Financial Markets	3
IFI 615	Islamic Corporate Finance and Financial Engineering	3
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
	Total Hours	**18**

Islamic Studies

Programs

- Counseling Psychology, Master of Arts (p. 58)
- Applied Islamic Ethics, Master of Arts (p. 57)
- Comparative Primary Education, Graduate Teaching Certificate (https://catalog.hbku.edu.qa/academic-degrees/cis/isd/ce-ced/)
- Contemporary Islamic Studies, Master of Arts (p. 57)
- Islam and Global Affairs, Master of Arts (p. 60)
- Islamic Art, Architecture and Urbanism, Master of Science (p. 60)
- Islamic Studies, Graduate Certificate (p. 62)
- Islamic Studies, PhD (p. 61)

Applied Islamic Ethics, Master of Arts

The first program of its kind worldwide, the MA in Applied Islamic Ethics addresses how Islam, as a world religion with a rich moral heritage, engages with and contributes to global moral discourses. Its strong interdisciplinary character combines in-depth knowledge of both theoretical and applied ethics rooted in the Islamic tradition. The program is consistent with the Qatar National Vision 2030 by enhancing a knowledge-based society and with HBKU's mission to develop world-class interdisciplinary academic programs.

For more information, click here (https://www.hbku.edu.qa/en/cis/maaie/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Foundation Courses		
AIE 610	Islamic Ethics: Mapping the Field	3
AIE 611	Research Methods and Sources on Ethics	3
Subtotal		6
Core Courses		
AIE 630	Scriptural Ethics: Ethics in Quran and Sunna	3
AIE 631	Theological and philosophical Ethics	3
AIE 632	Ethical Reasoning and Moral Decision-Making	3
Subtotal		9
Elective Courses		
Select five of the following:		15
AIE 633	Islamic Bioethics	
AIE 634	Ethics of Migration and Human Rights	
AIE 635	Business Ethics	
AIE 636	Peace, War and Political Ethics	
AIE 637	Gender and Islamic Ethics	
AIE 640	Islamic Ethics of Pandemics	
AIE 641	Islamic Ethics and Artificial Intelligence	
Student can choose Tutorial or Internship as a replacement for one of the elective courses:		
AIE 660	Tutorial	
AIE 661	Internship	
Subtotal		15
Thesis		
AIE 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**36**

Study Plan

First Year

First Semester		**Hours**
AIE 611	Research Methods and Sources on Ethics	3
AIE 630	Scriptural Ethics: Ethics in Quran and Sunna (Core 1)	3
AIE 631	Theological and philosophical Ethics (Core 2)	3
	Semester Hours	**9**
Second Semester		
AIE 610	Islamic Ethics: Mapping the Field	3
Elective 1		3
	Semester Hours	**6**
Second Year		
First Semester		
AIE 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
Elective 4		3
	Semester Hours	**12**
Second Semester		
AIE 695	Master's Thesis Hours	6
Elective 5		3
	Semester Hours	**9**
	Total Hours	**36**

Contemporary Islamic Studies, Master of Arts

The MA in Contemporary Islamic Studies offers students a unique opportunity to enjoy a strong multidisciplinary and interdisciplinary graduate education across a range of core subjects, while also enabling them to pursue a specialization in one important area within the field of modern Islamic scholarship. The program is tailored to examine

traditional Islamic knowledge and place such knowledge in the context of the challenges faced by modern society.

For more information, click here (https://www.hbku.edu.qa/en/cis/mais/).

Requirements

Minimum Hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
CIS 600	Foundations of Islamic Thought	3
CIS 601	Contemporary Quran and Hadith Studies	3
CIS 602	Applied Research Methodologies in Islamic Studies	3
Subtotal		9
Specialization		
Select one of the following Specializations:		18
Specialization 1: Contemporary Islamic Thought		
Required Courses:		
CIS 607	Islamic Thought and Postcolonial Studies	
CIS 705	Islam and Modernity	
CIS 707	Islamic Law and Society	
Elective Courses:		
Select three of the following:		
CIS 608	The Media and Muslim Societies	
CIS 609	Islam and Politics in the Muslim World	
CIS 611	Scientific Thought in Muslim Societies	
CIS 612	Muslim Societies in Diaspora	
CIS 613	Modern History of the Muslim World	
CIS 710	Muslim Encounters with Other Societies	
Specialization 2: Fiqh and Society		
Required Courses:		
CIS 615	Non-Textual Legal Sources	
CIS 616	Fatwa, Family and Society	
CIS 617	Islamic jurisprudence, Politics and the State	
Elective Courses:		
Select three of the following:		
CIS 618	The Higher Objectives of Sharia and Public Interest	
CIS 619	Text and Context: Comparative Textual Readings	
CIS 620	Nawazil and Novel Legal Issues	
CIS 621	Personal Earnings and Economics	
CIS 622	Social Justice, Community Welfare and Sustainable Development	
CIS 623	Muslim Social and Political Systems and Institutions	
Subtotal		18
Thesis		
CIS 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**36**

Study Plan

Specialization 1: Contemporary Islamic Thought

First Year		
First Semester		**Hours**
CIS 600	Foundations of Islamic Thought	3
CIS 601	Contemporary Quran and Hadith Studies	3
CIS 602	Applied Research Methodologies in Islamic Studies	3
CIS 707	Islamic Law and Society	3
	Semester Hours	**12**
Second Semester		
CIS 607	Islamic Thought and Postcolonial Studies	3
CIS 705	Islam and Modernity	3
	Semester Hours	**6**
Second Year		
First Semester		
CIS 695	Master's Thesis Hours	3
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**12**
Second Semester		
CIS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Specialization 2: Fiqh and Society

First Year		
First Semester		**Hours**
CIS 600	Foundations of Islamic Thought	3
CIS 601	Contemporary Quran and Hadith Studies	3
CIS 602	Applied Research Methodologies in Islamic Studies	3
	Semester Hours	**9**
Second Semester		
CIS 615	Non-Textual Legal Sources	3
CIS 616	Fatwa, Family and Society	3
Elective 1		3
	Semester Hours	**9**
Second Year		
First Semester		
CIS 617	Islamic jurisprudence, Politics and the State	3
CIS 695	Master's Thesis Hours	3
Elective 2		3
Elective 3		3
	Semester Hours	**12**
Second Semester		
CIS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Counseling Psychology, Master of Arts

The Master of Arts (MA) in Counseling Psychology is uniquely offered within an Islamically integrated framework. It aspires to fill an urgent need for more trained mental health practitioners that are cognizant and capable of effectively integrating the religious sensitivities of Muslim populations into mental health care treatment. Students are trained within a curriculum structure that is consistent with international competency standards for mental health practitioners for potential licensure anywhere in the world. In addition, under the guidance of internationally recognized faculty in the field, students will have unique training opportunities to build their clinical experience

both the psychology training clinic housed within CIS as well as off-site through the program's external mental health care partners. The holistic approach of the program aims to produce a generation of scholars and practitioners to enrich the nascent field of Islamic psychology both locally and globally.

Requirements

Minimum hours required to complete program 55 CH

Code	Title	Hours
Required Courses		
PSYC 600	Introduction to Psychology in the Islamic Tradition	3
PSYC 601	Foundations of Islamic Sciences	3
PSYC 602	Psychopathology & Diagnosis	3
PSYC 603	Appraisal & Psychological Assessment Methods	3
PSYC 604	Introduction to Psychotherapy & Counseling Theories	3
PSYC 605	Cross-Cultural Psychotherapy	3
PSYC 606	Group Therapy	3
PSYC 607	Ethics, Professional & Legal Issues in Psychology	3
PSYC 608	Career & School Counseling	3
PSYC 609	Substance Abuse and Addictions	3
PSYC 700	Marital and Family Therapy	3
PSYC 702	Advanced Techniques & Interventions	3
PSYC 703	Human Growth & Development	3
PSYC 707	Research and Program Evaluation	3
Subtotal		42
Practicum		
PSYC 697	Practicum	1
Subtotal		1
Internship		
PSYC 691	Internship	6
Subtotal		6
Thesis/ Project		
Select one of the following:		
PSYC 695	Master's Thesis Hours	
or		
PSYC 690	Project	
Subtotal		6
Total		**55**

First Year

First Semester		**Hours**
PSYC 600	Introduction to Psychology in the Islamic Tradition	3
PSYC 601	Foundations of Islamic Sciences	3
PSYC 602	Psychopathology & Diagnosis	3
PSYC 604	Introduction to Psychotherapy & Counseling Theories	3
	Semester Hours	**12**
Second Semester		
PSYC 603	Appraisal & Psychological Assessment Methods	3
PSYC 607	Ethics, Professional & Legal Issues in Psychology	3
PSYC 702	Advanced Techniques & Interventions	3
PSYC 703	Human Growth & Development	3
	Semester Hours	**12**
Third Semester		
PSYC 605	Cross-Cultural Psychotherapy	3
PSYC 609	Substance Abuse and Addictions	3
	Semester Hours	**6**
Second Year		
First Semester		
PSYC 608	Career & School Counseling	3
PSYC 697	Practicum	1
PSYC 700	Marital and Family Therapy	3
PSYC 707	Research and Program Evaluation	3
	Semester Hours	**10**
Second Semester		
PSYC 606	Group Therapy	3
PSYC 691	Internship	3
PSYC 695	Master's Thesis Hours	3
	Semester Hours	**9**
Third Semester		
PSYC 691	Internship	3
	Semester Hours	**3**
Third Year		
First Semester		
PSYC 695	Master's Thesis Hours	3
	Semester Hours	**3**
	Total Hours	**55**

First Year

First Semester		**Hours**
PSYC 600	Introduction to Psychology in the Islamic Tradition	3
PSYC 601	Foundations of Islamic Sciences	3
PSYC 602	Psychopathology & Diagnosis	3
PSYC 604	Introduction to Psychotherapy & Counseling Theories	3
	Semester Hours	**12**
Second Semester		
PSYC 603	Appraisal & Psychological Assessment Methods	3
PSYC 607	Ethics, Professional & Legal Issues in Psychology	3
PSYC 702	Advanced Techniques & Interventions	3
PSYC 703	Human Growth & Development	3
	Semester Hours	**12**
Third Semester		
PSYC 605	Cross-Cultural Psychotherapy	3
PSYC 609	Substance Abuse and Addictions	3
	Semester Hours	**6**
Second Year		
First Semester		
PSYC 700	Marital and Family Therapy	3
PSYC 608	Career & School Counseling	3
PSYC 707	Research and Program Evaluation	3
PSYC 697	Practicum	1
	Semester Hours	**10**
Second Semester		
PSYC 606	Group Therapy	3
PSYC 690	Project	3
PSYC 691	Internship	3
	Semester Hours	**9**
Third Semester		
PSYC 691	Internship	3
	Semester Hours	**3**
Third Year		
First Semester		
PSYC 695	Project	3
	Semester Hours	**3**
	Total Hours	**55**

Islam and Global Affairs, Master of Arts

The MA in Islam and Global Affairs (IGA) is a one-of-a-kind program that provides an opportunity to analyze the place of Islam in the context of global affairs, and the interconnected challenges facing global Muslim communities from an interdisciplinary perspective. Through research and integrative lab assignments, students are able to explore complex, interconnected global issues in collaboration with local and international organizations.

For more information, click here (https://www.hbku.edu.qa/en/cis/maiga/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Foundation Courses		
IGA 600	Islamic Worldview	3
IGA 605	Research Methods	3
IGA 611	Introduction to Islam and Global Affairs	3
Subtotal		9
Core Courses		
IGA 612	Global Inequalities	3
IGA 613	Islam, Conflict Transformation and Peacebuilding	3
IGA 628	Globalization & Faith Based Development	3
Subtotal		9
Specialization		
IGA 627	Special Topics in Islam and Global Affairs	3
IGA 622	Islam and Global Governance	3
or IGA 629	Humanitarian Actions in the Muslim World	
Subtotal		6
Lab		
IGA 689	Integrative Lab	3
Subtotal		3
Thesis		
IGA 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		36

Study Plan

First Year		
First Semester		**Hours**
IGA 600	Islamic Worldview	3
IGA 605	Research Methods	3
IGA 611	Introduction to Islam and Global Affairs	3
	Semester Hours	**9**
Second Semester		
IGA 612	Global Inequalities	3
IGA 613	Islam, Conflict Transformation and Peacebuilding	3
IGA 689	Integrative Lab	3
	Semester Hours	**9**
Second Year		
First Semester		
IGA 627	Special Topics in Islam and Global Affairs	3
IGA 628	Globalization & Faith Based Development	3
IGA 695	Master's Thesis Hours	3
Specialization 2		3
	Semester Hours	**12**
Second Semester		
IGA 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Islamic Art, Architecture and Urbanism, Master of Science

The MSc in Islamic Art, Architecture and Urbanism is a multidisciplinary program that produces and transfer knowledge in the fields of Islamic Art, Architecture and Urbanism with a strong relevance toward the contemporary world of Muslim societies. The program is conducted in collaboration with the University of Oxford in the UK, it aims to equip the next generation of curators, historians, and designers with a critical and informed understanding of Islamic art and architecture. This program encourages research towards safeguarding Islamic cultural heritage by examining the contextual history of Islamic art, architecture, and urbanism.

For more information, click here (https://www.hbku.edu.qa/en/cis/msiau/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
IAA 600	Independent Project Modelling	3
IAA 610	Research and Design Methods	3
IAA 611	History of Islamic Art and Architecture I (650-1250)	3
IAA 612	Ahkam al-Bunyan-Building Ordinances	3
IAA 613	Interpreting Environments: Habitat Values and Sustainable	3
IAA 623	History of Islamic Art and Architecture II (1250-1900)	3
IAA 625	Survey of Architectural Typologies of the Islamic World	3
Subtotal		21
Specialization		
Select one of the following Specializations:		6
Specialization 1: History and Cultural Display		
IAA 631	Islamic Objects and Manuscripts	
IAA 632	Museum and Exhibition Studies	
Specialization 2: Contemporary Mosque Architecture		
IAA 633	Mosque Architecture Design	
IAA 634	Islamic Architecture and Urbanism in the 20th & 21st Centuries	
Specialization 3: Sustainable Cities of Muslim Societies		
IAA 635	Contemporary Cities for Muslim Societies	
IAA 636	Globalization, Cities and Urban Policies	
Subtotal		6
Elective Courses		
Select one of the following:		3
IAA 641	Urban Interventions in Historic Islamic Cities	

IAA 642	Physical Spaces and Spatial Humanities in Digital Societies	
IAA 643	Types and Typologies of Domestic Architecture	
IST 621	Sustainable Islamic Urbanism: Past and Present	
Students can take one elective from Sustainable Engineering Courses or Digital Humanities Courses		
Subtotal		3
Thesis		
IAA 695	Master's Thesis Hours	0-6
Subtotal		6
Non-Course Requirements		
699	Thesis Defense	0
Total		**36**

Study Plan

Specialization 1: History and Cultural Display

First Year		
First Semester		**Hours**
IAA 600	Independent Project Modelling	3
IAA 610	Research and Design Methods	3
IAA 611	History of Islamic Art and Architecture I (650-1250)	3
	Semester Hours	**9**
Second Semester		
IAA 623	History of Islamic Art and Architecture II (1250-1900)	3
IAA 625	Survey of Architectural Typologies of the Islamic World	3
IAA 631	Islamic Objects and Manuscripts	3
	Semester Hours	**9**
Second Year		
First Semester		
IAA 612	Ahkam al-Bunyan-Building Ordinances	3
IAA 613	Interpreting Environments: Habitat Values and Sustainable	3
IAA 632	Museum and Exhibition Studies	3
	Semester Hours	**9**
Second Semester		
IAA 695	Master's Thesis Hours	6
Elective 1		3
	Semester Hours	**9**
	Total Hours	**36**

Specialization 2: Contemporary Mosque Architecture

First Year		
First Semester		**Hours**
IAA 610	Research and Design Methods	3
IAA 611	History of Islamic Art and Architecture I (650-1250)	3
IAA 612	Ahkam al-Bunyan-Building Ordinances	3
	Semester Hours	**9**
Second Semester		
IAA 623	History of Islamic Art and Architecture II (1250-1900)	3
IAA 625	Survey of Architectural Typologies of the Islamic World	3
IST 621	Sustainable Islamic Urbanism: Past and Present	3
	Semester Hours	**9**
Second Year		
First Semester		
IAA 600	Independent Project Modelling	3
IAA 633	Mosque Architecture Design	3
IAA 634	Islamic Architecture and Urbanism in the 20th & 21st Centuries	3
	Semester Hours	**9**
Second Semester		
IAA 695	Master's Thesis Hours	6
Elective 1		3
	Semester Hours	**9**
	Total Hours	**36**

Specialization 3: Sustainable Cities of Muslim Societies

First Year		
First Semester		**Hours**
IAA 610	Research and Design Methods	3
IAA 611	History of Islamic Art and Architecture I (650-1250)	3
IAA 612	Ahkam al-Bunyan-Building Ordinances	3
	Semester Hours	**9**
Second Semester		
IAA 623	History of Islamic Art and Architecture II (1250-1900)	3
IAA 625	Survey of Architectural Typologies of the Islamic World	3
IST 621	Sustainable Islamic Urbanism: Past and Present	3
	Semester Hours	**9**
Second Year		
First Semester		
IAA 600	Independent Project Modelling	3
IAA 635	Contemporary Cities for Muslim Societies	3
IAA 636	Globalization, Cities and Urban Policies	3
	Semester Hours	**9**
Second Semester		
IAA 695	Master's Thesis Hours	6
Elective 1		3
	Semester Hours	**9**
	Total Hours	**36**

Islamic Studies, PhD

The Doctor of Philosophy (PhD) in Islamic Studies is an interdisciplinary program that cultivates a detailed understanding of Islamic studies and a mastery of a chosen disciplinary pathway. This expertise is acquired by undertaking dynamic and innovative research that facilitates the analysis and production of contemporary Islamic discourses, engages with diverse themes and topics, and supports the human development goals of the State of Qatar and broader global needs. The program is highly versatile to accommodate students wishing to apply interdisciplinary research on a variety of specialisms within the field of Islamic studies. Students develop essential contemporary epistemological and methodological skill sets for the analysis of Islamic discourses, while also synergizing with a solid foundation built on the rich and diverse teachings of the Islamic intellectual heritage.

For more information, click here (https://www.hbku.edu.qa/en/program/cis/phdis/).

Requirements

Minimum hours required to complete program 72 CH

Code	Title	Hours
Core Courses		
IST 800	Research Methods in Islamic Studies	3
IST 801	Comparative Islamic Theology and Philosophy	3
IST 802	Comparative Theories in the Study of Religion	3
IST 803	Sources and Methodology of Islamic Law	3
IST 804	Comparative Quranic Exegesis	3

IST 805	Sources and Methodology of Hadith	3
subtotal		*18*
Elective Courses		
Select from the following		*18*
CIS 705	Islam and Modernity	
CIS 710	Muslim Encounters with Other Societies	
IST 806	The Islamic City	
IST 807	Comparative Applied Islamic Ethics	
IST 808	Globalization and Muslim Societies	
IST 809	Family and Society in Islam	
IST 810	Islam, Environment and Sustainability	
IST 811	Translating Arabic-Islamic Texts	
IST 812	Islamic Manuscript Studies	
IST 813	Graduate Seminar in Islamic Studies	
IST 814	Readings in Usul Al-Fiqh	
subtotal		*18*
Thesis		**36**
IST 890	Dissertation Hours	
Subtotal		36
Non-Course Requirements		**0**
Total Hours		**72**

First Year

First Semester		**Hours**
IST 800	Research Methods in Islamic Studies	3
IST 801	Comparative Islamic Theology and Philosophy	3
IST 804	Comparative Quranic Exegesis	3
	Semester Hours	**9**
Second Semester		
IST 802	Comparative Theories in the Study of Religion	3
IST 803	Sources and Methodology of Islamic Law	3
IST 805	Sources and Methodology of Hadith	3
	Semester Hours	**9**

Second Year

First Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Semester		
Elective 4		3
Elective 5		3
Elective 6		3
	Semester Hours	**9**

Third Year

First Semester		
IST 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
IST 890	Dissertation Hours	9
	Semester Hours	**9**

Fourth Year

First Semester		
IST 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
IST 890	Dissertation Hours	9
	Semester Hours	**9**
	Total Hours	**72**

Islamic Studies, Graduate Certificate

Post Graduate Certificate in Islamic Studies offered in Arabic, is a comprehensive program designed for individuals interested in understanding Islam and its impact on Muslim communities worldwide. This certificate offers a unique opportunity to explore the interdisciplinary nature of Islamic studies, and gain a better understanding of Islamic history, theology, philosophy, law, and ethics. The insights gained from the program can be practically applied to professional and educational settings, while widely contributing to the development of more inclusive and diverse communities. The certificate also serves as a bridge program for students who may consider pursuing a master's degree in Contemporary Islamic Studies offered at the college.

For more information, click here (https://www.hbku.edu.qa/en/cis/gcis/).

Requirements

Minimum hours required to complete program 18 CH

Code	Title	Hours
Core Courses		
CIS 600	Foundations of Islamic Thought	3
CIS 601	Contemporary Quran and Hadith Studies	3
CIS 602	Applied Research Methodologies in Islamic Studies	3
Subtotal		9
Elective Courses		
Select three of the following:		9
CIS 501	Maxims of Islamic Law (Jurisprudence)	
CIS 502	Contemporary Religious Issues	
CIS 503	The Fiqh (Islamic Jurisprudence) of Worship and its Contemporary Developments	
CIS 504	The Fiqh (Islamic Jurisprudence) of Family Law and its Contemporary Developments	
CIS 505	The Histography of Islamic Law	
CIS 615	Non-Textual Legal Sources	
CIS 616	Fatwa, Family and Society	
CIS 617	Islamic jurisprudence, Politics and the State	
Subtotal		9
Total Hours		**18**

First Year		**Hours**
CIS 600	Foundations of Islamic Thought	3
CIS 601	Contemporary Quran and Hadith Studies	3
CIS 602	Applied Research Methodologies in Islamic Studies	3
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
	Total Hours	**18**

Islamic Psychology and Psychotherapy, Graduate Certificate

The Graduate Certificate in Islamic Psychology and Psychotherapy (GCIPP) uniquely offers an integrated perspective within an Islamic framework for the modern professional practice of psychology. The certificate program fills a gap in the training of current mental health professionals by exposing and teaching trainees how to incorporate Islamic traditions into their professional practice. The program draws upon the existing mental health experiences of such professionals and provides a tailored course sequence designed to fill in the gaps in their training.

This certificate aims to address the pressing need for spiritually competent mental health practitioners who can skillfully work with the religious nuances of Muslim communities. The program's holistic approach will produce a generation of scholars and practitioners to enrich the nascent field of Islamic psychology both locally and globally.

For more information, click here (https://www.hbku.edu.qa/en/cis/gcipp/).

Code	Title	Hours
Core Courses		
PSYC 600	Introduction to Psychology in the Islamic Tradition	3
PSYC 604	Introduction to Psychotherapy & Counseling Theories	3
PSYC 607	Ethics, Professional & Legal Issues in Psychology	3
PSYC 702	Advanced Techniques & Interventions	3
Subtotal		12
Elective Courses		6
PSYC 606	Group Therapy	
PSYC 608	Career & School Counseling	
PSYC 609	Substance Abuse and Addictions	
PSYC 700	Marital and Family Therapy	
Total Hours		**18**

First Year

First Semester		**Hours**
PSYC 600	Introduction to Psychology in the Islamic Tradition	3
PSYC 604	Introduction to Psychotherapy & Counseling Theories	3
PSYC 607	Ethics, Professional & Legal Issues in Psychology	3
	Semester Hours	**9**
Second Semester		
PSYC 702	Advanced Techniques & Interventions	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
	Total Hours	**18**

College of Law (CL)

The College of Law is a world-class provider of legal education with an international reputation for quality and innovation in teaching and research.

Owing to its position at a global crossroads in terms of culture, business and geopolitics, Qatar is at the heart of a region that requires leaders who can manage multi-faceted relationships that span different legal systems and who have a command of a wide range of skills. College of Law addresses this need by offering four academic degrees to graduate students from a range of disciplines in the skills needed to understand the diverse legal systems – civil, common, and Sharia – that inform Qatari law and that govern complex events and transactions, both in the region and throughout the globe.

For more information, click here (https://www.hbku.edu.qa/en/cl/about/).

Programs

- International Economic and Business Law, L.L.M (p. 68)
- International Law and Foreign Affairs, L.L.M (p. 69)
- Juris Doctor (p. 70)
- Law, Doctor of Juridical Science (S.J.D) (p. 71)

Courses

Law

LAW 103 Law and Technology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the relationship between law and technology as well as focuses on Intellectual Property (IP) law. As technology continues to transform society, economy and professions, the course is designed to help students understand the implications of new technologies in policymaking, courts and the legal profession. It provides students with advanced knowledge on topics of law and technology from an international and comparative perspective, covering a broad range of new technologies such as digital platforms, artificial intelligence, blockchain and autonomous weapons.

LAW 600 Colloquium **0 Credits**
Grade Mode: Pass/Non Pass

Outreach initiative, where influential guest speakers come to speak to our students and a larger Education City audience.

LAW 601 Law and Global Legal Systems **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the foundations of the law and the formation of legal systems across the world. It focuses on key features of the three major legal traditions (civil, common, and Sharia), and basic elements of the international legal order. The course provides students with the intellectual capabilities that allow them to understand the nature of the Qatari legal system, as well as to reflect on the interaction of legal systems and traditions at the international level.

LAW 603 Global Legal Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to ethical issues in the global practice of law. The course starts with a general introduction to different ethical theories and then situates these theories in different fields of legal practice to illustrate the dilemmas faced by legal practitioners, the approaches that may be adopted and their implications. The fields of legal practice covered will include international commerce, trade and investment, international development, international diplomacy, international human rights and humanitarianism, international dispute resolution and academia.

LAW 605 Research Methods in Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course is designed to provide students with the research skills required for graduate studies in law. The course serves three main functions: (a) help LL.M. students develop skills in legal writing as well as research and methodology; (b) expose students to the diversity of and intellectual challenges involved in good legal scholarship, with a focus on the relationship between law and the other social sciences; (c) serve as a forum of peers in which LL.M. students can discuss the methodological challenges involved in their own research.

LAW 611 Introduction to International Law and Foreign Affairs **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course aims to provide an overview of international law in the context of major theoretical traditions of world politics and international relations as well as case studies. It sets out the context, mechanisms and sources of international law and then goes on to focus on the basic concepts and questions, major scholarly traditions, as well as case studies in the study of international politics and foreign affairs. The course covers mainstream and non-mainstream approaches to international relations and foreign affairs as well as case studies, and examines how they have shaped international law.

LAW 650 Property Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses the law of real property. Students will assess the historical and theoretical basis for protecting ownership rights and analyze problems relating to division of ownership interests, landlord/tenant relations, sale of land, recordation of property interests, and governmental regulation of land use.

LAW 651 Contract Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines key issues in contract formation, interpretation, legal capacity, formalities, good faith, gap filling, defect of consent, prohibited contracts, damages and other forms remedies, termination, rights of third parties, as well as elements of private international law of contracts. All topics are explored from the perspective of key civil law jurisdictions, English common law and Qatari law. In addition, contract law is viewed from its transnational lens, particularly the Convention on the International Sale of Goods and the UNIDROIT Principles on International Commercial Contracts.

LAW 652 Injury Law/ Torts **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an introduction to the way common law jurisdictions deal with injuries to persons and property due to civil wrongs. The principal focus is on intentional torts, the tort of negligence, strict liability and vicarious liability. You will identify the remedies available to those who have been harmed and the defences available to those accused.

LAW 653 Constitutional Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Constitutional Design addresses the foundations of the state. The course discusses different constitutional models and the role of the different actors within those different constitutional designs. After a general introduction into constitutional theory the theories are tested and cemented by exploring the role of human rights in different constitutional settings.

LAW 654 International Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides students with an introduction to law in its global context in this age of trans-national and inter-jurisdictional practice, with particular focus on public international law and its significance to Qatar. It will cover areas such as the use of force, international legal personality, the formation of states, the law of international organisations, the relationship between domestic and international law, the law of immunities, state responsibility and other areas of fundamental importance in the relationship between international actors.

LAW 655 Business Associations **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the different forms of business entities, including general and limited partnerships, limited liability partnerships, limited liability companies, and corporations. It examines both the common law and select regulatory codes regarding these forms of business entities, with a special focus on corporate governance and fiduciary duties of care and loyalty, as well as the important issues of policy that surround the regulation of business entities.

LAW 658 Civil Procedure **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course will examine law regulating civil litigation in common law and civil law systems. Students will assess the jurisdiction of courts, selection of venue, and choice of law.

LAW 659 Commercial Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses advanced topics in business law. It will cover the comparative law of corporate control transactions including mergers and acquisitions, hostile takeovers, and leveraged buyouts. The course also introduces students to issues in commercial law and transactions that business entities utilize.

LAW 665 Administrative Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses the function of law within the administrative process by taking a comparative perspective on the administrative state within civil and common law systems. The course will assess the goals of the administrative process, rule-making, and the structure of the regulatory state. Particular attention will be given to administrative agencies, judicial review, public inquiries and commissions, and the role of an ombudsman accountability.

LAW 666 Criminal Law & Procedure **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course will introduce students to the fundamental concepts defining criminal law and procedure. All topics will be covered from a comparative perspective, examining wherever possible common, civil, and sharia law. The course will be divided into three units: (i) the general theory of crime and punishment; (ii) the causes of permissibility, such as the legitimate defense, the use of authority and the right of exercising some activities; (iii) the general theory of punishment. The course concludes with discussions on the general theory of criminal preventive measures.

LAW 667 Legal Analysis, Writing, and Research I **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the skill of predictive writing: dividing a broad legal question into its component parts, and analyzing it. The course will introduce students to interpreting judicial decisions and carrying out legal research. It is the foundational course for learning about legal analysis and research and helps students synthesize what they are learning in all of the first-year courses

LAW 668 Legal Analysis, Writing, and Research II **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the skill of transactional drafting: how to evaluate client needs and goals while preparing to negotiate transactions. Introducing students to the types of issues that can arise in these transactions, in order to avoid the potential for litigation. It builds on the predictive methodologies developed in LAWR I.

LAW 669 Legal Analysis, Writing, and Research III **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the skill of persuasive writing and oral advocacy: turning a dispute record or predictive analysis of a client's case into an argumentative/ persuasive document likely to persuade the court to rule in the client's favour. It builds on the analytical and evaluative methodologies developed in LAWR I and II, and it introduces more complex legal research skills.

LAW 675 Ethics & Professional Responsibility **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course seeks to strengthen the ability of students to anticipate, analyze and appropriately respond to some of the critical ethical and social challenges that confront managers in a global economy, with a particular emphasis on the context of science and technology enterprises. It also will introduce students to the ethical framework that is particular to lawyers. Among the topics we will explore are ethical leadership and organizational culture, corporate social responsibility, conflicts of interest and confidentiality, and corruption.

LAW 676 Introduction to the Legal Foundations of the Global Economy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course offers an overview of the legal foundations of the global economy from an international public and private law perspective. It examines the key aspects of the international regulation of cross-border economic activity, including the regulation of foreign business transactions, trade and investment, as well as the resolution of disputes arising out of cross-border economic activity.

LAW 678 Dispute Resolution (Negotiation and Trial Advocacy) **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces students to approaches to resolving conflict both inside and outside of civil litigation, giving particular attention to trial advocacy, mediation, and negotiation. Introducing students to the skills required to carry out a negotiation, mediation or litigation.

LAW 679 Entrepreneurship Law **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course addresses the range of transactional legal issues encountered during the startup and growth phases of a business organization. The course considers aspects of the transactional process, from initial stages of advising clients on financing, to negotiating agreements, to drafting documents that memorialize agreements, to assessing the implications for conflict resolution where agreements break down.

LAW 692 Legal Internship **2 Credits**
Grade Mode: Pass/Non Pass

The internship offers students the opportunity to develop skills within a workplace setting, and allows them to gain experience in an organization, which is focused on issues relating to the degree program's scope.

LAW 695 LL.M. Thesis **1-6 Credits**
Grade Mode: Pass/Non Pass

The LL.M. Thesis is a cornerstone of the LL.M. programs. The students, in consultation with a faculty advisor, will be required to write a research paper within the specialization of the relevant LL.M. program. The aim is for the thesis to be up to 30,000 words and of publishable quality. A final requirement is the successful oral defense of the thesis before the Thesis Evaluation Committee (TEC).

LAW 701 Law Seminar **1 Credit**
Grade Mode: Standard Letter

The Law Seminar is an opportunity for students to study and research legal topics outside the regular curriculum. The students, in consultation with the Law Seminar sponsor, will be required to write a Law Seminar Essay within the specialization of the relevant seminar. The Law Seminar Essay must be approximately 7,000 words involving a substantial independent effort on the part of the student, and resulting in a meaningful and substantial scholarly contribution.

LAW 706 Independent Study **2 Credits**
Grade Mode: Standard Letter

Independent Study is an opportunity for students to research problems in any field of law. Students enrolled in this course must prepare a research paper of minimum 10,000 words under the supervision of a permanent or visiting faculty member sponsoring their research. The final product must be embodied in a paper involving a substantial independent effort on the part of the student and resulting in a meaningful and substantial scholarly contribution. Work must be completed within one semester.

LAW 721 Qatari Criminal Law: Substance and Procedure **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the complexities of criminal law in Qatar. Particularly, the course delves into summons, arrest, temporary release, searches, and pretrial detention. Examines investigative powers, avoiding defaults, and the impact of defaults. Analyzes the purpose, legal basis, and challenges of criminal action, including military crimes and cybercrimes. In Islamic Criminal Law, focus on crimes within "Hudood," legal conditions for Shari'a application, Qisas, Diyya, and the court of cassation procedure. Gain comprehensive insights into legal penalties versus Shari'a-based penalties.

LAW 722 Legal Aspects of the Qatari Administrative State **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course embarks on a deep dive into Administrative Contracts, exploring formation, defects, public interest, and contractual breaches. Analyze remedies, contract terms, interpretation, termination, and nuanced aspects like insurance. Uncovers fines on delay and exemptions, ensuring a comprehensive understanding. In Administrative Justice Law, study administrative circuits, first instance courts, and cancellation actions, delving into provisions, admissibility conditions, and appeals. Navigate excluded disputes and explore unique categories like employment, tax, and in persona disputes.

LAW 723 Civil and Commercial Procedure Law in Qatar **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an in-depth exploration of civil law in Qatar including legal actions, procedural laws, and essential linguistic skills for effective legal practice. Examining aspects like indirect actions, debtor invalidation, fictitious lawsuits, detention proceedings, and complexities in will defects. Delving into Qatari procedural law for civil and commercial cases, addressing writs of execution, validity conditions, and implications. Focusing on enhancing Arabic language and literature skills for legal professionals. Students develop a comprehensive understanding, combining theoretical knowledge with practical proficiency.

LAW 724 Law and Society in Qatar: Public Law, Family Law, and the Constitution **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Students will develop a deep understanding of the legal intricacies surrounding personal and family matters in Qatar, preparing them for legal practice. This course focuses on both Muslims and Non-Muslims. The curriculum is designed to equip students with the necessary knowledge and skills to navigate legal complexities related to personal and family matters in the Qatari context including personal and family status; conflict of laws implications; the legal framework regarding nationality; and labor law.

LAW 750 Energy Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will examine the exploitation of a wide range of energy sources, as well as the national, regional, and international approaches to their regulation and to assessing and managing their environmental impact. An additional focus will be on the public-private relationships that are formed in the energy sector, with attention to international project finance of energy transactions and the use of international arbitration to address investor/state relations.

LAW 751 Global Economic Law and Governance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This is an advanced course in international economic law. It covers the traditional areas of international economic law (trade, investment and finance); it goes beyond that to explore the foundations of the global economy and global governance, as well as new and emerging areas at the intersection between international and domestic law such as "sovereign financial law."

LAW 752 Construction & Infrastructure Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course explores issues of infrastructure development from a law and public policy perspective. It provides students with an opportunity to understand how public policies and the subsequent legal rules adopted in the field of infrastructure development may diverge despite common inputs and underpinnings, or converge despite different political, social and cultural settings. The course is divided into 5 blocks: law and infrastructure development; infrastructure finance; building and construction law; international infrastructure development law; infrastructure regulation.

LAW 753 Healthcare Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This is a comparative course examining healthcare laws in the United Kingdom and Qatar. The purpose of the course is to give you a strong foundation in the major legal issues affecting the health sector. We will examine the structure of the healthcare systems, the influence of lobbyists on healthcare policies, ethics, consent, malpractice, confidentiality, abortion, pregnancy, reproduction, medical research, organ donations, mental health, artificial intelligence, genetics and end-of-life care.

LAW 754 Advanced Human Rights **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the basic concepts and theories of international human rights law, and discusses topical human rights issues in light of international standards. Drawing from the jurisprudence of human rights bodies, it addresses the indivisibility and interdependence of civil, political, social, economic and cultural rights, and focuses on challenges related to their implementation, including in the GCC. It examines topics such as forced disappearances; women's rights; freedom of speech; minority and indigenous peoples' rights; and refugee rights.

LAW 756 Advanced Dispute Resolution **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on alternative dispute resolution mechanisms, with an emphasis on mediation, international commercial arbitration and investment arbitration. Key issues include: formation of the arbitration agreement, party autonomy, sources and rules, the arbitral tribunal and its powers, the relationship of the tribunal to domestic courts, procedural rules, the nature of arbitral awards, enforcement of awards. Similar issues will be explored in investment arbitration. Qatari arbitration law and practice is an important component of the course.

LAW 757 Environmental Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the values, assumptions, and guiding principles, which underlie environmental protection and how the Qatari model of environmental protection compares to other comparative global models. This course will examine the robust values, assumptions, and guiding principles, that underlie global environmental protection; and how specific global problems such as climate change, stratospheric depletion of the ozone layer, transboundary movement of hazardous wastes, biodiversity, deforestation amongst others are addressed under domestic and international law.

LAW 760 Sports Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course addresses topics in the legal regulation of sports from the perspective of international institutions and select legal regimes including the European Union and the United States. Students will apply principles from such fields as contract law, intellectual property law, business law, administrative law and, and international law to the sport law context. Particular attention is given to issues in Qatari law that impact that development of sports infrastructure.

LAW 761 Law, Technology and Intellectual Property **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course is designed to provide students with advanced knowledge on topics of law and technology in a globalized world. We will analyze aspects of intellectual property law, copyright, data protection, cross-border online speech regulation in the context of platforms and first attempts at reigning in artificial intelligence. The course aims at 1) familiarizing students with legal developments in the United States, the European Union and emerging international standards, and 2) discussing the repercussions of these legal frameworks for Qatar and the region.

LAW 762 International Criminal Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines both substantive and procedural international criminal law with an emphasis on core crimes, such as genocide and crimes against humanity. The procedural part will focus on enforcement, particularly through the work of international criminal tribunals.

LAW 763 Law, Technology & Intellectual Property I **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the relationship between law and technology as well as focuses on Intellectual Property (IP) law. As technology continues to transform society, economy and professions, the course is designed to help students understand the implications of new technologies in policymaking, courts and the legal profession. It provides students with advanced knowledge on topics of law and technology from an international and comparative perspective, covering a broad range of new technologies such as digital platforms, artificial intelligence, blockchain and autonomous weapons.

LAW 764 Law, Technology & Intellectual Property II **1 Credit**
Grade Mode: Standard Letter

This course examines the relationship between law and technology as well as focuses on Intellectual Property (IP) law. As technology continues to transform society, economy and professions, the course is designed to help students understand the implications of new technologies in policymaking, courts and the legal profession. It provides students with advanced knowledge on topics of law and technology from an international and comparative perspective, covering a broad range of new technologies such as digital platforms, artificial intelligence, blockchain and autonomous weapons.

LAW 765 Media and Cultural law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the legal framework that governs media and the cultural/creative sector, including the press and broadcasting; social media; entertainment media; and the audiovisual. It further examines legal principles related to cultural heritage and applies them to museums and cultural institutions. It combines different areas of legal knowledge to address questions related to media freedom and media regulation, cultural heritage preservation, as well as broader questions related to arts, creativity, cultural policies, and the promotion of cultural diversity.

LAW 766 TradeLab **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Students will work in small groups, supervised by Faculty Members (Academic Supervisors), Teaching Assistants and Mentors, on specific questions of international economic law posed by Beneficiaries, such as government agencies, international organizations, SMEs and NGOs, to help build lasting legal capacity in the relevant areas. The focus areas of the clinic are the international economic law and international trade aspects of industrial policy with a focus on digital and sustainability policies, as well as National security and Geo-economics. At the end of the semester, the students will submit and present output tailored to the Beneficiary's needs.

LAW 800 S.J.D. Colloquium **2 Credits**
Grade Mode: Audit/Non Audit, Pass/Non Pass

The SJD Colloquium aims to provide S.J.D. candidates with an opportunity to present their research projects to their peers, as well as other colleagues and scholars who possess professional expertise in the specific area of law; each S.J.D. candidate has the obligation to present his or her work at least twice per semester. It moreover gives the opportunity to the S.J.D. candidates to be exposed to and discuss seminal scholarship among themselves, other peers and invited faculty members. Twice per semester, the SJD Colloquium convenes as the "Graduate Seminar" with the participation of all graduate students at HBKU College of Law.

LAW 805 Advanced Research Methods in Law **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The main objective of this course is to equip S.J.D. candidates with the necessary set of skills required to carry out independent research at the highest academic level. Participants will be supported to design the theoretical framework of a research project, and a variety of methodological approaches to law and their practical application in individual research projects. Moreover, the aim of the course is to assist S.J.D. candidates to improve their academic writing skills.

LAW 810 Advanced Global Legal Ethics **3 Credits**
Grade Mode: Standard Letter

The course provides an in-depth introduction to different ethical theories and their relevance to legal thinking. The ethical theories covered will include utilitarian ethics, deontological ethics, virtue ethics, pragmatist ethics, ethics of care, existentialist ethics, religious ethics, among others. S.J.D. candidates are encouraged to draw on insights from these ethical theories and integrate them into their research.

LAW 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

The S.J.D. Dissertation is the cornerstone of the S.J.D. program. The S.J.D. Candidates, in consultation with their supervisor, will be required to write a dissertation of publishable quality. S.J.D. Candidates are required to complete an S.J.D. Dissertation up to 100,000 words that makes a substantial and original contribution to legal scholarship. Successful oral defense of the S.J.D. Dissertation is also a compulsory requirement for graduation.

Qatari Law

QL 500 Administrative Law in Qatar **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers administrative contracts (and their relationship to other contracts) and administrative justice law.

QL 501 Criminal Law in Qatar **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers Criminal Procedure in Qatar (pretrial and trial) and key aspects of Islamic Criminal Law (e.g., "Hudood"; legal conditions for application of Shari'a, Qisas, forgiveness; Diyya; and legal penalty v. Shari'a-based penalty).

QL 502 Practice before Qatar Courts **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers civil actions, civil and commercial procedural law, and Arabic Language and Literature.

QL 503 The Individual in Qatar Society: Legal Aspects **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Covers four topics: Personal and Family Status for Muslims; Personal and Family Status for Non-Muslims (and dealing with Conflict of Laws); Nationality; Labor Law

International Economic and Business Law, L.L.M

The L.L.M in International Economic and Business Law is a one-year program designed for recent or established university graduates in

law. It is ideal for lawyers working or aspiring to work in international business, private practice, academia, government, and the judiciary.

For more information, click here (https://www.hbku.edu.qa/en/cl/llm-int-economic-business-law/).

Requirements

Minimum hours required to complete program 32 CH

Code	Title	Hours
Core Courses		
LAW 603	Global Legal Ethics	3
LAW 605	Research Methods in Law	3
LAW 651	Contract Law	4
LAW 679	Entrepreneurship Law	4
Subtotal		14
Elective Courses		
Select twelve credits of the following:		12
LAW 659	Commercial Law	
LAW 750	Energy Law	
LAW 752	Construction & Infrastructure Development	
LAW 756	Advanced Dispute Resolution	
LAW 751	Global Economic Law and Governance	
or LAW 676	Introduction to the Legal Foundations of the Global Economy	
IFI 605	Islamic Financial Contracts	
LAW 611	Introduction to International Law and Foreign Affairs	
LAW 766	TradeLab	
Subtotal		12
Thesis		
LAW 695	LL.M. Thesis	1-6
Subtotal		6
Additional Offerings		
LAW 701	Law Seminar	
LAW 706	Independent Study	
Subtotal		3
Non-Course Requirements		
699	Thesis Defense	0
Total		32

Study Plan

First Year		
First Semester		**Hours**
LAW 605	Research Methods in Law	3
LAW 651	Contract Law	4
Elective 1		3
Elective 2		3
	Semester Hours	**13**
Second Semester		
LAW 603	Global Legal Ethics	3
LAW 679	Entrepreneurship Law	4
Elective 3		3
Elective 4		3
	Semester Hours	**13**
Third Semester		
LAW 695	LL.M. Thesis	6
	Semester Hours	**6**
	Total Hours	**32**

International Law and Foreign Affairs, L.L.M

The L.L.M in International Law and Foreign Affairs is a one-year program that offers world-class academic and professional training in international law and foreign policy decision-making on pressing global challenges facing today's world

For more information, click here (https://www.hbku.edu.qa/en/cl/llm-int-law-foreign-affairs/).

Requirements

Minimum hours required to complete program 32 CH

Code	Title	Hours
Core Courses		
LAW 603	Global Legal Ethics	3
LAW 605	Research Methods in Law	3
LAW 611	Introduction to International Law and Foreign Affairs	3
LAW 654	International Law	4
LAW 665	Administrative Law	4
LAW 754	Advanced Human Rights	3
Subtotal		20
Elective Courses		
Select two of the following:		6
LAW 750	Energy Law	
LAW 751	Global Economic Law and Governance	
LAW 752	Construction & Infrastructure Development	
LAW 753	Healthcare Law	
LAW 756	Advanced Dispute Resolution	
LAW 757	Environmental Law	
LAW 760	Sports Law	
LAW 762	International Criminal Law	
LAW 765	Media and Cultural law	
LAW 766	TradeLab	
Subtotal		6
Thesis		
LAW 695	LL.M. Thesis	1-6
Subtotal		6
Additional Offerings		
LAW 701	Law Seminar	
LAW 706	Independent Study	
Subtotal		3
Non-Course Requirements		
699	Thesis Defense	0
Total		32

Study Plan

First Year		
First Semester		**Hours**
LAW 605	Research Methods in Law	3
LAW 611	Introduction to International Law and Foreign Affairs	3
LAW 665	Administrative Law	4
Elective 1		3
	Semester Hours	**13**
Second Semester		
LAW 603	Global Legal Ethics	3
LAW 654	International Law	4
LAW 754	Advanced Human Rights	3
Elective 2		3
	Semester Hours	**13**
Third Semester		
LAW 695	LL.M. Thesis	6
	Semester Hours	**6**
	Total Hours	**32**

Juris Doctor

The Juris Doctor (JD) degree is a unique model of graduate legal education designed to meet the needs of Qatar and the Middle East. The JD is the first-of-its-kind graduate law degree in the MENA region; courses are taught in English, so that graduates are prepared to work in the international legal market.

A JD differs from the undergraduate law degree in that it targets individuals who already hold an undergraduate degree, which can be in any subject, including law. The JD education builds on the student's previous expertise and experience. JD students may pursue expertise in law that is aligned with their previous degree or move in a completely different direction.

For more information, click here (https://www.hbku.edu.qa/en/cl/juris-doctor/).

Requirements

Minimum hours required to complete program 85 CH

Code	Title	Hours
Core Courses		
LAW 601	Law and Global Legal Systems	2
LAW 652	Injury Law/ Torts	4
LAW 651	Contract Law	4
LAW 667	Legal Analysis, Writing, and Research I	2
LAW 655	Business Associations	4
LAW 653	Constitutional Law	4
LAW 654	International Law	4
LAW 668	Legal Analysis, Writing, and Research II	2
LAW 650	Property Law	4
LAW 659	Commercial Law	4
LAW 665	Administrative Law	4
LAW 669	Legal Analysis, Writing, and Research III	2
LAW 658	Civil Procedure	2
LAW 675	Ethics & Professional Responsibility	2
LAW 678	Dispute Resolution (Negotiation and Trial Advocacy)	3
LAW 666	Criminal Law & Procedure	4
LAW 676	Introduction to the Legal Foundations of the Global Economy	3
LAW 679	Entrepreneurship Law	4
LAW 753	Healthcare Law	3
Subtotal		61
Elective Courses		
LAW 600	Colloquium	
LAW 721	Qatari Criminal Law: Substance and Procedure	
LAW 722	Legal Aspects of the Qatari Administrative State	
LAW 723	Civil and Commercial Procedure Law in Qatar	
LAW 724	Law and Society in Qatar: Public Law, Family Law, and the Constitution	
LAW 750	Energy Law	
LAW 751	Global Economic Law and Governance	
LAW 752	Construction & Infrastructure Development	
LAW 754	Advanced Human Rights	
LAW 756	Advanced Dispute Resolution	
LAW 757	Environmental Law	
LAW 760	Sports Law	
LAW 761	Law, Technology and Intellectual Property	
or LAW 763 & LAW 764	Law, Technology & Intellectual Property I and Law, Technology & Intellectual Property II	
LAW 765	Media and Cultural law	
LAW 766	TradeLab	
LAW 701 & LAW 706	Law Seminar and Independent Study	
A Third-year course may be replaced by 2 credit hours from Legal Internship (LAW 692) and 1 credit hour from Law Seminar (LAW 701), pending approval		
Subtotal		24
Total Hours		**85**

Study Plan

Track 1

First Year		
First Semester		**Hours**
LAW 600	Colloquium	0
LAW 601	Law and Global Legal Systems	2
LAW 650	Property Law	4
LAW 651	Contract Law	4
LAW 652	Injury Law/ Torts	4
LAW 667	Legal Analysis, Writing, and Research I	2
	Semester Hours	**16**
Second Semester		
LAW 653	Constitutional Law	4
LAW 654	International Law	4
LAW 655	Business Associations	4
LAW 668	Legal Analysis, Writing, and Research II	2
	Semester Hours	**14**
Second Year		
First Semester		
LAW 659	Commercial Law	4
LAW 665	Administrative Law	4
LAW 666	Criminal Law & Procedure	4
LAW 669	Legal Analysis, Writing, and Research III	2
Elective 1		3
	Semester Hours	**17**

Second Semester		
LAW 658	Civil Procedure	2
LAW 675	Ethics & Professional Responsibility	2
LAW 676	Introduction to the Legal Foundations of the Global Economy	3
LAW 678	Dispute Resolution (Negotiation and Trial Advocacy)	3
LAW 679	Entrepreneurship Law	4
	Semester Hours	**14**
Third Year		
First Semester		
LAW 750	Energy Law	3
LAW 752	Construction & Infrastructure Development	3
LAW 753	Healthcare Law	3
LAW 763	Law, Technology & Intellectual Property I	2
	Semester Hours	**11**
Second Semester		
LAW 751	Global Economic Law and Governance	3
LAW 754	Advanced Human Rights	3
LAW 756	Advanced Dispute Resolution	3
LAW 757	Environmental Law	3
LAW 764	Law, Technology & Intellectual Property II	1
	Semester Hours	**13**
	Total Hours	**85**

Track 2

First Year		
First Semester		**Hours**
LAW 600	Colloquium	0
LAW 601	Law and Global Legal Systems	2
LAW 650	Property Law	4
LAW 651	Contract Law	4
LAW 652	Injury Law/ Torts	4
LAW 667	Legal Analysis, Writing, and Research I	2
	Semester Hours	**16**
Second Semester		
LAW 653	Constitutional Law	4
LAW 654	International Law	4
LAW 655	Business Associations	4
LAW 668	Legal Analysis, Writing, and Research II	2
	Semester Hours	**14**
Second Year		
First Semester		
LAW 659	Commercial Law	4
LAW 665	Administrative Law	4
LAW 666	Criminal Law & Procedure	4
LAW 669	Legal Analysis, Writing, and Research III	2
Elective 1		3
	Semester Hours	**17**
Second Semester		
LAW 658	Civil Procedure	2
LAW 675	Ethics & Professional Responsibility	2
LAW 676	Introduction to the Legal Foundations of the Global Economy	3
LAW 678	Dispute Resolution (Negotiation and Trial Advocacy)	3
LAW 679	Entrepreneurship Law	4
	Semester Hours	**14**
Third Year		
First Semester		
LAW 750	Energy Law	3
LAW 752	Construction & Infrastructure Development	3
LAW 753	Healthcare Law	3
LAW 761	Law, Technology and Intellectual Property	3
	Semester Hours	**12**
Second Semester		
LAW 751	Global Economic Law and Governance	3
LAW 754	Advanced Human Rights	3
LAW 756	Advanced Dispute Resolution	3
LAW 757	Environmental Law	3
	Semester Hours	**12**
	Total Hours	**85**

Law, Doctor of Juridical Science (S.J.D)

The Doctor of Juridical Science (S.J.D) is the College of Law's most advanced law degree. The program is one of the first full-fledged research-intensive doctorate degrees in law in the MENA region, and one of the few of its kind outside of the United States. Dedicated to scholarship and teaching, the program aspires to create a vibrant community of legal scholars, who will assume teaching positions in universities and government positions in institutions in Qatar, the MENA region, and beyond.

For more information, click here (https://www.hbku.edu.qa/en/cl/doctor-juridical-science/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
LAW 800	S.J.D. Colloquium (Taken Twice)	4
LAW 805	Advanced Research Methods in Law	3
LAW 810	Advanced Global Legal Ethics	3
Subtotal		10
Dissertation		
LAW 890	Dissertation Hours	1-9
Subtotal		50
Non-Course Requirements		
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
899	Dissertation Defense	0
Total		**60**

Study Plan

First Year		
First Semester		**Hours**
LAW 800	S.J.D. Colloquium	2
LAW 805	Advanced Research Methods in Law	3
	Semester Hours	**5**
Second Semester		
LAW 800	S.J.D. Colloquium	2
LAW 810	Advanced Global Legal Ethics	3
LAW 890	Dissertation Hours	8
	Semester Hours	**13**
Second Year		
First Semester		
LAW 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LAW 890	Dissertation Hours	9
	Semester Hours	**9**

Third Year		
First Semester		
LAW 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LAW 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
LAW 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

College of Science and Engineering (CSE)

The College of Science and Engineering (CSE) aims to be a world-class multidisciplinary college with significant positive impact on Qatar, the region, and globally, in the fields of science, engineering, and technology. To accomplish this, we are advancing knowledge and nurturing technically grounded leaders and innovators through teaching and research across a range of carefully targeted programs. The college aims to serve societal needs, with a focus on an integrated multi-disciplinary curriculum and multi-disciplinary research in science and engineering.

For more information, click here (https://www.hbku.edu.qa/en/cse/about/).

Programs

- Engineering Management and Decision Sciences (p. 102)
  - Logistics and Supply Chain Management, Master of Science (p. 102)
  - Logistics and Supply Chain Management, PhD (p. 105)
  - Mechanical Engineering, Bachelor of Science (p. 103)
  - Sport and Entertainment Management, Master of Science (p. 105)
- Information and Computing Technology (p. 106)
  - Computer Engineering, Bachelor of Science (p. 106)
  - Computer Science and Engineering, PhD (p. 108)
  - Cybersecurity, Master of Science (p. 111)
  - Data Science and Engineering, Master of Science (p. 112)
  - Electrical Engineering,Bachelor of Science (p. 109)
  - Health Management, Master of Data Analytics (p. 113)
  - Health Management, Master of Information Systems (p. 114)
- Sustainable Development (p. 115)
  - Chemical Engineering, Bachelor of Science (p. 115)
  - Sustainable Energy, Master of Science (p. 116)
  - Sustainable Energy, PhD (p. 118)
  - Sustainable Environment, Master of Science (p. 119)
  - Sustainable Environment, PhD (p. 120)

Courses

Chemistry

CHEM 127 General Chemistry I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM128 or concurrent registration

This course is tailored for engineering students, emphasizes practical chemical applications within engineering contexts. It delves into general chemistry concepts such as stoichiometry, atomic and molecular structures, periodic properties, bonding, states of matter, and thermochemistry. It also offers a broad survey of chemical disciplines including inorganic, and organic chemistry. The laboratory section provides foundational laboratory experience specifically designed for engineering students, offering practical laboratory applications of chemical principles relevant to engineering contexts. It emphasizes a hands-on approach with experiments focusing on measurement techniques, identification and analysis of compounds, and essential laboratory practices including safety and disposal.

CHEM 128 General Chemistry I Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in CHEM127 or concurrent registration

This laboratory course provides foundational laboratory experience specifically designed for engineering students, offering practical laboratory applications of chemical principles relevant to engineering contexts. It emphasizes a hands-on approach with experiments focusing on measurement techniques, identification and analysis of compounds, and essential laboratory practices including safety and disposal.

CHEM 130 General Chemistry II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM 127 and Grade of C or better in CHEM 128

General Chemistry II covers advanced topics in chemistry such as oxidation-reduction systems, thermodynamics, kinetics, complex equilibria, solubility, nuclear chemistry, and further descriptive chemistry of metals and nonmetals. General Chemistry II Laboratory emphasizes practical knowledge and hands-on skills in advanced chemistry topics such as thermochemistry, spectrophotometry, chemical equilibrium, chemical kinetics, and the properties of solutions.

CHEM 131 General Chemistry II Laboratory **1 Credit**
Grade Mode: Standard Letter, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM 130 or concurrent registration

General Chemistry II Laboratory emphasizes practical knowledge and hands-on skills in advanced chemistry topics such as thermochemistry, spectrophotometry, chemical equilibrium, chemical kinetics, and the properties of solutions.

CHEM 227 Organic Chemistry I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEM 130

Organic Chemistry I provides a comprehensive introduction to the chemistry of carbon compounds. It covers aliphatic and aromatic compounds, stressing modern theory and stereochemistry to illustrate the logic and predictability of chemical transformations. It includes general principles and their applications in various industrial and biological processes, with an emphasis on the energy and mechanisms of reactions, synthesis, and the structure of organic molecules.

CHEM 228 Organic Chemistry II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM 227

Organic Chemistry II extends the scope of Organic Chemistry I by delving into the chemistry of various functional groups, utilizing theory to unify and clarify diverse chemical transformations and introducing qualitative organic analysis with a focus on spectroscopic methods.

CHEM 237 Organic Chemistry I Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade C or better in CHEM 227 or concurrent registration

Organic Chemistry Laboratory I covers elementary and advanced laboratory techniques, including the preparation, reactions, purification, and properties of representative organic compounds. It introduces synthesis and purification methods for specific compounds discussed in lectures, and qualitative organic analysis.

CHEM 238 Organic Chemistry II Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in CHEM 228 or Concurrent Registration

A major portion of this laboratory course is devoted to methods employed in organic qualitative analysis. The student is expected to identify several unknown compounds and mixtures.

Chemical Engineering

CHEN 201 Chemical Engineering Foundation **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ENGR 110 and Grade of C or better in MATH 161

This course introduces fundamental concepts in engineering, including accounting principles, basic statistics, and dynamics of systems. Students will gain skills in using Excel for data analysis, enhance their problem-solving abilities, and learn the basics of engineering graphics, preparing them for practical applications.

CHEN 204 Elementary Chemical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM 130 and Grade of C or better in PHYS 216 and Grade of C or better in CHEN 201 or concurrent registration

This course focuses on application of mass balances, energy balances, and equilibrium concepts for solution of elementary problems related to chemical processes.

CHEN 205 Thermodynamic I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEN 204

This course explores the fundamental principles of thermodynamics through the lens of chemical processes. It covers the core concepts including the basic laws of thermodynamics, properties of single-component systems, fluid expansion and compression, and the operation of heat engines.

CHEN 304 Fluid Mechanics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 205 and Grade of C or better in MATH 318

This course provides students with a foundational understanding of fluid mechanics principles essential for process equipment design and analysis. Students will explore the fundamental concepts of fluid behavior and their relevance to engineering design in various industrial settings, with emphasis on applying fluid mechanics principles to the analysis and optimization of process equipment, including pumps, pipes, and valves.

CHEN 320 Numerical Methods in Chemical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 204 and Grade of C or better in MATH 318

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.

CHEN 322 Materials Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 162 and Grade of C or better in CHEN 205 or Concurrent registration

Overview of materials science with particular emphasis on classes of materials relevant to chemical engineers.

CHEN 323 Heat Transfer **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 304

Heat transfer principles in conduction, convection, radiation and their practical applications within chemical engineering with emphasis on heat exchangers, covering design methodologies, performance evaluation, and optimization techniques.

CHEN 324 Mass Transfer **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 354 and Grade of C or better in CHEN 323 or concurrent registration

Fundamental of diffusion and convective mass transfer and their applications to design and analysis of separation processes equipment, including distillation columns, absorber, membranes, and liquid-liquid extraction.

CHEN 354 Thermodynamics II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 205

This course focuses on applying thermodynamic principles to the analysis of pure and mixed fluids and phase and chemical reaction equilibria. It blends theoretical concepts with real-world examples to explore the behavior of fluids and chemical systems under different thermodynamic conditions.

CHEN 364 Reaction Kinetics and Reactor Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 320 and Grade of C or better in CHEN 323 or concurrent registration and Grade of C or better in CHEN 324 or or concurrent registration

Analysis of reaction kinetics and the practical application of fundamental principles in designing and operating of batch and continuous reactor. Effect of heat and mass transfer on reactor design.

CHEN 368 Physical Chemistry for Chemical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEM 130 and Grade of C or better in CHEN 354

This course provides chemical engineering students with a foundational understanding of physical chemistry principles essential for engineering applications. Through a combination of theoretical concepts and practical examples, students will delve into key areas including quantum theory, spectroscopy, statistical mechanics, kinetic theory, reaction kinetics, electrochemistry, and macromolecules. Emphasis will be placed on connecting these principles to real-world engineering problems and applications.

CHEN 381 Seminar **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in ENGL 220 Grade of C or better in CHEN 354 or concurrent registration and Grade of C or better in ENGR 482 or concurrent registration

Preparation of oral and written reports on selected topics from recent technical publications, done in the context of consideration of the ethical ramifications of engineering decisions.

CHEN 391 Internship **0 Credits**
Grade Mode: Pass/Non Pass

Participation in an approved high-impact learning practice, such as engaging with industry, research entities, or startup companies.

CHEN 425 Process Optimization and Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 320 and Grade of C or better in CHEN 323 and Grade of C or better in CHEN 324 and Grade of C or better in CHEN 364 or concurrent registration

Integration, simulation, and economic methods involved in the design of chemical processes and equipment. Process and energy integration applications will be performed using Aspen Plus simulation and its use in performing optimization studies. The economic analysis package in Aspen Plus will be applied to the designed processes.

CHEN 426 Plant Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 322 and Grade of C or better in CHEN 364 and Grade of C or better in CHEN 425

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. A process plant production application will be assigned to student teams to perform material and energy balances, equipment sizing and design, an environmental impact and safety risk analysis, and finally a technoeconomic.

CHEN 432 Unit Operation Laboratory I **2 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in CHEN 323 and Grade of C or better in ENGL 220

Laboratory work based on the fluid mechanics and heat transfer courses.

CHEN 433 Unit Operation Laboratory II **2 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in CHEN 324 and Grade of C or better in CHEN 364 and Grade of C or better in ENGL 220

Laboratory sessions focus on practical applications of mass transfer, kinetics, reactor design, and process control, providing hands-on experience in these critical areas of chemical engineering.

CHEN 451 Renewable Energy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN354

This course explores the fundamental principles and applications of renewable energy sources, including solar, wind, hydro, and bioenergy. Students delve into the design, operation, and optimization of renewable energy systems, while also examining their environmental and economic impacts. Through projects and case studies, students develop a comprehensive understanding of sustainable energy technologies and their role in addressing global energy challenges.

CHEN 452 Air Pollution and Climate Change **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 364

This course focuses on the complex interplay between human activities, atmospheric processes, and environmental impacts. Students study the sources, mechanisms, and effects of air pollutants on human health, ecosystems, and climate. Through interdisciplinary approaches, including chemical kinetics, transport phenomena, and environmental modeling, students analyze strategies for air quality management and mitigation of climate change. This course equips students with the knowledge and skills to address pressing environmental challenges and develop sustainable solutions for a cleaner, healthier future.

CHEN 453 Fundamentals of Environmental Remediation Processes **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Senior Standing

Application of environmental chemistry, microbiology, and engineering principles for effective remediation strategies. Topics include contaminant fate and transport, bioremediation, physical and chemical treatment processes, and the regulatory frameworks governing environmental cleanup efforts. It discusses environmental remediation topics including, but not limited to, using plants, microorganisms, and substrates (e.g., soil and engineered materials, nanomaterials) to address environmental contamination, including soil, water, and air remediation methods.

CHEN 455 Process Safety and Risk Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 322 and Grade of C or better in CHEN 364

This course covers applications of chemical engineering fundamentals to process safety and hazards analysis, mitigation, and prevention with special emphasis is on chemical processes. It discusses source modeling for leakage rates, dispersion, analysis, relief valve sizing, fire and explosion damage analysis, hazards identification, risk analysis, accident investigations.

CHEN 456 Waste Management and Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Senior Standing

Principles and practices involved in the management and processing of various types of waste, including municipal, industrial, and hazardous waste. The environmental, economic, and social implications of waste generation and the importance of sustainable waste management and valorization strategies. The fundamental concepts of waste characterization, collection, transportation, treatment, and disposal by latest technologies and techniques used in waste processing, such as resource recovery, recycling, digestion, composting, incineration, gasification, and landfill management. Regulatory frameworks and policies governing waste management, both at the local and global levels.

CHEN 457 Environmental Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 305 and Grade of C or better in CHEN 354

This course explores core principles of environmental engineering, focusing on water and air pollution control, waste management, and sustainable practices. Students delve into chemical engineering concepts applied to environmental protection, including water treatment processes, air quality management, and solid waste disposal methods. Through lectures, discussions, and hands-on activities, students gain an understanding of environmental challenges and develop skills to design solutions for a sustainable future.

CHEN 458 Water and Wastewater Treatment Processes **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course delves into desalination technologies and wastewater treatment processes, covering membrane-based and thermal methods for desalination, as well as advanced physical, chemical, and biological processes for treating wastewater. It highlights the design, operation, and optimization of treatment systems, with practical lab sessions offering hands-on experience in water quality analysis and treatment techniques. Students are equipped to confront global water challenges and play a role in sustainable water resource management.

CHEN 459 Gas and Petroleum Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 324

This course explores the design and operation of petroleum and gas processing facilities. It covers various aspects such as hydrate suppression, dehydration, sweetening, sulfur recovery, and LPG and liquid recovery, as well as refining operations. Through extensive process simulation, students gain practical insights into industrial processes.

CHEN 460 Quantitative Risk Analysis in Safety Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Analysis of major accidents in the chemical process industries. Workshop/laboratories on quantitative risk and hazard analysis methods – What-If analysis, Failure Mode and Effect, HAZOP, Event Tree, Fault Tree and MTBF, mean time between failures.

CHEN 461 Process Control **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 320 and Grade of C or better in CHEN 364

Analysis of process dynamics and methods for the design of automatic control systems for chemical process plants. Analysis of transient behavior for process systems, and their application to feedback control loops to optimize the performance of chemical plant units. Some industrial applications of control systems will be reviewed.

CHEN 462 Machine Learning for Engineers **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ENGR 110

This course introduces students to the principles and applications of machine learning techniques in engineering contexts. Through hands-on projects and case studies, students learn to apply algorithms such as regression, classification, clustering, and neural networks to analyze complex data sets and extract valuable insights. By the end of the course, students are equipped with the knowledge and tools to leverage machine learning for solving real-world engineering problems, including process optimization, predictive modeling, and system control.

CHEN 464 Pharmaceutical and Food Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Processing equipment - reactors, centrifuges, mills, tablet presses - and process design. Typical operations - mixing, drying, granulation, distillation and filtration. Good manufacturing practice, validation, FDA, EMA and sterilization of equipment.

CHEN 466 Chemical Process Industry **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores chemical process and related industries. It covers the historical development, operational principles, and supply chain dynamics. Emphasis is placed on technical, market, sustainability, and safety considerations to provide a comprehensive understanding of the industry landscape.

CHEN 470 Applied Catalysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 354 and Grade of C or better in CHEN 364

This course covers catalysis principles, focusing on industrial applications. Topics include catalyst preparation, characterization methods, deactivation mechanisms, testing and regeneration techniques, alongside the fundamentals of heterogeneous reaction kinetics. Applications to selected industrial processes are discussed.

CHEN 472 Materials Synthesis, Characterization, and Testing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 322

Studying the science and engineering principles governing the production and evaluation of materials. A range of synthesis methods will be discussed, including wet chemistry/biochemistry, chemical vapor deposition, physical deposition, and additive manufacturing. Explore the analytical techniques used to characterize the structural, chemical, and physical properties of these materials such as spectroscopy, microscopy. Develop hands-on skills in testing mechanical, thermal, and chemical properties.

CHEN 474 Nanotechnology and Nanomaterials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 322

An exploration of nanoscale phenomena and materials, covering synthesis, characterization, and applications. Topics include quantum effects, nanofabrication techniques, and nanostructured materials. Emphasizes interdisciplinary approaches, with applications in electronics, medicine, energy, and more. Lab sessions offer hands-on experience in nanomaterial synthesis and characterization techniques. Prepares students for careers in cutting-edge industries and research fields.

CHEN 476 Polymer Science and Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course discusses polymer engineering essentials, covering chemistry of polymerization, molecular weight concepts, polymer structure and morphology, solution and solid-state properties of polymers, mechanical properties and viscoelasticity, polymer processing and recycling, and polymer additives, blends, and composites.

CHEN 478 Solid State Physics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 322

The study of solids, using solid-state chemistry, quantum mechanics, crystallography, electromagnetism, and metallurgy. Solid-state physics studies how the large-scale properties of solid materials result from their atomic-scale properties -lattice structures and bond types forming the basis of materials science. It also has direct applications in the technology of transistors and semiconductors.

CHEN 482 Bioprocess Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEN 324 and Grade of C or better in CHEN 364

Application of engineering principles to the design of biocatalysts and bioprocesses with emphases on the integration of biological systems with engineering concepts for practical applications.

CHEN 489 Selected Topics in Chemical Engineering **1-3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Advanced or applied topics in Chemical engineering offered according to student's interest and availability of instructors and equipment. Lecture hours, laboratory, and/or computation period to be arranged.

Computer Engineering

CPEG 110 Principles of computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Through this course, students will explore major issues related to the "big ideas" of computational thinking and solve the problem by using Python, which emphasizes principles of computing, software development, style, and testing. Topics include representation of ideas with bits, basic Boolean logic, and devices to implement logic functions as the first part. The second part includes procedures and functions, iteration, recursion, arrays and vectors, strings, algorithms, exceptions, and object-oriented programming. Weekly labs provide guided practice on the computer

CPEG 111 Introduction to Computer Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

For CE students, this course is designed to provide foundation knowledge on basic digital system, computer architecture, programming, microelectronics, and electrical engineering. Students will learn concepts from both the hardware and the software perspective. Students can apply the knowledge and principles learnt to design and build a functional hardware-software co-designed system such as a robot.

CPEG 127 Concepts of Mathematics **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

The course covers two important aspects, how to write rigorous mathematical proofs and how to use abstract concepts of mathematics in many areas of computer science. It will introduce the basic concepts for mathematical proofs and link them to different areas of mathematics and computer science. Other topics will be introduced, such as number theory, counting, algebra of sets, and graph theory.

CPEG 151 Fundamentals of Programming and Computer Science **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide students with the main concepts and fundamentals of programming and computer science. Python is used as the programming language of this course. During class, students are taught syntax and semantics of Python, algorithmic design, and fundamentals of modern von Neumann architectures.

CPEG 152 Principles of Imperative Computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course teaches imperative programming in a C-like language and methods for ensuring the correctness of imperative programs. It is intended for students familiar with elementary programming concepts such as variables, expressions, and functions. Students will learn the techniques needed to go from high-level descriptions of algorithms to correct imperative implementations, with specific applications to basic data structures. Much of the course will be conducted in a subset of C, with a transition to full C in the final part.

CPEG 213 Introduction to Computer Systems **4 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

The course aims to help students become better programmers by teaching them the basic concepts underlying all computer systems. Students will learn what really happens when a computer program is run, so that they will have the intellectual tools to solve any potential problems that may arise. Topics include data representation, assembly language, memory hierarchy, exceptions, interrupts, Unix signals, system level I/O, process management, virtual memory and memory management, and network and concurrent programming.

CPEG 214 Electrical Circuit Theory **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Corequisite(s): MATH 308

This course focuses on the principles of Resistive circuits: circuit laws, Network reduction, nodal analysis, mash analysis; energy storage elements; sinusoidal steady state; AC energy systems; magnetically coupled circuits; the ideal transformer; resonance; and introduction to computer applications in circuit analysis.

CPEG 217 Probability Theory and Random Processes **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers important concepts and problem solving skills related to probability theory. Topics include elementary probability theory, conditional probability and independence, random variables, distribution functions, joint and conditional distributions, limit theorems, random processes spectral analysis and information theory.

CPEG 300 Embedded System Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

In this class, the fundamentals of embedded system hardware and program design will be explored. Issues such as embedded processor selection, system architecture, instruction set, assembly programming, circuit debugging, and development tools will be discussed. The architecture and instruction set of the microcontroller will be discussed comprehensively, and two 8051 MCU boards will be used during the lab to implement embedded systems. Advanced AVR, STM microcontroller series will also be introduced in terms of their architecture and instruction set optimization.

CPEG 330 Data Structures **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

This course focuses on the design of data structures (e.g., linked lists, stacks, queues, trees, and graphs), and an introduction to the analysis of algorithms that operate on those data structures. Students will learn how to implement learned data structures, their advantages/disadvantages, practical uses, alternatives, and time & space concerns.

CPEG 344 Digital Signal Processing **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course covers discrete-time signals and linear time-invariant systems; digital processing of continuous-time signals; introduction to random signals, correlation and matched filtering; FIR and IIR digital filters and their analysis in the z and in frequency domains; the DFT (discrete Fourier transform) and its applications; FFT algorithms; FIR and IIR digital filter design and implementation techniques; spectrum analysis and estimation using windows; and practical applications of DSP algorithms

CPEG 410 Final Year Project I **4 Credits**
Grade Mode: Standard Letter

This course covers the first half of the Senior Design Project. Participants are then expected to form teams of 2—3 students per project. Each project requires the development of a larger prototype involving both hardware and software. Furthermore, two potential stake holders from industry, academia, and/or research lab shall be interviewed to solicit feedback on the project. Each participant has to successfully complete an research ethics and intellectual property module (lecture plus homework) before filing a mid-term report.

CPEG 411 Final Year Project II **4 Credits**
Grade Mode: Standard Letter

This pair of courses (CPEG 410 and 411) culminate in a major design experience based on knowledge and skills acquired in earlier course work. Students select their preferred projects and perform a 1-year long project development, including literature review, due diligence and familiarization with standards. Students shall then propose solutions, write a technical report, and conduct a final defense in front of the curriculum committee. This course also focusses on documenting and presenting the project's outcome in a professional manner.

CPEG 418 Introduction to Scientific Visualization **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The field of Scientific and Data Visualization is interdisciplinary, bringing together visualization experts and domain scientists seeking to gain visual insight into their data. Visualization is highly diverse, including applications coming from virtually every scientific discipline such as medicine, biology, mechanical and electrical engineering. This course provides a broad overview of the fundamentals Scientific and Data Visualization. Selected fundamental algorithms will be discussed in depth and their inner workings will be studied in programming and reading assignments.

CPEG 453 Information and Communication Technology Accessibility **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course focuses on enhancing capabilities in the domain of ICT accessibility. When designing technology, developers need to consider people with functional limitations – persons with disabilities and the elderly. These vulernable groups face obstacles and challenges when it comes to the use of digital platforms. The course provides a comprehensive review by covering diverse topics that advance the skills needed to develop, review and evaluate the accessibile digital platforms according to the international best practices and ICT accessibility standards.

CPEG 460 Computer Networks **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on the principles of computer networking protocols and architectures with emphasis of the Internet. Students will learn about the technologies and protocols used in local and wide area networks. Special emphasis will be given to study the TCP/IP protocol suite and its underlying protocols and concepts including: HTTP, SMTP, POP, IMAP, DNS, P2P, UDP, TCP, error control, flow control, congestion control, network routing (static and dynamic), packet delays, Local Area Networks (Ethernet, Wi-Fi), confidentiality, integrity, authentication. Students will experiment with protocol analyzers (packet sniffers) to understand and analyze the operations of the different TCP/IP protocols. Also, they will experiment with network emulation and virtualization using Mininet.

CPEG 462 Cybersecurity Fundamentals **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes students to the fundamental concepts of cybersecurity. Issues considered include topics such as cryptographic tools, user authentication, access control, software vulnerabilities, intrusion detection, firewalls, and operating systems security. Students will gain insight into the importance of cybersecurity through a series of practical and hands-on exercises. They will be exposed to real life cybersecurity operations, involving both attack and defense strategies.

CPEG 464 Introduction to Machine Learning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course teaches the fundamentals of modern machine learning and artificial intelligence. Using the Python programming languages, students will learn "classical" machine learning techniques such as regression, SVMs, decision trees and random forests, as well as deep learning. The course focuses on the practical aspects of machine learning and covers a wide range of topics, including computer vision, data visualization, classification, regression, and segmentation. In hands-on sessions and assignments, students will set up their own machine-learning-based models.

CPEG 491 Internship **1-3 Credits**
Grade Mode: Audit/Non Audit, Pass/Non Pass

Supervised field experience of professional-level duties for a duration of 240 to 320 hours (6-8 weeks) at an approved internship site under the guidance of a designated site supervisor in coordination with a faculty supervisor. In addition to the regular reports during the internship, the student needs to prepare a written report and a presentation at the end discussing their internship activities and learning experiences.

Computer Science

CPEN 111 Introduction to Computer Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

For CE students, this course is designed to provide foundation knowledge on basic digital system, computer architecture, programming, microelectronics, and electrical engineering. Students will learn concepts from both the hardware and the software perspective. Students can apply the knowledge and principles learnt to design and build a functional hardware-software co-designed system such as a robot.

CPEN 127 Concepts of Mathematics **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

The course covers two important aspects, how to write rigorous mathematical proofs and how to use abstract concepts of mathematics in many areas of computer science. It will introduce the basic concepts for mathematical proofs and link them to different areas of mathematics and computer science. Other topics will be introduced, such as number theory, counting, algebra of sets, and graph theory.

CPEN 151 Fundamentals of Programming and Computer Science **4 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in ENGR 110

This course is designed to provide students with the main concepts and fundamentals of programming and computer science. Python is used as the programming language of this course. During class, students are taught syntax and semantics of Python, algorithmic design, and fundamentals of modern von Neumann architectures.

CPEN 152 Principles of Imperative Computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CPEN 151

This course teaches imperative programming in a C-like language and methods for ensuring the correctness of imperative programs. It is intended for students familiar with elementary programming concepts such as variables, expressions, and functions. Students will learn the techniques needed to go from high-level descriptions of algorithms to correct imperative implementations, with specific applications to basic data structures. Much of the course will be conducted in a subset of C, with a transition to full C in the final part.

CPEN 213 Introduction to Computer Systems **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CPEN 152

The course aims to help students become better programmers by teaching them the basic concepts underlying all computer systems. Students will learn what really happens when a computer program is run, so that they will have the intellectual tools to solve any potential problems that may arise. Topics include data representation, assembly language, memory hierarchy, exceptions, interrupts, Unix signals, system level I/O, process management, virtual memory and memory management, and network and concurrent programming.

CPEN 217 Probability Theory and Random Processes **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 261

This course covers important concepts and problem solving skills related to probability theory. Topics include elementary probability theory, conditional probability and independence, random variables, distribution functions, joint and conditional distributions, limit theorems, random processes spectral analysis and information theory.

CPEN 300 Embedded System Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CPEN 152 and Grade of C or better in ELEN 325

This course covers important concepts and problem solving skills related to probability theory. Topics include elementary probability theory, conditional probability and independence, random variables, distribution functions, joint and conditional distributions, limit theorems, random processes spectral analysis and information theory.

CPEN 330 Data Structures **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CPEN 152

This course focuses on the design of data structures (e.g., linked lists, stacks, queues, trees, and graphs), and an introduction to the analysis of algorithms that operate on those data structures. Students will learn how to implement learned data structures, their advantages/disadvantages, practical uses, alternatives, and time & space concerns.

CPEN 344 Digital Signal Processing **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 314 and Grade of C or better in ELEN 325

This course covers discrete-time signals and linear time-invariant systems; digital processing of continuous-time signals; introduction to random signals, correlation and matched filtering; FIR and IIR digital filters and their analysis in the z and in frequency domains; the DFT (discrete Fourier transform) and its applications; FFT algorithms; FIR and IIR digital filter design and implementation techniques; spectrum analysis and estimation using windows; and practical applications of DSP algorithms

CPEN 391 Internship **0 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

CPEN 410 Senior Design Project I **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Senior Standing

This course covers the first half of the Senior Design Project. Participants are then expected to form teams of 2—3 students per project. Each project requires the development of a larger prototype involving both hardware and software. Furthermore, two potential stake holders from industry, academia, and/or research lab shall be interviewed to solicit feedback on the project. Each participant has to successfully complete an research ethics and intellectual property module (lecture plus homework) before filing a mid-term report.

CPEN 411 Senior Design Project II **4 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in CPEN 410

This pair of courses (CPEN 410 and 411) culminate in a major design experience based on knowledge and skills acquired in earlier course work. Students select their preferred projects and perform a 1-year long project development, including literature review, due diligence and familiarization with standards. Students shall then propose solutions, write a technical report, and conduct a final defense in front of the curriculum committee. This course also focuses on documenting and presenting the project's outcome in a professional manner.

CPEN 418 Introduction to Scientific Visualization **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The field of Scientific and Data Visualization is interdisciplinary, bringing together visualization experts and domain scientists seeking to gain visual insight into their data. Visualization is highly diverse, including applications coming from virtually every scientific discipline such as medicine, biology, mechanical and electrical engineering. This course provides a broad overview of the fundamentals Scientific and Data Visualization. Selected fundamental algorithms will be discussed in depth and their inner workings will be studied in programming and reading assignments.

CPEN 453 ICT Accessibility **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course focuses on enhancing capabilities in the domain of ICT accessibility. When designing technology, developers need to consider people with functional limitations – persons with disabilities and the elderly. These vulnerable groups face obstacles and challenges when it comes to the use of digital platforms. The course provides a comprehensive review by covering diverse topics that advance the skills needed to develop, review and evaluate the accessibile digital platforms according to the international best practices and ICT accessibility standards.

CPEN 460 Computer Networks **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on the principles of computer networking protocols and architectures with emphasis of the Internet. Students will learn about the technologies and protocols used in local and wide area networks. Special emphasis will be given to study the TCP/IP protocol suite and its underlying protocols and concepts including: HTTP, SMTP, POP, IMAP, DNS, P2P, UDP, TCP, error control, flow control, congestion control, network routing (static and dynamic), packet delays, Local Area Networks (Ethernet, Wi-Fi), confidentiality, integrity, authentication. Students will experiment with protocol analyzers (packet sniffers) to understand and analyze the operations of the different TCP/IP protocols. Also, they will experiment with network emulation and virtualization using Mininet.

CPEN 462 Cybersecurity Fundamentals **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes students to the fundamental concepts of cybersecurity. Issues considered include topics such as cryptographic tools, user authentication, access control, software vulnerabilities, intrusion detection, firewalls, and operating systems security. Students will gain insight into the importance of cybersecurity through a series of practical and hands-on exercises. They will be exposed to real life cybersecurity operations, involving both attack and defense strategies.

CPEN 464 Introduction to Machine Learning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course teaches the fundamentals of modern machine learning and artificial intelligence. Using the Python programming languages, students will learn "classical" machine learning techniques such as regression, SVMs, decision trees and random forests, as well as deep learning. The course focuses on the practical aspects of machine learning and covers a wide range of topics, including computer vision, data visualization, classification, regression, and segmentation. In hands-on sessions and assignments, students will set up their own machine-learning-based models.

Core Science and Engineering

CSE 602 Statistics for Science and Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers probability and statistical methods for data analysis and experimental design. The course emphasizes on fundamental principles of statistics and their applications in science and engineering. Topics include: probability distributions and probability models; hypothesis testing based on single and multiple samples; single and multi-factor ANOVA; linear, logistic, and nonlinear regression; design, analysis, validation of experiments; nonparametric techniques; advanced statistical methods in scientific research.

CSE 603 Advanced Mathematics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces advanced math topics such as differential equations and their applications in energy and other engineering domains

CSE 605 Computational Data Analytics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

It gains common computational tools for rapid analysis of several energy, environment and sustainability data sets.

CSE 606 Numerical Methods for Scientists and Engineers **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Numerical Methods for Scientists and Engineers

CSE 607 Advanced Systems Optimization **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on introducing selected optimization tools for energy, environment and sustainability applications.

CSE 730 Hardware Security **3 Credits**
Grade Mode: Standard Letter

This course explores vulnerabilities and defenses at the intersection of hardware and system security. Students will study microarchitectural side channels, memory attacks, firmware/boot chain threats, trusted execution environments, and emerging hardware threats in cloud and IoT. Emphasis is placed on understanding the underlying computer engineering principles and evaluating real-world exploits and defenses.

CSE 770 Nano-Bio-Technology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Introduction to nanoscale bio-systems and the application of nano-bio-technology. Topics covered include nanomaterials synthesis and characterization, surface and interfaces properties, biohazard risk assessment, toxicity, drug deliver, diagnostics, lab-on-chip systems, hyperthermia, antimicrobials.

CSE 785 Innovation Entrepreneurship and Leadership I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course first provides introductory discussions on theories of design innovation, entrepreneurship and leadership. Then, it focuses on experiential learning for design and development of products, processes, systems and business models. Topics include design thinking, system thinking, design process; understanding and developing user/stakeholder needs/input for a sustainable solution; generating technical and marketing specifications; and prototyping methods to reduce development time.

CSE 786 Innovation Entrepreneurship Leadership II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course first provides introductory discussions on theories of design innovation, entrepreneurship and leadership. Then, it focuses on experiential learning for design and development of products, processes, systems and business models. Topics include design thinking, system thinking, design process; understanding and developing user/stakeholder needs/input for a sustainable solution; generating technical and marketing specifications; and prototyping methods to reduce development time.

Computer Science and Engineering

CSEG 605 Convex Optimization for Large-Scale and Distributed Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course concentrates on solving convex optimization problems that arise in large-scale and distributed systems with applications to big data. It covers convex sets and functions, basics of convex analysis, least-squares, linear and quadratic programs, semidefinite programming, unconstrained and constrained optimization, duality theory, interior-point methods, sub-gradient and proximal gradient methods, splitting and alternating direction method of multipliers (ADMM).

CSEG 710 Advanced Algorithms and Data Structures **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course covers general computational problems, with a focus on the principles used to design those algorithms. Efficient data structures will be discussed to support these algorithmic concepts. Topics are: run time analysis, divide-and-conquer algorithms, dynamic programming algorithms, network flow algorithms, linear and integer programming, large-scale search algorithms and heuristics, efficient data storage and query, and NP-completeness. This course will focus on the design and analysis of algorithms for general classes of problems.

CSEG 780 Principles of Computer System Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course covers computer architecture, organization and design with an emphasis on the processor structure and functionality as well as memory hierarchy and IO devices. Topics include: Boolean algebra and digital logic; Combinatorial and sequential circuits; Processor datapath and control path; Memory hierarchy; IO devices; Static and dynamic CMOS circuits; low power techniques, design tools and methodologies. The course also contains several case-studies that explore recent real-world designs from the recent research literature. Students will design and verify small test circuits using commercial CAD tools.

Cyber Security

CYSE 610 Applied Cryptography **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers cryptographic primitives such as one-way, collision-resistant hash functions, as well as the relevant number theory and discusses public-key encryption and basic key-exchange coupled with real-life applications. In a nutshell, the course studies how two parties who have a shared secret key can communicate securely when a powerful adversary eavesdrops and tampers with traffic. The course will also cover popular secure protocols such as zero-knowledge proofs. Throughout the course students will be exposed to a variety of open problems in the field.

CYSE 630 Computer and Network Security **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the concepts of assets, vulnerabilities, controls, threats and attacks, security measures and mechanisms. The course will introduce the fundamental concepts of security technology for computer networks, and the applications of these technologies. Topics include an overview of fundamental cryptography, authentication, encryption, digital signatures, digital certificates, and network security protocols such as IP Sec, SSL, etc. Students will also obtain the fundamental knowledge on network security mechanisms such as firewall and network intrusion detection systems.

CYSE 640 Security Risk Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course explores the basic elements of risk and to introduce security risk assessment methodologies and related tools used by many of the world's major corporations. The choice of the tools and methods in this course are based on its popularity in practice and enables the course to address cybersecurity issues related compliance with security policies, external standards and with appropriate legislation.

CYSE 720 Data Privacy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the concepts, technologies, practices and challenges associated with Information Security and Privacy, and a broad view of the subject, which includes looking at relevant business, organizational, human, legal and policy issues. The course combines technical discussions with a wealth of examples from enterprise and government systems, social networking, mobile and pervasive computing, privacy standards like HIPAA or GLBA, and much more. The course combines formal lectures with discussion of recent, hot topics and how they relate to data privacy and the multi-facet challenges in practice and real world.

CYSE 727 Wireless Networks & Security **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course explores the fundamentals of wireless networks as well as its security techniques and challenges. Students will learn a general overview of wireless networking standards, security issues and challenges in wireless networks, and security mechanisms in wireless technologies. Students will also learn security techniques in existing networks such as mobile ad-hoc networks, sensor networks, and wireless mesh networks as well as emerging networks such as smart grids, internet of things, and vehicular networks. Finally, the course will cover a general overview of physical layer security that exploits wireless channels for improving security of wireless networks.

CYSE 728 Distributed Systems Security **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on fundamental and advanced concepts in Distributed Systems, addressing their foundations, current technologies, and security aspects. Topics include, but are not limited to, distributed hash tables (peer-to-peer systems), failure detectors, synchronization, election, distributed agreement, consensus, gossiping, replication, key-value stores, NoSQL, blockchain technology. These topics are discussed in the context of real-life and deployed systems such as clouds and datacenters, databases, peer to peer systems, clusters, cryptocurrencies.

CYSE 729 Multimedia Security **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course has several objectives: (i) delivering fundamental and advanced concepts about multimedia content representation, (ii) highlighting the trade-offs between quality and multimedia channel capacity, (iii) designing and implementing security tools to protect multimedia content.

CYSE 730 Hardware Security **3 Credits**
Grade Mode: Standard Letter

This course explores vulnerabilities and defenses at the intersection of hardware and system security. Students will study microarchitectural side channels, memory attacks, firmware/boot chain threats, trusted execution environments, and emerging hardware threats in cloud and IoT. Emphasis is placed on understanding the underlying computer engineering principles and evaluating real-world exploits and defenses.

CYSE 744 Network Forensics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes students to practical issues involving the monitoring and investigation of private data communications. Issues considered include such topics as network monitoring, network data collection, network flows, and visual security analysis. Students will learn how to perform forensic investigations of network-based attacks, through a series of lab exercises, hands-on assignments, and a term project.

CYSE 745 Computational Forensics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course builds the necessary awareness required to assess physical and digital crimes at local, regional and global levels. Assessment, in this context, includes the evaluation of the nature of the crime, handling and tracking physical and digital evidence connected to the crime in a manner consistent with legal requirements for presenting forensic evidence. Students will learn about various state-of-art computational tools used in forensic analysis of different types of evidence. The course also builds awareness of intelligence practices across the globe that have bearing on crime investigation, especially of organized crime

Data Science & Engineering

DSEG 660 Applied Deep Learning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers intermediate-level topics in deep learning, including: deep neural network (DNN) components and architectures, DNN training and optimization, convolutional neural networks, recurrent neural networks, attention mechanism, reinforcement learning, and applications of deep learning in computer vision, speech recognition and natural language processing.

DSEG 682 Special Topics in Data Science and Engineering **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

This course covers a variety of timely, cutting-edge areas in Data Science and Engineering. Taught by our faculty research scientists from our research institutes or industrials, this course allows students to keep up with critical trends and topics in the field of Data Science and Engineering.

DSEG 733 Advanced Data Management System **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course covers several advanced data management systems that are commonly used in practice. These include data warehouses, graph databases, column-oriented databases, distributed databases, cloud-based databases, and spatial databases. Topics include storage, indexing, query processing, protocol design, transactions processing and system architecture.

DSEG 735 Learning from Data **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers the theory, algorithms, and applications of computational learning. The technical topics covered include linear models, theory of generalization, regularization and validation, neural networks, support vector machines, as well as specialized techniques and a term-long project with big datasets.

DSEG 760 Machine Learning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course deals with intermediate and advanced topics in machine learning. Topics to be covered include: linear regression, logistic regression, support vector machines, Bayesian networks, Markov network, conditional random fields, inference methods based on graphical models, learning methods for graphical models, and recent applications of machine learning methods.

Economics

ECON 215 Economic Analysis for Engineering **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 161

This course introduces students to the fundamental principles of economic analysis with a focus on their application in engineering contexts. Students will learn to assess the economic viability of engineering projects, considering factors such as cost estimation, financial forecasting, and risk analysis.

Electrical Engineering

ELEN 209 Computer Programming and Algorithms **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ENGR 110

Introduction to C language programming 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.

ELEN 214 Electrical Circuit Theory **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in PHYS 217 and Grade of C or better in MATH 318 or concurrent registration

Fundamental laws, electrical elements and sources, energy and power DC analysis of linear circuits Node and mesh analysis Operational amplifiers and op-amp circuits, Thevenin and Norton theorems Sinusoidal steady-state response and the phasor concept. Introductory concepts on complex frequency, average power in AC circuits Transient responses.

ELEN 215 Principles of Electrical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 261 and Grade of C or better in PHYS 217

This course covers basic principles of electric circuit analysis and an introduction to electronics tailored for engineering students not specializing in electrical and computer engineering.

ELEN 248 Digital Systems Design **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 162 and Grade of C or better in PHYS 217 or concurrent registration

Introduction to digital logicTopics include numbers and coding systems; Boolean algebra with applications to logic systems; Karnaugh and Quine-McCluskey minimization; combinatorial logic design; flip-flops; sequential network design; and design of digital logic circuits

ELEN 250 Machine Learning for Electrical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in ENGR 110 and Grade of C or better in MATH 261

Engineering application-focused introduction to machine learning covering key machine learning concepts, guidance on selecting machine learning models, and application of python-based tools for data preparation, model development, and performance evaluation; practical engineering use-cases for machine learning from electronics, energy, motors, robotics, security, computer systems, and health; machine learning laboratory project including dataset management, ML model development, visualization, and deployment to an IoT platform showcasing ML expertise

ELEN 303 Random Signals and Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 261

This course offers a comprehensive exploration of random signals and their engineering applications It includes probability theory, stochastic processes, and random variables, covering Gaussian and non-Gaussian processes, spectral analysis, correlation functions, and signal processing techniques Practical applications in communication, control systems, and information theory are emphasized, preparing students for complex system analysis and design Hands-on experiments and case studies enhance theoretical learning with practical implementation.

ELEN 314 Signals and Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214 and Grade of C or better in MATH 318

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.

ELEN 322 Electric and Magnetic Fields **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214 and Grade of C or better in MATH 321

Vector analysis; static electric field; steady electric currents; static magnetic fields; time-varying fields and Maxwell's equations; plane electromagnetic waves.

ELEN 325 Electronics **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214 and Grade of C or better in MATH 321

Introduction to electronic systems; linear circuits; operational amplifiers and applications; diodes, field effect transistors, bipolar transistors; amplifiers and nonlinear circuits.

ELEN 335 Measurements and Instrumentation **4 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in ELEN 325 and Grade of C or better in ELEN 314

This course introduces the principles, devices, and methods used in the instrumentation and measurement of electrical and non-electrical signals. Students will learn to select, calibrate, and operate instruments, as well as interpret measurement data. Topics include introduction to measurement systems, transducers and sensors, signal conditioning, calibration and standards, and applications in engineering. The course includes analog and digital measurements, analog to digital conversion (ADC) and digital to analog conversion (DAC) techniques.

ELEN 340 Electric Energy Conversion **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214

Fundamental topics in power and energy systems; phasors; three-phase circuits; self and mutual inductance; transformers; electromechanical systems; synchronous and induction machines; advanced concepts in electric energy conversion; DC-DC converters; inverters and rectifiers; solar and wind energy systems; DC and single-phase machines.

ELEN 349 Microprocessors and Embedded Systems **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 209 and Grade of C or better in ELEN 248

This course is an introduction to the operation, interfacing, and applications of microprocessor-based systems, and real-time embedded system designTopics include memory organization, microprocessor architecture, embedded C programming, real-time programming, data path and control design of microprocessors.

ELEN 350 Computer Architecture and Design **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 248

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.

ELEN 370 Physical Properties of Materials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in PHYS 217

This course offers a comprehensive understanding of the fundamental principles governing the behavior and characteristics of materials, with focus on those used in electrical and electronic devices The course explores the relationship between the physical properties of materials and their performance in various engineering applications, with an emphasis on materials commonly employed in semiconductor devices, integrated circuits, and electronic components It includes an introduction to properties of conductors, semi-conductors, and insulators Definitions of stress and strain and mechanical behavior of solids Advanced characterizations of selected materials; circuit models for resistors, capacitors, inductors, junction, diodes, detectors, field-effect transistors, etc. Structure/property/ processing relationships will be also examined across a wide spectrum of materials including metals, ceramics, polymers and properties including electrical, magnetic, optical, thermal, mechanical, chemical and biocompatibility will be investigated Emerging Materials and Technologies applied for electrical, and electronics will be also studied.

ELEN 391 Internship **0 Credits**
Grade Mode: Pass/Non Pass

Participation in an approved high-impact learning practice, such as engaging with industry, research entities, or startup companies.

ELEN 403 Senior Design Project I **3 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Senior Standing and Grade of C or better in ELEN 303 and ELEN 314 and ELEN 322 and ELEN 325 and ELEN 335 and ELEN 340 and ELEN 349 and ELEN 350 and ELEN 370

This course is conducted as a guided project design course over a two-semester period, with the class divided into teams, each assigned a specific design project Periodic progress reports, a final written report, an oral presentation and project demonstration are required Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized A series of tutorials will be presented to provide student teams with insight into important system level considerations and tradeoffs.

ELEN 404 Senior Design Project II **3 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in ELEN 403

Continuation of ELEN 403. This course is conducted as a guided project design course over a two-semester period, with the class divided into teams, each assigned a specific design project Periodic progress reports, a final written report, an oral presentation and project demonstration are required Cost analysis, societal impact, safety issues, evaluation of design alternatives and application of engineering principles will be emphasized.

ELEN 410 Automatic Control Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 314 and Grade of C or better in MATH 318

Modeling and response of dynamic systems. Transfer functions, poles and zeros and their significance to transient and steady state response of feedback systems. Analysis of stability of closed-loop systems. Steady state errors and transient performance of closed-loop systems. Design of feedback control systems by root locus techniques and by frequency domain methods. Laboratory projects include modeling, controller design, controller realization, system performance evaluation, and simulation studies.

ELEN 412 Power Electronics **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214

Modeling and response of dynamic systems. Transfer functions, poles and zeros and their significance to transient and steady state response of feedback systems. Analysis of stability of closed-loop systems. Steady state errors and transient performance of closed-loop systems. Design of feedback control systems by root locus techniques and by frequency domain methods. Laboratory projects include modeling, controller design, controller realization, system performance evaluation, and simulation studies.

ELEN 414 Electric Power Systems **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214 and Grade of C or better in ELEN 314

This course will introduce students to basic methods of electric power systems Topics include AC circuits, phasors, complex power and complex impedance, transformers, per unit system, transmissions lines, power flow, economic dispatch, real and reactive power control, symmetric and unsymmetric faults, transient stability, relaying and protection.

ELEN 416 Electric Machines and Drives **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 214 and Grade of C or better in ELEN 322

This is an introductory course on electric machines and drive systems and their application in HEV/PHEV powertrain and other industrial and residential systems. The objectives are to familiarize the students with the basic concepts of electromechanical energy conversion and electric drive systems. Students are expected to be able to analyze and design electric drive systems for automotive, industrial, and residential applications. The topics covered in this course include DC machines, induction machines, permanent magnet synchronous machines, and switched reluctant motors and drives. Case studies in automotive applications such as electric and hybrid drivetrains, industrial and residential electric variable speed drive systems, will be discussed.

ELEN 418 Renewable Electric Power Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 340

This course is an introduction to traditional power grids as well as renewable electric power systems. This course covers long-distance transmission of electric power with emphasis on admittance and impedance modeling of components and systems, complex power-flow studies, symmetrical and unsymmetrical fault calculations, economic operation of large-scale generation and transmission systems, an overview of emerging renewable energy technologies (eg wind and solar) and the impact of grid integration of renewable energy on power grids.

ELEN 420 Linear Control Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Application of state variable and frequency domain techniques to modeling, analysis and synthesis of single input, single output linear control systems.

ELEN 429 Machine Learning for Signal Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Principles of pattern recognition and machine learning and electrical and computer engineering applications in signal estimation, detection and classification, detection of patterns in engineering systems and communications networks, assessment of normality and abnormality patterns in biomedical engineering applications and cyber security of power systems.

ELEN 430 Digital Signal Processing **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 314

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.

ELEN 431 Digital Communications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Digital transmission of information through stochastic channels; analog-to-dialog conversion, entropy and information, signal detection, the matched-filter receiver, probability of error; baseband and passband modulation, signal space representation of signals, PAM, QAM, PSK, FSK; block coding, convolutional coding; synchronization; simulation of digital communication systems.

ELEN 432 Wireless Communications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 314

This course provides an introduction to the fundamentals of modern wireless communication. The focus of this course will be on the (i) basic signal propagation issues and channel impairments, (ii) modulation schemes and bandwidth/power trade-offs, and (iii) overcoming channel impairment using equalizers, diversity and channel coding. Additionally, case studies will examine current wireless LANs and cellular system

ELEN 434 Radar and Remote Sensing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 314 and Grade of C or better in ELEN 322

This course delves into fundamental radar concepts, including radar waveforms, signal processing, antenna design, and radar cross-section analysis It also covers remote sensing techniques, such as passive and active sensing, multispectral and hyperspectral imaging, synthetic aperture radar (SAR), and lidar systems. Students learn about system design considerations and implementation, including system requirements analysis and hardware/software design. Advanced topics like laser theory and applications are explored in detail during the spring session, complementing the foundational concepts covered in the course.

ELEN 436 Image Processing **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

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.

ELEN 438 Power Electronics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

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.

ELEN 440 Principles of Artificial Intelligence **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 303 and Grade of C or better in ELEN 349

Basic concepts and methodology of artificial intelligence from a computer engineering perspective. Emphasis is placed on the knowledge representations, reasoning and algorithms for the design and implementation of intelligent systems. Introduction to an AI language and representative intelligence systems. A design project is required.

ELEN 442 Deep Learning for Robotics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 250 and Grade of C or better in ELEN 350

This course covers the application of deep learning techniques in robotics, focusing on perception, control, and decision-making. Students will learn about applying deep learning models to robotic vision, navigation, and manipulation. Through hands-on projects, students will design and train deep learning models for real-time robotic systems.

ELEN 446 VLSI Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 325

This course covers the design and implementation of integrated circuits, including CMOS technology, digital logic design, and layout techniques. The course emphasizes hands-on experience with VLSI design tools and the development of practical skills in designing, simulating, and testing VLSI circuits.

ELEN 448 CMOS Digital Circuit Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in ELEN 325

This course focuses on the design and analysis of CMOS digital circuits. Students will explore the principles of CMOS technology, logic gate design, and circuit optimization techniques. Emphasis is placed on understanding the trade-offs in performance, power, and area. Practical experience will be gained through the use of industry-standard design tools for simulation and layout.

ELEN 449 Microprocessor Systems Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

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.

ELEN 455 Digital Communications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

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; baseband and passband 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.

ELEN 489 Selected Topics in Electrical Engineering **1-3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Advanced or applied topics in electrical engineering offered according to student's interest and availability of instructors and equipment. Lecture hours, laboratory, and/or computation period to be arranged.

Engineering

ENGR 110 Introduction to Programming **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

Through this course, students will explore major issues related to the "big ideas" of computational thinking and solve the problem using Python, which emphasizes computing, software development, style, and testing principles. Topics include the representation of ideas with bits, basic Boolean logic, and devices to implement logic functions as the first part. The second part contains procedures and functions, iteration, recursion, arrays and vectors, strings, an operational model of procedure and function calls, algorithms, exceptions, and object-oriented programming. Weekly labs provide guided practice on the computer, with staff present to help. Assignments use procedural code and algorithms to help develop fluency and understanding of the programming language.

ENGR 125 AI Literacy and Critical Thinking **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the fundamentals of Artificial Intelligence (AI) and fosters critical thinking skills. Students will learn about the basic concepts, applications, and ethical considerations of AI technology. The course emphasizes developing AI literacy, enabling students to understand and analyze AI's impact on society, industry, and daily life. Through discussions, case studies, and hands-on projects, students will enhance their ability to think critically about AI-related issues, evaluate information sources, and make informed decisions in an AI-driven world.

ENGR 130 Sustainable Cities and Urban Mobility **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the principles and practices of designing sustainable cities and improving urban mobility. Students will examine the challenges and solutions related to urbanization, transportation, and environmental sustainability. Key topics include sustainable urban planning, green infrastructure, public transportation systems, and smart city technologies. Emphasis will be placed on integrating environmental, economic, and social considerations in urban development. Through case studies, projects, and interactive discussions, students will learn to develop innovative strategies for creating livable, resilient, and efficient urban environments.

ENGR 210 Introduction to Innovations and Technology Entrepreneurship **1 Credit**
Grade Mode: Standard Letter

ENGR 482 Engineering Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Junior Standing

This course teaches the fundamentals of ethics as they apply to engineering disciplines. It provides students with the foundational skills to reflect on their solutions' and inventions' impact on society critically and work for the greater good of humanity. This is of particular importance in today's data- and AI-driven world of automated decision-making.

Finance

FIN 101 Ethical Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course aims is to discuss and analyze the ethical approaches related to finance and economics. These include Corporate Responsibility and Responsible Investment, Islamic finance and economy, financial inclusion, Investor ethics and impact investing, environmental, social and governance (ESG) factors as well as the ethics of fintech.

History

HIST 115 History & Theory of Architecture - Islamic/Arab Civilizations **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course covers the methods and theories of Islamic civilizations that stretched from Spain to India. This course focusses on the architecture and decoration of the societies across this vast area, from the early centuries of Islam in the seventh century to present. It covers major architectural masterpieces and how they differed and changed with regards to their geographic locations, traditions, and how they developed. The course covers major monuments of the Umayyad, Abbasid, Tulunid, Fatimid, Samanid, Seljuk, Ghaznavids, Ayyubid, Mamluk, Ilkanid, Timurid, Ottoman, Safavid, Mughal and Modern periods.

Hospitality, Retail & Sport Management

HRSM 650 Field Project in Hospitality, Retail and Sport Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course even though intended to provide a student with practical work experience, the field project is also an academic course with corresponding assignments and projects. These assignments and projects should stimulate the student to maximize his or her experience and integrate classroom learning with real world application.

HRSM 700 Quantitative Methods in Hospitality, Retail, and Sport Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to equip students with knowledge and understanding of quantitative methods used in the fields of hospitality, tourism, and sport management. The course covers basic statistical concepts, principles, and methods required for scientific investigation of research problems in HRSM. The primary topics will include descriptive statistics, confidence interval, hypothesis testing, bivariate correlation, simple linear regression and multiple linear regression analyses. Students will learn how to analyze research data and utilize statistical output for reporting research findings.

HRSM 788 Business Analytics in Hospitality, Retail and Sport Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the methods and application of business research in the areas of hospitality, retail, and sport management. Areas covered include the study of the research process, research designs, sampling procedures, measurement techniques, survey research, hypothesis testing, and the research report. After successful completion of the course, students will be able to use research methods to solve problems for firms in their respective industries.

Information Computation & Technology

ICT 601 Research Methods and Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is a foundational course for graduate students who will be engaged in research. It provides students with an introduction to ethics and ethical misconduct, intellectual property and environmental health and safety as well as scientific thought and design of experiments. A focus of the course is to transition students from textbooks to primary literature as their main source of information.

ICT 615 AI for Social Media and Multimedia Applications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers fundamental and novel artificial intelligence (AI) technologies for social media and multimedia applications. The students will read and present selected references about AI for social and multimedia computing, and learn the hands-on skills to implement or modify existing AI algorithms. Beside these technical understanding of involved AI technologies, the students will propose and implement creative social media or multimedia applications using AI technologies. The student will complete assignments, class-activities and projects individually or in groups

ICT 621 Visual Computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces students to the field of visual computing, including visualization, computer vision, virtual reality, and 3D deep learning. It emphasizes practical skills in creating visual applications and analyzing visual data, with hands-on projects using WebGL, Python, and AI-based toolkits. The course is ideal for students in data science and ICT-related fields who want to gain fluency in modern visual intelligence technologies.

ICT 632 Advanced Applications of the Web and Internet **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers advanced techniques for building and maintaining practical applications of the Web and Internet. Main topics include web services, search engines, mobile web, practical aspects of the backbone techniques of the web, solutions for dealing with the rapidly growing and evolving web, and algorithms for handling the uncertainties in web data. The course will also cover selected topics of the state-of-the-art applications of the web techniques. The course is interdisciplinary in nature and has a wide breadth.

ICT 660 Principles of Health Informatics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The objective of this graduate level course is to provide data science students with an overview of the Health Informatics domain and introduce them to major concepts, areas, and ideas evolving within the discipline of Health Informatics. Key challenges and opportunities for the health data scientist will be highlighted. Students will gain insights and develop a solid base in understanding, analyzing and evaluating health information systems to support data science research and projects.

ICT 665 Artificial Intelligence and Machine Learning in Healthcare **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers both mathematical concepts and tools related to artificial intelligence (AI), with their application in real-world healthcare problems. Topics will cover concepts on uncertainty, searching algorithms, classification techniques, clustering techniques and application of AI in solving different healthcare related problems. This course will concentrate on building machine learning models to solve different open research problems in the field of genomics, bioinformatics, cheminformatics, drug discovery, healthcare etc.

ICT 666 Computational Bioinformatics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The aim of this course is to introduce the fundamental of bioinformatics algorithms and different bioinformatics methods for health management and life science students and researchers. It aims to give an overview of genomic and epidemiologic questions and to communicate the statistical and computational ideas behind the key analysis methods in these fields. This course does not assume that the student has a background in molecular biology, but rather introduces both the biological and mathematical concepts.

ICT 668 Medical Image Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The first part of this course introduces medical imaging, with a focus on magnetic resonance imaging, x-ray computer tomography, ultrasound, and nuclear medicine. The second half of the course introduces students to basic concepts in digital image and signal processing. After an introduction to the area of image processing and a brief mathematical review, we will cover the fundamental techniques of image processing, including image enhancement in spatial and frequency domains, image restoration, image segmentation, image description, and mathematical morphology.

ICT 670 Information Technology Project Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course addresses the growing need for better management of information technology projects. It covers the key elements of the project management framework, including project stakeholders, the project management knowledge areas, common tools and techniques, and project success. It covers planning methods and techniques required for defining, planning, integrating and implementing information technology projects consistent with the organizational strategic plan and mission. On successful completion of the course, students will have a good understand of the relationship between project, program, and portfolio management and the contributions they each make to enterprise success. They should be able to explain what a project is, provide examples of information technology projects, list various attributes of projects, and describe the triple constraint of projects.

ICT 671 Information Systems Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course focuses on issues managers face in the selection, procurement, use, and management of information technology assets. It presents a detailed study of the issues, principles, techniques and best practices in managing information systems and enterprise knowledge as organizational resources. Topics include IT operations, information technology and strategy, information technology and organization, assets management, performance evaluation and benchmarking, hardware and software acquisition, physical environments and security issues, outsourcing and partnerships.

ICT 675 Healthcare Information Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course provides the basic foundations and tools needed to understand, manage, and evaluate information systems effectively within a healthcare environment. The course will review health information system related regulations and standards and explore relevant issues pertaining to middle and senior level management working within the health care information system domain.

ICT 676 Information Systems Analysis and Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course develops comprehensive theoretical knowledge as well as practical skills related to the development process of information systems. This course deals with the concepts, skills, methodologies, techniques, tools, and perspectives essential for systems analysts. Upon successful completion of the course, students should be able to gather data, analyze and specify the requirements of a system, design system components and environments, build general and detailed models that assist in implementation and validation of the system and its compliance to the requirements, preferences and constraints of its social and organizational environment.

ICT 690 Special Topics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Special topics in ICT allow students to examine a variety of timely, cutting-edge areas in ICT. Taught by our faculty research scientists from our research institutes or industrials, this course allows students to keep up with critical trends and topics in the field.

ICT 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

ICT 698 Industrial/ Project **1-6 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

ICT 701 Graduate Research Seminars **0 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

Research seminar to be presented by invited speakers as well as students. Satisfactory attendance and presentations lead to the grade Pass.

ICT 705 Applied Data Analytics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers cutting-edge algorithms and software tools for data analysis, including the analysis of various types of data such as time series, texts and images. Main topics include data visualization, advanced regression and classification solutions, advanced data reduction techniques such as dimensionality reduction and kernel PCA, as well as application-specific tools and methods. In addition, the course also introduces common software tools and libraries which can be used as building blocks for designing and developing novel data analysis applications.

ICT 706 Independent Studies **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

Independent studies offers an opportunity for students to perform independent research work in any area related to Computer Science and Engineering under the supervision of a faculty member.

ICT 716 Data Science Tools and Applications **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The course objectives are to equip the graduate students with intermediate-level concepts and tools of data science, their properties, and their applications to practical problems. Furthermore, knowledge of how to apply these data science concepts and tools to solve real-world problems in health, engineering, finance, transportation and energy will be important objectives.

ICT 717 Computer Vision **3 Credits**
Grade Mode: Standard Letter

This course introduces students to the fundamental concepts, algorithms, and applications of computer vision. Students will learn how computers can be trained to interpret and understand visual data from the world. The course covers classic vision topics such as image filtering, feature detection, and stereo vision, as well as modern topics including deep learning for vision tasks. Emphasis will be placed on practical implementation, algorithmic understanding, and the design of end-to-end vision systems.

ICT 718 GenAI - Generative AI Foundations **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a comprehensive exploration of Generative AI (GenAI) models, focusing on their mathematical and computational foundations. It covers Deep Learning, Autoregressive Models, Flow Models, Latent Variable Models, Generative Adversarial Networks, Diffusion Models, and Large Language Models (LLMs) such as Transformers. Emphasis is placed on alignment, safety, adversarial robustness, and ethical considerations. Through project-based learning and research-driven assignments, students will gain hands-on experience in implementing, evaluating, and deploying state-of-the-art GenAI models in practical scenarios.

ICT 720 Cloud Computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course focuses on the technologies associated with the cloud computing infrastructure and the usage of the cloud in different application domains. The first part of this course introduces core cloud computing architectures and basic concepts. The second part of the course delves into systems aspects such as fault tolerance, consistency, resource allocation, and quality of service in the context of particular cloud applications, such as distributed machine learning algorithms, real-time multimedia, or cloud-enabled Internet of Medical Things.

ICT 725 Quantum Computing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims to provide a solid understanding of the fundamentals of Quantum Computing. In the first half, we give an overview of Quantum Mechanics and its mathematical treatment. We then introduce the building blocks of Quantum Computing and discuss how they work, how to build them, and their physical realization. In the second half, we introduce Quantum Cryptography and Quantum Machine Learning, as examples of Quantum Computing applications. Finally, we conclude with discussion on Quantum Information theory.

ICT 726 Quantum Machine Learning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Quantum computing revolutionizes computation by efficiently solving classically intractable problems, disrupting and advancing countless applications. The course will focus on Quantum Machine Learning (QML). It introduces QML and explains how it advances Machine Learning. It will introduce basic QML topics, such as quantum support vector machine, quantum kernel methods, and quantum neural networks. It will then explore advanced QML topics, including Fault-Tolerant QML and Quantum Generative Adversarial Network. The course concludes with other applications of quantum computing beyond QML

ICT 730 System Performance Modelling and Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

During their graduate studies, graduate students often aim to develop new concepts and techniques to enhance certain performance metrics of the system they are investigating, but often lack the right methods they need to use to evaluate and assess the effectiveness of such developed concepts and techniques. This course covers various methods that graduate students can use to model, characterize and analyze the performances of their designed techniques and concepts.

ICT 736 Interactive Design for Health care **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course exposes students to the healthcare domain at large, including being involved in existing project work within medical institutes in Qatar. The students will study a variety of cutting-edge user-centered interactive technologies that are currently being used and can potentially be used in the near future to support healthcare. The students will pair up in groups of 2 and explore the introduction of new interactive technology in one of the domains discussed in class.

ICT 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Logistics & Supply Chain Management

LSCM 601 Research Ethics and Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This LSCM core course prepares students for performing graduate level research. It introduces students to multi-disciplinary methods for critical exploration of research, locating and summarizing and critiquing relevant literature, developing a research problem, framing a problem with an appropriate research method, and constructing a coherent research design. One focus will be on an introduction to ethics and ethical misconduct. Throughout the course, students will be developing a causal model, will be acquainted with peer review, and will be developing a research proposal.

LSCM 607 Optimization Models and Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course covers a thorough understanding of optimization methods and models. On successful completion of the course, students will be able to: define and formulate linear programming problems and appreciate their limitations; solve linear programming problems using appropriate software and computer packages, and interpret the results obtained; conduct and interpret post-optimal and sensitivity analysis; and explain the primal-dual relationship. Moreover, students will be able to formulate and solve a wide range of traditional logistics and supply chain combinatorial problems. Students will also be exposed to some well-known advanced optimization techniques that might be covered in other electives.

LSCM 611 Supply Chain Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course aims at showing that any organization must be analyzed as a component of a Supply Chain in which the different actors (suppliers, manufacturers, retailers) as well as the different functions (marketing, production, finance) interact. Understanding and mastering the relationships between these different areas will improve the effectiveness (achieving the objectives) and the efficiency (achieving the results at least cost) of the system.

LSCM 617 Production and Operations Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Production & Operations Management is defined as the set of processes which transform the inputs/resources of an organization into final goods /services through a set of defined, controlled and repeatable policies. This course covers a thorough understanding on managerial processes for effective operations in both goods-producing and service-rendering organization. Emphasis is on specific tools and strategies used to manage and enhance a firm's operations and production, such as Inventory management, Demand forecasting and Production Planning and Scheduling. The course will also introduce simulation modelling to solve complex operations management problems.

LSCM 621 Project Management in Logistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course prepares students for managing projects, with a special focus on large-scale projects for logistical infrastructures in aviation and shipping (i.e. airports and seaports). Part 1 will focus on managing large-scale projects. Here, essentials about the concept of project management will be presented and discussed from a business administration point of view. Part 2 will apply these methodological essentials to projects for logistical infrastructures in aviation and shipping.

LSCM 627 Simulation Optimization Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces decision support systems based on simulation optimization methods to solve complex problems by finding better input values of continuous and discrete variables from among all possibilities without explicitly evaluating each possibility. Simulation optimization methods aims to minimize solving resources spent while maximizing the information obtained in a simulated or measured experiment. Major difficulties from lack of analytical formulation, presence of uncertainties, nonlinearities, non-differentiable functions, very expensive and time-consuming optimized solutions force the use of simulation-based optimization approaches when solving multi-scope, multi-scale and multi-scenario problems as those found in industrial manufacturing and supply chains.

LSCM 631 Port Management and Maritime Logistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course examines how ports are organized, managed and planned, and how ports interface with the logistics chain. The course provides necessary knowledge and understanding of the principles and evolution of container terminal management, port indicators, maritime supply chain management and environmental issues that arise from port operations and maritime transportation.

LSCM 641 Facility and Transportation Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is emphasizing on applying industrial engineering principles and techniques to analyze, design and improve facility layout and transportation networks in industrial enterprises and services systems. In addition to bringing together the knowledge gained in many previous courses, the topics of this course include tools and methods for planning new facilities and transportation networks and to revise or expand existent ones.

LSCM 643 Data Analytics for Supply Chain Optimization 3 Credits
Grade Mode: Standard Letter, Pass/Non Pass

This course introduces probability, statistics, and programming for data analysis, focusing on operations and supply chain management. Students learn key statistical concepts, including probability distributions, hypothesis testing, regression, and inference. It covers machine learning techniques like classification, clustering, and predictive Modelling for data-driven decisions. Hands-on experience in Python enables data manipulation, visualization, and statistical modeling. By applying these skills, students analyze and interpret real-world supply chain and operational data effectively.

LSCM 644 Transportation Analytics 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course covers Modelling and implementing key transportation and routing problems in logistics and supply chains. Topics include the Traveling Salesman Problem, Vehicle Routing, Inventory Routing, and Network Design, with applications in maritime, rail, and urban logistics. Students will explore optimization techniques, algorithm development, and case studies to solve complex transportation challenges. By the end, they will gain hands-on experience in advanced methodologies, preparing them for research or industry roles in transportation and supply chain optimization.

LSCM 671 Principles of Reinforcement Learning for Engineering Management 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The course will introduce the Principles of Reinforcement Learning (RL) for Engineering Management. Starting from the basics of Markov Decision Processes (MDP) the course will cover a broad set of techniques including Value Iteration, Policy Iteration, Q-Learning, Policy Gradient, Actor-Critic Methods. The use of function approximation techniques (including Neural Networks) to approximate the state-space will be elaborated. Applications from Traffic Management, Logistics and Supply Chains will be introduced to apply theory to practice.

LSCM 690 Applied Project 1-6 Credits
Grade Mode: Pass/Non Pass

Fulfilling curriculum requirements in the form of an applied industrial project

LSCM 695 Master's Thesis Hours 1-6 Credits
Grade Mode: Pass/Non Pass

Fulfilling curriculum research requirements.

LSCM 701 Research Seminar 0 Credits
Grade Mode: Pass/Non Pass

The LSCM research seminars will consist of industrial professionals and academics in the field of logistics and supply chain management. The objective of which is to expose participants to the latest trends in research and industrial practices within logistics and supply chain management.

LSCM 706 Independent studies 3 Credits
Grade Mode: Standard Letter

This course offering is designed to enable independent studies by student in special topics.

LSCM 711 Supply Chain Modeling and Optimization 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course will review the major supply chain innovations developed over the last four decades. The course is specifically designed to address the issue the decision making processes of the dynamic complexities within supply chains using modeling and optimization approaches. These innovations have transformed tremendously supply chains especially through Information Technology and digitalization enablers. Most of the modeling will be performed using basic tools such as Excel Solver as well as learning about the evolving supply chain innovations.

LSCM 721 Advanced Topics in Supply Chain Management 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course extends the knowledge acquired in basic courses in order to learn advances tools to model and solve quantitative problems arising in supply chain management. The course will focus not only the deterministic context but will cover even the stochastic settings in which the input data are not known with certainty in advance but can be represented through a probability distribution. Specialized software packages will be also used in order to solve real-life logistics applications in reasonable amount of time.

LSCM 731 Industry 4.0 in Manufacturing and Supply Chain 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

The course introduces the fundaments related with the Industry 4.0 in manufacturing and its interface with the qualogistics chain considering both logistics and qualities aspects of the supply chain. The course provides necessary knowledge and understanding of the evolution of the industrial activities and supply chain management toward the so called smart production and high-performance qualogistics that arise from the technologies in this new industrial era.

LSCM 741 Machine Learning for Supply Chain Management 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course caters to PhD and Master's students, offering a deep dive into the synergy between machine learning and supply chain management. Focused on practical applications, it provides expertise in utilizing Python and PyTorch for optimizing supply chain operations. Covering aspects from demand forecasting to transportation optimization, participants tackle real-world challenges through lectures, case studies, and projects. Graduates gain a robust understanding of machine learning's strategic application in modern supply chains, enabling data-driven decision-making for careers in academia or industry

LSCM 742 Cutting-Edge Techniques in Prescriptive Analytics 3 Credits
Grade Mode: Standard Letter, Pass/Non Pass

This course covers advanced optimization theory and practice, focusing on integer and combinatorial optimization, relaxation techniques, polyhedral approaches, and cutting-plane algorithms. Topics include dynamic programming, reformulation, and decomposition methods such as Lagrangian relaxation, Dantzig-Wolfe, column generation, and Benders decomposition. Emphasis is placed on real-world logistics and supply chain applications. Designed for PhD students, the course equips them with practical and theoretical tools to tackle complex optimization challenges in research and industry settings.

LSCM 743 Stochastic Modelling and Optimization **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This graduate course introduces decision-making under uncertainty, focusing on stochastic optimization in logistics and supply chain management. It covers Modelling uncertainty, key decision parameters, and optimization challenges. Students explore real-world applications in logistics, transportation, health, energy, and finance while learning stochastic programming theory, modeling, and solution methods. Emphasizing interdisciplinary approaches, the course is ideal for those with backgrounds in linear programming, probability, and mathematical modeling. Students engage in research, literature review, problem identification, and stochastic system modeling.

LSCM 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Fulfilling curriculum research requirements.

Mathematics

MATH 160 Functions, Trigonometry, and Linear Systems **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

MATH 161 Engineering Mathematics I **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in Math 160 or acceptable score in Math Placement Exam

This course delves into advanced calculus topics essential for mathematical analysis and problem-solving. Students explore vectors, parametric equations, and vector functions, along with inverse trigonometric functions. Derivatives are extensively covered, including polynomial, exponential, trigonometric, and logarithmic functions, employing rules like product, quotient, and chain rules. Additionally, applications like exponential growth, related rates, and optimization are addressed. Integration techniques, including definite and indefinite integrals, are studied, alongside their applications in areas, distances, and the fundamental theorem of calculus. Emphasis is placed on understanding concepts deeply and applying them to real-world scenarios.

MATH 162 Engineering Mathematics II **4 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C and better in MATH 161

This course provides a comprehensive exploration of advanced calculus concepts and techniques. Topics include integration methods like the Substitution Rule and integration by parts, along with applications such as finding areas between curves and volumes using various methods. Sequences, series, and convergence tests are covered, alongside power series and Taylor/Maclaurin series. Calculus in polar coordinates, including curves, areas, lengths, and conic sections, is also introduced. Emphasis is on mastering these concepts and applying them to real-world problems, preparing students for advanced mathematical analysis.

MATH 211 Principles of Statistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 162

This course content ranges from mathematical theory of statistics to probability. it provides a comprehensive approach to sample space: discrete, continuous, events, axioms of probability, basic properties of, probability; union of events bound, discrete probability models; computing probability using counting, continuous probability models, conditional probability and the chain rule, sequential calculation of probability, law of total probability and bayes rule, independence, random variables and their distributions, transformations of random variables, expectations and variance, generating functions, sampling distributions and basic limit theorems, principles for statistical inference, formulation of statistical models, reduction of data, point estimation, confidence intervals, hypothesis testing and bayesian inference.

MATH 261 Engineering Mathematics III **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 162

This course covers advanced multivariable calculus and vector analysis. Topics include vectors in 3D, equations of lines and planes, vector functions, and space curves. Students study derivatives and integrals of vector-valued functions, exploring concepts like arc length and curvature. Functions of several variables, including partial derivatives, are examined, with applications like tangent planes and gradients. Integration techniques cover double and triple integrals, coordinate systems, and variable changes. Line and surface integrals, along with fundamental theorems such as Green's, Stokes', and Divergence, are introduced, highlighting applications in physics and engineering.

MATH 318 Differential Equations **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 261

This course provides a comprehensive exploration of differential equations and their applications. Topics include direction fields, solution methods such as separation of variables and Laplace transforms, and classification of equations. Students analyze linear and nonlinear equations, autonomous equations, and systems of equations. Techniques for solving homogeneous and nonhomogeneous equations, including mechanical and electrical applications, are covered. Special focus is placed on Laplace transforms for solving initial value problems and convolution integrals. Additionally, numerical methods like Euler's method and Runge-Kutta method are introduced for approximating solutions. Emphasis is on understanding theoretical concepts and applying them to diverse real-world scenarios.

MATH 321 Topics in Applied Mathematics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 261 And Grade of C or better in MATH 318 or concurrent registration

This course offers a comprehensive study of linear algebra and its applications Topics include solving systems of linear equations using Gaussian elimination and matrix operations, along with determinants and their properties Students delve into vector spaces, subspaces, and linear transformations, exploring concepts such as rank, nullity, and change of basis Eigenvalues, eigenvectors, and diagonalization are covered extensively, alongside orthogonal projections and least squares methods. Additionally, the course introduces inner product spaces, orthogonalization techniques, and applications like Green's theorem and Stokes' theorem Emphasis is on understanding theoretical concepts and their practical applications in various fields including physics, engineering, and computer science.

Mechanical Engineering

MEEN 210 Computer Aided Design **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in ENGR 110

Introduction to geometric modeling for mechanical design using modern computer-aided design (CAD) and prototyping tools; covers systematic design methodology, geometric visualization (orthographic, isometric, oblique, and perspective), and three-dimensional modeling (surface and solid representations); includes dimensioning, tolerancing, and rapid prototyping with 3D printing.

MEEN 223 Principles of Engineering Materials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in CHEM 127 and Grade of C or better in CHEM 128 and Grade of C or better in PHYS 216

Structures of metals, polymers, ceramics, and composites; structure-property relationships and their impact on material performance; defects and diffusion in materials; mechanical, thermal, electrical, magnetic, and optical properties of materials; fundamental structure–property–processing relationships; emphasis on phase diagrams, deformation mechanisms, and performance in engineering applications.

MEEN 225 Statics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in PHYS 216 and Grade of C or better in MATH 261 or concurrent registration

Application of the laws of classical mechanics to simplified, plausibly real-world problems or interest to mechanical engineering, including the equilibrium analysis of frames, trusses, beams, machines and mechanisms, internal forces; basics of stress analysis in axially loaded members and beams.

MEEN 260 Measurement and Instrumentation **2 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 211 and Grade of C or better in ELEN 215 or Concurrent enrolment

Introduction to the basic instrumentation and experimental methodology in mechanical engineering data acquisition and signal processing; introduction to various types of sensors, principles of operation, use, calibration, precision, and accuracy; statistical data analysis, and interpretation and reporting of results.

MEEN 263 Dynamics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 225 and Grade of C or better in MATH 261

Dynamics of particles, system of particles and rigid bodies, rectilinear and curvilinear kinematics, Newtonian mechanics, principles of work and energy, and impulse-momentum relationships, kinematic analyses and equations of motion for diverse mechanical systems, analytical and numerical solution of equations of motion using modern software, In-lecture demonstration simulation, and experimental studios to strengthen the understanding concept of mechanical dynamic systems.

MEEN 305 Mechanics of Materials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 223 and Grade of C or better in MEEN 225

Applications of stress and deformation relationships for deformable bodies and mechanical elements relevant to mechanical engineers; to include axially loaded members, stability of columns, torsional members and beams, combined loadings, and introduction to structural design.

MEEN 315 Engineering Thermodynamics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in CHEM 127 and Grade of C or better in MATH 162 and Grade of C or better in PHYS 216

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; phase behavior and equations of state, the second law of thermodynamics and entropy; gas, vapor and refrigeration cycles.

MEEN 344 Fluid Mechanics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 318 and Grade of C or better in MEEN 315

Application and the laws of statics, buoyancy, mass, momentum, and energy to the behavior of ideal and real fluids; conservation laws, laminar and turbulent flow in compressible and incompressible flows, Reynolds number, Moody diagram, dimensional analysis and similitude and their application to flow through ducts, pipe, and pumps; lift and drag, fundamental principles of boundary layers.

MEEN 345 Fluid Mechanics Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 260 and Grade of C or better in MEEN 344 or concurrent registration

Introduction to basic fluid mechanics instrumentation; experimental verification and reinforcement of the analytical concepts introduced in MEEN 344 .

MEEN 357 Computational Methods in Mechanical Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MATH 318

Practical foundations for the use of numerical methods to solve engineering problems: Review of Python programming; Taylor series, error estimation, numerical solution of non-linear algebraic equations, numerical solution of linear systems of equations and linear eigenvalue problems; numerical integration and differentiation; least-squares curve fitting and interpolation, numerical solution of ordinary differential equations (initial value and boundary value problems); finite difference methods for parabolic and elliptic partial differential equations; Introduction to the finite element method; Implementation and debugging of various numerical methods in Python codes.

MEEN 360 Manufacturing of Engineering Materials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 223

An extension of the fundamental understanding of the structure - property relationship of materials; microstructure production and control; manufacturing processes for producing various classes of engineering materials including machining and additive technologies, design considerations for materials and manufacturing processes selection.

MEEN 361 Manufacturing of Engineering Materials Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 210 and Grade of C or better in MEEN 260 and Grade of C or better in MEEN 360 or Concurrent registration

Experiments in materials characterization and manufacturing processes; emphasis on mechanical properties of materials; microstructure production and control; manufacturing processes for producing various shapes for components and structures for different classes of engineering materials.

MEEN 363 Mechanical Vibrations **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 263 and Grade of C or better in MATH 318 and Grade of C or better in MEEN 260 or concurrent registration

Free and forced vibration of single and multiple degree-of-freedom systems; distributed parameter systems; development and application of mathematical methods and computational tools for modeling, analysis, and design of vibrating systems; introduction to vibration testing experimental modal analysis; practical engineering applications.

MEEN 364 Dynamic Systems and Controls **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 363 and Grade of C or better in ELEN 215

Mathematical modeling and analysis of different types of dynamic systems; introduction to feedback control, time and frequency domain analysis of control systems, stability, PID control, root locus; design of computer-based controllers.

MEEN 365 Dynamic Systems and Controls Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 260 Grade of C or better in MEEN 364 or concurrent registration

Introduction to basic control systems instrumentation; experimental verification of control system concepts; implementation of computer-based controllers; data acquisition and analysis.

MEEN 368 Design of Mechanical Components and System I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 305

Design for stiffness and stability (Internal forces and deflections using singularity functions, Deflections of straight and curved members, statically indeterminate beams, buckling design of columns and frames); Design for strength (stress analysis in 3D, Strength design to avoid static failure, Strength design to avoid failure under variable loading); Design of mechanical components and assemblies (design for strength and stiffness concepts to mechanical components and assemblies, Analysis of shafts with gears using singularity functions, Analysis of tension-loaded bolted and welded joints).

MEEN 381 Seminar **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Major in mechanical engineering

Presentations by practicing engineers, professionals, and faculty members addressing effective communications, engineering practices, professional registration, ethics, career-long competence, contemporary issues, impact of technology on society and being informed; preparation of a resume, a lifelong learning plan, two papers, two oral presentations and complete an online assessment of the mechanical engineering program.

MEEN 391 Internship **0 Credits**
Grade Mode: Pass/Non Pass

Participation in an approved high-impact learning practice, such as engaging with industry, research entities, or startup companies.

MEEN 401 Senior Design Project I **3 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade C or better in MEEN 360 and Grade C or better in MEEN 361; Grade C or better in MEEN 364 and Grade C or better in MEEN 365 and Grade C or better in MEEN 368 and Grade C or better in MEEN 461 and Grade C or better in MEEN 464 or concurrent enrollment

The design innovation process; needs 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.

MEEN 402 Senior Design Project II **3 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 401

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.

MEEN 404 Design of Experiments for Engineering Applications **3 Credits**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 360 and Grade of C or better in MEEN 361; Grade of C or better in MEEN 364 and Grade of C or better in MEEN 368 and Grade of C or better in MEEN 461 or concurrent registration

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.

MEEN 421 Thermal-Fluids Analysis and Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 461

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.

MEEN 423 Machine Learning for Mechanical Engineers **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 357

Machine learning techniques with applications to the analysis and design of mechanical, fluid, thermal, material and multidisciplinary systems; linear and kernel support vector machines; neural networks; Bayesian techniques; decision trees and random forests; dimension reduction and model selection; data management and learner validation strategies; tools and application studies.

MEEN 433 Principles of Mechatronics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 364

Introduction to mechatronics; 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.

MEEN 435 Automation and Robotics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Senior Standing

Industrial robotics with a focus on applications. This includes kinematics and programming of industrial robots, robotic welding, robotic assembly, and other industrial applications. Computer vision for use in robotic systems is an important area. Industrial computer systems for the implementation of robotic manufacturing systems, and mechatronics. Automation for offshore applications with a focus on top-side automation for drilling platforms and control systems for subsea production systems for oil and gas.

MEEN 441 Design of Mechanical Components and Systems II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 368

Basics of finite element analysis of trusses and beams under static and dynamic loading; Review of failure theories due to static loading; Review of fatigue failure theories due to variable loading; Shaft design; Design of bolted joints; Design of welded joints; Gear design; Design of springs; Design of flexible mechanical elements (belts); Simulation studios using engineering software such as SAP2000, ANSYS and MSC/ADAMS.

MEEN 444 Finite Element Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 357 and Grade of C or better in MEEN 368

Physical FEM with applications to bars, trusses and beams; Mathematical FEM: Integral formulations and variational method; Second-order boundary value pbs in 1-D: Finite Element Models & Applications; Fourth-order boundary value pbs in 1-D: Beams and Frames; Dynamic eigenvalue problems of trusses and beams; Dynamic analysis of rotating rotors; Computer implementation of 1-D problems in Python (bars, trusses and beams); Aspects of finite element modeling of 1-D problems; Single-variable problems in 2-D (temperature distribution in a plate); Size optimization in structures using FEA; Theory and applications of finite element updating; Simulation studios using SAP2000, ANSYS and FEMTOOLS.

MEEN 453 Advanced Manufacturing Processes **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 360 and Grade of C or better in MEEN 361

Machining theory; traditional and non-traditional machining processes; CNC machines and tools; geometric dimensioning and tolerance (GD&T); additive manufacturing systems and processes; materials in additive manufacturing.

MEEN 460 Corrosion Engineering **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 360 and Grade of C or better in MEEN 361

Basic corrosion phenomena are described, identification of corrosion types and application of mixed potential theory, kinetics, and thermodynamics; methods for measuring corrosion rates and employing corrosion control strategies through design strategies, inhibitors, coatings and cathodic protection.

MEEN 461 Heat Transfer **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 344

Heat transfer by conduction, convection and radiation: steady and transient conduction, forced and natural convection, blackbody and gray body radiation; multi-mode heat transfer; boiling and condensation; heat exchangers.

MEEN 464 Heat Transfer Laboratory **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MEEN 345 and Grade of C or better in MEEN 461 or concurrent registration

Basic measurement techniques in conduction, convection, and radiation heat transfer; experimental verification of theoretical and semi-empirical results; uncertainty analysis.

MEEN 467 Mechanical Behavior of Materials **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 360 and Grade of C or better in MEEN 361

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.

MEEN 470 Principles of Energy Conversion **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 461

The Principles of Energy Conversion course introduces the fundamentals of thermodynamics, heat transfer, and fluid mechanics as applied to energy systems. It covers analyzing and optimizing conventional systems like fossil fuel engines and power cycles (Rankine, Brayton), renewable technologies (solar, wind, geothermal), and advanced systems such as fuel cells and thermoelectric generators. The course emphasizes computational modeling and the socio-economic impact of energy technologies, equipping students with tools to design and optimize modern energy solutions.

MEEN 472 Building Science, Technology, and HVAC Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 461

In this course, students will explore the fundamental principles of building science, including heat transfer, moisture control, and air movement, to design energy-efficient and sustainable buildings. Key topics include the integration of HVAC systems, indoor air quality, thermal insulation, the basic principles of building enclosure design, including the design of walls and roofs, and acoustics are examined. Case studies and hands-on projects will provide practical experience in developing solutions that optimize building performance for sustainability and occupant comfort.

MEEN 473 Advanced Natural Gas Engineering and Handling Equipment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Natural gas well production and deliverability fundamentals, process description and design aspects of gas processing facilities including inlet separation operations, flow assurance challenges including multiphase flow, hydrate prevention and control, gas dehydration, gas transmission and transportation systems, natural gas handling equipment with the aid of ANSYS and HYSYS.

MEEN 474 Sustainable Energy Technologies and Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit
Prerequisite(s):Grade of C or better in MEEN 461

This course will introduce students to the fundamentals of sustainable energy technologies, focusing on key renewable energy sources such as solar, wind, hydro, tidal, geothermal, biomass, CCUS, ammonia, and hydrogen. It will explore the principles, applications, and integration of these technologies into modern energy systems. Through lectures, case studies, and hands-on exercises, students will gain insights into the design, operation, and socio-economic implications of renewable energy solutions. Emphasis is placed on practical skills development and real-world applications, equipping students to contribute effectively to the global transition towards a more sustainable and resilient energy future studying the transition to a low-carbon economy.

MEEN 489 Selected Topics in Mechanical Engineering **1-3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Advanced or applied topics in mechanical engineering offered according to student's interest and availability of instructors and equipment. Lecture hours, laboratory, and/or computation period to be arranged.

Physics

PHYS 216 Newtonian Mechanics for Engineering and Science **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 161

Newtonian Mechanics for Engineering and Science, is the first semester of a two-semester sequence in introductory physics, intended to introduce students to the basic principles of Newtonian mechanics and harmonic motion. We will cover topics in mechanics, Newton's Laws, the concepts of energy and work, conservation of energy and momentum, rotational motion, gravity, harmonic motion and waves. The course is taught with lectures, recitations and in-class participation. The material is presented at a level that requires significant algebra and trigonometry, as well as some basic calculus.

PHYS 217 Electricity and Magnetism for Engineering and Science **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass
Prerequisite(s):Grade of C or better in MATH 162 and Grade of C or better in PHYS 216 and Grade of C or better in PHYS 226

Electricity and Magnetism for Engineering and Science is a continuation of the course on Mechanics, introduces concepts and laws by which electric, magnetic, and optical phenomena can be described and analyzed both quantitatively and qualitatively. This is an advanced physics course substantially based on calculus tackling electricity and magnetism; electromagnetic phenomena; basic laws of electricity and magnetism; science and engineering problems involving charges, electromagnetic fields, and electrical circuits. The course is taught with lectures, recitations and in-class participation.

PHYS 226 Experimental Physics and Engineering Laboratory I: Mechanics **1 Credit**
Grade Mode: Standard Letter
Prerequisite(s):Grade of C or better in MATH 161 and Grade C or better in PHYS 216 or Concurrent registration in PHYS 216

Newtonian Mechanics for Engineering and Science, is the first semester of a two-semester sequence in introductory physics, intended to introduce students to the basic principles of Newtonian mechanics and harmonic motion. We will cover topics in mechanics, Newton's Laws, the concepts of energy and work, conservation of energy and momentum, rotational motion, gravity, harmonic motion and waves. The course is taught with lectures, recitations and in-class participation. The material is presented at a level that requires significant algebra and trigonometry, as well as some basic calculus.

PHYS 227 Experimental Physics and Engineering Laboratory II: Electricity and Magnetism **1 Credit**
Grade Mode: Standard Letter, Pass/Non Pass
Prerequisite(s):Grade C or better in PHYS 217 or concurrent registration

This course focuses on the description and application of the laws of electromagnetism to the solution of science and engineering problems. During most bi-weekly projects, students are introduced to a variety of sensors and their basic calibration, and students will program the computer-based data-acquisition and control framework. Using sensing, control and actuation these lab projects target experimental verification of the physics concepts while solving direct engineering problems.

Sports and Entertainment

SPTE 590 Special Topics in Sport and Entertainment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates special topics pertinent to the sport and entertainment management industry, and specifically examines in detail the concept of mega-event sport tourism. It examines mega-event sport tourism from both the sport and entertainment and hospitality and tourism sectors; including managaement of the Olympic Games, theories that may explain willingness to support the Olympic Games as a sport tourism mega-event and impacts of sport tourism mega-events in a geopolitical arena.

SPTE 612 Sport Governance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to examine how sport organizations operate, emphasizing, however, on how sport organizations are expected to operate. This more normative approach is facilitated by references to principles of good governance, i.e., transparency, accountability, democracy and social responsibility. The student will learn about the main theoretical approaches underpinning governance, as well as the main governance challenges facing the sport sector, including the impact poor governance and lack of accountability can have on different types of sport organizations.

SPTE 640 Venue Management: Principles and Practices **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course examines the principles and practices associated with managing a public assembly venue (PAV) and the nature of the PAV business. The emphasis will be on assisting the student in understanding the concepts and related to this relatively new professional field. The course examines the types of issues that venue managers must consider, together with gaining some practice in applying concepts and principles to those issues.

SPTE 670 Special Topics in Global Sport **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates special topics pertinent to the sport and entertainment management industry, and specifically examines the critical role a of broadcasting in the economy of the sport and entertainment industry. The course explores the various models for broadcasting rights, the political economy of sport broadcasting, and its contemporary developments. The course addresses the complex interactions between competition at local, regional and transnational levels.

SPTE 701 Management in the Sport and Entertainment Industry **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines the concepts and principles of management and the role of management in the sport and entertainment industry. The course examines different management theories, management functions and leadership styles, while applying concepts and principles to current management issues in the sport and entertainment industry.

SPTE 736 Sport Event Entrepreneurship **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates the entrepreneurial process and relates this process to the creation of a sport/entertainment event. Students will identify, describe and utilize identifiable techniques to generate ideas, conduct feasibility analyses, identify and utilize the 4 Ps of marketing to outline and develop a business plan for a chosen sport/entertainment event.

SPTE 760 Principles of Sport and Entertainment Marketing **3 Credits**
Grade Mode: Standard Letter

This course examines the theoretical and practical aspects of sport and entertainment marketing including its dynamic nature and the importance of branding. It aims to provide an understanding of the importance of marketing and consumer behavior theory and fundamentals specific to the marketing of sport and entertainment. The course introduces students to marketing within the sport and entertainment industry, including the unique aspects of sport and entertainment as product, the sport and entertainment consumer market and the sport product market.

SPTE 777 Sport and Events Logistics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course brings together the strategic, planning, and operational roles of logistics when applied to sport and entertainment management. The aim is the gain knowledge on how to apply logistics models and methods for the optimal management of personnel, facilities and flows involved in sport and entertainment events.

SPTE 781 Seminar on the Olympic Games **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates special topics pertinent to the sport and entertainment management industry, and specifically examines in detail the concept of mega-event sport tourism. It examines mega-event sport tourism from both the sport and entertainment and hospitality and tourism sectors; including management of the Olympic Games, theories that may explain willingness to support the Olympic Games as a sport tourism mega-event and impacts of sport tourism mega-events in a geopolitical arena.

SPTE 790 Sport and Entertainment Finance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course examines the concepts and principles of financial management, and its application within the sport and entertainment context. The course provides an understanding of the financial information necessary to perform the usual duties and responsibilities associated with sport facilities, programs and organizations.

SPTE 798 Directed Study in Sport and Entertainment Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is a course that focuses on a special project/ study and/or research undertaken Directedly by the student. Students are expected to embark on a project and/or study focusing on a particular aspect of sport and entertainment management, and is related to his or her special interest. Students are expected to undertake a set of activities, as agreed upon, based on the topic under study.

SPTE 799 Thesis Preparation **1-6 Credits**
Grade Mode: Pass/Non Pass

Sustainability Studies

SENS 601 Research Methods and Ethics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course prepares students for performing graduate level research. It introduces students to quantitative and qualitative methods for critical exploration of research, locating and summarizing and critiquing relevant literature, developing a research problem, framing a problem with an appropriate research method, constructing a coherent research designs. Introduction to ethics and ethical misconduct, intellectual property and environmental health and safety. Through the course students will be developing a research proposal.

SENS 611 Sustainability Fundamentals and Tools **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course gives a general introduction to sustainability and how this concept evolved from the environmental movement of the post-World Water 2 era to the present. It outlines the major global issues that sustainability confronts, the major stakeholders involved and the barriers that prevent the wide scale application of sustainability principles. Students will be introduced to the main methods of quantifying sustainability, assessing the strengths and limitations of each method.

SENS 681 Integrated Sustainable Design for the Built Environment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Students gain principles of sustainable design, and implement, demonstrate and debate them for specific built-environment projects in teams.

SENS 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

The student formulates and undertakes an independent scientific research project under the supervision of their research adviser. A successful thesis defence leads to a Pass grade.

SENS 698 Industrial/Applied Project **6 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

The student formulates and undertakes an independent scientific research project under the supervision of their research adviser. A successful thesis defence leads to a Pass grade.

SENS 701 Research Seminars **0 Credits**
Grade Mode: Audit/Non Audit, Pass/Non Pass

Research seminars are a regular slot for invited speakers and students to present scientific research and be listen to Sustainability related topics outside their main research focus.

SENS 706 Independent Studies **3 Credits**
Grade Mode: Standard Letter, Pass/Non Pass

Independent studies offer an opportunity for students to perform independent research work in any area related to Sustainable Development under the supervision of a faculty member

SENS 712 Environmental Quality and Health **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course will provide an overview on the relationship between Environmental Quality and health and the link to economic growth and sustainable development. Case studies will demonstrate the importance of growth, expansion of urban population and their impact on land, and water resources quantity and quality. In addition the course will cover the risks, transport and toxicity mechanisms associated with Chemicals of Emerging Concern in daily life, industry, and drinking water.

SENS 714 Sustainability: Energy, Environment and Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an introduction to the interactions between energy, environment, economics and society, and how these impact sustainable development. The course will explore the influence of society through population growth, changing consumption rates and a desire to grow GDP on the extraction and utilization of energy sources and related environmental impacts. In particular the course will focus on the economic and social impacts of renewable energy development and environmental resource management.

SENS 715 Life Cycle Assessment - LCA **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The need for sustainable engineering is fueling the development of novel tools and techniques for studying the behavior of industrial systems and their relationship with the biosphere and society. Life Cycle Assessment (LCA) is an environmental modeling method that has become increasingly popular within business and academia for evaluating the environmental impacts of products or systems. LCA considers impacts along the entire life cycle, from production to consumption to disposal, and generally provides quantitative information for a range of different environmental issues to inform decisions. This course enables students to develop a practical understanding of the intellectual foundation and standards of LCA, common databases and software packages used, and their application to products and systems. Process-based analysis models, input-output and hybrid approaches are presented for LCA. This is a research based course and is suitable for students interested in researching in depth a particular topic.

SENS 716 Efficiency: Resource Use and Behavioural Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the various uses of energy and other resources in a variety of human activities, the relative magnitudes of resource consumption and waste and the technological, social and economic factors that impact energy and resource efficiency and conservation.

SENS 718 Sustainable Cities and Urban Mobility **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course offers a multidisciplinary exploration of sustainable urban development by integrating advanced energy systems and smart city frameworks with traditional urban planning and transportation studies. Students will analyze the interplay between urban design, mobility, and public health alongside topics such as energy and sustainability. Building on established smart city frameworks, the course incorporates a smart city matrix that assesses urban progress through seven sub-indexes—Smart Environment, Smart Economy, Smart Society, Smart Governance, Smart Energy, Smart Infrastructure, and Smart Transportation—allowing students to quantify a city's transition toward sustainability.

SENS 719 Energy Water Food (EWF) Nexus **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course investigates the nexus of energy, water and food (EWF) resources and the complex interaction with human behavior and natural systems, in addition to the inter-dependencies that exist between the EWF resources themselves. The social, technical and economic nature of these interdependencies is explored throughout the life cycle of various systems to determine optimal solutions for a sustainable future.

SENS 720 Additive Manufacturing for Sustainability **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on Additive Manufacturing and the relevant issues of materials, design, process, applications, modelling and simulation. It will introduce the fundamental concepts, its relevance, use and importance under the field of sustainability in terms of materials, time, space and resource efficiency; part, process and application flexibility; distributive, on-time and on-demand nature of production capability; and possible intertwining with other disciplines of materials science, design, industry, production, arts and architecture. Then, it will gain knowledge on various emerging types, approaches, applications of Additive Manufacturing in addition to materials, design, modelling and economics for it.

SENS 721 Advanced Materials Synthesis and Characterization **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an overview and hands on experience on processing and characterization techniques of advanced materials used in energy, water, and electronics applications. Both chemical and physical processes to synthesize and deposit materials in various scales including nanostructures, thin films and bulk are tackled. The course also provides basic training in advanced characterization technics such as AFM, SEM, XPS, TOF-SIMS, XRD, Raman and FTIR. In addition, advanced tools related to PV characterization (e.g. TRPL, PL mapping and micro PCD) will be as well introduced in-depth

SENS 722 Sustainable Chemical Industry - A Green Approach **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will introduce principles and practices of sustainable chemical process design to reduce industry's impact on the environment. Specific examples will cover the possibilities of running industrial chemical processes in a sustainable manner and provide an up-to-date insight into the main concerns for sustainable process optimization.

SENS 728 Electrochemistry and Environmental Corrosion **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed for graduate students who are interested in learning by doing in the area of applied electrochemistry and environmental corrosion. The course specifically focuses on how to make electrode and cells (e.g., battery). Also, the course extends to study corrosion behavior of metallic substrates under a given condition that develop in our living environment. Furthermore, the course teaches advanced techniques used to understand electrode reactions in particular corrosion processes and estimate important parameters, such as corrosion potential and corrosion rates.

SENS 729 Electrochemistry and Electrochemical Processing **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course is about introducing fundamentals and applications of electrochemisty in energy storage

SENS 762 Advanced Transport Phenomena **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will acquaint the student with important topics in advanced transport phenomena (momentum, heat and mass transport). Topics include laminar and turbulent flow, thermal conductivity and the energy equation, molecular mass transport and diffusion with heterogeneous and homogeneous chemical reactions. Focus will be to develop physical understanding of principles discussed and with emphasis on different field of engineering applications. In addition to the text, the student will be exposed to classic and current literature in the field. Two exams, homework assignments and a student project are required

SENS 780 Green Building: Design, Construction and Operation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

The built environment is a major source of environmental impact. This course teaches all major aspects of green building design, construction and operation with life cycle thinking in order to reduce these impacts. All green building categories are covered: location & transportation, sustainable sites, energy and atmosphere, water efficiency, materials & resources, and indoor environmental quality. The United States Green Building Council's LEED rating system is used to demonstrate one possible green rating system.

SENS 785 Innovation Entrepreneurship Leadership I **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course first provides introductory discussions on theories of design innovation, entrepreneurship and leadership. Then, it focuses on experiential learning for design and development of products, processes, systems and business models. Topics include design thinking, system thinking, design process; understanding and developing user/stakeholder needs/input for a sustainable solution; generating technical and marketing specifications; and prototyping methods to reduce development time.

SENS 786 Innovation Entrepreneurship Leadership II **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course first provides introductory discussions on theories of design innovation, entrepreneurship and leadership. Then, it focuses on experiential learning for design and development of products, processes, systems and business models. Topics include design thinking, system thinking, design process; understanding and developing user/stakeholder needs/input for a sustainable solution; generating technical and marketing specifications; and prototyping methods to reduce development time.

SENS 791 Geospatial Information Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is about introducing information system fundamentals for geospatial applications

SENS 890 Dissertation Hours **1-9 Credits**
Grade Mode: Pass/Non Pass

Original and independent doctoral thesis research. A successful defense of the thesis leads to the grade Pass

Sustainable Energy

SENR 615 Oil and Gas Geopolitics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on geopolitical aspects of the oil and gas industry starting with an introduction of history of oil and gas and the geopolitics. It provides a global understanding of sources of crude oil and natural gas; current statistics of oil and gas reserve and production; economic analysis and environmental impacts of the oil and gas industry; finance and current market share; the future of this fossil fuel industry versus sustainable energy resources.

SENR 724 Solid State Physics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course covers the physics concepts that describe the electrical, optical and thermal properties of materials and their energy related applications as well as some of the advanced techniques that are used to study these properties. Course topics include: (i) Perfect crystals and defects, (ii) electronic properties, (iii) Optical properties, (iv) thermal properties, (vi) Properties of Nanomaterials.

SENR 727 Science and Engineering of Thin Films and Interfaces **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

It introduces fundamentals of thin films and their appications in solar PV

SENR 740 Energy Resources, Generation, Science and Technology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

It introduces comparatively basic technology and economic aspects of various enenergy resource technologies

SENR 741 Oil and Gas Technology and Economics **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on various aspects of the oil and gas industry; the history of oil and gas and the geopolitics of the industry; sources of crude oil and natural gas; current statistics of oil and gas reserve and production; the process from extraction to consumer delivery (Well to Wheel); natural gas in Qatar; natural gas processing, transport, and storage; economic analysis and environmental impacts of the oil and gas industry; petroleum finance and current market share; the future of this fossil fuel industry versus sustainable energy resources.

SENR 742 The Life Cycle of Oil and Gas Fields **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on the life cycle of an oil and gas fields; specifically, the upstream component. It discusses the technical, theoretical and operational aspects for this component. Drilling technologies and operations, formation evaluations, well testing, and production strategies will be studied. Moreover, it focuses on the recovery mechanisms, enhanced oil recovery, reservoir simulation and management, the life cycle of a well and the abandonment process. Finally, it discusses the environmental effects for this component of the oil and gas industry and how it has decreased over the past decades.

SENR 743 Photovoltaic Solar Technology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course focuses on various aspects of the oil and gas industry; the history of oil and gas and the geopolitics of the industry; sources of crude oil and natural gas; current statistics of oil and gas reserve and production; the process from extraction to consumer delivery (Well to Wheel); natural gas in Qatar; natural gas processing, transport, and storage; economic analysis and environmental impacts of the oil and gas industry; petroleum finance and current market share; the future of this fossil fuel industry versus sustainable energy resources.

SENR 744 Renewable Energy Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course is about comparative discussions of renewavle ebergy systems

SENR 750 Energy Storage Devices and Systems **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides fundamental information about energy storage technologies, applications, and their integration with renewables. This course applies thermodynamic fundamentals to energy storage systems. Furthermore, environmental impacts of energy storage technologies are comparatively presented. The course covers most of the established energy storage technologies and their fundamentals. Energy storage methods considered include; mechanical, thermal, thermochemical, chemical, electrochemical, electromagnetic, biologic and emerging methods.

SENR 754 Smart Power Grids **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Smart Power Grids course will provide fundamental insights into century long energy studies that aims to match the demand with the supply, as well as a decade long re- search and development efforts in Smart Energy Grids to improve the energy efficiency, reliability, and environmental aspects of the power grids. More specifically, the course will provide a rich introduction to the new multi-disciplinary field of smart grids and it will cover variety of special topics including demand response, advanced metering networks, communication and sensing technologies, distributed energy generation and storage, electric vehicles, wide-area power system monitoring, energy markets, and cyber-security.

SENR 755 Micro-grids: Operation, Management and Planning **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

It is about applications of smart griod technologies for small scale applications

Sustainable Environment

SENV 713 Environmental Impact and Management Systems 3 Credits
Grade Mode: Standard Letter, Audit/Non Audit

This course will review the main sources of pollution and present the methods for assessing their environmental impacts. Impact and management systems will be explored in the context of both local and international environmental legislation; the phases of an EIA; how emission and discharge limits are set; dispersion modelling; risk prioritization; and life cycle analysis. Actual case studies from the process industries will be discussed.

SENV 745 Energy NanoTechnology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces an overview of nanomaterials used for energy production, storage and conservation. The course provides an overview of the synthesis and characterization techniques for nanomaterial used in energy applications such as fuel cells, energy harvesters and energy storage devices.

SENV 760 Air Quality and Climate Change **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces important aspects of air quality issues and its relevance to climate change

SENV 761 Atmospheric Chemistry and Climate Change **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an exploration of the chemical and physical processes occurring in the near-ground, troposphere and stratosphere including atmospheric composition, structure, transportation and the photochemically driven reactions. In turn students will gain an insight into the role of industrial emissions on smog, ozone depletion and climate change.

SENV 770 Desalination Technologies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an overview of water production in the Gulf Cooperation Council Countries (GCC) through Desalination Processes. The course will explore various technologies including thermal and membrane systems as well as power-cogeneration

SENV 772 Water and Wastewater Treatment **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to important physiochemical and biological processes in wastewater treatment and the sustainable developments that are occurring in this field. Topics include priority contaminants, water discharge standards and design of suitable treatment processes with a focus on biological treatment of municipal wastewater.

SENV 773 Water Resources Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the water cycle with a particular focus on hydrology, water conservation, system efficiency, and issues of public health. A range of engineering and social science topics related to water use and management are covered.

SENV 774 Water Treatment and Reuse **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The course develops graduate level concepts for the examination of drinking water quality and discussion of state of the art technologies for treating drinking water. Case studies will be introduced highlighting the inadequacy or susceptibility to failure of existing drinking water infrastructure to provide students with understanding of what challenges may come across in their professional practice, and how to avoid similar situations in future.

SENV 776 Solid and Hazardous Waste Management **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course introduces students to the characterisation, separation, handling and disposal of various wastes from a variety of municipal, construction and industrial sources and explores management and societal issues, treatment/control technologies and resource recovery methods. Methods to eliminate, recover, recycle and re-use wastes are a major focus for this course

SENV 778 Principles of Hydrogeology **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to the fundamentals of hydrogeology and groundwater science. It covers the physical properties of the aquifers, groundwater flow, well hydraulics and groundwater developments, with emphasis on Qatar as a case study. The course also covers basics of groundwater modelling, protection and management.

Engineering Management and Decision Sciences

Programs

- Logistics and Supply Chain Management, Master of Science (p. 102)
- Logistics and Supply Chain Management, PhD (p. 105)
- Mechanical Engineering, Bachelor of Science (p. 103)
- Sport and Entertainment Management, Master of Science (p. 105)

Logistics and Supply Chain Management, Master of Science

The Master of Science (MS) and Doctor of Philosophy (PhD) programs in Logistics and Supply Chain Management (LSCM) offer innovative multidisciplinary curricula featuring a unique learning and research experience for students. During the course of their academic studies at CSE's Division of Engineering Management and Decision Sciences, students will develop essential skills and a knowledge of engineering, management, and decision-making processes.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-logistics-supply-chain-management/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
LSCM 601	Research Ethics and Methods	3
LSCM 607	Optimization Models and Methods	3
LSCM 611	Supply Chain Management	3
Subtotal		9
Elective Courses		
Select five of the following:		15
Free elective: Students can take one course from any HBKU program		
LSCM 617	Production and Operations Management	
LSCM 621	Project Management in Logistics	
LSCM 627	Simulation Optimization Methods	
LSCM 631	Port Management and Maritime Logistics	
LSCM 641	Facility and Transportation Management	
LSCM 643	Data Analytics for Supply Chain Optimization	
LSCM 644	Transportation Analytics	
LSCM 671	Principles of Reinforcement Learning for Engineering Management	
LSCM 706	Independent studies	
LSCM 711	Supply Chain Modeling and Optimization	
LSCM 721	Advanced Topics in Supply Chain Management	
LSCM 731	Industry 4.0 in Manufacturing and Supply Chain	
LSCM 741	Machine Learning for Supply Chain Management	
LSCM 742	Cutting-Edge Techniques in Prescriptive Analytics	
LSCM 743	Stochastic Modelling and Optimization	
SPTE 777	Sport and Events Logistics	
Subtotal		15
Seminar		
Must pass once		
LSCM 701	Research Seminar	0
Subtotal		0
Thesis or Project		
Select one of the following:		
LSCM 690	Applied Project (+ One elective from list above)	
LSCM 695	Master's Thesis Hours	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year

First Semester		**Hours**
LSCM 601	Research Ethics and Methods	3
LSCM 607	Optimization Models and Methods	3
LSCM 611	Supply Chain Management	3
LSCM 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**

Second Year

First Semester		
Elective 4		3
Elective 5		3
Elective 6		3
	Semester Hours	**9**
Second Semester		
LSCM 690	Applied Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
LSCM 601	Research Ethics and Methods	3
LSCM 607	Optimization Models and Methods	3
LSCM 611	Supply Chain Management	3
LSCM 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
LSCM 695	Master's Thesis Hours	3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Semester		
LSCM 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Mechanical Engineering, Bachelor of Science

The Mechanical Engineering program at Hamad Bin Khalifa University (HBKU) offers a comprehensive approach that blends theoretical foundations with practical applications. This approach equips students to tackle contemporary challenges in areas such as mechanics, thermodynamics, materials science, and manufacturing processes.

With an emphasis on collaborative education, training, research, and capacity-building, the program aims to prepare adaptable engineers, capable of meeting society's evolving needs and embracing leadership, social consciousness, integrity, and ethics.

Requirements

Minimum hours required to complete program 129 CH

Code	Title	Hours
Core Courses		
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
ELEN 215	Principles of Electrical Engineering	3
ENGL 114	Composition and Rhetoric	3
ENGL 220	Technical Writing	3
ENGR 110	Introduction to Programming	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
ENGR 482	Engineering Ethics	3
MATH 161	Engineering Mathematics I	4
MATH 162	Engineering Mathematics II	4
MATH 261	Engineering Mathematics III	3
MATH 318	Differential Equations	3
MEEN 210	Computer Aided Design	2
MEEN 223	Principles of Engineering Materials	3
MEEN 225	Statics	3
MEEN 260	Measurement and Instrumentation	2
MEEN 263	Dynamics	3
MEEN 305	Mechanics of Materials	3
MEEN 315	Engineering Thermodynamics	3
MEEN 344	Fluid Mechanics	3
MEEN 345	Fluid Mechanics Laboratory	1
MEEN 357	Computational Methods in Mechanical Engineering	3
MEEN 360	Manufacturing of Engineering Materials	3
MEEN 361	Manufacturing of Engineering Materials Laboratory	1
MEEN 363	Mechanical Vibrations	3
MEEN 364	Dynamic Systems and Controls	3
MEEN 365	Dynamic Systems and Controls Laboratory	1
MEEN 368	Design of Mechanical Components and System I	3
MEEN 381	Seminar	1
MEEN 391	Internship	0
MEEN 401	Senior Design Project I	3
MEEN 402	Senior Design Project II	3
MEEN 404	Design of Experiments for Engineering Applications	3
MEEN 461	Heat Transfer	3
MEEN 464	Heat Transfer Laboratory	1
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
Subtotal		96
MATH 211	Principles of Statistics	3
Technical Area Electives		**12**
Student must take at least two courses from their chosen concentration (i.e., depth requirement) and at least one course from another technical area (i.e., breadth requirement)		
MEEN 489	Selected Topics in Mechanical Engineering	
Technical Area 1 - Thermofluids and Energy		
MEEN 421	Thermal-Fluids Analysis and Design	
MEEN 470	Principles of Energy Conversion	
MEEN 472	Building Science, Technology, and HVAC Systems	
MEEN 474	Sustainable Energy Technologies and Systems	
Technical Area 2 - Design, Materials, and Manufacturing		
MEEN 444	Finite Element Analysis	
MEEN 453	Advanced Manufacturing Processes	
MEEN 460	Corrosion Engineering	
MEEN 467	Mechanical Behavior of Materials	
Technical Area 3 - Data Science and Applications for Mechanical Engineers		
MEEN 423	Machine Learning for Mechanical Engineers	
MEEN 433	Principles of Mechatronics	
MEEN 435	Automation and Robotics	
Subtotal		15
University Core Curriculum Areas		**18**
Student must take required credits from each area		

Area 1: Identity and Communication (6 credits)		
ARAB 150	Arabic for Professional Communication	
ISLM 105	Scriptural Ethics	
ENGR 125	AI Literacy and Critical Thinking	
COMM 110	Language, Identity, and Communication in Qatar	
COMM 115	Language and Islamic Identities	
Area 4: Social and Behavioral Sciences (3 credits)		
PSYC 101	Introduction to Psychology	
HELT 115	Health and Wellness in Modern Society	
SOCI 101	Introduction to Sociology	
ECON 110	Economic Principles	
POLS 135	International Relations of the Gulf	
POLS 136	Perspectives in Gulf Studies	
POLS 137	Policy Analysis, Design and Implementation	
POLS 140	Global Grand Challenges	
SOCI 105	AI and Society	
SOCI 115	Comparative Theories and Methods	
LAW 103	Law and Technology	
Area 5A: Humanities (3 credits)		
ARAB 152	Arabic Linguistics	
HIST 107	World History	
HUMN 111	Data Methods for Digital Humanities	
ISLM 106	Philosophy, Theology, and Ethics	
FIN 101	Ethical Finance	
HUMN 116	Beyond Oil, Gucci, and Karak	
Area 5B: Creative Expression (3 credits)		
HUMN 113	Art and Visual Culture	
HUMN 114	Cinema and Musical Culture in the Arab World	
HUMN 105	Global Cinema	
ENGL 115	Creative and Digital Writing	
ISLM 117	Islamic Art and Architecture	
LITR 110	World Literature and the Modern World	
Area 6: Leadership and Civic Engagement (3 credits)		
HUMN 110	Moral Reasoning and Decision-Making	
SOCI 111	Community Service and Engagement	
SOCI 117	Technology, Innovation, and Society	
SOCI 137	Global Citizenship and Social Responsibility	
SOCI 140	Global Citizenship through Environmental Humanities	
SOCI 142	Impactful Leadership and Social Innovation for a Sustainable Future	
Subtotal		18
Total Hours		**129**

Freshman

First Semester		**Hours**
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
MATH 161	Engineering Mathematics I	4
ENGR 110	Introduction to Programming	3
ENGL 114	Composition and Rhetoric	3
Univ. Core Elective		3
	Semester Hours	**17**
Second Semester		
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
MATH 162	Engineering Mathematics II	4
MEEN 210	Computer Aided Design	2
ENGL 220	Technical Writing	3
Univ. Core Elective		3
	Semester Hours	**16**

Sophomore

First Semester		
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
MATH 211	Principles of Statistics	3
MATH 261	Engineering Mathematics III	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
MEEN 225	Statics	3
MEEN 223	Principles of Engineering Materials	3
	Semester Hours	**17**
Second Semester		
ELEN 215	Principles of Electrical Engineering	3
MATH 318	Differential Equations	3
MEEN 260	Measurement and Instrumentation	2
MEEN 263	Dynamics	3
MEEN 315	Engineering Thermodynamics	3
Univ. Core Elective		3
	Semester Hours	**17**

Junior

First Semester		
MEEN 305	Mechanics of Materials	3
MEEN 344	Fluid Mechanics	3
MEEN 345	Fluid Mechanics Laboratory	1
MEEN 360	Manufacturing of Engineering Materials	3
MEEN 361	Manufacturing of Engineering Materials Laboratory	1
MEEN 363	Mechanical Vibrations	3
Univ. Core Elective		3
	Semester Hours	**17**
Second Semester		
MEEN 357	Computational Methods in Mechanical Engineering	3
MEEN 364	Dynamic Systems and Controls	3
MEEN 365	Dynamic Systems and Controls Laboratory	1
MEEN 368	Design of Mechanical Components and System I	3
MEEN 381	Seminar	1
MEEN 461	Heat Transfer	3
MEEN 464	Heat Transfer Laboratory	1
	Semester Hours	**15**
Third Semester		
MEEN 391	Internship	0
	Semester Hours	**0**

Senior

First Semester		
MEEN 401	Senior Design Project I	3
MEEN 404	Design of Experiments for Engineering Applications	3
ENGR 482	Engineering Ethics	3
Technical Area Elective		3
Technical Area Elective		3
	Semester Hours	**15**
Second Semester		
MEEN 402	Senior Design Project II	3
Technical Area Elective		3
Technical Area Elective		3
Univ. Core Elective		3

Univ. Core Elective	3
Semester Hours	**15**
Total Hours	**129**

Logistics and Supply Chain Management, PhD

The Doctor of Philosophy (PhD) in Logistics and Supply Chain Management (LSCM) offers innovative multidisciplinary curricula featuring a unique learning and research experience for students. During the course of their academic studies at CSE's Division of Engineering Management and Decision Sciences, students will develop essential skills and a knowledge of engineering, management, and decision-making processes.

For more information, click here (https://www.hbku.edu.qa/en/cse/phd-logistics-supply-chain-management/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
LSCM 601	Research Ethics and Methods	3
LSCM 611	Supply Chain Management	3
LSCM 742	Cutting-Edge Techniques in Prescriptive Analytics	3
Subtotal		9
Elective Courses		
Select three of the following:		9
Free elective: Students can take one course from any HBKU Program		
LSCM 617	Production and Operations Management	
LSCM 621	Project Management in Logistics	
LSCM 627	Simulation Optimization Methods	
LSCM 631	Port Management and Maritime Logistics	
LSCM 641	Facility and Transportation Management	
LSCM 643	Data Analytics for Supply Chain Optimization	
LSCM 644	Transportation Analytics	
LSCM 671	Principles of Reinforcement Learning for Engineering Management	
LSCM 706	Independent studies	
LSCM 711	Supply Chain Modeling and Optimization	
LSCM 721	Advanced Topics in Supply Chain Management	
LSCM 743	Stochastic Modelling and Optimization	
SPTE 777	Sport and Events Logistics	
LSCM 731	Industry 4.0 in Manufacturing and Supply Chain	3
LSCM 741	Machine Learning for Supply Chain Management	3
Subtotal		15
Seminar		
Must pass twice		
LSCM 701	Research Seminar	0
Subtotal		0
Dissertation		
LSCM 890	Dissertation Hours	0-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
Total Hours		**60**

Study Plan

First Year		
First Semester		**Hours**
LSCM 601	Research Ethics and Methods	3
LSCM 607	Optimization Models and Methods	3
LSCM 611	Supply Chain Management	3
LSCM 701	Research Seminar	0
	Semester Hours	**9**
Second Semester		
LSCM 701	Research Seminar	0
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
LSCM 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LSCM 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
LSCM 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
LSCM 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
LSCM 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Sport and Entertainment Management, Master of Science

The Master of Science in Sport and Entertainment Management (MSEM) is offered by Hamad Bin Khalifa University's College of Science and Engineering (CSE), working toward a joint degree with the University of South Carolina (USC). Identified as the first master's degree in sports and entertainment management in Qatar and one of a few in the MENA region, the program trains and prepares students for management and leadership roles in the sports and entertainment industries. In 2018, USC's MSEM program was ranked number 6 worldwide by Sport Business International.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-sport-entertainment-management/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
HRSM 700	Quantitative Methods in Hospitality, Retail, and Sport Management	3
HRSM 788	Business Analytics in Hospitality, Retail and Sport Management	3
LAW 760	Sports Law	3
SPTE 640	Venue Management: Principles and Practices	3
SPTE 701	Management in the Sport and Entertainment Industry	3
SPTE 760	Principles of Sport and Entertainment Marketing	3
SPTE 790	Sport and Entertainment Finance	3
Subtotal		21
Elective Courses		
Select three of the following:		9
Optional: students may take electives from outside of Sport and Entertainment Management		
HRSM 650	Field Project in Hospitality, Retail and Sport Management	
SPTE 590	Special Topics in Sport and Entertainment	
SPTE 612	Sport Governance	
SPTE 670	Special Topics in Global Sport	
SPTE 736	Sport Event Entrepreneurship	
SPTE 777	Sport and Events Logistics	
SPTE 781	Seminar on the Olympic Games	
SPTE 798	Directed Study in Sport and Entertainment Management	
Subtotal		9
Thesis or Two Electives		
Select one of the following:		6
SPTE 799	Thesis Preparation	
Or		
Elective 4		
Elective 5		
Subtotal		6
Non-Course Requirements		
699	Thesis Defense	0
Subtotal		0
Total Hours		**36**

Study Plan

Course Track

First Year		
First Semester		**Hours**
SPTE 640	Venue Management: Principles and Practices	3
SPTE 701	Management in the Sport and Entertainment Industry	3
Elective 1		3
	Semester Hours	**9**
Second Semester		
HRSM 788	Business Analytics in Hospitality, Retail and Sport Management	3
SPTE 760	Principles of Sport and Entertainment Marketing	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
LAW 760	Sports Law	3
HRSM 700	Quantitative Methods in Hospitality, Retail, and Sport Management	3
Elective 3		3
	Semester Hours	**9**
Second Semester		
SPTE 790	Sport and Entertainment Finance	3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
	Total Hours	**36**

Thesis

First Year		
First Semester		**Hours**
SPTE 640	Venue Management: Principles and Practices	3
SPTE 701	Management in the Sport and Entertainment Industry	3
Elective 1		3
	Semester Hours	**9**
Second Semester		
HRSM 788	Business Analytics in Hospitality, Retail and Sport Management	3
SPTE 760	Principles of Sport and Entertainment Marketing	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
LAW 760	Sports Law	3
HRSM 700	Quantitative Methods in Hospitality, Retail, and Sport Management	3
SPTE 799	Thesis Preparation	3
	Semester Hours	**9**
Second Semester		
SPTE 790	Sport and Entertainment Finance	3
SPTE 799	Thesis Preparation	3
Elective 3		3
	Semester Hours	**9**
	Total Hours	**36**

Information and Computing Technology

Programs

- Computer Engineering, Bachelor of Science (p. 106)
- Computer Science and Engineering, PhD (p. 108)
- Cybersecurity, Master of Science (p. 111)
- Data Science and Engineering, Master of Science (p. 112)
- Electrical Engineering,Bachelor of Science (p. 109)
- Health Management, Master of Data Analytics (p. 113)
- Health Management, Master of Information Systems (p. 114)

Computer Engineering, Bachelor of Science

The aim of HBKU's Bachelor of Science in Computer Engineering program is to produce globally competitive computer engineering professionals for Qatar, the region, and the wider world.

The program is built on HBKU's unique model of developing interdisciplinary programs that draw on the expert knowledge of its partner institutions alongside its own faculty. This means that students are able to take courses provided by Texas A&M University at Qatar and

Carnegie Mellon University in Qatar in addition to the comprehensive range of course offerings from HBKU.

For more information, click here (https://www.hbku.edu.qa/en/cse/bs-computer-engineering/).

Requirements

Minimum hours required to complete program 128 CH

Code	Title	Hours
Core Courses		
CPEN 111	Introduction to Computer Engineering	3
CPEN 127	Concepts of Mathematics	3
CPEN 151	Fundamentals of Programming and Computer Science	4
CPEN 152	Principles of Imperative Computing	3
CPEN 213	Introduction to Computer Systems	4
CPEN 217	Probability Theory and Random Processes	3
CPEN 300	Embedded System Design	3
CPEN 330	Data Structures	3
CPEN 344	Digital Signal Processing	4
CPEN 391	Internship	0
CPEN 410	Senior Design Project I	4
CPEN 411	Senior Design Project II	4
ENGR 110	Introduction to Programming	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
ENGR 482	Engineering Ethics	3
ELEN 214	Electrical Circuit Theory	4
ELEN 248	Digital Systems Design	4
ELEN 314	Signals and Systems	3
ELEN 325	Electronics	4
ELEN 350	Computer Architecture and Design	4
ENGL 114	Composition and Rhetoric	3
ENGL 220	Technical Writing	3
MATH 161	Engineering Mathematics I	4
MATH 162	Engineering Mathematics II	4
MATH 261	Engineering Mathematics III	3
MATH 318	Differential Equations	3
MATH 321	Topics in Applied Mathematics	3
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
Subtotal		95
University Core Curriculum Areas		**18**
Student must take required credits from each area		
Area 1: Identity and Communication (6 credits)		
ARAB 150	Arabic for Professional Communication	
ISLM 105	Scriptural Ethics	
COMM 110	Language, Identity, and Communication in Qatar	
COMM 115	Language and Islamic Identities	
Area 4: Social and Behavioral Sciences (3 Credits)		
PSYC 101	Introduction to Psychology	
HELT 115	Health and Wellness in Modern Society	
SOCI 101	Introduction to Sociology	
ECON 110	Economic Principles	
POLS 135	International Relations of the Gulf	
POLS 136	Perspectives in Gulf Studies	
POLS 137	Policy Analysis, Design and Implementation	
POLS 140	Global Grand Challenges	
SOCI 105	AI and Society	
SOCI 115	Comparative Theories and Methods	
LAW 103	Law and Technology	
Area 5A: Humanities (3 Credits)		
ARAB 152	Arabic Linguistics	
HIST 107	World History	
HUMN 111	Data Methods for Digital Humanities	
ISLM 106	Philosophy, Theology, and Ethics	
FIN 101	Ethical Finance	
HUMN 116	Beyond Oil, Gucci, and Karak	
Area 5B: Creative Expression (3 credits)		
ENGL 115	Creative and Digital Writing	
HUMN 105	Global Cinema	
HUMN 113	Art and Visual Culture	
HUMN 114	Cinema and Musical Culture in the Arab World	
ISLM 117	Islamic Art and Architecture	
LITR 110	World Literature and the Modern World	
Area 6: Leadership and Civic Engagement (3 Credits)		
HUMN 110	Moral Reasoning and Decision-Making	
SOCI 111	Community Service and Engagement	
SOCI 117	Technology, Innovation, and Society	
SOCI 137	Global Citizenship and Social Responsibility	
SOCI 140	Global Citizenship through Environmental Humanities	
SOCI 142	Impactful Leadership and Social Innovation for a Sustainable Future	
Engineering Electives		
Select five of the following:		15
CPEN 418	Introduction to Scientific Visualization	
CPEN 453	ICT Accessibility	
CPEN 460	Computer Networks	
CPEN 462	Cybersecurity Fundamentals	
CPEN 464	Introduction to Machine Learning	
ELEN 420	Linear Control Systems	
ELEN 429	Machine Learning for Signal Processing	
ELEN 438	Power Electronics	
ELEN 449	Microprocessor Systems Design	
ELEN 446	VLSI Design	
ELEN 455	Digital Communications	
ELEN 489	Selected Topics in Electrical Engineering	
Subtotal		33
Total Hours		**128**

Study Plan

Freshman		
First Semester		**Hours**
ENGR 110	Introduction to Programming	3
MATH 161	Engineering Mathematics I	4
CPEN 111	Introduction to Computer Engineering	3
ENGL 114	Composition and Rhetoric	3
UCC : Univ. Core Elective		3
	Semester Hours	**16**
Second Semester		
CPEN 127	Concepts of Mathematics	3
MATH 162	Engineering Mathematics II	4
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
UCC: Univ. Core Elective		3
	Semester Hours	**14**
Sophomore		
First Semester		
CPEN 151	Fundamentals of Programming and Computer Science	4
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
MATH 261	Engineering Mathematics III	3
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
ELEN 248	Digital Systems Design	4
	Semester Hours	**16**
Second Semester		
CPEN 152	Principles of Imperative Computing	3
MATH 321	Topics in Applied Mathematics	3
MATH 318	Differential Equations	3
ELEN 214	Electrical Circuit Theory	4
UCC: Univ. Core Elective		3
	Semester Hours	**16**
Junior		
First Semester		
ELEN 314	Signals and Systems	3
ELEN 325	Electronics	4
ENGL 220	Technical Writing	3
CPEN 213	Introduction to Computer Systems	4
CPEN 217	Probability Theory and Random Processes	3
	Semester Hours	**17**
Second Semester		
CPEN 300	Embedded System Design	3
CPEN 330	Data Structures	3
CPEN 344	Digital Signal Processing	4
ELEN 350	Computer Architecture and Design	4
UCC: Univ. Core Elective		3
	Semester Hours	**17**
Third Semester		
CPEN 391	Internship	0
	Semester Hours	**0**
Senior		
First Semester		
CPEN 410	Senior Design Project I	4
ENGR 482	Engineering Ethics	3
TA : Technical Area Elective		3
TA : Technical Area Elective		3
TA : Technical Area Elective		3
	Semester Hours	**16**
Second Semester		
CPEN 411	Senior Design Project II	4
TA : Technical Area Elective		3
TA : Technical Area Elective		3
UCC: Univ. Core Elective		3
UCC: Univ. Core Elective		3
	Semester Hours	**16**
	Total Hours	**128**

Computer Science and Engineering, PhD

CSE's PhD program in Computer Science and Engineering provides students with a solid, fundamental and advanced education, as well as strong research experience and a broad understanding of aspects related to computer science and engineering that will translate into exciting, challenging, and well-compensated job opportunities in this high-demand field.

For more information, click here (https://www.hbku.edu.qa/en/cse/phd-computer-science-engineering/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
ICT 601	Research Methods and Ethics	3
ICT 705	Applied Data Analytics	3
CSEG 710	Advanced Algorithms and Data Structures	3
or CSEG 780	Principles of Computer System Design	
Subtotal		9
Elective Courses		
Select three of the following:		9
Free elective: Students can take one course from any HBKU program		
CSE 602	Statistics for Science and Engineering	
CYSE 610	Applied Cryptography	
CYSE 630	Computer and Network Security	
CYSE 640	Security Risk Analysis	
CYSE 720	Data Privacy	
CYSE 727	Wireless Networks & Security	
CYSE 728	Distributed Systems Security	
CYSE 729	Multimedia Security	
CYSE 744	Network Forensics	
CYSE 745	Computational Forensics	
DSEG 660	Applied Deep Learning	
DSEG 682	Special Topics in Data Science and Engineering	
DSEG 733	Advanced Data Management System	
DSEG 735	Learning from Data	
DSEG 760	Machine Learning	
ICT 615	AI for Social Media and Multimedia Applications	
ICT 621	Visual Computing	
ICT 717	Computer Vision	
CYSE 730	Hardware Security	
ICT 632	Advanced Applications of the Web and Internet	
ICT 660	Principles of Health Informatics	

ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 668	Medical Image Processing	
ICT 670	Information Technology Project Management	
ICT 671	Information Systems Management	
ICT 675	Healthcare Information Systems	
ICT 676	Information Systems Analysis and Design	
ICT 690	Special Topics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 720	Cloud Computing	
ICT 718	GenAI - Generative AI Foundations	
ICT 725	Quantum Computing	
ICT 726	Quantum Machine Learning	
ICT 730	System Performance Modelling and Analysis	
ICT 736	Interactive Design for Health care	
Subtotal		9
Seminar		
Must pass twice		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Dissertation		
ICT 890	Dissertation Hours	0-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
Total Hours		**60**

Study Plan

First Year		
First Semester		**Hours**
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
ICT 705	Applied Data Analytics	3
Elective 1		3
	Semester Hours	**9**
Second Semester		
CSEG 710 or CSEG 780	Advanced Algorithms and Data Structures or Principles of Computer System Design	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
ICT 701	Graduate Research Seminars	0
ICT 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
ICT 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
ICT 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
ICT 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
ICT 890	Dissertation Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Electrical Engineering,Bachelor of Science

The Electrical Engineering program at Hamad Bin Khalifa University (HBKU) offers a comprehensive approach that blends theoretical foundations with practical applications. This approach equips students to tackle contemporary challenges in areas such as information, communication, computing, power, and electrical systems.

With an emphasis on collaborative education, training, research, and capacity-building, the program aims to prepare adaptable engineers, capable of meeting society's evolving needs and embracing leadership, social consciousness, integrity, and ethics.

Requirements

Minimum hours required to complete program 128 CH

Code	Title	Hours
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
ELEN 209	Computer Programming and Algorithms	4
ELEN 214	Electrical Circuit Theory	4
ELEN 248	Digital Systems Design	4
ELEN 250	Machine Learning for Electrical Engineering	3
ELEN 303	Random Signals and Systems	3
ELEN 314	Signals and Systems	3
ELEN 322	Electric and Magnetic Fields	3
ELEN 325	Electronics	4
ELEN 335	Measurements and Instrumentation	4
ELEN 340	Electric Energy Conversion	4
ELEN 349	Microprocessors and Embedded Systems	4
ELEN 350	Computer Architecture and Design	4
ELEN 370	Physical Properties of Materials	3
ELEN 391	Internship	0
ELEN 403	Senior Design Project I	3
ELEN 404	Senior Design Project II	3
ENGL 114	Composition and Rhetoric	3
ENGL 220	Technical Writing	3
ENGR 110	Introduction to Programming	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
ENGR 482	Engineering Ethics	3
MATH 161	Engineering Mathematics I	4
MATH 162	Engineering Mathematics II	4
MATH 261	Engineering Mathematics III	3
MATH 318	Differential Equations	3
MATH 321	Topics in Applied Mathematics	3
PHYS 216	Newtonian Mechanics for Engineering and Science	3

PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
Subtotal		95
Technical Area Electives		*15*
Student must take at least two courses from their chosen concentration (i.e., depth requirement) and at least one course from each of the other technical areas (i.e. , breadth requirement)		
ELEN 489	Selected Topics in Electrical Engineering	
Technical Area 1 - Power and Energy Systems		
ELEN 410	Automatic Control Systems	
ELEN 412	Power Electronics	
ELEN 414	Electric Power Systems	
ELEN 416	Electric Machines and Drives	
ELEN 418	Renewable Electric Power Systems	
Technical Area 2 - Communications and signal Processing		
ELEN 430	Digital Signal Processing	
ELEN 432	Wireless Communications	
ELEN 434	Radar and Remote Sensing	
ELEN 436	Image Processing	
ELEN 455	Digital Communications	
Technical Area 3 - Embedded and Intelligent Computing Systems		
ELEN 440	Principles of Artificial Intelligence	
ELEN 442	Deep Learning for Robotics	
ELEN 446	VLSI Design	
ELEN 448	CMOS Digital Circuit Design	
University Core Curriculum Areas		*18*
Student must take required credits from each area		
Area 1: Identity and Communication (6 credits)		
ARAB 150	Arabic for Professional Communication	
COMM 110	Language, Identity, and Communication in Qatar	
COMM 115	Language and Islamic Identities	
ISLM 105	Scriptural Ethics	
Area 4: Social and Behavioral Sciences (3 credits)		
PSYC 101	Introduction to Psychology	
HELT 115	Health and Wellness in Modern Society	
ECON 110	Economic Principles	
POLS 135	International Relations of the Gulf	
POLS 136	Perspectives in Gulf Studies	
POLS 137	Policy Analysis, Design and Implementation	
POLS 140	Global Grand Challenges	
SOCI 101	Introduction to Sociology	
SOCI 105	AI and Society	
SOCI 115	Comparative Theories and Methods	
LAW 103	Law and Technology	
Area 5A: Humanities (3 credits)		
ARAB 152	Arabic Linguistics	
HIST 107	World History	
HUMN 111	Data Methods for Digital Humanities	
ISLM 106	Philosophy, Theology, and Ethics	
FIN 101	Ethical Finance	
HUMN 116	Beyond Oil, Gucci, and Karak	
Area 5B: Creative Expression (3 credits)		
HUMN 105	Global Cinema	
HUMN 113	Art and Visual Culture	
HUMN 114	Cinema and Musical Culture in the Arab World	
ENGL 115	Creative and Digital Writing	
ISLM 117	Islamic Art and Architecture	
LITR 110	World Literature and the Modern World	
Area 6: Leadership and Civic Engagement (3 Credits)		
HUMN 110	Moral Reasoning and Decision-Making	
SOCI 111	Community Service and Engagement	
SOCI 117	Technology, Innovation, and Society	
SOCI 137	Global Citizenship and Social Responsibility	
SOCI 140	Global Citizenship through Environmental Humanities	
SOCI 142	Impactful Leadership and Social Innovation for a Sustainable Future	
Total Hours		**128**

Freshman

First Semester		**Hours**
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
MATH 161	Engineering Mathematics I	4
ENGR 110	Introduction to Programming	3
ENGL 114	Composition and Rhetoric	3
UCC	Univ. Core Elective	3
	Semester Hours	**17**
Second Semester		
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
MATH 162	Engineering Mathematics II	4
ENGL 220	Technical Writing	3
UCC	Univ. Core Elective	3
	Semester Hours	**14**

Sophomore

First Semester		
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
MATH 261	Engineering Mathematics III	3
ELEN 209	Computer Programming and Algorithms	4
ELEN 248	Digital Systems Design	4
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
	Semester Hours	**16**
Second Semester		
MATH 318	Differential Equations	3
MATH 321	Topics in Applied Mathematics	3
ELEN 214	Electrical Circuit Theory	4
ELEN 250	Machine Learning for Electrical Engineering	3
UCC	Univ. Core Elective	3
	Semester Hours	**16**

Junior

First Semester		
ELEN 303	Random Signals and Systems	3
ELEN 314	Signals and Systems	3
ELEN 325	Electronics	4
ELEN 349	Microprocessors and Embedded Systems	4
ELEN 370	Physical Properties of Materials	3
	Semester Hours	**17**

Second Semester		
ELEN 322	Electric and Magnetic Fields	3
ELEN 335	Measurements and Instrumentation	4
ELEN 340	Electric Energy Conversion	4
ELEN 350	Computer Architecture and Design	4
UCC	Univ. Core Elective	3
	Semester Hours	**18**
Third Semester		
ELEN 391	Internship	0
	Semester Hours	**0**
Senior		
First Semester		
ELEN 403	Senior Design Project I	3
ENGR 482	Engineering Ethics	3
Technical Area Electives		3
Technical Area Electives		3
UCC	Univ. Core Elective	3
	Semester Hours	**15**
Second Semester		
ELEN 404	Senior Design Project II	3
Technical Area Electives		3
Technical Area Electives		3
Technical Area Electives		3
UCC	Univ. Core Elective	3
	Semester Hours	**15**
	Total Hours	**128**

Cybersecurity, Master of Science

Cybersecurity is a multidisciplinary field addressing issues that ensure secure and reliable operations at all levels of interconnected computing and networking systems. The Master of Science in Cybersecurity is designed to train graduate scholars, professionals, entrepreneurs, leaders, and researchers in the advanced knowledge and skills required to fully understand and implement the technologies, tools, management methods, and policy issues related to cybersecurity.

This Master of Science program not only covers multidisciplinary fields related to cybersecurity technology but also examines policy, ethics, and management related to IT security and cyber threats. The program leverages strong partnerships and collaborations both within HBKU and beyond the university. Delivery of the program involves collaborations with HBKU's research institutes, most notably with QCRI.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-cybersecurity/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
CYSE 610	Applied Cryptography	3
CYSE 630	Computer and Network Security	3
CYSE 640	Security Risk Analysis	3
ICT 601	Research Methods and Ethics	3
Subtotal		12
Elective Courses		
Select four of the following:		12
Free elective: Students can take one course from any HBKU program		
CSE 602	Statistics for Science and Engineering	
CSEG 605	Convex Optimization for Large-Scale and Distributed Systems	
CSEG 710	Advanced Algorithms and Data Structures	
ICT 717	Computer Vision	
CSEG 780	Principles of Computer System Design	
CYSE 720	Data Privacy	
CYSE 727	Wireless Networks & Security	
CYSE 728	Distributed Systems Security	
CYSE 729	Multimedia Security	
CYSE 730	Hardware Security	
CYSE 744	Network Forensics	
CYSE 745	Computational Forensics	
DSEG 733	Advanced Data Management System	
DSEG 735	Learning from Data	
ICT 632	Advanced Applications of the Web and Internet	
ICT 690	Special Topics	
ICT 705	Applied Data Analytics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 720	Cloud Computing	
ICT 725	Quantum Computing	
Subtotal		12
Seminar		
Must pass one time		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		0-9
ICT 695	Master's Thesis Hours	
ICT 698	Industrial/ Project (+ One elective from list above)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year		
First Semester		**Hours**
CYSE 610	Applied Cryptography	3
CYSE 630	Computer and Network Security	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
	Semester Hours	**9**
Second Semester		
CYSE 640	Security Risk Analysis	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3
Elective 5		3
	Semester Hours	**9**

Second Semester		
ICT 698	Industrial/ Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
CYSE 610	Applied Cryptography	3
CYSE 630	Computer and Network Security	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
	Semester Hours	**9**
Second Semester		
CYSE 640	Security Risk Analysis	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
ICT 695	Master's Thesis Hours	3
Elective 3		3
Elective 4		3
	Semester Hours	**9**
Second Semester		
ICT 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Data Science and Engineering, Master of Science

The Master of Science program in Data Science and Engineering aims to provide students with a strong foundation in data engineering, 'big data' science, and data analysis. The program integrates the knowledge, expertise and educational assets of HBKU and its research institutes in data collection, management and analytics, and scalable data-driven knowledge discovery, as well as the fundamental concepts behind these techniques.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-data-science-engineering/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
CSE 602	Statistics for Science and Engineering	3
DSEG 733	Advanced Data Management System	3
ICT 601	Research Methods and Ethics	3
ICT 705	Applied Data Analytics	3
Subtotal		12
Elective Courses		
Select four of the following:		12
Free elective: Students can take one course from any HBKU program		
CSEG 605	Convex Optimization for Large-Scale and Distributed Systems	
CSEG 710	Advanced Algorithms and Data Structures	
CSEG 780	Principles of Computer System Design	
CYSE 727	Wireless Networks & Security	
DSEG 660	Applied Deep Learning	
DSEG 682	Special Topics in Data Science and Engineering	
DSEG 735	Learning from Data	
DSEG 760	Machine Learning	
ICT 615	AI for Social Media and Multimedia Applications	
ICT 632	Advanced Applications of the Web and Internet	
ICT 621	Visual Computing	
ICT 660	Principles of Health Informatics	
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 668	Medical Image Processing	
ICT 690	Special Topics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 717	Computer Vision	
ICT 718	GenAI - Generative AI Foundations	
ICT 720	Cloud Computing	
ICT 725	Quantum Computing	
ICT 726	Quantum Machine Learning	
ICT 730	System Performance Modelling and Analysis	
ICT 736	Interactive Design for Health care	
Subtotal		12
Seminar		
Must pass one time		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		
ICT 695	Master's Thesis Hours	
ICT 698	Industrial/ Project (+ One elective from list above)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year		
First Semester		**Hours**
CSE 602	Statistics for Science and Engineering	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
ICT 705	Applied Data Analytics	3
	Semester Hours	**9**
Second Semester		
DSEG 733	Advanced Data Management System	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3

Elective 5		3
	Semester Hours	**9**
Second Semester		
ICT 698	Industrial/ Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
CSE 602	Statistics for Science and Engineering	3
ICT 601	Research Methods and Ethics	3
ICT 701	Graduate Research Seminars	0
ICT 705	Applied Data Analytics	3
	Semester Hours	**9**
Second Semester		
DSEG 733	Advanced Data Management System	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
ICT 695	Master's Thesis Hours	3
Elective 3		3
Elective 4		3
	Semester Hours	**9**
Second Semester		
ICT 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Health Management, Master of Data Analytics

The Master of Data Analytics in Health Management (MDA-HM) program is the first of its kind in the world and aims to train talented scientists and researchers to effectively contribute to the design and implementation of data analytic tools in health care systems in Qatar and beyond. The HBKU MDA-HM program aims to equip students with knowledge of the latest advances in the tools and principles of big data handling and analysis and their application in managing the ever-growing health data.

For more information, click here (https://www.hbku.edu.qa/en/cse/md-analytics-health-management/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
ICT 660	Principles of Health Informatics	3
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	3
ICT 666	Computational Bioinformatics	3
GPM 601	Research Methods and Ethics in Health and Genomics	3
Subtotal		12
Elective Courses		
Select four of the following:		12
Free elective: Students can take one course from any HBKU program		
CSE 602	Statistics for Science and Engineering	
CSEG 710	Advanced Algorithms and Data Structures	
DSEG 660	Applied Deep Learning	
DSEG 733	Advanced Data Management System	
DSEG 735	Learning from Data	
DSEG 760	Machine Learning	
ICT 668	Medical Image Processing	
ICT 621	Visual Computing	
ICT 671	Information Systems Management	
ICT 675	Healthcare Information Systems	
ICT 676	Information Systems Analysis and Design	
ICT 690	Special Topics	
ICT 705	Applied Data Analytics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 736	Interactive Design for Health care	
GPM 604	Advanced Genetics	
GPM 720	Pharmacogenomics	
CLS 726	Proteomics in Precision Medicine	
EPID 700	Introduction to Epidemiology	
Subtotal		12
Seminar		
Must pass one time		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		0-9
ICT 695	Master's Thesis Hours	
ICT 698	Industrial/ Project (+ One elective from list above)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year		
First Semester		**Hours**
GPM 601	Research Methods and Ethics in Health and Genomics	3
ICT 666	Computational Bioinformatics	3
ICT 701	Graduate Research Seminars	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
ICT 660	Principles of Health Informatics	3
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3

Elective 5		3
	Semester Hours	**9**
Second Semester		
ICT 698	Industrial/ Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
GPM 601	Research Methods and Ethics in Health and Genomics	3
ICT 666	Computational Bioinformatics	3
ICT 701	Graduate Research Seminars	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
ICT 660	Principles of Health Informatics	3
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
ICT 695	Master's Thesis Hours	3
Elective 3		3
Elective 4		3
	Semester Hours	**9**
Second Semester		
ICT 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Health Management, Master of Information Systems

The Master of Information Systems in Health Management is a unique program designed to prepare students for professional roles in the design and management of information systems and services in healthcare organizations.

While Qatar has already started the digitization of health records and implementation of digital-based data collection and storage systems, there is limited access to expertise in implementation and management of such health information systems.

For more information, click here (https://www.hbku.edu.qa/en/cse/ma-info-sys-health-management/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
ICT 670	Information Technology Project Management	3
ICT 671	Information Systems Management	3
ICT 675	Healthcare Information Systems	3
ICT 676	Information Systems Analysis and Design	3
Subtotal		12
Elective Courses		
Select five of the following:		15
Free elective: Students can take one course from any HBKU program		
CSE 602	Statistics for Science and Engineering	
CSEG 710	Advanced Algorithms and Data Structures	
CYSE 630	Computer and Network Security	
CYSE 640	Security Risk Analysis	
CYSE 720	Data Privacy	
DSEG 733	Advanced Data Management System	
DSEG 735	Learning from Data	
ICT 632	Advanced Applications of the Web and Internet	
ICT 660	Principles of Health Informatics	
ICT 665	Artificial Intelligence and Machine Learning in Healthcare	
ICT 666	Computational Bioinformatics	
ICT 668	Medical Image Processing	
ICT 690	Special Topics	
ICT 705	Applied Data Analytics	
ICT 706	Independent Studies	
ICT 716	Data Science Tools and Applications	
ICT 736	Interactive Design for Health care	
Subtotal		15
Seminar		
Must pass one time		
ICT 701	Graduate Research Seminars	0
Subtotal		0
Project		
ICT 698	Industrial/ Project	6
Subtotal		6
Total Hours		**33**

Study Plan

First Year		
First Semester		**Hours**
ICT 670	Information Technology Project Management	3
ICT 675	Healthcare Information Systems	3
ICT 701	Graduate Research Seminars	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
ICT 671	Information Systems Management	3
ICT 676	Information Systems Analysis and Design	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 3		3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Semester		
ICT 698	Industrial/ Project	6
	Semester Hours	**6**
	Total Hours	**33**

Sustainable Development

Programs

- Chemical Engineering, Bachelor of Science (p. 115)
- Sustainable Energy, Master of Science (p. 116)
- Sustainable Energy, PhD (p. 118)
- Sustainable Environment, Master of Science (p. 119)
- Sustainable Environment, PhD (p. 120)

Chemical Engineering, Bachelor of Science

The Chemical Engineering program at Hamad Bin Khalifa University (HBKU) offers a comprehensive approach that blends theoretical foundations with practical applications. This equips students to tackle modern challenges in areas such as chemical processing, environmental and sustainable engineering, and materials science.

With an emphasis on collaborative education, training, research, and capacity-building, the program aims to prepare adaptable engineers, capable of meeting society's evolving needs and embracing leadership, social consciousness, integrity, and ethics.

Requirements

Minimum hours required to complete program 130 CH

Code	Title	Hours
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
CHEM 130	General Chemistry II	3
CHEM 131	General Chemistry II Laboratory	1
CHEM 227	Organic Chemistry I	3
CHEM 228	Organic Chemistry II	3
CHEM 237	Organic Chemistry I Laboratory	1
CHEM 238	Organic Chemistry II Laboratory	1
CHEN 201	Chemical Engineering Foundation	2
CHEN 204	Elementary Chemical Engineering	3
CHEN 205	Thermodynamic I	3
CHEN 304	Fluid Mechanics	3
CHEN 320	Numerical Methods in Chemical Engineering	3
CHEN 322	Materials Engineering	3
CHEN 323	Heat Transfer	3
CHEN 324	Mass Transfer	3
CHEN 354	Thermodynamics II	3
CHEN 364	Reaction Kinetics and Reactor Design	3
CHEN 368	Physical Chemistry for Chemical Engineering	3
CHEN 381	Seminar	1
CHEN 391	Internship	0
CHEN 425	Process Optimization and Economics	3
CHEN 426	Plant Design	3
CHEN 432	Unit Operation Laboratory I	2
CHEN 433	Unit Operation Laboratory II	2
CHEN 455	Process Safety and Risk Analysis	3
CHEN 461	Process Control	3
CHEN 482	Bioprocess Engineering	3
ENGL 114	Composition and Rhetoric	3
ENGL 220	Technical Writing	3
ENGR 110	Introduction to Programming	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
ENGR 482	Engineering Ethics	3
MATH 161	Engineering Mathematics I	4
MATH 162	Engineering Mathematics II	4
MATH 261	Engineering Mathematics III	3
MATH 318	Differential Equations	3
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
Subtotal		103
Technical Area Electives		*9*
Student must take at Two courses should be selected from one area, and the third course should be selected from a different area.		
CHEN 489	Selected Topics in Chemical Engineering	
Technical Area 1 - Environmental and Sustainable Engineering		
CHEN 452	Air Pollution and Climate Change	
CHEN 453	Fundamentals of Environmental Remediation Processes	
CHEN 456	Waste Management and Processing	
CHEN 457	Environmental Engineering	
CHEN 460	Quantitative Risk Analysis in Safety Engineering	
CHEN 462	Machine Learning for Engineers	
CHEN 466	Chemical Process Industry	
Technical Area 2 - Materials and Energy Engineering		
CHEN 451	Renewable Energy	
CHEN 458	Water and Wastewater Treatment Processes	
CHEN 459	Gas and Petroleum Processing	
CHEN 464	Pharmaceutical and Food Engineering	
CHEN 470	Applied Catalysis	
CHEN 472	Materials Synthesis, Characterization, and Testing	
CHEN 474	Nanotechnology and Nanomaterials	
CHEN 476	Polymer Science and Engineering	
CHEN 478	Solid State Physics	
University Core Curriculum Areas		*18*
Student must take required credits from each area		
Area 1: Identity and Communication (6 Credits)		
ARAB 150	Arabic for Professional Communication	
ISLM 105	Scriptural Ethics	
COMM 110	Language, Identity, and Communication in Qatar	
COMM 115	Language and Islamic Identities	
Area 4: Social and Behavioral Sciences (3 Credits)		
PSYC 101	Introduction to Psychology	
HELT 115	Health and Wellness in Modern Society	
SOCI 101	Introduction to Sociology	
ECON 110	Economic Principles	
POLS 135	International Relations of the Gulf	

POLS 136	Perspectives in Gulf Studies
SOCI 105	AI and Society
POLS 140	Global Grand Challenges
POLS 137	Policy Analysis, Design and Implementation
SOCI 115	Comparative Theories and Methods
LAW 103	Law and Technology
Area 5A: Humanities (3 credits)	
ARAB 152	Arabic Linguistics
HIST 107	World History
HUMN 111	Data Methods for Digital Humanities
ISLM 106	Philosophy, Theology, and Ethics
FIN 101	Ethical Finance
HUMN 116	Beyond Oil, Gucci, and Karak
Area 5B: Creative Expression (3 Credits)	
HUMN 113	Art and Visual Culture
HUMN 114	Cinema and Musical Culture in the Arab World
HUMN 105	Global Cinema
ENGL 115	Creative and Digital Writing
HUMN 110	Moral Reasoning and Decision-Making
ISLM 117	Islamic Art and Architecture
LITR 110	World Literature and the Modern World
Area 6: Leadership and Civic Engagement (3 Credits)	
SOCI 111	Community Service and Engagement
SOCI 117	Technology, Innovation, and Society
SOCI 137	Global Citizenship and Social Responsibility
Total Hours	**130**

Freshman

First Semester		**Hours**
CHEM 127	General Chemistry I	3
CHEM 128	General Chemistry I Laboratory	1
MATH 161	Engineering Mathematics I	4
ENGR 110	Introduction to Programming	3
ENGL 114	Composition and Rhetoric	3
UCC	Univ. Core Elective	3
	Semester Hours	**17**
Second Semester		
CHEM 130	General Chemistry II	3
CHEM 131	General Chemistry II Laboratory	1
PHYS 216	Newtonian Mechanics for Engineering and Science	3
PHYS 226	Experimental Physics and Engineering Laboratory I: Mechanics	1
MATH 162	Engineering Mathematics II	4
UCC	Univ. Core Elective	3
	Semester Hours	**15**

Sophomore

First Semester		
CHEM 227	Organic Chemistry I	3
CHEM 237	Organic Chemistry I Laboratory	1
CHEN 201	Chemical Engineering Foundation	2
CHEN 204	Elementary Chemical Engineering	3
ENGR 210	Introduction to Innovations and Technology Entrepreneurship	1
PHYS 217	Electricity and Magnetism for Engineering and Science	3
PHYS 227	Experimental Physics and Engineering Laboratory II: Electricity and Magnetism	1
MATH 261	Engineering Mathematics III	3
	Semester Hours	**17**
Second Semester		
CHEM 228	Organic Chemistry II	3
CHEM 238	Organic Chemistry II Laboratory	1
CHEN 205	Thermodynamic I	3
ENGL 220	Technical Writing	3
MATH 318	Differential Equations	3
UCC	Univ. Core Elective	3
	Semester Hours	**16**

Junior

First Semester		
ENGR 482	Engineering Ethics	3
CHEN 304	Fluid Mechanics	3
CHEN 354	Thermodynamics II	3
CHEN 320	Numerical Methods in Chemical Engineering	3
CHEN 322	Materials Engineering	3
CHEN 381	Seminar	1
	Semester Hours	**16**
Second Semester		
CHEN 364	Reaction Kinetics and Reactor Design	3
CHEN 368	Physical Chemistry for Chemical Engineering	3
CHEN 323	Heat Transfer	3
CHEN 324	Mass Transfer	3
UCC	Univ. Core Elective	3
	Semester Hours	**15**
Third Semester		
CHEN 391	Internship	0
	Semester Hours	**0**

Senior

First Semester		
CHEN 425	Process Optimization and Economics	3
CHEN 432	Unit Operation Laboratory I	2
CHEN 455	Process Safety and Risk Analysis	3
CHEN 461	Process Control	3
Technical Area Elective		3
UCC: Univ. Core Elective		3
	Semester Hours	**17**
Second Semester		
CHEN 426	Plant Design	3
CHEN 433	Unit Operation Laboratory II	2
CHEN 482	Bioprocess Engineering	3
Technical Area Elective		3
Technical Area Elective		3
UCC: Univ. Core Elective		3
	Semester Hours	**17**
	Total Hours	**130**

Sustainable Energy, Master of Science

CSE's Sustainable Energy Master's program provides students with extensive knowledge in topics related to sustainable energy and the impact of growth, urbanization, transportation and manufacturing on energy and overall sustainable development. The programs also look at the implications and drivers of sustainable policymaking on society, the economy, and the environment.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-sustainable-energy/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
SENS 611	Sustainability Fundamentals and Tools	3
SENS 601	Research Methods and Ethics	3
Select one of the following:		3
CSE 602	Statistics for Science and Engineering	
CSE 603	Advanced Mathematics	
CSE 605	Computational Data Analytics	
CSE 606	Numerical Methods for Scientists and Engineers	
CSE 607	Advanced Systems Optimization	
Subtotal		9
Elective Courses		
Select five of the following:		15
Free elective: Students can take one course from any HBKU program		
CSE 770	Nano-Bio-Technology	
CSE 785	Innovation Entrepreneurship and Leadership I	
CSE 786	Innovation Entrepreneurship Leadership II	
SENR 615	Oil and Gas Geopolitics	
SENR 724	Solid State Physics	
SENR 727	Science and Engineering of Thin Films and Interfaces	
SENR 740	Energy Resources, Generation, Science and Technology	
SENR 741	Oil and Gas Technology and Economics	
SENR 742	The Life Cycle of Oil and Gas Fields	
SENR 743	Photovoltaic Solar Technology	
SENR 744	Renewable Energy Systems	
SENR 750	Energy Storage Devices and Systems	
SENR 754	Smart Power Grids	
SENR 755	Micro-grids: Operation, Management and Planning	
SENS 681	Integrated Sustainable Design for the Built Environment	
SENS 706	Independent Studies	
SENS 712	Environmental Quality and Health	
SENS 714	Sustainability: Energy, Environment and Economics	
SENS 715	Life Cycle Assessment - LCA	
SENS 716	Efficiency: Resource Use and Behavioural Analysis	
SENS 718	Sustainable Cities and Urban Mobility	
SENS 719	Energy Water Food (EWF) Nexus	
SENS 721	Advanced Materials Synthesis and Characterization	
SENS 722	Sustainable Chemical Industry - A Green Approach	
SENS 728	Electrochemistry and Environmental Corrosion	
SENS 729	Electrochemistry and Electrochemical Processing	
SENS 762	Advanced Transport Phenomena	
SENS 780	Green Building: Design, Construction and Operation	
SENS 785	Innovation Entrepreneurship Leadership I	
SENS 786	Innovation Entrepreneurship Leadership II	
SENS 791	Geospatial Information Systems	
SENV 713	Environmental Impact and Management Systems	
SENV 745	Energy NanoTechnology	
SENV 760	Air Quality and Climate Change	
SENV 761	Atmospheric Chemistry and Climate Change	
SENV 770	Desalination Technologies	
SENV 772	Water and Wastewater Treatment	
SENV 773	Water Resources Management	
SENV 774	Water Treatment and Reuse	
SENV 776	Solid and Hazardous Waste Management	
SENV 778	Principles of Hydrogeology	
Subtotal		15
Seminar		
Must Pass Once		
SENS 701	Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		
SENS 695	Master's Thesis Hours	
SENS 698	Industrial/Applied Project (+ One elective)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year

First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**

Second Year

First Semester		
Elective 4		3
Elective 5		3
Elective 6		3
	Semester Hours	**9**
Second Semester		
SENS 698	Industrial/Applied Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year

First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
	Semester Hours	**9**
Second Semester		
Elective 1		3

Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
SENS 695	Master's Thesis Hours	3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Semester		
SENS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Sustainable Energy, PhD

CSE's Sustainable Energy PhD program provides students with extensive knowledge in topics related to sustainable energy and the impact of growth, urbanization, transportation and manufacturing on energy and overall sustainable development.

The programs also look at the implications and drivers of sustainable policymaking on society, the economy, and the environment.

For more information, click here (https://www.hbku.edu.qa/en/cse/phd-sustainable-energy/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
Select one of the following:		3
CSE 602	Statistics for Science and Engineering	
CSE 603	Advanced Mathematics	
CSE 605	Computational Data Analytics	
CSE 606	Numerical Methods for Scientists and Engineers	
CSE 607	Advanced Systems Optimization	
Subtotal		9
Elective Courses		
Select three of the following:		9
Free elective: Students can take one course from any HBKU program		
CSE 770	Nano-Bio-Technology	
CSE 785	Innovation Entrepreneurship and Leadership I	
CSE 786	Innovation Entrepreneurship Leadership II	
SENR 615	Oil and Gas Geopolitics	
SENR 724	Solid State Physics	
SENR 727	Science and Engineering of Thin Films and Interfaces	
SENR 740	Energy Resources, Generation, Science and Technology	
SENR 741	Oil and Gas Technology and Economics	
SENR 742	The Life Cycle of Oil and Gas Fields	
SENR 743	Photovoltaic Solar Technology	
SENR 744	Renewable Energy Systems	
SENR 750	Energy Storage Devices and Systems	
SENR 754	Smart Power Grids	
SENR 755	Micro-grids: Operation, Management and Planning	
SENS 681	Integrated Sustainable Design for the Built Environment	
SENS 706	Independent Studies	
SENS 712	Environmental Quality and Health	
SENS 714	Sustainability: Energy, Environment and Economics	
SENS 715	Life Cycle Assessment - LCA	
SENS 716	Efficiency: Resource Use and Behavioural Analysis	
SENS 718	Sustainable Cities and Urban Mobility	
SENS 719	Energy Water Food (EWF) Nexus	
SENS 720	Additive Manufacturing for Sustainability	
SENS 721	Advanced Materials Synthesis and Characterization	
SENS 722	Sustainable Chemical Industry - A Green Approach	
SENS 728	Electrochemistry and Environmental Corrosion	
SENS 729	Electrochemistry and Electrochemical Processing	
SENS 762	Advanced Transport Phenomena	
SENS 780	Green Building: Design, Construction and Operation	
SENS 785	Innovation Entrepreneurship Leadership I	
SENS 786	Innovation Entrepreneurship Leadership II	
SENS 791	Geospatial Information Systems	
SENV 713	Environmental Impact and Management Systems	
SENV 745	Energy NanoTechnology	
SENV 760	Air Quality and Climate Change	
SENV 761	Atmospheric Chemistry and Climate Change	
SENV 770	Desalination Technologies	
SENV 772	Water and Wastewater Treatment	
SENV 773	Water Resources Management	
SENV 774	Water Treatment and Reuse	
SENV 776	Solid and Hazardous Waste Management	
SENV 778	Principles of Hydrogeology	
Subtotal		9
Seminar		
Must pass twice		
SENS 701	Research Seminars	0
Subtotal		0
Dissertation		
SENS 890	Dissertation Hours	1-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
Total Hours		**60**

Study Plan

First Year		
First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
SENS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**60**

Sustainable Environment, Master of Science

CSE's Sustainable Environment Master's program provides students with extensive knowledge in topics related to sustainable environment issues. These include the effect of human development on the environment; the causes, impact and control of pollution; and the demands of a growing global and regional population and economic development on natural resources and the environment.

For more information, click here (https://www.hbku.edu.qa/en/cse/ms-sustainable-environment/).

Requirements

Minimum hours required to complete program 33 CH

Code	Title	Hours
Core Courses		
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
Select one of the following:		3
CSE 602	Statistics for Science and Engineering	
CSE 603	Advanced Mathematics	
CSE 605	Computational Data Analytics	
CSE 606	Numerical Methods for Scientists and Engineers	
CSE 607	Advanced Systems Optimization	
Subtotal		9
Elective Courses		
Select five of the following:		15
Free elective: Students can take one course from any HBKU program		
CSE 770	Nano-Bio-Technology	
CSE 785	Innovation Entrepreneurship and Leadership I	
CSE 786	Innovation Entrepreneurship Leadership II	
SENR 615	Oil and Gas Geopolitics	
SENR 724	Solid State Physics	
SENR 727	Science and Engineering of Thin Films and Interfaces	
SENR 740	Energy Resources, Generation, Science and Technology	
SENR 741	Oil and Gas Technology and Economics	
SENR 742	The Life Cycle of Oil and Gas Fields	
SENR 743	Photovoltaic Solar Technology	
SENR 744	Renewable Energy Systems	
SENR 750	Energy Storage Devices and Systems	
SENR 754	Smart Power Grids	
SENR 755	Micro-grids: Operation, Management and Planning	
SENS 681	Integrated Sustainable Design for the Built Environment	
SENS 706	Independent Studies	
SENS 712	Environmental Quality and Health	
SENS 714	Sustainability: Energy, Environment and Economics	
SENS 715	Life Cycle Assessment - LCA	
SENS 716	Efficiency: Resource Use and Behavioural Analysis	
SENS 718	Sustainable Cities and Urban Mobility	
SENS 719	Energy Water Food (EWF) Nexus	
SENS 721	Advanced Materials Synthesis and Characterization	
SENS 720	Additive Manufacturing for Sustainability	
SENS 722	Sustainable Chemical Industry - A Green Approach	
SENS 728	Electrochemistry and Environmental Corrosion	
SENS 729	Electrochemistry and Electrochemical Processing	
SENS 762	Advanced Transport Phenomena	
SENS 780	Green Building: Design, Construction and Operation	
SENS 785	Innovation Entrepreneurship Leadership I	
SENS 786	Innovation Entrepreneurship Leadership II	
SENS 791	Geospatial Information Systems	
SENV 713	Environmental Impact and Management Systems	
SENV 745	Energy NanoTechnology	
SENV 760	Air Quality and Climate Change	
SENV 761	Atmospheric Chemistry and Climate Change	
SENV 770	Desalination Technologies	
SENV 772	Water and Wastewater Treatment	
SENV 773	Water Resources Management	
SENV 774	Water Treatment and Reuse	
SENV 776	Solid and Hazardous Waste Management	

SENV 778	Principles of Hydrogeology	
Subtotal		15
Seminar		
Must pass once		
SENS 701	Research Seminars	0
Subtotal		0
Thesis or Project		
Select one of the following:		
SENS 695	Master's Thesis Hours	
SENS 698	Industrial/Applied Project (+ One elective)	
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**33**

Study Plan

Project

First Year		
First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
Elective 4		3
Elective 5		3
Elective 6		3
	Semester Hours	**9**
Second Semester		
SENS 698	Industrial/Applied Project	6
	Semester Hours	**6**
	Total Hours	**33**

Thesis

First Year		
First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
	Semester Hours	**9**
Second Semester		
Elective 1		3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
SENS 695	Master's Thesis Hours	3
Elective 4		3
Elective 5		3
	Semester Hours	**9**
Second Semester		
SENS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**33**

Sustainable Environment, PhD

CSE's Sustainable Environment PhD program provides students with extensive knowledge in topics related to sustainable environment issues. These include the effect of human development on the environment; the causes, impact and control of pollution; and the demands of a growing global and regional population and economic development on natural resources and the environment.

For more information, click here (https://www.hbku.edu.qa/en/cse/phd-sustainable-energy/).

Requirements

Minimum hours required to complete program 60 CH

Code	Title	Hours
Core Courses		
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
Select one of the following:		3
CSE 602	Statistics for Science and Engineering	
CSE 603	Advanced Mathematics	
CSE 605	Computational Data Analytics	
CSE 606	Numerical Methods for Scientists and Engineers	
CSE 607	Advanced Systems Optimization	
Subtotal		9
Elective Courses		
Select three of the following:		9
Free elective: Students can take one course from any HBKU program		
CSE 770	Nano-Bio-Technology	
CSE 785	Innovation Entrepreneurship and Leadership I	
CSE 786	Innovation Entrepreneurship Leadership II	
SENR 615	Oil and Gas Geopolitics	
SENR 724	Solid State Physics	
SENR 727	Science and Engineering of Thin Films and Interfaces	
SENR 740	Energy Resources, Generation, Science and Technology	
SENR 741	Oil and Gas Technology and Economics	
SENR 742	The Life Cycle of Oil and Gas Fields	
SENR 743	Photovoltaic Solar Technology	
SENR 744	Renewable Energy Systems	
SENR 750	Energy Storage Devices and Systems	
SENR 754	Smart Power Grids	
SENR 755	Micro-grids: Operation, Management and Planning	
SENS 681	Integrated Sustainable Design for the Built Environment	
SENS 706	Independent Studies	
SENS 712	Environmental Quality and Health	
SENS 714	Sustainability: Energy, Environment and Economics	

SENS 715	Life Cycle Assessment - LCA	
SENS 716	Efficiency: Resource Use and Behavioural Analysis	
SENS 718	Sustainable Cities and Urban Mobility	
SENS 719	Energy Water Food (EWF) Nexus	
SENS 720	Additive Manufacturing for Sustainability	
SENS 721	Advanced Materials Synthesis and Characterization	
SENS 722	Sustainable Chemical Industry - A Green Approach	
SENS 728	Electrochemistry and Environmental Corrosion	
SENS 729	Electrochemistry and Electrochemical Processing	
SENS 762	Advanced Transport Phenomena	
SENS 780	Green Building: Design, Construction and Operation	
SENS 785	Innovation Entrepreneurship Leadership I	
SENS 786	Innovation Entrepreneurship Leadership II	
SENS 791	Geospatial Information Systems	
SENV 713	Environmental Impact and Management Systems	
SENV 745	Energy NanoTechnology	
SENV 760	Air Quality and Climate Change	
SENV 761	Atmospheric Chemistry and Climate Change	
SENV 770	Desalination Technologies	
SENV 772	Water and Wastewater Treatment	
SENV 773	Water Resources Management	
SENV 774	Water Treatment and Reuse	
SENV 776	Solid and Hazardous Waste Management	
SENV 778	Principles of Hydrogeology	
Subtotal		9
Seminar		
Must pass twice		
SENS 701	Research Seminars	0
Subtotal		0
Dissertation		
SENS 890	Dissertation Hours	1-9
Subtotal		42
Non-Course Requirements		
899	Dissertation Defense	0
790	Doctoral Qualifying Exam	0
799	Candidacy Exam	0
Total hours		**60**

Study Plan

First Year		
First Semester		**Hours**
SENS 601	Research Methods and Ethics	3
SENS 611	Sustainability Fundamentals and Tools	3
SENS 701	Research Seminars	0
Elective 1		3
	Semester Hours	**9**
Second Semester		
SENS 701	Research Seminars	0
CSE 60X	Core 3	3
Elective 2		3
Elective 3		3
	Semester Hours	**9**
Second Year		
First Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Third Year		
First Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Second Semester		
SENS 890	Dissertation Hours	9
	Semester Hours	**9**
Fourth Year		
First Semester		
SENS 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**60**

College of Public Policy (CPP)

The College of Public Policy (CPP) is the newest college to be launched by Hamad Bin Khalifa University, and reflects the priority that the university places on supporting and contributing to effective policy development and implementation for the Qatar National Vision 2030.

For more information, click here (https://www.hbku.edu.qa/en/cpp/about/).

Programs

- Global Health Policy, MGH (p. 127)
- Public Policy, MPP (p. 125)
- Social Policy and Program Evaluation, MSPPE (p. 126)

Courses

Program Evaluation

PEV 603 Evidence-Based Evaluation Methods for Social Intervention **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course equips students with foundational skills in evaluating social interventions and public policies using evidence-based methods. Students will explore core concepts in policy analysis, program evaluation, and applied research methods, including RCTs, quasi-experimental designs, qualitative methods, and systematic reviews. Emphasis is placed on critical analysis, ethical practice, and real-world application. Topics include poverty, health, education, inequality, and violence prevention.

PEV 606 Foundations of Evaluation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide an overview of both past and contemporary perspectives on evaluation theory, method, and practice. This course is designed to provide students with an introduction to evaluation fundamentals, including: history, professional standards, leading theories, nature and purposes of evaluation, the logic of evaluation, types of evaluations, and values.

PEV 660 Advanced Methods for Program Evaluation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide a broad – yet rigorous – overview of the tools available to evaluate programs and policies. These tools and methods include randomized control experiments and quasi-experiments, such as difference-in-difference, regression discontinuity, and instrumental variables. Students learn how to interpret evaluation results, read evaluation research critically, and understand the pros/cons of each method.

PEV 661 Benefit-Cost Analysis for Program Evaluation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course is designed to provide an overview of economic evaluation methods such as benefit-cost analysis, cost-effectiveness analysis, and cost-utility analysis, including concepts and definitions, analytical frameworks, measurement of cost, placing monetary value on program ingredients, analyzing costs, cost-effectiveness analysis, cost-benefit analysis and cost-utility analysis.

PEV 662 Program Evaluation Planning and Designs **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will present processes and tools to engage in program evaluation planning, design and implementation. The course covers a variety of evaluation approaches and discusses standards of practice, ethical considerations, supporting evaluation use, and continuous learning in evaluation. Topics include: evaluation planning, conducting and managing evaluations; stakeholder engagement strategies; evaluation reporting, evaluation budgeting. Students will cover all phases of an evaluation planning and design including the problem statement, evaluation design, evaluation purpose statements, variable measurement, analysis of results, and identifying the relationship between those results and future program performance.

Political Science

POLS 135 International Relations of the Gulf **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the complex geopolitical dynamics of the Persian Gulf region. Students will examine the historical, cultural, and economic factors that shape the relationships between Gulf states, as well as their interactions with global powers. The course will cover topics such as energy politics, regional conflicts, security alliances, and the influence of non-state actors. Through lectures, discussions, and case studies, students will gain a deeper understanding of the challenges and opportunities facing the Gulf region in the contemporary period.

POLS 136 Perspectives in Gulf Studies **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course that explores the complex historical, political, economic, and social dynamics that have shaped the Gulf region. Through lectures, discussions, and critical analysis of diverse perspectives including those of Gulf nationals, regional scholars, and external observers, students will gain a nuanced understanding of the key issues facing the Gulf states from the pre-oil era to the contemporary period. Topics covered include the impact of oil wealth, sociopolitical reforms, changing identities, and the region's evolving role in international powers. The course will enable students to develop a holistic and contextualized appreciation of this strategically important region.

POLS 137 Policy Analysis, Design and Implementation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

Various approaches, methods and frameworks of policy analysis are introduced, with opportunities to engage both with the literature and with application of techniques to contemporary policy challenges in the country and the region, with a particularly focus on science policy, innovation, and development. Policy analysis is a function of all advanced governments, determining public problems as well as objectives and goals (e.g., the Qatar National Vision). Once objectives have been determined, solutions have to be designed, and ultimately implemented and evaluated. This course emphasizes the connections between analysis, design, and implementation.

POLS 140 Global Grand Challenges **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course explores the "Global Grand Challenges" confronting humanity, focusing on critical issues such as sustainable development, global health, and climate change. Students will examine the role of major global institutions and the intricacies of international policy-making processes dedicated to addressing these pervasive challenges. The course provides an overview of the complex interdependencies that characterize these issues and the collaborative efforts required to mitigate them. Through engaging lectures and dynamic discussions, students will gain a deep understanding of the multidisciplinary approaches needed to navigate and contribute to solving these global problems.

Public Policy

PPO 601 Research Methods for Public Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the logic of quantitative and qualitive research methods, basic statistical techniques, research problems, research design, data collection, data analysis, and results interpretation. Emphasis is put on the application of research methods in a real-world policy environment and on various techniques for collecting, managing and presenting evidence to enable students to critically evaluate the effectiveness of policy decisions. Individual training is blended with collaborative, group-based “in-class labs” to enhance the practical relevance of the course.

PPO 602 Ethics, Law and Public Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the ethical foundations of public policy and law, and the forms of ethical reasoning that underpin policy choices. A distinctive focus will be placed on the role of culture and religion. Experiential case studies will show the different ethical positions taken on existing and emerging policy issues, and how these positions influence outcomes. The relationship between ethics and law, particularly rights, and public policy will also be explored.

PPO 605 Environmental Change, Innovation and Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course equips students with an environmental policy toolkit for designing and evaluating climate-smart and innovative interventions. It introduces economic instruments such as carbon pricing and incentives, along with environmental governance mechanisms at local, national, and global scales. Students explore innovation systems, clean technology, and resilience strategies through national and regional case studies. By the end of the course, students will design integrated environmental policies that are effective, feasible, and aligned with sustainability transitions.

PPO 611 Policy Analysis and Design **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides the foundation for understanding the policy process and its stages, including problem definition, the selection of options and choices, implementation, and evaluation. Analytical tools are demonstrated to provide students with evidence-based, leading-edge and innovative approaches. The design focus encourages students to consider policy from the user’s perspective, as well as in terms of delivery challenges and opportunities.

PPO 616 Research Methods **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides introduction to methodology and major research methods in social policy and evaluation. The goal of this course is to acquaint students with basic approaches, concepts, issues, and tools of research. This course has two parts: The first part consists of readings on the scientific research process. It takes a broad view dealing with issues pertinent to all stages of research in public policy that include developing a research question, literature review, norms and conventions in academic writing, ethics of research, and the overall design of a research project. The second part gives a general overview of qualitative and quantitative methods. The qualitative methods examined include the use of case studies and interviews; quantitative methods start with descriptive statistics, and continue with inferential methods such as t-tests, ANOVA, correlation, and multiple regression and their applications using a statistical software.

PPO 621 Economics for Public Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course equips students to understand the key concepts in microeconomic as well as macroeconomic theory and their application to public policy. Microeconomic topics may include rational choice theory, market structures and market failure, green economy, welfare economics, and behavioural economics. Macroeconomic topics may include development economics and social choice, monetary and international trade policy.

PPO 650 Public Management: Innovations and Challenges **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course examines the principles, processes, and structures of public sector management both in general terms, and in a comparative context, exploring different public administration traditions and systems. It also examines current debates and examples of public sector innovation, and the complex challenges of public management in the 21st century.

PPO 651 Global Political Economy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course provides an understanding of the genesis, current issues, and future scenarios of the global political economy (GPE). In a globalized and interdependent world, politics and economics permanently interact and intersect with one another, creating power dynamics that affect public policy across sectors and levels. Major theoretical frameworks of GPE and their application for public policy design and analysis will be complemented with selected case studies. The roles of institutions, knowledge and learning, justice and sustainability issues, and ethical policy choices will be core themes of the course.

PPO 652 Comparative Public Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course compares public policy along several dimensions – cross-sectoral comparisons (e.g., social policy compared to economic policy), cross-country and regional comparisons (e.g., the same policy field as it is addressed in Europe or North American or the MENA region), and cross-system comparisons (e.g., developed versus developing states, federal versus unitary). Students will analyze and understand the way in which context shapes policy dynamics and outcomes in a complex and globalized policy environment.

PPO 653 Analytical Methods for Policy Evaluation **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit, Pass/Non Pass

This course provides an introduction to evidence-based techniques of assessing and evaluating public policy across sectors. Topics may include needs assessment, cost-benefit analysis, cost effectiveness, impact evaluation, logic models, user surveys, program profiling, policy cycle evaluation, participative and community-based evaluation, critical theory informed approaches, data visualization and reporting, and experiments.

PPO 671 Post-war Reconstruction and Development **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

The aftermath of conflict brings with it a unique set of socio-economic and political policy challenges, at both national and international levels. This course is designed to explore the dilemmas associated with phases of transition from war to peace and stability, starting from early humanitarian interventions and progressing through peace-making, state-building, reconstruction and good governance. Competing theoretical and applied perspectives will be presented through examining a number of reconstruction case studies from different social and cultural contexts.

PPO 672 Digital Governance **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces the key concepts and approaches to digital governance. The course starts by engaging three policy themes: digital divide, ethics of digital governance, and the links between privacy and digital governance in the public sphere. Each policy theme will be discussed in relation to nine topics: social media and data mining, digital branding, algorithmic governance, artificial intelligence, blockchain, internet of things, e-currencies, information warfare, and quantum computing.

PPO 690 Capstone Project **6 Credits**
Grade Mode: Pass/Non Pass

In consultation with a faculty advisor and a client organization, students (working in small teams) will be required to develop a capstone project within one of the two designated specializations. Students will work in small teams, with a designated client, to produce an analytical paper on a real policy problem/issue in one of the two specializations in the program (Social Policy, or Energy and the Environmental Policy). The chosen case will be relevant for Qatar, the Middle East, and the world. The capstone project concludes with presentations and a policy brief.

PPO 695 Master's Thesis Hours **1-6 Credits**
Grade Mode: Pass/Non Pass

This course will focus on the development of social policy as it affects families and children from different cultural and economic backgrounds and as it is given form in the public child welfare system, including related laws, systems, and institutions. The interrelationship of values, social norms, culture, and social and family policy will be discussed. There will be examination of the development of infrastructure to support the needs of children and families over the history of the child welfare system across cultures.

PPO 702 Advanced Seminar in Sustainability and Climate Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides an integrated understanding of major issues, challenges and opportunities in Sustainability and Climate Policy, with special attention to the complex and sometimes conflicting interactions with other policy fields (e.g., commercial, legal, and technological). The course is nested within the frames of sustainable development, the SDGs, resilience, and energy transitions. National, regional, and global perspectives on these issues will be explored, as will the systemic connections to climate change.

PPO 703 Advanced Seminar in Social Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course provides a foundation for understanding social policy in the broadest sense, in terms of the modern welfare state and its future, in a comparative and multi-level governance context. Established theoretical frameworks, such as social choice theory and the capabilities approach are discussed. Topics may include family policy, employment and labour protection, migration, youth, aging and pensions, human development, education and health.

PPO 722 Specialization Lab in Public Policy **3 Credits**
Grade Mode: Standard Letter

The Lab intersects key public policy concepts with sector-specific topics reflective of Qatar, the Gulf State region, and its comparative interest. By focusing on experiential learning through guest speakers, community-based engagement, challenge assignments, and micro-projects students apply ideas from Year One to a diverse array of current policy challenges in Qatar and the region. Class time will be devoted to case studies, skills development, and preparation for the MPP Capstone Project.

Social Policy

SPO 605 Foundations of Social Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will present a foundation for concepts and paradigms in social policy. The course identifies cross-national approaches to social policy and the gaps in theoretical understandings of social policy. This course explores the socio-historical, economic, ideological and institutional contexts for the development of social policy across different welfare regimes. The policy-making process as well as the role of social policy in processes of inclusion, exclusion, marginalization, and oppression will be discussed. The critical analysis of selected social policies will be emphasized.

SPO 615 Social Policy Analysis **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course introduces students to various approaches, methods and frameworks utilized in policy analysis while also providing students the opportunity to apply these techniques to a series of contemporary social policy problems. Policy analysis is defined as the application of social and scientific research and practical knowledge necessary for understanding the efficient, effective and optimal approaches for 'designing, implementing and evaluating existing policies, programs and other courses of action adopted by states'.

SPO 650 Leadership in Public Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course examines leadership in public policy context, focusing on theoretical and practical approaches to driving change within the public sector, focusing on education and healthcare. Students will engage with global leadership theories, including transformational, agile, and uplifting leadership, and apply these frameworks to real-world case studies from Qatar and beyond. Students will develop analytical skills to evaluate leadership processes, diagnose organizational challenges, and devise strategic leadership responses. Through case study analysis, written reflections, and presentations, students will strengthen their ability to communicate and critique leadership practices effectively, preparing them to lead change in their workplaces and policy contexts.

SPO 655 Welfare of Children and Families **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will focus on the development of social policy as it affects families and children from different cultural and economic backgrounds and as it is given form in the public child welfare system, including related laws, systems, and institutions. The interrelationship of values, social norms, culture, and social and family policy will be discussed. There will be examination of the development of infrastructure to support the needs of children and families over the history of the child welfare system across cultures.

SPO 656 Health Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course presents an introduction to health policy, i.e., the various ways in which the government plays a role in health and in the provision of health care. This course will focus on public policy approaches to health policy, employing interdisciplinary methodologies to understand selected public health policies, programs, and interventions. This course provides a framework for understanding the social, political and economic dimensions of health policy.

SPO 657 Education Policy **3 Credits**
Grade Mode: Standard Letter, Audit/Non Audit

This course will examine contemporary education policy issues, developments, trends and debates from a comparative perspectives with a focus on enabling students to understand policymaking structures and processes and think critically about the challenges and opportunities facing the field today. In particular, we will examine education indicators and outcomes, review policies and proposals for reform to improve education affordability, access, equity, quality, and accountability.

Public Policy, MPP

The Master of Public Policy (MPP) is a full-time two-year degree offered by HBKU's new college, CPP. The program features a distinctive combination of interdisciplinarity, strong ethical foundations, entrepreneurship in public management, and innovation in policy making and design.

Qatar has a strategic geographical position at the global crossroads of culture, business, and geopolitics. The country is located at the center of a region that requires leaders who can manage multi-faceted relationships that span different public policy making dynamics and command a wide range of skills.

The MPP provides training to graduate students from a range of disciplines in the skills needed to understand and enrich policy making in Qatar and the region. The program will offer world-class academic and professional training in public policy analysis, design, implementation, evaluation, and management; as well as specializations in social policy, and in energy and the environment.

For more information, click here (https://www.hbku.edu.qa/en/cpp/master-public-policy/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
PPO 601	Research Methods for Public Policy	3
PPO 602	Ethics, Law and Public Policy	3
PPO 611	Policy Analysis and Design	3
PPO 621	Economics for Public Policy	3
PPO 650	Public Management: Innovations and Challenges	3
PPO 651	Global Political Economy	3
PPO 652	Comparative Public Policy	3
PPO 653	Analytical Methods for Policy Evaluation	3
Subtotal		24
Specialization Labs		
PPO 722	Specialization Lab in Public Policy	3
Subtotal		3
Advanced Seminar		
PPO 702	Advanced Seminar in Sustainability and Climate Policy	3
PPO 703 or PPO 702	Advanced Seminar in Social Policy or Advanced Seminar in Sustainability and Climate Policy	
Subtotal		3
Capstone Project		
PPO 690	Capstone Project	6
Total Hours		**36**

Study Plan

First Year

First Semester		**Hours**
PPO 601	Research Methods for Public Policy	3
PPO 602	Ethics, Law and Public Policy	3
PPO 611	Policy Analysis and Design	3
	Semester Hours	**9**
Second Semester		
PPO 651	Global Political Economy	3
PPO 652	Comparative Public Policy	3
PPO 653	Analytical Methods for Policy Evaluation	3
	Semester Hours	**9**
Second Year		
First Semester		
PPO 621	Economics for Public Policy	3
PPO 722	Specialization Lab in Public Policy	3
PPO 703 or PPO 702	Advanced Seminar in Social Policy or Advanced Seminar in Sustainability and Climate Policy	3
	Semester Hours	**9**
Second Semester		
PPO 690	Capstone Project	6

Elective Courses 3		3
	Semester Hours	**9**
	Total Hours	**36**

Social Policy and Program Evaluation, MSPPE

The Master of Social Policy and Program Evaluation (MSPPE) is a full-time two-year degree offered by the College of Public Policy at HBKU. The program provides advanced analytic and substantive knowledge of social policy and program evaluation to educate professionals for careers in the public, private, and non-profit sectors on issues of local and global importance.

The program also supports Qatar's national development by providing evidence-based and ethically informed social policies, supporting policy and program evaluation and building national capacity in social policy and evaluation.

Supported by the Program for Social Policy Evaluation and Research (PROSPER) at CPP, the MSPPE offers students a unique opportunity to develop the evaluation skills needed to inform programs and policies with reliable evidence, support communities and drive organizational change across a range of sectors and activities. The program aims to prepare graduates to shape the strategic direction of social policy and program evaluation in Qatar and beyond.

For more information, click here (https://www.hbku.edu.qa/en/cpp/master-social-policy-program-evaluation/).

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
PEV 606	Foundations of Evaluation	3
PPO 616	Research Methods	3
SPO 605	Foundations of Social Policy	3
SPO 615	Social Policy Analysis	3
Subtotal		12
Concentrations		
Select one of the following Concentrations:		9
Concentration: Social Policy		
SPO 655	Welfare of Children and Families	
SPO 656	Health Policy	
SPO 657	Education Policy	
Concentration: Program Evaluation		
PEV 660	Advanced Methods for Program Evaluation	
PEV 661	Benefit-Cost Analysis for Program Evaluation	
PEV 662	Program Evaluation Planning and Designs	
Subtotal		9
Elective Courses		
Elective 1		
Select one of the following:		3
IGA 612	Global Inequalities	
PPO 651	Global Political Economy	
WSD 621	Introduction to Women and Gender Studies	
SPO 650	Leadership in Public Policy	
Elective 2		
Select one of the following:		3
ME 613	Social, Economic and Development Theory	
PPO 621	Economics for Public Policy	
WSD 622	Women, Work and Economic Development in the Middle East	
Subtotal		6
Thesis		
PPO 695	Master's Thesis Hours	1-6
Subtotal		9
Non-Course Requirements		
699	Thesis Defense	0
Total		**36**

Study Plan

Concentration 1 : Social Policy

First Year		
First Semester		**Hours**
PEV 606	Foundations of Evaluation	3
PPO 616	Research Methods	3
SPO 605	Foundations of Social Policy	3
	Semester Hours	**9**
Second Semester		
SPO 615	Social Policy Analysis	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
PPO 695	Master's Thesis Hours	3
SPO 655	Welfare of Children and Families	3
SPO 656	Health Policy	3
SPO 657	Education Policy	3
	Semester Hours	**12**
Second Semester		
PPO 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Concentration 2: Program Evaluation

First Year		
First Semester		**Hours**
PEV 606	Foundations of Evaluation	3
PPO 616	Research Methods	3
SPO 605	Foundations of Social Policy	3
	Semester Hours	**9**
Second Semester		
SPO 615	Social Policy Analysis	3
Elective 1		3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
PEV 660	Advanced Methods for Program Evaluation	3
PEV 661	Benefit-Cost Analysis for Program Evaluation	3
PEV 662	Program Evaluation Planning and Designs	3
PPO 695	Master's Thesis Hours	3
	Semester Hours	**12**

Second Semester		
PPO 695	Master's Thesis Hours	6
	Semester Hours	**6**
	Total Hours	**36**

Global Health Policy, MGH

The Master in Global Health Policy (MGHP) is a full-time, two-year degree program offered by the College of Public Policy (CPP) at HBKU. The program connects national health system contexts with international or global challenges in health policy.

For more information, Click Here (https://www.hbku.edu.qa/en/cpp/master-global-health-policy/)

Requirements

Minimum hours required to complete program 36 CH

Code	Title	Hours
Core Courses		
GHP 601	Foundations in Global Health Policy	3
GHP 602	Global Health Economics and Financing	3
GHP 603	Health Systems in the Global South	3
GHP 604	Data, AI, and Methods in Contemporary Health Policy	3
GHP 605	Health Policy in Crisis and Emergency Settings	3
GHP 606	Global Health Advocacy, Diplomacy and Leadership	3
Subtotal		18
Elective Courses		12
GHP 607	Designing & Implementing Health Policy	
GHP 608	Global Health and Ecological R	
SPO 656	Health Policy	
SPO 615	Social Policy Analysis	
LAW 753	Healthcare Law	
ICT 736	Interactive Design for Health care	
ICT 675	Healthcare Information Systems	
Project		
GHP 690	Capstone Project	6
Total Hours		**36**

Minimum hours required to complete program 36 CH

Capstone Track

First Year		
First Semester		**Hours**
GHP 601	Foundations in Global Health Policy	3
GHP 602	Global Health Economics and Financing	3
Elective 1		3
	Semester Hours	**9**
Second Semester		
GHP 603	Health Systems in the Global South	3
GHP 604	Data, AI, and Methods in Contemporary Health Policy	3
Elective 2		3
	Semester Hours	**9**
Second Year		
First Semester		
GHP 605	Health Policy in Crisis and Emergency Settings	3
GHP 606	Global Health Advocacy, Diplomacy and Leadership	3
Elective 3		3
	Semester Hours	**9**
Second Semester		
GHP 690	Capstone Project	6
Elective 4		3
	Semester Hours	**9**
	Total Hours	**36**

Index

Subject Codes

College	Subject Code	Subject
Health and Life Sciences	BIOL	Biology
Health and Life Sciences	BNS	Biopsychology and Neuroscience
Health and Life Sciences	CLS	Core Life Sciences
Health and Life Sciences	EPID	Epidemiology
Health and Life Sciences	EXSC	Exercise Science
Health and Life Sciences	GPM	Genomics & Precision Medicine
Health and Life Sciences	HELT	Health
Health and Life Sciences	PSYC	Psychology
Health and Life Sciences	LS	Life Sciences
Health and Life Sciences	STAT	Statistics
Humanities and Social Sciences	ARAB	Arabic
Humanities and Social Sciences	AVT	Audiovisual Translation
Humanities and Social Sciences	CHN	Chinese
Humanities and Social Sciences	COMM	Communication
Humanities and Social Sciences	DHS	Digital Humanities & Societies
Humanities and Social Sciences	ECON	Economics
Humanities and Social Sciences	ENGL	English
Humanities and Social Sciences	FREN	French
Humanities and Social Sciences	HIST	History
Humanities and Social Sciences	HUMN	Humanities
Humanities and Social Sciences	HSS	Humanities and Social Sciences
Humanities and Social Sciences	ICC	Intercultural Communication
Humanities and Social Sciences	LITR	Literature
Humanities and Social Sciences	ME	Middle Eastern Studies
Humanities and Social Sciences	SPAN	Spanish
Humanities and Social Sciences	SS	Social Studies
Humanities and Social Sciences	TCI	Translation for the Creative Industries
Humanities and Social Sciences	TR	Translation Studies
Humanities and Social Sciences	TSD	Translation Studies
Humanities and Social Sciences	SOCI	Sociology
Humanities and Social Sciences	WSD	Women Society & Development
Islamic Studies	AIE	Applied Islamic Ethics
Islamic Studies	ARA	Arabic
Islamic Studies	CIS	Contemporary Islamic Studies
Islamic Studies	ISLM	Islam
Islamic Studies	IAA	Islamic Art & Architecture
Islamic Studies	IFI	Islamic Finance
Islamic Studies	IGA	Islamic Global Affairs
Islamic Studies	ISF	Islamic Studies Foundation
Islamic Studies	IST	Islamic Studies
Islamic Studies	PSYC	Psychology
Law	LAW	Law
Law	QL	Qatari Law
Public Policy	PEV	Program Evaluation
Public Policy	POLS	Political Science
Public Policy	PPO	Public Policy
Public Policy	SPO	Social Policy
Science & Engineering	CPEG	Computer Engineering
Science & Engineering	CSEG	Computer Science and Engineering
Science & Engineering	CSE	Core Science and Engineering
Science & Engineering	CYSE	Cybersecurity
Science & Engineering	DSEG	Data Science and Engineering
Science & Engineering	ECON	Economics
Science & Engineering	ENGR	Engineering
Science & Engineering	FIN	Finance
Science & Engineering	HRSM	Hospitality, Retail and Sport Management
Science & Engineering	ICT	Information and Computing Technology
Science & Engineering	LSCM	Logistics and Supply Chain Management
Science & Engineering	MATH	Computer Science
Science & Engineering	PHYS	Physics
Science & Engineering	SENR	Sustainable Energy
Science & Engineering	SENS	Sustainability Studies
Science & Engineering	SENV	Sustainable Environment
Science & Engineering	SPTE	Sports and Entertainment
Science & Engineering	CHEM	Chemistry
Science & Engineering	CPEN	Computer Engineering
Science & Engineering	ELEN	Electrical Engineering
Science & Engineering	MEEN	Mechanical Engineering
Science & Engineering	CHEN	Chemical Engineering