جامعة الفيصل
Alfaisal University

Graduate Catalog

PROGRAMS, CURRICULA & STUDY PLANS

2023-2024

Graduate School

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Introduction

Current graduate programs, courses & study plans are presented in this catalog. It has been prepared by the Graduate School in coordination with the Graduate Program Directors and Co-Directors in each College. The catalog is updated on a yearly basis.

How to use this Catalog

This catalog describes what is available and what is expected to complete a program of study successfully. It is essential for planning one's academic experiences and can be most useful when supplemented with faculty advising and guidance. Course acronyms and codes have been standardized for easier reference. For example, one acronym for each graduate program, irrespective of the number of tracks within that program. All graduate programs and their tracks, if any, are first listed in alphabetical order; followed by course listings, course descriptions and study plans.

While the information in this catalog is current at the time of publication, Alfaisal University reserves the right to change or delete any of its courses of study, course offerings, schedule, and other changes, policies, or programs of the University at any time and without any notice. General academic policies are published in the Graduate Student Handbook and forms a companion to the programs, curricula and study plans outlined in the Graduate Catalog. Both documents are available online through the Graduate School web site.

A candidate for a degree may choose to graduate under the regulations of the catalog and policies & procedures in force at the time of enrolment or any subsequent catalog, provided that the catalog chosen is not more than seven years old. A student must have been enrolled under the catalog selected and must conform to the degree requirements of that catalog.

While Alfaisal University is committed to academic quality, the University is not able to guarantee that a student's pursuit of a particular course of study will result in any profession or occupation, or admission to other undergraduate or graduate courses of study at other institutions. Advisors and college officials make every effort to provide current information to students, but it is the student's responsibility to know all applicable policies and degree requirements.

University Profile

Historical Context

The King Faisal Foundation (KFF) which was established in 1976 by the heirs of the late King Faisal, launched Alfaisal University as the premier coeducational institution for business, engineering, science, and medical education and research in the Kingdom and the region. The deeply held principle of KFF was that a well-educated population was the foundation for a strong nation. The Foundation has always promoted a pragmatic approach to furthering the opportunities for Saudi youth. The creation of a university that strives to achieve excellence in several fields is yet another important advance towards fulfilling its desire to enrich the country's enterprising individuals with the ability to compete on a global level. Financial support provided by the King Faisal Foundation has also produced the King Faisal School, Prince Sultan College for Tourism and Business, and Effat College (for women).

Plans for establishing Alfaisal University began in 1999. The first "Concept Paper" regarding the University was prepared in late 2000 with the support of the Carlyle Group. It was submitted to the Economic Offset Committee in February 2001 to qualify the University under the Economic Offset Program. Approval was received in July 2001. Four non-Saudi multinational companies agreed to become co-founders along with six Saudi organizations. In April 2003, the Offset Committee granted a multiple of eight offset credits to the non-Saudi co-founders for cash contributions. The Board of Trustees negotiated with the Ministry of Higher Education to secure an acceptable Charter that assured the independence of the University. The Charter (#10905) was approved by the Ministry on 10 July 2004 and unanimously ratified by the Board of Trustees on 25 October 2004.

The campus is situated on the beautiful grounds of the late King Faisal's Palace at Al Maathur in the centre of Riyadh, a historical location ideal for academic pursuits. The first two campus buildings (Science and Business) were completed in 2008 and 2009, respectively. Students began University studies in Engineering, Business, and Medicine in October 2008 with majors in the College of Science and General

Studies beginning in 2011. A College of Pharmacy was added in 2015, and a College of Law & International Relations in 2021. A Master of Business Administration (MBA) was initiated in 2010 and other graduate degrees in Engineering and Medicine were launched in 2012. The first females were admitted in September 2011. Today, the colleges of business, engineering, science, and medicine offer graduate programs.

Research, Innovation & Graduate Studies at Alfaisal University

Alfaisal was established with the aim of being a private not-for-profit world-class university that offers its students the latest knowledge in a state-of-the-art environment. Alfaisal espouses all the noble virtues that form the bedrock of the Foundation's educational activities: to promote learning, research, and the implementation of technology in a manner that promotes the Kingdom's employment and career objectives for its citizens. Education at Alfaisal is international in approach with instruction in the English language. The programs are student-centred, utilize problem-based learning and foster team-based skills. Alfaisal will enable its graduates to gain internationally recognized qualifications through an exclusive education imparted to them from within the Kingdom itself.

The Office of Research & Innovation and the Graduate School are primarily service organizations for all colleges within Alfaisal University. This assistance is offered at three distinct, yet complementary levels: graduate studies, innovative research ventures, and entrepreneurial activities. Support is provided to colleges in developing new graduate programs and passing them through the internal & external approval processes. Oversight is also performed on current programs & graduate students to ensure that Ministry of Education (MOE) & National Accreditation (NCAAA) guidelines are met and followed. Assistance is given to faculty in the search for external funding and in the management of awarded grants and contracts. Entrepreneurial activities are encouraged through generation of intellectual property (IP), new product development, collaboration with industry, and training of graduate students.

Vision & Mission

Vision: To be a world-class non-profit research university and a pioneer in innovation and knowledge applications.

Mission: To create and disseminate knowledge by offering world-class graduate programs, cutting-edge innovative research, and outreach activities that serve national development and benefit humanity.

Accreditation

The University has been fully accredited by the National Centre for Academic Accreditation and Evaluation (NCAAA).

Graduate Programs

Alfaisal University offers a variety of graduate options covering doctoral, master, and higher diploma programs.

Doctor of Biomedical Sciences (DBS)

Biomedical Sciences: The PhD program is prepared in line with Vision 2030 of the government and to fulfill the human capital needs of the healthcare transformation of the country. The Ph.D. in biomedical sciences program aims to prepare individuals for successful careers in research, academia, and industry by providing a strong foundation in biomedical science principles and applications. On completing the Ph.D. program, graduate students will have developed their critical thinking and problem-solving skills with specific application to biomedical sciences issues and opportunities of interest to the Kingdom. The program will also produce graduates who will be able to participate in and lead research teams in conducting effective biomedical research laboratory practice, and biotechnology projects.

Master of Business Administration (MBA)

In addition to the general MBA, MBA tracks in Healthcare Management and in Finance are designed to meet specific needs in the KSA business & health communities. These tracks are not separate MBA programmes; they are made up of the standard eight core courses plus, at least, five elective courses.

- *General:* The Alfaisal University College of Business MBA degree provides students with the

theoretical knowledge and practical skills needed to take advantage of career opportunities and to deal effectively and responsibly with complex business challenges. Global and regional organizations require their managers and leaders to have a variety of technical, analytical, critical thinking, management, and interpersonal skills. The Alfaisal University MBA will equip students with the skills and qualification needed to realize these objectives and better serve your organization, your community, and your nation.

- *Accounting & Taxation:* The program aim is to educate modern decision makers who are not only technically competent in accounting and taxation but are also proficient in making decisions based on practical, analytical, reflective, and critical thinking considerations.
- *Digital Marketing:* The program goal is to educate market-oriented leaders who will add value to businesses, locally and worldwide, by making sound marketing management decisions based on analytical and theoretical considerations.
- *Finance:* The MBA Finance track builds on the established strengths of Alfaisal's core MBA program and its strong Finance and Economics faculty. It also exploits the intellectual ties between Finance, Accounting, and Economics. The program focusses on applied finance and is highly relevant to various contemporary finance issues. It is flexible and affords students the opportunity to select from a variety of finance elective courses allowing customization of the MBA-Finance experience to fit specific career needs.
- *Healthcare Management:* The MBA Healthcare Management track is taught jointly by the College of Business and the College of Medicine faculty at Alfaisal University. It builds on the established strengths of Alfaisal's core MBA program and its solid presence in medical education. The program is highly relevant to clinical and non-clinical medical professionals looking to enter the ranks of management or those who are already health care managers wishing to improve their skills. Using an integrated world-class curriculum, students receive a very pertinent and timely education in the management of healthcare operations.
- *Human Capital Management:* The expected growth in the economy, the urgent need for the effective implementation of Saudization initiatives to meet its objectives, as well as the pressure to reduce unemployment among a young population, will intensify the demand for qualified leadership and human capital managers. To attend to these growing market needs, the Human Capital Management track is designed to prepare graduates to lead management and development initiatives across organizations in the Kingdom of Saudi Arabia. Graduates will develop expertise in talent and human capital functions including, the application of progressive leadership behaviours to enable organizational change and development, creating HR strategies and plans, conducting workforce analysis, and human capital recruitment and selection.

Executive MBA General (EMBA)

Master of Biomedical Sciences (MBS)

The Ministry of Education (MOE) approved two-year Graduate Program which is open to both male and female students, Saudi and non-Saudi, allows students to choose to join one of six tracks. All tracks are Thesis Option.

- *Analytical Biochemistry:* The program aim is to provide graduates with an understanding of fundamental biological processes at a molecular level; it also contributes to solving of medical problems and drug discovery and disease curing.
- *Biotechnology:* The program includes courses dealing with the advanced techniques of molecular biology, genetic engineering, applications of nanotechnology, and special topics such as nanomedicine and its applications in disease diagnosis, drug formulation, and drug delivery.
- *Clinical Anatomy:* The program is focused on the study of gross anatomy, histology, neuroanatomy, and embryology. It deals with the clinical application of anatomical disciplines. The program offers a broad range of fundamental courses including techniques of molecular biology, biostatics, and research methodology. It is also research intensive and provides several

basic science laboratory exercises as well as practical research experience in molecular biology, cell biology and medical education.

- *Clinical Embryology & Reproductive Biology:* The program aims to equip graduates with the formal theoretical and practical training essential for this highly specialized discipline. It is designed to expand their understanding of fundamental scientific principles while fostering a deeper appreciation of the clinical management of infertility. Additionally, it encourages independent thinking and a research-driven approach to the practice of assisted conception.
- *Infection Control:* Graduates from this program which meets international standards will have achieved the competencies for developing and leading infection prevention programs in healthcare facilities. Certified by Saudi Commission for Health Specialties (SCHS)
- *Laboratory Quality Management:* Graduate students are introduced to medical laboratory quality management along with research methods and presentation skills. This program includes a research thesis and focuses on the principles of quality management systems and their applications in a clinical laboratory. Likewise, it prepares medical technologists for the management of a clinical laboratory.
- *Molecular & Cell Biology:* The Graduate Program offers a unique environment of higher education that integrates the research and training capabilities at KFSHRC and Alfaisal University in a distinctive modern educational setting. Potential careers for graduates include the expanding market in molecular medicine, biotechnology, and biomedical research.
- *Thrombosis & Hemostasis:* This track introduces basic science concepts in thrombosis and haemostasis, while also reinforcing principles of research and presentation skills. It focuses on principles of coagulation system, biochemistry, basic genetics, laboratory testing and drugs monitoring for bleeding and anticoagulation. It also examines quality management systems and their applications in laboratory testing
- *Transfusion Medicine & Stem Cells:* This program focusses on principles of transfusion medicine, red blood cell biochemistry, basic genetics, stem cells transplantation and biology. It involves an introduction to quality management systems and their applications in the blood transfusion process. In addition, the program aims to strengthen the principles of research and presentation skills (oral and written presentation skills), as well as to improve the clinical practice.
- *Nanomedicine & Nanodiagnostics:* The program is materials-oriented with emphasis in materials chemistry, micro-electronics, photonics, and their biomedical and energy applications.
- *Cancer Nanoscience:* this track will allow students to gain knowledge about the role of key signaling networks that define cancer cell metabolism, proliferation, apoptosis, senescence in cancer pathophysiology and therapy resistance. The track includes courses in cancer biology, bioinformatics, and applications of nanotechnology in cancer diagnosis and targeted delivery of anti-cancer drugs.

Master of Cardiac Nursing (MCN)

Alfaisal University College of Medicine in collaboration with the Prince Sultan Cardiac Centre (PSCC) is offering a 42-credit two-year Master of Cardiac Nursing (MCN) program consisting of lectures, clinical courses, and a capstone project. This specialty Nursing master's degree is a response to the need within the healthcare sector and will be supported by scholarships from PSCC.

This master's degree is designed to advance registered nurses' cardiac knowledge and skills enabling them to meet contemporary challenges in advanced cardiac nursing. Participation in the program will develop understanding of the nursing and medical care requirements for all levels of adult and paediatric patient complexity and assist the registered nurse to integrate theory into practice supporting both academic and clinical competence. By enhancing the theoretical knowledge and the practical abilities, qualified cardiac registered nurses' graduates will be able to deliver adept clinical assessment, decision making and patient management skills, while supporting the imperative of evidence-based practice more effectively. The Master of Cardiac Nursing will enable graduate nurses to develop their professional autonomy while providing role models, as well as educational and leadership support for junior staff.

Master of Clinical Psychology (MCP)

The Master of Clinical Psychology is offered academically by the College of Medicine in collaboration with King Fahad Medical City (KFMC) for the clinical aspect of the degree. The courses of the Master program of Clinical Psychology are designed as a practical program and includes a research/capstone project. Most of the courses have a practical element which will be applied at the Mental Health Department of the National Neuroscience Institute in King Fahad Medical City.

- *Child Life Track:* This program provides clinical child life professionals with the competencies, skills, and practice required to provide evidence-based, developmentally, and psychologically appropriate interventions and clinical child life services that meet the emotional, developmental, and cultural needs of pediatric patients and their families undergoing healthcare encounters or hospitalization in hospitals across Saudi Arabia and the world

Master of Clinical Speech - Language Pathology (MSP)

A Speech Language Pathologist (SLP) is an allied health professional that works to "identify, help prevent, assess, diagnose, and treat a wide range of disorders affecting speech, language, social communication, cognitive-communication, and swallowing in children and adults". According to the American Speech and Hearing Association (ASHA), SLPs "work with the full range of human communication and swallowing disorders in individuals of all ages from new-born to the elderly. Having Speech Language Pathologist in a developing country is of primary importance since whereas swallowing is vital to sustain an individual's life, language is the mental and spiritual mean by which one can connect and communicate with others. Therefore, there is a need to develop professionals who have the skills and knowledge to tackle these disorders, and in addition carry out cultural and linguistically valid research to develop Saudi Arabian normative data as well as valid and reliable assessment and therapy protocols.

The master's in clinical Speech Language Pathology is offered academically by the College of Medicine at Alfaisal University. The Speech Language Pathology Clinic at King Faisal Specialist Hospital & Research Centre will carry out the clinical aspects of the degree. The courses are designed based on several educational pillars; in classroom taught courses and supervised clinical practice along with either a project or a thesis. Successful completion of these core elements leads to a graduate as a specialized speech therapy practitioner.

Master of Engineering & Systems Management (MEM)

The Ministry of Education (MOE) approved two-year M. Sc. in Engineering & Systems Management consists of both thesis and courses-only options. The program was developed in collaboration with the Centre for Complex Engineering Systems (CCES) at KACST (King Abdulaziz City for Science & Technology) and MIT (Massachusetts Institute of Technology). The elective courses span the themes: *Decision Analysis & Data Analytics, Manufacturing & Supply Chain Management, and Development of Cyber-Physical Systems.* This program is not an MBA; it is a technical master's degree focused on engineering, data science and computation. "Systems thinking" is an important part of the degree, whether applied to the improvement of existing systems and operations or the creation of new products and services. Personal engineering leadership development is a mandatory part of the program.

Master of Science in Cybersecurity (MCS)

The MSc in Cybersecurity program emphasizes a rigorous foundation in the core disciplines of information security and software engineering. The program is designed in line with the best practices of prominent universities offering similar programs. The program offers students fundamental knowledge, skills, and first-hand experience in cybersecurity by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Our students enter the program with a strong foundation in computer science or applied computing. They leave the program with a deep knowledge of cybersecurity

Master of Science in Applied Artificial Intelligence (MAI)

The MSc in Applied Artificial Intelligence (AAI) program emphasizes a rigorous foundation in the core disciplines of AI. The program offers students fundamental knowledge, skills, and first-hand experience in AI by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Students enter the program with a strong foundation in computer science or a related computing degree. They graduate with a profound understanding of applied artificial intelligence.
The MSc in Applied Artificial Intelligence (AAI) program offers the following four tracks:

- *Applied Artificial Intelligence Track:*This track focuses on core AI principles, including machine learning, AI probability and statistics, and deep learning. It emphasizes developing trustworthy and ethical AI systems, ensuring graduates understand ethical considerations. Students will acquire practical skills to create advanced AI applications, preparing them to solve real-world problems across various industries.
- *Intelligent Robotic Systems Track:*Students in this track will explore the integration of AI with robotics, learning to design and develop intelligent robotic systems capable of autonomous decision-making and complex task execution. The curriculum covers advanced topics such as computer vision, sensor integration, and robotic control systems.
- *Artificial Intelligence in Healthcare Track:*This track is tailored for students interested in applying AI technologies to healthcare. It covers the use of AI in medical imaging, diagnostics, personalized medicine, and healthcare management. Students will learn to develop AI-driven solutions that improve patient outcomes and streamline healthcare processes.
- *Business Intelligence Track:*The Business Intelligence track equips students with the knowledge to harness AI for data-driven decision-making in business contexts. It includes courses on data analytics, predictive modeling, and strategic AI implementation, enabling students to transform raw data into actionable insights that drive business success.

Master of Genetic Counselling (MGC)

The goal of this courses-only program is to meet the current and future demand of healthcare system for highly qualified, competent, and culturally sensitive genetic counsellors in Saudi Arabia and in the region. Students graduating from the program will be recognized by the Saudi Commission for Health Specialties (SCHS) as a *Specialist in Genetic Counselling*.

Master of Nanoscience & Nanotechnology (MNT)

Cancer Nanoscience: this track will allow students to gain knowledge about the role of key signaling networks that define cancer cell metabolism, proliferation, apoptosis, senescence in cancer pathophysiology and therapy resistance. The track includes courses in cancer biology, bioinformatics, and applications of nanotechnology in cancer diagnosis and targeted delivery of anti-cancer drugs.

Master of Public Health (MPH)

This is a two-year program consisting of both thesis and courses-only options and was designed for working physicians, residents, fellows, public health officials, policy makers and college graduate students interested in public health. Students can design and conduct community research as well as public health research. At the end of the two-year program, students should develop a comprehensive understanding of the public health professional practice through experience with both academic specialists and experienced practitioners. Students must choose one of three possible tracks: *Mass Gatherings Health (Hajj and Umrah), Biostatistics and Epidemiology, or Health Policy & Management.*

Master of Radiological & Imaging Sciences (MRS)

The program which is open to training men and women, Saudi and non-Saudi, local and international

students, is designed in two specialization tracks: Radiological & Imaging Sciences (Education & Management) and Ultrasound. Both tracks are courses-only option. The Saudi Commission for Health Specialties (SCFHS) has certified (Hajri 14/04/1438) the main track *Radiological & Imaging Sciences.* The Ultrasound track has been submitted

1. *Radiological & Imaging Sciences (Education & Management)*: Aims to prepare and train lecturers in undergraduate and technical supervisors, managers of radiologic and imaging services. Students in this track; in addition to, their training in the advanced sciences and practices of medical radiologic and imaging clinical services, will receive practical training in pedagogical practices, teaching and learning, outcomes assessment, and academic programmatic accreditation. Also, will Prepares at free standing imaging centres, hospitals and/or major medical centres. The focus is on technical management and educations of imaging and related services quality assurances, including clinical service accreditation by the ABR and other comparable accreditation organizations.
2. *Ultrasound:* Clinically oriented advanced training in ultrasound imaging. Students in this track spend daily rotations at the King Faisal Specialist Hospital & Research Centre's Department of Radiology, where they are engaged in providing ultrasound imaging services under the supervision of certified practitioners. While acquiring their advanced clinical skills in ultrasound, students are taught in the didactic aspects of medical diagnostic imaging and its basic sciences at the College of Medicine.

Master of Science in Clinical Neuroimaging (MNI)

The MNI program will provide students with the theoretical and clinical skills necessary to practice high quality brain imaging work using multiple modalities in both healthy and patient populations. The program will also familiarize the students with evidence-based practices.

The program will introduce new modalities, radiological technologies, radiological informatics, and digital imaging to establish the requisite breadth of knowledge in the discipline. The program also focuses on establishing an in-depth mastery of entry-level knowledge and skills through series of classroom lectures, research-based courses, and practical clinical internship rotations at affiliate training sites.

Upon graduation, students will have developed a deeper understanding of clinical neuroradiology in terms of neuroanatomy, neuropathology, imaging techniques and analyses. In addition, the graduates of this program will be uniquely positioned to make considerable contributions to research in the field of brain neuroimaging.

Master of Science in Clinical Neuropharmacology (MCNP)

The MSc in Clinical Neuropharmacology permits the students to investigate the structure and functions of the nervous system and the influence of the drugs on the nervous system. This will allow the students to apply the relevant knowledge to find novel targets and treatment to neurological and psychological disorders. The course is designed for students with a pharmacology background. Due to the rich content of the course, graduates of the program will be qualified to pursue their PhD, work in hospitals, universities, research centers, or the pharmaceutical industry.

This unique multidisciplinary program provides students with an excellent opportunity to develop a specific interest in the Clinical Neuropharmacology field required for understanding the mechanisms of pathophysiology, diagnostic procedures, and treatments of various diseases of the brain and nervous system in parallel with high involvement in psychophysics, data analysis and statistical modelling.

Strategically, the program utilizes many instructional methods, including, but not limited to, interactive lectures, seminars, computing sessions and laboratory sessions. Problem case sessions are conducted by academic and clinical experts from different subspecialties. In addition, candidates must complete clinical placements and research projects related to neuropharmacology.

Master of Science in Pathologist's Assistant (MPA)

The program is designed to provide students with advanced knowledge and skill in human gross anatomy, physiology and general pathology, specimen collection and handling, forensic autopsies (medicolegal/clinical), with hands-on training in the form of clinical rotations under qualified and well-trained pathologists and pathologists' assistants. Through hands on experience in KFMC, students will learn to perform tasks, such as the dissection of surgical specimens and autopsies, under the direct supervision of a qualified faculty. As part of the program, students will also develop a research project that will advance scientific knowledge and understanding of the field.

Master of Science in Applied Health Research (MAR)

The Master of Science in Applied Health Research (MAR) at the College of Medicine will provide scientists and clinicians with training in biomedical statistical methodology. Advanced statistical techniques will be combined with practical lab-based training. The R statistical language will be used for programming and analyses, conveniently taught through RStudio and Jamovi. This Master program is aimed at creating frontline researchers in Health Science.

Master of Science in Health Research Management (MRM)

The Master of Health Research Management (MRM) program at Alfaisal will provide experienced health science professionals with updated skills, strategies, and resources for developing and managing products, treatment protocols, and other processes associated with clinical research and patient care.

- Clinical Coordinator track: The growing demand for clinical research in Saudi Arabia, coupled with a shortage of qualified coordinators, creates a compelling market need for a Masters/Higher Diploma in Clinical Research Coordination (CRC) program. This program can address critical industry needs, enhance career prospects, and contribute to the advancement of high-quality research within the Kingdom.

Master of Science in Radiation Medicine (MRA)

The Master of Radiation Medicine at Alfaisal University aims to provide health science professionals with cutting edge skills, knowledge, and strategies to develop and manage translational research in physics applied to medicine, and more precisely to cancer treatments. On the long term it aims to provide the theoretical education for professional Middle East medical physicists in collaboration with accredited residency programs.

Master of Science in Health Economics (MHE)

The Master in Health Economics program is ideal for professionals already working within health technology policy formulation, as well as those with roles in management and evidence-based commissioning and purchasing, as well as those in the pharmaceutical, medical devices or diagnostics industries. This program will equip successful graduates with professional-level competency in the design, commissioning, and review of health technology assessments in multiple jurisdictions, delivering perspectives in product development, planning, prioritization of research, and local and international health policy planning.

Higher Diploma in Business Administration

The mission of the Higher Diploma (HD) in Business Administration at Alfaisal University is to provide basic knowledge in quantitative and qualitative decision making and to learn the fundamentals of Accounting, Economics, Finance and Marketing. The aim is to provide this opportunity to students who do not have the desire and/or resources to finish the full MBA,

alternatively those that do not maintain the required cumulative GPA of 3.0 to graduate with an MBA degree in Business Administration.

Higher Diploma in Biomedical Sciences

The Higher Diploma of Biomedical Science Program at Alfaisal University Riyadh is a post-graduate training program designed to provide advanced competencies in biomedical science. This program prepares students to become successful biomedical scientists, medical researchers and professionals in various industries and settings. The program is a one-year degree program divided into two semesters of study. During each semester, students must complete a minimum of 12 credit hours of core and subject based courses, which are divided into theory classes, practical classes and group projects. The core curriculum includes biomedical science core subjects such as analytical chemistry, infectious diseases, clinical embryology clinical anatomy, transfusion medicine & stem cells, bioinformatics, biochemistry, immunology, and laboratory management. The specialized courses are tailored according to specialized tracks and cover diverse topics. The program ensures comprehensive and well-rounded learning for students by engaging them in practical sessions and real-world training. The faculty members are highly experienced and are involved in research projects and publications related to biomedical sciences. Upon successful completion of the program, students are awarded a Higher Diploma of Biomedical Science from Alfaisal University Riyadh.

Higher Diploma in Clinical Psychology

The Higher Diploma in Clinical Psychology/ Child life track is offered academically by the College of Medicine. The aim is to provide this opportunity to students who do not have the desire and/or resources to finish the full MCP, alternatively those that do not maintain the required cumulative GPA of 3.0 to graduate with a master's degree in clinical psychology/ child life track.

- *Child Life Track:* This program will provide clinical child life professionals with the competencies, skills, and practice required to provide evidence-based, developmentally, and psychologically appropriate interventions and clinical child life services that meet the emotional, developmental, and cultural needs of pediatric patients and their families undergoing healthcare encounters or hospitalization in hospitals across Saudi Arabia and the world.

Higher Diploma in Engineering and Systems Management

The mission of the Higher Diploma in Engineering & Systems Management at Alfaisal University is to help equip early to mid-career technical professionals with the necessary foundation in the areas of analysis, modeling, improvement, and design of complex data-intensive systems including those found in the manufacturing and supply chains, software and service industries, with special emphasis on advanced career opportunities in the Kingdom of Saudi Arabia.

Higher Diploma in Public Health

The Alfaisal University College of Medicine (COM) in Riyadh offers an excellent 24 credit hour, 1-year Higher Diploma in Public Health. This program provides students with the knowledge required to be successful in public health practice and research. Students will acquire a comprehensive grounding in principles of public health, as well as gain competency in a range of public health skills such as health systems management, policy analysis, public health programming, and epidemiology. This program focuses on developing students' competencies in leadership and communication, in addition to providing students the opportunity to explore their interests further through practical projects and research. The program also facilitates the development of a research-inspired curriculum which encourages students to use best practices for creating evidence-based public health policy development. This diploma also provides the opportunity to specialize in a specific field of public health and provides networking opportunities through guest lectures and

conferences. Students who successfully complete the diplomas gain the knowledge and skills they need to positively influence population health.

Degrees

College of Business Administration

Master of Business Administration Accounting & Taxation

Program

College of Business Administration

Master of Business Administration

The program aim is to educate modern decision makers who are not only technically competent in accounting and taxation but are also proficient in making decisions based on practical, analytical, reflective, and critical thinking considerations.

Credit Hours Required for a Master of Business Administration Accounting & Taxation (MBA)

Type of Courses	Compulsory	Elective	Total
Core	18	-	18
Subject	18	-	18
Electives	-	6	6
Total	36	6	42

Core Courses

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 519	Strategic Management	3

Subject Courses

Item #	Title	Credits
MBA 528	Managerial Accounting	3
MBA 517	Communication & Writing for Accountants	3
MBA 520	Internal Controls, Audit & Fraud Prevention & Detection	3
MBA 544	Financial Statement Analysis & Security Valuation	3
MBA 569	Sales & Value-Added Tax	3
MBA 523	Taxation of Business Entities	3

Elective Courses

Choose two courses.

Item #	Title	Credits
MBA 549	Corporate Finance	3
MBA 575	Negotiations	3
MBA 581	Managerial Decision Making	3
MBA 555	Corporate Governance, Business Ethics, & Corporate Social Responsibility	3
MBA 545	Independent Study	3
MBA 524	International Taxation	3
MBA 521	Advanced Topics in Financial Reporting	3
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Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 516	Managerial Finance	3
MBA 523	Taxation of Business Entities	3
MBA 528	Managerial Accounting	3
	Elective (Summer)	3

Semester 3

Item #	Title	Credits
MBA 515	Business Analytics	3
MBA 544	Financial Statement Analysis & Security Valuation	3
MBA 520	Internal Controls, Audit & Fraud Prevention & Detection	3

Semester 4

Item #	Title	Credits
MBA 517	Communication & Writing for Accountants	3
MBA 519	Strategic Management	3
MBA 569	Sales & Value-Added Tax	3
	Elective (Summer)	3

Master of Business Administration Administration Finance

Program

College of Business Administration

Master of Business Administration

The program goal is to educate market-oriented leaders who will add value to businesses, locally and worldwide, by making sound marketing management decisions based on analytical and theoretical considerations.

Credit Hours Required for a Master of Business Administration Finance (MBA)

Type of Courses	Compulsory	Elective	Total
Core	27	-	27
Subject	12	-	12
Electives	-	3	3
Total	**39**	**3**	**42**

Core Courses

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 511	Quantitative Analysis	3
MBA 512	Marketing Management	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 519	Strategic Management	3
MBA 522	Operations Strategy	3
MBA 549	Corporate Finance	3
MBA 551	Derivative Securities	3
MBA 561	Investment & Portfolio Theory	3

Elective Courses

Item #	Title	Credits
MBA 540	Islamic Finance	3
MBA 544	Financial Statement Analysis & Security Valuation	3
MBA 553	Bank Management	3
MBA 568	Financial Econometrics	3
MBA 570	Risk Management	3
MBA 574	Global Economics	3
MBA 591	Insurance	3
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Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 512	Marketing Management	3
MBA 516	Managerial Finance	3
MBA 553	Bank Management	3

Semester 3

Item #	Title	Credits
MBA 515	Business Analytics	3
MBA 522	Operations Strategy	3
MBA 549	Corporate Finance	3

Semester 4

Item #	Title	Credits
MBA 519	Strategic Management	3
MBA 561	Investment & Portfolio Theory	3
MBA 551	Derivative Securities	3
	Elective (Summer)	3

Master of Business Administration Digital Marketing

Program

College of Business Administration

Master of Business Administration

The program goal is to educate market-oriented leaders who will add value to businesses, locally and worldwide, by making sound marketing management decisions based on analytical and theoretical considerations.

Credit Hours Required for a Master of Business Administration Digital Marketing (MBA)

Types of Courses	Compulsory	Elective	Total
MBA Core	24	-	24
Subject	12	-	12
Electives	-	6	6
Total	**36**	**6**	**42**

Core Courses

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 511	Quantitative Analysis	3
MBA 512	Marketing Management	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 522	Operations Strategy	3

Subject Courses

Item #	Title	Credits
MBA 529	Marketing Strategy	3
MBA 536	Digital & Social Media Marketing	3
MBA 550	Service Marketing	3
MBA 580	Consumer Behaviour and Insights	3

Elective Courses

Choose two courses.

Item #	Title	Credits
MBA 527	Marketing Intelligence	3
MBA 531	Marketing Research Project	3
MBA 571	Integrated Marketing Communications	3
MBA 537	Global Marketing	3
		42

Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 512	Marketing Management	3
MBA 516	Managerial Finance	3
	Elective (Summer)	3

Semester 3

Item #	Title	Credits
MBA 515	Business Analytics	3
MBA 522	Operations Strategy	3
MBA 536	Digital & Social Media Marketing	3

Semester 4

Item #	Title	Credits
MBA 529	Marketing Strategy	3
MBA 550	Service Marketing	3
MBA 580	Consumer Behaviour and Insights	3
	Elective (Summer)	3

Master of Business Administration Executive MBA General

Program

College of Business Administration

Master of Business Administration

The goal of the program is to educate private- and public-oriented supervisors and managers which will add substantial value to the Kingdom in line with Vision 2030. The Executive MBA will equip graduates with the analytical tools, techniques, and management skills necessary to create value in their companies and the Kingdom at large. The enrolled students are to complete 630 hours of course work, which is equivalent to 42 credit hours

Item #	Title	Credits
MBE 550	Core management	2
MBE 511	Statistical Analysis: Uncertainty, Prediction and Quality Control	2
MBE 580	Marketing	2
MBE 530	Financial Accounting	2
MBE 551	Negotaiations	1
MBE 570	Economics	1
MBE 571	Managerial Finance	2
MBE 512	Data Analytics	2
MBE 540	Leadership, Organizational Effectiveness, & Communication	1
MBE 513	Data-Driven Decision Making	1
MBE 514	Supply Chain Management, Optimization & Risk Management	2
MBE 572	Mergers & Acquisitions	1
MBE 520	Risk & Reputation Management	1
MBE 531	Strategic Cost Management & Accounting-Based Decision Making	1
MBE 541	Applied Leadership, People & Organizational Effectiveness	1
MBE 581	Digital & Social Media Marketing	2
MBE 560	Informatics & Digitalization	2
MBE 561	Artificial Intelligence & Machine Learning	1
MBE 555	Decision Making from a Psychological Perspective	1
MBE 556	Entrepreneurship: Driving Innovation in Established Corporations	2
MBE 535	Corporate Governance & Global Business Operations	1
MBE 542	Performance Management and Human Resource Management	1
MBE 557	Project Management	1
MBE 552	Strategic Sustainable Competitive Advantage	1
MBE 553	Strategic Change & Transformation	2
MBE 582	Branding and Product (Service) Strategy	1
MBE 554	Managing Growth & Value Creation	1
MBE 558	Management in Volatile, Uncertain, & Ambiguous Environments	1
MBE 601	Capstone Project	3
		42

Semester 1

Item #	Title	Credits
MBE 550	Core management	2
MBE 511	Statistical Analysis: Uncertainty, Prediction and Quality Control	2
MBE 580	Marketing	2
MBE 530	Financial Accounting	2
MBE 551	Negotaiations	1
MBE 570	Economics	1
MBE 571	Managerial Finance	2
MBE 512	Data Analytics	2
MBE 540	Leadership, Organizational Effectiveness, & Communication	1

Semester 2

Item #	Title	Credits
MBE 513	Data-Driven Decision Making	1
MBE 514	Supply Chain Management, Optimization & Risk Management	2
MBE 572	Mergers & Acquisitions	1
MBE 520	Risk & Reputation Management	1
MBE 531	Strategic Cost Management & Accounting-Based Decision Making	1
MBE 541	Applied Leadership, People & Organizational Effectiveness	1
MBE 581	Digital & Social Media Marketing	2
MBE 560	Informatics & Digitalization	2
MBE 561	Artificial Intelligence & Machine Learning	1
MBE 555	Decision Making from a Psychological Perspective	1
MBE 556	Entrepreneurship: Driving Innovation in Established Corporations	2

Summer

Item #	Title	Credits
MBE 535	Corporate Governance & Global Business Operations	1
MBE 542	Performance Management and Human Resource Management	1
MBE 557	Project Management	1
MBE 552	Strategic Sustainable Competitive Advantage	1
MBE 553	Strategic Change & Transformation	2

Semester 3

Item #	Title	Credits
MBE 601	Capstone Project	3
MBE 582	Branding and Product (Service) Strategy	1
MBE 554	Managing Growth & Value Creation	1
MBE 558	Management in Volatile, Uncertain, & Ambiguous Environments	1

Master of Business Administration General MBA

Program

College of Business Administration

Master of Business Administration

The Alfaisal University College of Business MBA degree provides students with the theoretical knowledge and practical skills needed to take advantage of career opportunities and to deal effectively and responsibly with complex business challenges. Global and regional organizations require their managers and leaders to have a variety of technical, analytical, critical thinking, management, and interpersonal skills. The Alfaisal University MBA will equip students with the skills and qualification needed to realize these objectives and better serve your organization, your community, and your nation.

Credit Hours Required for a Master of Business Administration (MBA)

Types of Courses	Compulsory	Elective	Total
Core	27	-	27
Subject	-	-	-
Electives	-	15	15
Total	27	15	42

Core Courses

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 511	Quantitative Analysis	3
MBA 512	Marketing Management	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 519	Strategic Management	3
MBA 522	Operations Strategy	3

Elective Courses

Item #	Title	Credits
MBA 518	Human Resource Management	3
MBA 528	Managerial Accounting	3
MBA 530	Managing Strategic Business Projects	3
MBA 532	Supply Chain Management	3
MBA 534	Leading Organisational Change	3
MBA 535	Applied Business Research Project	3
MBA 538	Entrepreneurship and Innovation	3
MBA 541	HR Planning, Recruitment & Selection	3
MBA 542	Contemporary Economic & Financial Issues	3
MBA 543	Internet Marketing Strategy	3
MBA 544	Financial Statement Analysis & Security Valuation	3
MBA 545	Independent Study	3
MBA 550	Service Marketing	3
MBA 551	Derivative Securities	3
MBA 553	Bank Management	3
MBA 555	Corporate Governance, Business Ethics, & Corporate Social Responsibility	3
MBA 558	Value Innovation Strategy	3
MBA 561	Investment & Portfolio Theory	3
MBA 565	HR Development and Performance	3
MBA 571	Integrated Marketing Communications	3
MBA 573	Applied Econometrics	3
MBA 574	Global Economics	3
MBA 575	Negotiations	3
MBA 580	Consumer Behaviour and Insights	3
MBA 581	Managerial Decision Making	3
MBA 582	Total Quality Management	3
MBA 590	Real Estate Analysis	3
		42

Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 516	Managerial Finance	3
MBA 512	Marketing Management	3
	Elective (Summer)	3

Semester 3

Item #	Title	Credits
MBA 515	Business Analytics	3
MBA 522	Operations Strategy	3
	Elective	3

Semester 4

Item #	Title	Credits
MBA 519	Strategic Management	3
	Elective	3
	Elective	3
	Elective (Summer)	3

Master of Business Administration Healthcare Management

Program

College of Business Administration

Master of Business Administration

The MBA Healthcare Management track is taught jointly by the College of Business and the College of Medicine faculty at Alfaisal University. It builds on the established strengths of Alfaisal's core MBA program and its solid presence in medical education. The program is highly relevant to clinical and non-clinical medical professionals looking to enter the ranks of management or those who are already health care managers wishing to improve their skills. Using an integrated world-class curriculum, students receive a very pertinent and timely education in the management of healthcare operations.

Credit Hours Required for a Master of Business Administration Healthcare Management(MBA)

Types of Courses	Compulsory	Elective	Total
Core	27	-	27
Subject	12	-	12
Electives	-	3	3
Total	**39**	**3**	**42**

Core Courses

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 518	Human Resource Management	3
MBA 519	Strategic Management	3
MBA 522	Operations Strategy	3
MBA 560	Healthcare Management	3
MBA 562	Health Informatics	3
MBA 563	Management Control & Performance Measurement	3

Elective Courses

Item #	Title	Credits
MBA 512	Marketing Management	3
MBA 534	Leading Organisational Change	3
MBA 538	Entrepreneurship and Innovation	3
MBA 541	HR Planning, Recruitment & Selection	3
MBA 542	Contemporary Economic & Financial Issues	3
MBA 544	Financial Statement Analysis & Security Valuation	3
MBA 545	Independent Study	3
MBA 546	Comparative Management	3
MBA 549	Corporate Finance	3
MBA 550	Service Marketing	3
MBA 551	Derivative Securities	3
MBA 553	Bank Management	3
MBA 555	Corporate Governance, Business Ethics, & Corporate Social Responsibility	3
MBA 558	Value Innovation Strategy	3
MBA 561	Investment & Portfolio Theory	3
MBA 565	HR Development and Performance	3
MBA 573	Applied Econometrics	3
MBA 574	Global Economics	3
MBA 575	Negotiations	3
MBA 580	Consumer Behaviour and Insights	3
MBA 581	Managerial Decision Making	3
MBA 582	Total Quality Management	3
MBA 590	Real Estate Analysis	3
		42

Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 516	Managerial Finance	3
MBA 512	Marketing Management	3

Semester 3

Item #	Title	Credits
MBA 522	Operations Strategy	3
MBA 515	Business Analytics	3
MBA 560	Healthcare Management	3
	Elective (Summer)	3

Semester 4

Item #	Title	Credits
MBA 519	Strategic Management	3
MBA 563	Management Control & Performance Measurement	3
MBA 562	Health Informatics	3
	Elective (Summer)	3

Master of Business Administration Human Capital Management

Program

College of Business Administration

Master of Business Administration

The expected growth in the economy, the urgent need for the effective implementation of Saudization initiatives to meet its objectives, as well as the pressure to reduce unemployment among a young population, will intensify the demand for qualified leadership and human capital managers. To attend to these growing market needs, the Human Capital Management track is designed to prepare graduates to lead management and development initiatives across organizations in the Kingdom of Saudi Arabia. Graduates will develop expertise in talent and human capital functions including, the application of progressive leadership behaviours to enable

organizational change and development, creating HR strategies and plans, conducting workforce analysis, and human capital recruitment and selection.

Credit Hours Required for a Master of Business Administration (MBA)

Types of Courses	Compulsory	Elective	Total
Core	24	-	24
Subject	12	-	12
Electives	-	6	6
Total	36	6	42

Core Courses

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
MBA 515	Business Analytics	3
MBA 516	Managerial Finance	3
MBA 518	Human Resource Management	3
MBA 519	Strategic Management	3
MBA 522	Operations Strategy	3
MBA 541	HR Planning, Recruitment & Selection	3
MBA 534	Leading Organisational Change	3
MBA 565	HR Development and Performance	3

Elective Courses

Item #	Title	Credits
MBA 585	Leadership in Organizations: Principles & Practice	3
MBA 538	Entrepreneurship and Innovation	3
MBA 512	Marketing Management	3
MBA 545	Independent Study	3
MBA 546	Comparative Management	3
MBA 555	Corporate Governance, Business Ethics, & Corporate Social Responsibility	3
MBA 558	Value Innovation Strategy	3
MBA 580	Consumer Behaviour and Insights	3
MBA 581	Managerial Decision Making	3
MBA 582	Total Quality Management	3
MBA 547	Contemporary International Management Issues	3
		42

Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 516	Managerial Finance	3
MBA 534	Leading Organisational Change	3
	Elective (Summer)	3

Semester 3

Item #	Title	Credits
MBA 515	Business Analytics	3
MBA 522	Operations Strategy	3
MBA 518	Human Resource Management	3

Semester 4

Item #	Title	Credits
MBA 519	Strategic Management	3
MBA 541	HR Planning, Recruitment & Selection	3
MBA 565	HR Development and Performance	3
	Elective (Summer)	3

Higher Diploma in Business Administration
Business Administration

Program

College of Business Administration

Higher Diploma in Business Administration

Curriculum

Credit Hours required for a Higher Diploma in Business Administration: 18 credit hours; ideally completed in the first two semesters for students without Pre-MBA/HD requirements.

Required Courses (6 Courses, 18 Credit Hours)

Course No.	Course Name	Cr.
MBA 510	Financial Accounting	3
MBA 511	Quantitative Methods	3
MBA 512	Marketing Management	3
MBA 513	Managerial Economics	3

MBA 514	Organizational Behavior	3
MBA 516	Managerial Finance	3

Semester 1

Item #	Title	Credits
MBA 511	Quantitative Analysis	3
MBA 513	Managerial Economics	3
MBA 514	Organisational Behaviour	3
		9

Semester 2

Item #	Title	Credits
MBA 510	Financial Accounting	3
MBA 512	Marketing Management	3
MBA 516	Managerial Finance	3

College of Engineering

Master of Engineering & Systems Management
Engineering & Systems Management (Courses-Only Option)

Program

College of Engineering

Master of Engineering & Systems Management

The Ministry of Education (MOE) approved two-year M. Sc. in Engineering & Systems Management consists of both thesis and courses-only options. The program was developed in collaboration with the Centre for Complex Engineering Systems (CCES) at KACST (King Abdulaziz City for Science & Technology) and MIT (Massachusetts Institute of Technology). The elective courses span the themes: Decision Analysis & Data Analytics, Manufacturing & Supply Chain Management, and Development of Cyber-Physical Systems. This program is not an MBA; it is a technical master's degree focused on engineering, data science and computation. "Systems thinking" is an important part of the degree, whether applied to the improvement of existing systems and operations or the creation of new products and services. Personal engineering leadership development is a mandatory part of the program.

Curriculum (Courses-Only Option)

Credit Hours Required for a Master of Engineering & Systems Management MEM

Types of Courses	Compulsory	Elective	Total
Core	12	-	12
Elective(track)	-	24	24
Thesis	6	-	6
Total	18	24	42

Core Courses

Item #	Title	Credits
MEM 501	Statistics and Data Analytics	3
MEM 503	Project & Program Management of Complex Systems	3
MEM 504	Advanced Engineering Economics & Cost Analysis	3
MEM 505	Operations Engineering & Management	3

Elective Courses

Choose 8 courses; students may take non-listed courses with dept. approval

Track 1: Decision Analysis & Data Analytics

Item #	Title	Credits
MEM 502	Systems Architecture and Engineering	3
MEM 506	Leadership Development for Engineers & System Managers	3
MEM 508	Stochastic Methods for Engineers & Syst Managers	3
MEM 509	Systems Modeling and Simulation	3
MEM 510	Decision & Risk Analysis for Eng & Syst Managers	3
MEM 511	Deterministic Management Science	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3

Track 2: Manufacturing & Supply Chain Management

Item #	Title	Credits
MEM 502	Systems Architecture and Engineering	3
MEM 506	Leadership Development for Engineers & System Managers	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3
MEM 514	Logistics & Supply Chain Engineering	3
MEM 515	Advanced Quality Engineering	3
MEM 516	Methodologies for Operational Excellence	3
MEM 517	Production Systems Analysis & Design	3
MEM 518	Warehouse Systems Analysis & Design	3

Track 3: Intelligent Industrial Systems

Item #	Title	Credits
MEM 507	Applied Computation and Data Science	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3
MEM 524	Artificial Intelligence	3
MEM 525	Machine Learning	3
MEM 526	Advanced Big data	3
MEM 527	Industrial Internet of Things (IIoT)	3

Research/Capstone Project

Item #	Title	Credits
MEM 601	Research/Capstone Project	6
		42

Semester 1

Item #	Title	Credits
MEM 501	Statistics and Data Analytics	3
MEM 503	Project & Program Management of Complex Systems	3
	MEM Elective	3
	MEM Elective	3

Semester 2

Item #	Title	Credits
MEM 504	Advanced Engineering Economics & Cost Analysis	3
MEM 505	Operations Engineering & Management	3
	MEM Elective	3
	MEM Elective	3

Semester 3

Item #	Title	Credits
	MEM Elective	3
	MEM Elective	3
	MEM Elective	3

Semester 4

Item #	Title	Credits
	MEM Elective	3
MEM 601	Research/Capstone Project	6

Master of Engineering & Systems Management

Engineering & Systems Management (Thesis Option)

Program

College of Engineering

Master of Engineering & Systems Management

The Ministry of Education (MOE) approved two-year M. Sc. in Engineering & Systems Management consists of both thesis and courses-only options. The program was developed in collaboration with the Centre for Complex Engineering Systems (CCES) at KACST (King Abdulaziz City for Science & Technology) and MIT (Massachusetts Institute of Technology). The elective courses span the themes: Decision Analysis & Data Analytics, Manufacturing & Supply Chain Management, and Development of Cyber-Physical Systems. This program is not an MBA; it is a technical master's degree focused on engineering, data science and computation. "Systems thinking" is an important part of the degree, whether applied to the improvement of existing systems and operations or the creation of new products and services. Personal engineering leadership development is a mandatory part of the program.

Curriculum (Thesis Option)

Credit Hours Required for a Master of Engineering & Systems Management

Types of Courses	Compulsory	Elective	Total
Core	12	-	12
Elective(track)	-	12	12
Thesis	18		18
Total	30	12	42

Core Courses

Item #	Title	Credits
MEM 501	Statistics and Data Analytics	3
MEM 503	Project & Program Management of Complex Systems	3
MEM 504	Advanced Engineering Economics & Cost Analysis	3
MEM 505	Operations Engineering & Management	3

Elective Courses

Choose 4 courses; students may take non-listed courses with dept. approval

Track 1: Decision Analysis & Data Analytics

Item #	Title	Credits
MEM 502	Systems Architecture and Engineering	3
MEM 506	Leadership Development for Engineers & System Managers	3
MEM 508	Stochastic Methods for Engineers & Syst Managers	3
MEM 509	Systems Modeling and Simulation	3
MEM 510	Decision & Risk Analysis for Eng & Syst Managers	3
MEM 511	Deterministic Management Science	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3

Track 2: Manufacturing & Supply Chain Management

Item #	Title	Credits
MEM 502	Systems Architecture and Engineering	3
MEM 506	Leadership Development for Engineers & System Managers	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3

Track 3: Intelligent Industrial Systems

Item #	Title	Credits
MEM 507	Applied Computation and Data Science	3
MEM 512	Special Topics I	3
MEM 513	Special Topics II	3
MEM 524	Artificial Intelligence	3
MEM 525	Machine Learning	3
MEM 527	Industrial Internet of Things (IIoT)	3

Thesis

Item #	Title	Credits
MEM 600	Thesis A	9
MEM 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
MEM 501	Statistics and Data Analytics	3
MEM 503	Project & Program Management of Complex Systems	3
	MEM Elective	3
	MEM Elective	3

Semester 2

Item #	Title	Credits
MEM 504	Advanced Engineering Economics & Cost Analysis	3
MEM 505	Operations Engineering & Management	3
	MEM Elective	3
	MEM Elective	3

Semester 3

Item #	Title	Credits
MEM 600	Thesis A	9

Semester 4

Item #	Title	Credits
MEM 600	Thesis B	9

Master of Science in Cybersecurity Cybersecurity (Courses-only option)

Program

College of Engineering

Master of Science in Cybersecurity

The MSc in Cybersecurity program emphasizes a rigorous foundation in the core disciplines of information security and software engineering. The program is designed in line with the best practices of prominent universities offering similar programs. The program offers students fundamental knowledge, skills, and first-hand experience in cybersecurity by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Our students enter the program with a strong foundation in computer science or applied computing. They leave the program with a deep knowledge of cybersecurity.

Credit Hours Required for a Masters of Cybersecurity

Type of Courses	Compulsory	Elective	Total
Core	24	-	24
Elective	-	6	6
Project	12	-	12
Total	36	6	42

Core courses (24 credits)

Item #	Title	Credits
MCS 501	Cryptography	3
MCS 502	Vulnerability and Security Assessment	3
MCS 503	Advanced Secure Software Engineering	3
MCS 504	Advanced Network Security	3
MCS 505	Security Ethics, Law, and Policy (Health, Financial, Military, Industrial)	3
MCS 506	Computer forensics	3
MCS 507	Advanced Ethical Hacking and Penetration Testing	3
MCS 508	Security for Emerging Technologies	3

Elective courses (2 courses 6 credits)

Item #	Title	Credits
MCS 521	Special topics in Cybersecurity	3
MCS 522	Advanced Cryptography and Cryptanalysis	3
MCS 523	Database Security	3
MCS 524	Web Application Security	3

Project (12 credits)

Item #	Title	Credits
MCS 601 A	Project A	6
MCS 601 B	Project B	6
		48

Semester 1

Item #	Title	Credits
MCS 501	Cryptography	3
MCS 502	Vulnerability and Security Assessment	3
MCS 503	Advanced Secure Software Engineering	3

Semester 2

Item #	Title	Credits
MCS 504	Advanced Network Security	3
MCS 505	Security Ethics, Law, and Policy (Health, Financial, Military, Industrial)	3
MCS 506	Computer forensics	3

Semester 3

Item #	Title	Credits
MCS 507	Advanced Ethical Hacking and Penetration Testing	3
MCS 601 A	Project A	6
MCS 5XX	Elective	3

Semester 4

Item #	Title	Credits
MCS 508	Security for Emerging Technologies	3
MCS 601 B	Project B	6
MCS 5XX	Elective	3

Master of Science in Cybersecurity Cybersecurity (Thesis option)

Program

College of Engineering

Master of Science in Cybersecurity

The MSc in Cybersecurity program emphasizes a rigorous foundation in the core disciplines of information security and software engineering. The program is designed in line with the best practices of prominent universities offering similar programs. The program offers students fundamental knowledge, skills, and first-hand experience in cybersecurity by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Our students enter the program with a strong foundation in computer science or applied computing. They leave the program with a deep knowledge of cybersecurity

Credit Hours Required for a Master of science in Cybersecurity

Thesis Option Curriculum

Credit Hours Required for a Masters of Cybersecurity

Type of Courses	Compulsory	Elective	Total
Core	21	-	21
Elective	-	3	3
Thesis	18	-	18
Total	33	3	42

Core Courses (7 Courses, 21 Credit Hours)

Course No.	Course Name	Cr	Prerequisite

MCS 501	Cryptography	3	
MCS 502	Vulnerability and Security Assessment	3	
MCS 503	Advanced Secure Software Engineering	3	
MCS 504	Advanced Network Security	3	MCS 501
MCS 505	Computer Forensics	3	MCS 504
MCS 506	Security Ethics, Law, and Policy	3	
MCS 507	Advanced Ethical Hacking and Penetration Testing	3	MCS 502, MCS 504

Elective Courses (1 Course, 3 Credit Hours)

Course No.	Course Name	Cr	Prerequisite
MCS 521	Special topics in Cybersecurity	3	
MCS 508	Security for Emerging Technologies	3	MCS 502
MCS 522	Advanced Cryptography and Cryptanalysis	3	MCS 501
MCS 523	Database Security	3	
MCS 524	Web Application Security	3	

Core and elective courses:
24

Thesis (MCS 600)
18

TOTAL CREDIT HOURS REQUIRED
42

0

semester 1

Item #	Title	Credits
MCS 501	Cryptography	3
MCS 502	Vulnerability and Security Assessment	3
MCS 503	Advanced Secure Software Engineering	3

Semester 2

Item #	Title	Credits
MCS 504	Advanced Network Security	3
MCS 505	Security Ethics, Law, and Policy (Health, Financial, Military, Industrial)	3
MCS 506	Computer forensics	3

Semester 3

Item #	Title	Credits
MCS 507	Advanced Ethical Hacking and Penetration Testing	3
MCS 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MCS 600 B	Thesis B	9
MCS 5XX	Elective	3

Master of Science in Applied Artificial Intelligence

Applied Artificial Intelligence (Courses-only option)

Program

College of Engineering

Master of Science in Applied Artificial Intelligence

The MSc in Applied Artificial Intelligence (AAI) at Alfaisal University offers a comprehensive, four-semester graduate program that prepares students to pioneer advancements in AI. The curriculum provides a robust foundation in the core disciplines of AI, with an emphasis on both theoretical and practical knowledge. By combining theory with hands-on practice, the program facilitates active learning through collaborative projects that reflect real-world challenges.

The program is uniquely designed to cater to students from diverse academic backgrounds, enabling those with degrees in computing disciplines, healthcare, business, or other related fields to leverage their prior knowledge within one of four specialized tracks: Applied Artificial Intelligence, Intelligent Robotic Systems, Artificial Intelligence in Healthcare, and Business Intelligence. This approach ensures that graduates develop a profound understanding of AI as it applies specifically to their area of expertise.

Credit Hours Required for MSc in Applied Artificial Intelligence Courses Option

Type of Courses	Compulsory	Elective	Total
Core	12	-	12
Elective	-	18	18
Project	12	-	12
Total	24	18	42

Summary

Courses	Credit Hours
Core and elective courses	30
Project I	6
Project II	6
Total credit hours required	42

Credit Hours Required for a Master of Applied Artificial Intelligence

Core Courses (4 Courses, 12 Credit Hours)

Course Code	Course Name	Cr	Prerequisite
MAI 551	Machine Learning	3	
MAI 552	Probability and Statistics for AI	3	
MAI 553	Trustworthy and Ethical AI Systems	3	
MAI 554	Deep Learning	3	MAI 551

2.6.7 Elective Courses for the Project option (divided by tracks)

Choose 6 courses from below(18 Credit Hours)

Track #1: Applied Artificial Intelligence:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 562	Human-Centered AI	3	MAI 551
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 565	Software Testing and Quality Assurance in AI Systems	3	MAI 561
MAI 566	Principles and Engineering Applications of AI	3	
MAI 567	AI in Cybersecurity	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 569	Information Theory in AI Systems	3	MAI 554
MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 571	AI in Robotics	3	MAI 563
MAI 572	AI-Driven Data Science Techniques	3	MAI 563

Track #2: Intelligent Robotic Systems:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 562	Human-Centered AI	3	MAI 551
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 566	Principles and Engineering Applications of AI	3	
MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 571	AI in Robotics	3	MAI 563
MAI 573	Embedded Systems for Robotics	3	
MAI 574	Autonomous Robots	3	

Track #3: Artificial Intelligence in Healthcare:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 572	AI-Driven Data Science Techniques	3	MAI 563
MAI 575	Health Informatics	3	
MAI 576	Clinical Decision Support Systems	3	

Track #4: Business Intelligence:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 572	AI-Driven Data Science Techniques	3	MAI 563
MAI 577	Data Management and Big Data Technologies	3	
MAI 578	Business Analytics and Decision-Making	3	
MAI 579	Data Visualization and Dashboard Design	3	

Semester 1

Item #	Title	Credits
MAI 551	Machine Learning	3
MAI 552	Probability and Statistics for AI	3
MAI 553	Trustworthy and Ethical AI Systems	3

Semester 2

Item #	Title	Credits
MAI 554	Deep Learning	3
MAI 5XX	Elective I	3
MAI 5XX	Elective II	3

Semester 3

Item #	Title	Credits
MAI 5XX	Elective III	3
MAI 5XX	Elective IV	3
MAI 601 A	Project A	6

Semester 4

Item #	Title	Credits
MAI 5XX	Elective V	3
MAI 5XX	Elective VI	3
MAI 601 B	Project B	6
		42

Master of Science in Applied Artificial Intelligence
Applied Artificial Intelligence (Thesis option)

Program

College of Engineering

Master of Science in Applied Artificial Intelligence

The MSc in Applied Artificial Intelligence (AAI) at Alfaisal University offers a comprehensive, four-semester graduate program that prepares students to pioneer advancements in AI. The curriculum provides a robust foundation in the core disciplines of AI, with an emphasis on both theoretical and practical knowledge. By combining theory with hands-on practice, the program facilitates active learning through collaborative projects that reflect real-world challenges.

The program is uniquely designed to cater to students from diverse academic backgrounds, enabling those with degrees in computing disciplines, healthcare, business, or other related fields to leverage their prior knowledge within one of four specialized tracks: Applied Artificial Intelligence, Intelligent Robotic Systems, Artificial Intelligence in Healthcare, and Business Intelligence. This approach ensures that graduates develop a profound understanding of AI as it applies specifically to their area of expertise.

Credit Hours Required for a Master of Applied Artificial Intelligence

Thesis Option

Type of Courses	Compulsory	Elective	Total
Core	12	-	12
Elective	-	12	12
Thesis	18	-	18
Total	30	12	42

Core Courses for the Thesis options (divided by tracks)

Core Courses (4 Courses, 12 Credit Hours)

Course Code	Course Name	Cr	Prerequisite
MAI 551	Machine Learning	3	
MAI 552	Probability and Statistics for AI	3	
MAI 553	Trustworthy and Ethical AI Systems	3	
MAI 554	Deep Learning	3	MAI 551

Elective Courses for the Thesis option (divided by tracks)

Choose 4 courses from below (12 Credit Hours)

Track #1: Applied Artificial Intelligence:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 562	Human-Centered AI	3	MAI 551
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 565	Software Testing and Quality Assurance in AI Systems	3	MAI 561
MAI 566	Principles and Engineering Applications of AI	3	
MAI 567	AI in Cybersecurity	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 569	Information Theory in AI Systems	3	MAI 554
MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 571	AI in Robotics	3	MAI 563
MAI 572	AI-Driven Data Science Techniques	3	MAI 563

Track #2: Intelligent Robotic Systems:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 562	Human-Centered AI	3	MAI 551
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 566	Principles and Engineering Applications of AI	3	

MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 571	AI in Robotics	3	MAI 563
MAI 573	Embedded Systems for Robotics	3	
MAI 574	Autonomous Robots	3	

Track #3: Artificial Intelligence in Healthcare:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 561	Advanced Artificial Intelligence	3	
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 570	Speech Recognition and Understanding	3	MAI 552
MAI 572	AI-Driven Data Science Techniques	3	MAI 563
MAI 575	Health Informatics	3	
MAI 576	Clinical Decision Support Systems	3	

Track #4: Business Intelligence:

Course Code	Course Name	Cr	Prerequisite
MAI 555	Computer Vision and Pattern Recognition	3	MAI 554
MAI 556	Generative AI	3	MAI 554
MAI 563	Artificial Intelligence: Principles and Techniques	3	
MAI 564	Systems and Tool Chains for AI	3	
MAI 568	Natural Language Processing and Large Language Models	3	MAI 554
MAI 572	AI-Driven Data Science Techniques	3	MAI 563
MAI 577	Data Management and Big Data Technologies	3	
MAI 578	Business Analytics and Decision-Making	3	
MAI 579	Data Visualization and Dashboard Design	3	

Core cousres

	0

Semester 1

Item #	Title	Credits
MAI 551	Machine Learning	3
MAI 552	Probability and Statistics for AI	3
MAI 553	Trustworthy and Ethical AI Systems	3

Semester 2

Item #	Title	Credits
MAI 554	Deep Learning	3
MAI 5XX	Elective	3
MAI 5XX	Elective	3

Semester 3

Item #	Title	Credits
MAI 5XX	Elective	3
MAI 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MAI 5XX	Elective	3
MAI 600 B	Thesis B	9

College of Medicine

Doctor of Biomedical Science Biomedical Science

Program

College of Medicine

Doctor of Biomedical Science

The PhD in Biomedical Sciences program at Alfaisal University, aims to prepare individuals for successful careers in research, academia, and industry by providing a strong foundation in biomedical science principles and applications.

Table 2. Credit Hours Required for a PhD Biomedical Science

Type of Courses	Credit Hours
Required	
Core	3
Lab rotations	6
Elective	12
Dissertation	36
TOTAL	**57**

Required Courses (9 credits)

Item #	Title	Credits
DBS 724	Advanced Biostatistics	3
DBS 722	Seminar	0
DBS 801	Laboratory Rotation I	3
DBS 802	Laboratory Rotation II	3

Elective Courses (12 credits)

Select two from general electives

Item #	Title	Credits
DBS 701	Scientific Communication	3
DBS 702	Special Topics I: Emerging Trends in Molecular Biology	3
DBS 703	Special Topics II: Emerging Trends in Cell Biology	3
DBS 704	Advanced Biochemistry	3
DBS 705	Advanced Methods in Molecular and Cellular Biology	3
DBS 706	Advanced Molecular Biology	3
DBS 707	Signal Transduction I	3
DBS 708	Signal Transduction II	3
DBS 709	Advanced Assisted Reproductive Technologies	3
DBS 710	Advanced Transfusion Medicine and Immunohematology	3
DBS 711	Advanced Clinical Anatomy	3
DBS 723	Advanced Clinical Chemistry	3

Specialized Electives (6 Credit Hours)

Select two from the specialized electives

Item #	Title	Credits
DBS 712	Advanced Biotechnology	3
DBS 713	Advances in Nanomedicine	3
DBS 714	Genomics and Transcriptomics	3
DBS 715	Sequencing Technologies	3
DBS 716	Cancer Biology I	3
DBS 717	Cancer Biology II	3
DBS 718	Immunology and Transplant biology	3
DBS 719	Proteomics and Metabolomics	3
DBS 720	Bioinformatics	3
DBS 721	Stem Cells and Regenerative Medicine	3
DBS 822	Advanced Bioanalytical Techniques	3
DBS 823	Advanced Biosensors and Lab on a chip Technologies	3
DBS 725	Infectious Disease	3

Dissertation (36 credit)

Item #	Title	Credits
DBS 800 A	Dissertation A	6
DBS 800 B	Dissertation B	6
DBS 800 C	Dissertation C	6
DBS 800 D	Dissertation D	6
DBS 800 E	Dissertation E	6
DBS 800 F	Dissertation F	6
		120

Semester 1

Item #	Title	Credits
DBS 724	Advanced Biostatistics	3
DBS 7XX	Elective	3

Semester 2

Item #	Title	Credits
DBS 7XX	Elective	3
DBS 722	Seminar	0

Semester 3

Item #	Title	Credits
DBS 7XX	Elective	3
DBS 800 A	Dissertation A	6

Semester 4

Item #	Title	Credits
DBS 7XX	Elective	3
DBS 800 B	Dissertation B	6

Summer

Item #	Title	Credits
DBS 802	Laboratory Rotation II	3

Semester 5

Item #	Title	Credits
DBS 800 C	Dissertation C	6

Semester 6

Item #	Title	Credits
DBS 800 D	Dissertation D	6

Summer

Item #	Title	Credits
DBS 802	Laboratory Rotation II	3

Semester 7

Item #	Title	Credits
DBS 800 E	Dissertation E	6

Semester 8

Item #	Title	Credits
DBS 800 F	Dissertation F	6

Master of Biomedical Science Analytical Biochemistry

Program

College of Medicine

Master of Biomedical Science

The program aim is to provide graduates with an understanding of fundamental biological processes at a molecular level; it also contributes to solving of medical problems and drug discovery and disease curing.

Credit Hours Required for a Master of Biomedical Sciences Analytical Biochemistry(MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	**42**	**-**	**42**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 500	Basics of Molecular & Cell Biology	3
MBS 505	Advanced Biochemistry	3
MBS 551	OMICS Techniques & their Applications	3
MBS 552	Advanced Analytical Biochemistry	3
MBS 553	Analytical Techniques for Clinical Biochemistry	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 505	Advanced Biochemistry	3

Semester 2

Item #	Title	Credits
REC 504	Biomedical Ethics	3
MBS 551	OMICS Techniques & their Applications	3
MBS 552	Advanced Analytical Biochemistry	3
MBS 553	Analytical Techniques for Clinical Biochemistry	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Biotechnology

Program

College of Medicine

Master of Biomedical Science

The program includes courses dealing with the advanced techniques of molecular biology, genetic engineering, applications of nanotechnology, and special topics such as nanomedicine and its applications in disease diagnosis, drug formulation, and drug delivery.

Credit Hours Required for a Master of Biomedical Sciences Biotechnology(MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 500	Basics of Molecular & Cell Biology	3
MNT 502	Nanobiotechnology	3
MBS 505	Advanced Biochemistry	3
MBS 541	Analytical Biotechnology	3
MBS 542	Techniques of Biotechnology	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 505	Advanced Biochemistry	3

Semester 2

Item #	Title	Credits
REC 504	Biomedical Ethics	3
MNT 502	Nanobiotechnology	3
MBS 541	Analytical Biotechnology	3
MBS 542	Techniques of Biotechnology	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Cancer Nanoscience

Program

College of Medicine

Master of Biomedical Science

Credit Hours Required for a Master of Nanoscience & Nanotechnology Cancer Nanoscinece (MNT)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Total	42	-	42

Core Courses

9 credits

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MNT 551	Cancer mechanisms as therapy targets	3
MNT 552	Advanced Topic in Cancer Biology and Theranostics	3
MNT 553	Cancer Genomics and Bioinformatics	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 510	Introduction to Nanoscience & Nanotechnology I	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MNT 551	Cancer mechanisms as therapy targets	3
MNT 510	Introduction to Nanoscience & Nanotechnology I	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MNT 553	Cancer Genomics and Bioinformatics	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 552	Advanced Topic in Cancer Biology and Theranostics	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Clinical Anatomy

Program

College of Medicine

Master of Biomedical Science

The program is focused on the study of gross anatomy, histology, neuroanatomy, and embryology. It deals with the clinical application of anatomical disciplines. The program offers a broad range of fundamental courses including techniques of molecular biology, biostatics, and research methodology. It is also research intensive and provides several basic science laboratory exercises as well as practical research experience in molecular biology, cell biology and medical education.

Credit Hours Required for a Master of Biomedical Sciences Clinical Anatomy (MBS)

Type of Courses	Compulsory	Elective	Total
Core	12	-	12
Subject	12		12
Research Thesis	18	-	18
Free Electives	-		
Total	42		42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3
MBS 500	Basics of Molecular & Cell Biology	3

Subject Courses

Item #	Title	Credits
MBS 506	Human Gross Anatomy	3
MBS 507	Clinical Embryology	3
MBS 508	Human Neuroanatomy	3
MBS 509	Histology and Cell biology	3
MBS 510	Clinical rotation in Surgery, Radiology and Pathology	2

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 506	Human Gross Anatomy	3
MBS 500	Basics of Molecular & Cell Biology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 507	Clinical Embryology	3
MBS 508	Human Neuroanatomy	3
MBS 509	Histology and Cell biology	3
MBS 510	Clinical rotation in Surgery, Radiology and Pathology	2

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Clinical Embryology & Reproductive Biology

Program

College of Medicine

Master of Biomedical Science

The program aims to equip graduates with the formal theoretical and practical training essential for this highly specialized discipline. It is designed to expand their understanding of fundamental scientific principles while fostering a deeper appreciation of the clinical management of infertility. Additionally, it encourages independent thinking and a research-driven approach to the practice of assisted conception.

Credit Hours Required for a Master of Biomedical Sciences Embryology & Reproductive Biology (MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 500	Basics of Molecular & Cell Biology	3
MBS 527	Practical Molecular Biology	2
MBS 521	Reproductive Biology and Embryology	2
MBS 522	Introduction to Assisted Reproduction	2
MBS 523	Infertility and Reproductive Medicine	2
MBS 524	Semen Analysis and Processing/ Andrology	2
MBS 525	Advanced Assisted Reproduction	2

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 521	Reproductive Biology and Embryology	2

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 522	Introduction to Assisted Reproduction	2
MBS 523	Infertility and Reproductive Medicine	2
MBS 524	Semen Analysis and Processing/Andrology	2
MBS 527	Practical Molecular Biology	2

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 525	Advanced Assisted Reproduction	2

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Infection Control

Program

College of Medicine

Master of Biomedical Science

Graduates from this program which meets international standards will have achieved the competencies for developing and leading infection prevention programs in healthcare facilities. Certified by Saudi Commission for Health Specialties (SCHS).

Credit Hours Required for a Master of Biomedical Sciences Infection Control(MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	18		18
Thesis	18	-	18
Free Electives	-		-
Total	45		45

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 531	Basics of Microbiology	3
MBS 532	Fundamentals of Epidemiology and Surveillance	3
MBS 533	Infection Control Program Design & Management	3
MBS 534	Environmental Management	3
MBS 535	Patient Care Processes & Evidence Based Infection Control Practices	3
MBS 536	Competencies in Infection Control	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		45

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 531	Basics of Microbiology	3
MBS 532	Fundamentals of Epidemiology and Surveillance	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 533	Infection Control Program Design & Management	3
MBS 534	Environmental Management	3
MBS 535	Patient Care Processes & Evidence Based Infection Control Practices	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 536	Competencies in Infection Control	3

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Laboratory Quality Management

Program

College of Medicine

Master of Biomedical Science

Graduate students are introduced to medical laboratory quality management along with research methods and presentation skills. This program includes a research thesis and focuses on the principles of quality management systems and their applications in a clinical laboratory. Likewise, it prepares medical technologists for the management of a clinical laboratory.

Credit Hours Required for a Master of Biomedical Sciences Laboratory Quality Management(MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses (15 credits)

Item #	Title	Credits
MBA 514	Organisational Behaviour	3
MBA 560	Healthcare Management	3
MBS 558	Quality Management and Laboratory Accreditation	3
MBS 560	Method Comparison & Validation	3
MBA 534	Leading Organisational Change	3
MBA 585	Leadership in Organizations: Principles & Practice	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBA 514	Organisational Behaviour	3
MBS 560	Method Comparison & Validation	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 558	Quality Management and Laboratory Accreditation	3
MBA 585	Leadership in Organizations: Principles & Practice	3
MBA 534	Leading Organisational Change	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9
MBA 560	Healthcare Management	3

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Molecular & Cell Biology

Program

College of Medicine

Master of Biomedical Science

The Graduate Program offers a unique environment of higher education that integrates the research and training capabilities at KFSHRC and Alfaisal University in a distinctive modern educational setting. Potential careers for graduates include the expanding market in molecular medicine, biotechnology, and biomedical research.

Credit Hours Required for a Master of Biomedical Sciences Molecular & Cell Biology (MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 500	Basics of Molecular & Cell Biology	3
MBS 501	Topics in Integrated & Systems Biology	3
MBS 502	Methods in Molecular & Cellular Biology	3
MBS 503	Signal Transduction I	3
MBS 505	Advanced Biochemistry	3
	MBS	

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 501	Topics in Integrated & Systems Biology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 502	Methods in Molecular & Cellular Biology	3
MBS 503	Signal Transduction I	3
MBS 505	Advanced Biochemistry	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Nanomedicine & Nanodiagnostics

Program

College of Medicine

Master of Biomedical Science

Credit Hours Required for a Master of Nanomedicine and Nanodiagnostics

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MNT 502	Nanobiotechnology	3
MNT 503	Special Topics in Nanomedicine	3
MNT 510	Introduction to Nanoscience & Nanotechnology I	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 506	Biosensors, nanodiagnostic and Lab on a Chip	3

Thesis

Item #	Title	Credits
MNT 600	Thesis A	9
MNT 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
MNT 510	Introduction to Nanoscience & Nanotechnology I	3
REC 504	Biomedical Ethics	3
REC 502	Biostatistics	3
MNT 502	Nanobiotechnology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 503	Special Topics in Nanomedicine	3
MNT 506	Biosensors, nanodiagnostic and Lab on a Chip	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Thrombosis & Hemostasis

Program

College of Medicine

Master of Biomedical Science

The major emphasis of MBS-TAH Track is to introduce basic science concepts in thrombosis and haemostasis with research methods and presentation skills. This track will focus on principles of coagulation system, biochemistry, basic genetics, laboratory testing and drugs monitoring for bleeding and anticoagulation. It will also involve introduction to quality management systems and their applications in laboratory testing (collection, processing, testing and interpretation of different coagulation tests). In addition, the track aims to strengthen the principles of research and presentation skills (oral and written presentation skills), as well as to improve the clinical practice. It will also include teaching of skills to write thesis in the field of thrombosis and haemostasis. It will be taught over two years and offered for individuals especially targeting Bachelor of Medicine (MBBS, MD). The track is designed to provide graduates with advanced knowledge in field of thrombosis and haemostasis

Credit Hours required for master's degree in Biomedical Sciences: Thesis option

Type of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Research Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core courses(9 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject courses (15 credits)

Item #	Title	Credits
MBS 561	Basics and molecular genetics of coagulation system	3
MBS 562	Pathophysiology and aetiology of bleeding and thrombosis	3
MBS 557	Pathogenesis of Blood Disorders	3
MBS 558	Quality Management and Laboratory Accreditation	3
MBS 563	Practical Hemostasis	3

Thesis (18 credits)

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 561	Basics and molecular genetics of coagulation system	3
MBS 562	Pathophysiology and aetiology of bleeding and thrombosis	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 563	Practical Hemostasis	3
MBS 557	Pathogenesis of Blood Disorders	3
MBS 558	Quality Management and Laboratory Accreditation	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Biomedical Science Transfusion Medicine & Stem Cells

Program

College of Medicine

Master of Biomedical Science

This program focusses on principles of transfusion medicine, red blood cell biochemistry, basic genetics, stem cells transplantation and biology. It involves an introduction to quality management systems and their applications in the blood transfusion process. In addition, the program aims to strengthen the principles of research and presentation skills (oral and written presentation skills), as well as to improve the clinical practice.

Credit Hours Required for a Master of Biomedical Sciences Embryology & Reproductive Biology (MBS)

Types of Courses	Compulsory	Elective	Total
Core	9	-	9
Subject	15	-	15
Thesis	18	-	18
Free Electives	-	-	-
Total	42	-	42

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject Courses

Item #	Title	Credits
MBS 554	Transfusion Medicine and Blood Banking	3
MBS 555	Molecular Diagnostics in Blood Transfusion	3
MBS 556	Stem Cell Transplantation Technology	
MBS 557	Pathogenesis of Blood Disorders	3
MBS 558	Quality Management and Laboratory Accreditation	3

Thesis

Item #	Title	Credits
MBS 600	Thesis A	9
MBS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 554	Transfusion Medicine and Blood Banking	3
MBS 555	Molecular Diagnostics in Blood Transfusion	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 556	Stem Cell Transplantation Technology	
MBS 557	Pathogenesis of Blood Disorders	3
MBA 558	Value Innovation Strategy	3

Semester 3

Item #	Title	Credits
MBS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MBS 600	Thesis B	9

Master of Radiological & Imaging Sciences
Radiological & Imaging Sciences (Courses-Only Option)

Program

College of Medicine

Master of Radiological & Imaging Sciences

Aims to prepare and train lecturers in undergraduate and technical supervisors, managers of radiologic and imaging services. Students in this track; in addition to, their training in the advanced sciences and practices of medical radiologic and imaging clinical services, will receive practical training in pedagogical practices, teaching and learning, outcomes assessment, and academic programmatic accreditation. Also, will Prepares at free standing imaging centres, hospitals and/or major medical centres. The focus is on technical management and educations of imaging and related services quality assurances, including clinical service accreditation by the ABR and other comparable accreditation organizations.

Curriculum (Courses-Only Option)

Credit Hours required for a Masters of Radiological & Imaging Sciences

Type of Courses	Compulsory	Elective	Total
Core	24	-	24
Subject	12	-	12
Research/Capstone Project	6	-	6
Total	**42**	**-**	**42**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 502	Radiological Research	3
MRS 503	Ethics in Radiology	2
MRS 504	Radiological and Imaging Sciences I	3
MRS 505	Radiological and Imaging Sciences II	3
MRS 506	Topics in Medical Imaging	3
MRS 507	Topics in Radiation Therapy	3
MRS 508	Topics in Nuclear Medicine	3
MRS 509	RIS Seminar	1

Subject Courses

Item #	Title	Credits
MRS 510	Academic Program Management	3
MRS 511	Faculty Development	3
MRS 512	RIS Instruction & Assessment	3
MRS 513	RIS Academic Program Accreditation	3
MRS 514	Radiologic Financial Management	3
MRS 515	Personnel Management in Radiology	3
MRS 516	Clinical Accreditation & QM	3
MRS 517	Professional Development	3

Res/Capstone Project

Item #	Title	Credits
MRS 601	Research/Capstone Project	6
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 502	Radiological Research	3
MRS 504	Radiological and Imaging Sciences I	3
MRS 505	Radiological and Imaging Sciences II	3

Semester 2

Item #	Title	Credits
MRS 503	Ethics in Radiology	2
MRS 506	Topics in Medical Imaging	3
MRS 507	Topics in Radiation Therapy	3
MRS 508	Topics in Nuclear Medicine	3
MRS 509	RIS Seminar	1

Semester 3

Item #	Title	Credits
MRS 510	Academic Program Management	3
MRS 511	Faculty Development	3
MRS 517	Professional Development	3

Semester 4

Item #	Title	Credits
MRS 516	Clinical Accreditation & QM	3
MRS 601	Research/Capstone Project	6

Master of Radiological & Imaging Sciences

Radiological & Imaging Sciences (Thesis Option)

Program

College of Medicine

Master of Radiological & Imaging Sciences

Aims to prepare and train lecturers in undergraduate and technical supervisors, managers of radiologic and imaging services. Students in this track; in addition to, their training in the advanced sciences and practices of medical radiologic and imaging clinical services, will receive practical training in pedagogical practices, teaching and learning, outcomes assessment, and academic programmatic accreditation. Also, will Prepares at free standing imaging centres, hospitals and/or major medical centres. The focus is on technical management and educations of imaging and related services quality assurances, including clinical service accreditation by the ABR and other comparable accreditation organizations.

Curriculum (Thesis Option)

Credit Hours required for a Masters of Radiological & Imaging Sciences

Type of Courses	Compulsory	Elective	Total
Core	24	-	24
Thesis	18	-	18
Credit Hours required for a Masters of Radiological & Imaging Sciences			
Total	**42**	**-**	**42**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 502	Radiological Research	3
MRS 503	Ethics in Radiology	2
MRS 504	Radiological and Imaging Sciences I	3
MRS 505	Radiological and Imaging Sciences II	3
MRS 506	Topics in Medical Imaging	3
MRS 507	Topics in Radiation Therapy	3
MRS 508	Topics in Nuclear Medicine	3
MRS 509	RIS Seminar	1

Thesis

Item #	Title	Credits
MRS 600	Thesis A	9
MRS 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 503	Ethics in Radiology	2
MRS 504	Radiological and Imaging Sciences I	3
MRS 506	Topics in Medical Imaging	3

Semester 2

Item #	Title	Credits
MRS 502	Radiological Research	3
MRS 505	Radiological and Imaging Sciences II	3
MRS 507	Topics in Radiation Therapy	3
MRS 508	Topics in Nuclear Medicine	3

Semester 3

Item #	Title	Credits
MRS 509	RIS Seminar	1
MRS 600	Thesis A	9

Semester 4

Item #	Title	Credits
MRS 600	Thesis B	9

Master of Radiological & Imaging Sciences
Ultrasound

Program

College of Medicine

Master of Radiological & Imaging Sciences

Clinically oriented advanced training in ultrasound imaging. Students in this track spend daily rotations at the King Faisal Specialist Hospital & Research Centre's Department of Radiology, where they are engaged in providing ultrasound imaging services under the supervision of certified practitioners. While acquiring their advanced clinical skills in ultrasound, students are taught in the didactic aspects of medical diagnostic imaging and its basic sciences at the College of Medicine.

Credit Hours required for a Master of Science in Radiological & Imaging Sciences

Type of Courses	Compulsory	Elective	Total
Core	24	-	24
Subject	12	-	12
Research/Capstone Project	6	-	6
Total	**42**	**-**	**42**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 502	Radiological Research	3
MRS 503	Ethics in Radiology	2
MRS 504	Radiological and Imaging Sciences I	3
MRS 505	Radiological and Imaging Sciences II	3
MRS 506	Topics in Medical Imaging	3
MRS 509	RIS Seminar	1
MRS 518	Ultrasound Physics	3
MRS 519	Sonography Cross-Sectional Anatomy	3

Subject Courses

Item #	Title	Credits
MRS 520	Abdominal Sonography	3
MRS 521	Pelvic Sonography	3
MRS 522	Obstetrical Sonography	3
MRS 523	Clinical Sonography	3
MRS 525	Musculoskeletal, Neonatal & Pediatric Sonography	3
MRS 526	Sonographic Vascular & Postoperative Imaging	3
MRS 527	Echocardiography Imaging	3

Res/Capstone Project

Item #	Title	Credits
MRS 601	Research/Capstone Project	6
		42

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MRS 503	Ethics in Radiology	2
MRS 504	Radiological and Imaging Sciences I	3
MRS 506	Topics in Medical Imaging	3

Semester 2

Item #	Title	Credits
MRS 505	Radiological and Imaging Sciences II	3
MRS 518	Ultrasound Physics	3
MRS 519	Sonography Cross-Sectional Anatomy	3

Semester 3

Item #	Title	Credits
MRS 520	Abdominal Sonography	3
MRS 523	Clinical Sonography	3
MRS 525	Musculoskeletal, Neonatal & Pediatric Sonography	3
MRS 526	Sonographic Vascular & Postoperative Imaging	3

Semester 4

Item #	Title	Credits
MRS 502	Radiological Research	3
MRS 509	RIS Seminar	1
MRS 601	Research/Capstone Project	6

Master of Science in Neuroimaging Clinical Neuroimaging

Program

College of Medicine

Master of Science in Neuroimaging

The MNI program will provide students with the theoretical and clinical skills necessary to practice high quality brain imaging work using multiple modalities in both healthy and patient populations. The program will also familiarize the students with evidence-based practices.

The program will introduce new modalities, radiological technologies, radiological informatics, and digital imaging to establish the requisite breadth of knowledge in the discipline. The program also focuses on establishing an in-depth mastery of entry-level knowledge and skills through series of classroom lectures, research-based courses, and practical clinical internship rotations at affiliate training sites.

Upon graduation, students will have developed a deeper understanding of clinical neuroradiology in terms of neuroanatomy, neuropathology, imaging techniques and analyses. In addition, the graduates of this program will be uniquely positioned to make considerable contributions to research in the field of brain neuroimaging.

Credit Hours Required for a Master of science in Clinical Neuroimaging

Item #	Title	Credits
MNI 528	Foundational Neuroanatomy and Systems	3
MNI 529	Methods of Functional Human Brain Mapping	3
MNI 530	Physics of Medical Imaging	3
MNI 531	Pathology and Diagnostic Neuroimaging	3
MNI 532	Advanced Image Analysis	3
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Clinical Internships

Item #	Title	Credits
MNI 602 A	Clinical Internship A	6
MNI 602 B	Clinical Internship B	6

Capstone project

Item #	Title	Credits
MNI 601 A	Research Capstone Project	3
MNI 601 B	Research Capstone Project B	3
		42

semester 1

Item #	Title	Credits
MNI 528	Foundational Neuroanatomy and Systems	3
MNI 530	Physics of Medical Imaging	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MNI 529	Methods of Functional Human Brain Mapping	3
MNI 531	Pathology and Diagnostic Neuroimaging	3
MNI 532	Advanced Image Analysis	3
REC 503	Research Methodologies	3

Semester 3

Item #	Title	Credits
MNI 601 A	Research Capstone Project	3
MNI 602 A	Clinical Internship A	6

Semester 4

Item #	Title	Credits
MNI 601 B	Research Capstone Project B	3
MNI 602 B	Clinical Internship B	6

Master in in Clinical Neuropharmacology Clinical Neuropharmacology

Program

College of Medicine

Master in in Clinical Neuropharmacology

The MSc in Clinical Neuropharmacology permits the students to investigate the structure and functions of the nervous system and the influence of the drugs on the nervous system. This will allow the students to apply the relevant knowledge to find novel targets and treatment to neurological and psychological disorders. The course is designed for students with a pharmacology background. Due to the rich content of

the course, graduates of the program will be qualified to pursue their PhD, work in hospitals, universities, research centers, or the pharmaceutical industry.

This unique multidisciplinary program provides students with an excellent opportunity to develop a specific interest in the Clinical Neuropharmacology field required for understanding the mechanisms of pathophysiology, diagnostic procedures, and treatments of various diseases of the brain and nervous system in parallel with high involvement in psychophysics, data analysis and statistical modelling.

Strategically, the program utilizes many instructional methods, including, but not limited to, interactive lectures, seminars, computing sessions and laboratory sessions. Problem case sessions are conducted by academic and clinical experts from different subspecialties. In addition, candidates must complete clinical placements and research projects related to neuropharmacology.

The program will be conducted in collaboration with King Fahad Medical City (KFMC).

Credit Hours Required		
Type of Courses	**Compulsory**	**Total**
Core Courses	9	9
Subject Courses	17	17
Project	6	6
Clinical rotation	10	10
Total	**42**	**42**

Core courses (9 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Project and Clinical Rotations

Item #	Title	Credits
CNP 600	Clinical Rotation	10
CNP 601	Research Project	6

Subject courses (17 credits)

Item #	Title	Credits
CNP 500	Structure and Function of the Nervous System	2
CNP 501	The Psychopathology, Clinical features, and Molecular Neuropathology of Brain Disorders	3
CNP 502	Pharmacological, Neurological and Psychiatric Treatments	3
CNP 503	Basic Concepts in Neurochemistry & Drug Discovery	2
CNP 504	Experimental Models of Neurological Disorders	2
CNP 505	Neurodegenerative & neuroinflammatory autoimmune diseases	2
CNP 506	Clinical trials, mobile technology, and digital health	1
CNP 507	Seminars & journal clubs	2
		42

semester 1

Item #	Title	Credits
CNP 500	Structure and Function of the Nervous System	2
CNP 501	The Psychopathology, Clinical features, and Molecular Neuropathology of Brain Disorders	3
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
CNP 506	Clinical trials, mobile technology, and digital health	1
CNP 507 A	Seminars & journal clubs	1

Semester 2

Item #	Title	Credits
CNP 502	Pharmacological, Neurological and Psychiatric Treatments	3
CNP 503	Basic Concepts in Neurochemistry & Drug Discovery	2
CNP 504	Experimental Models of Neurological Disorders	2
REC 504	Biomedical Ethics	3
CNP 505	Neurodegenerative & neuroinflammatory autoimmune diseases	2
CNP 507 B	Seminar & Journal Clubs	1

Semester 3

Item #	Title	Credits
CNP 600 A	Clinical Rotation A	5
CNP 601 A	Research Project A	3

Semester 4

Item #	Title	Credits
CNP 600 B	Clinical Rotation B	5
CNP 601 B	Research Project	3

Master in Pathologist Assistant Pathologist Assistant

Program

College of Medicine

Master in Pathologist Assistant

The Master of Pathologists' Assistant program (MPA) is a course-based professional master's degree. The program will be taught over two years and offered to applicants holding a Bachelor's in Health or Applied Sciences degrees with background in clinical laboratory science/medical technology. The MPA program is being designed and executed in collaboration with King Fahad Medical City.

The program is designed to provide students with advanced knowledge and skill in human gross anatomy, physiology and general pathology, specimen collection and handling, forensic autopsies (medicolegal/clinical), with hands-on training in the form of clinical rotations under qualified and well-trained pathologists and pathologists' assistants. Through hands on experience in KFMC, students will learn to perform tasks, such as the dissection of surgical specimens and autopsies, under the direct supervision of a qualified faculty. As part of the program, students will also develop a research project that will advance scientific knowledge and understanding of the field.

Credit Hours Required for the Master's degree in Pathologists' Assistant Program (MPA)

Type of Courses	Total Credit Hours
Core Courses	6
Subject Courses	12
Elective	n/a
Thesis / Practicum	24
Total	**42**

Core courses (6 credits)

Item #	Title	Credits
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject courses (12 credits)

Item #	Title	Credits
MBS 506	Human Gross Anatomy	3
MPA 501	General Mechanism of Disease	2
MPA 502	Organ System Pathology I	3
MPA 503	Organ System Pathology II	3

Thesis/practicum courses (24 credits)

Item #	Title	Credits
MPA 505	Surgical Pathology I	3
MPA 506	Surgical Pathology II	3
MPA 507	Surgical Pathology III	3
MPA 508	Surgical Pathology IV	3
MPA 509	Autopsy Pathology & Toxicology	3
MPA 601 A	Research Capstone Project A	3
MPA 601 B	Research Capstone Project B	3
		38

semester 1

Item #	Title	Credits
MPA 501	General Mechanism of Disease	2
MPA 502	Organ System Pathology I	3
MBS 506	Human Gross Anatomy	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MPA 503	Organ System Pathology II	3
MPA 509	Autopsy Pathology & Toxicology	3

Semester 3

Item #	Title	Credits
MPA 505	Surgical Pathology I	3
MPA 506	Surgical Pathology II	3
MPA 601 A	Research Capstone Project A	3

Semester 4

Item #	Title	Credits
MPA 507	Surgical Pathology III	3
MPA 508	Surgical Pathology IV	3
MPA 601 B	Research Capstone Project B	3

Master of Science in Applied Health Research
Applied Health Research Thesis option

Program

College of Medicine

Master of Science in Applied Health Research

The Master of Applied Health Research (MAR) at the College of Medicine is designed to provide graduate students, scientists and clinicians with training in biomedical statistical methodology as well as advanced theoretical, ethical and practical hands-on training. The two-year 42-credit program consists of two options: 24 credits of courses & an 18-credit research thesis, or 36 credits courses & a 6-credit research project.

Curriculum Thesis Option

Core Courses (12 credits)

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MPH 521	Health Informatics	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Subject Courses (11 credits)

Item #	Title	Credits
MAR 501	Advanced Clinical Statistics	3
MAR 502	Clinical Trials	3
MAR 503	Clinical Data Management	2
MAR 504	Real Data Analysis	3

Elective Courses (1 credit)

Item #	Title	Credits
MAR 505	Qualitative Research Methods	1
MAR 506	Systematic Review and Meta-analysis	3

Thesis

Item #	Title	Credits
MAR 600 A	Thesis A	9
MAR 600 B	Thesis B	9
		42

Semester 1

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MPH 521	Health Informatics	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MAR 501	Advanced Clinical Statistics	3
MAR 502	Clinical Trials	3
MAR 503	Clinical Data Management	2
MAR 504	Real Data Analysis	3
MAR 505	Qualitative Research Methods	1

Semester 3

Item #	Title	Credits
MAR 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MAR 600 B	Thesis B	9

Master of Health Research Management
Health Research Management (Courses- only option)

Program

College of Medicine

Master of Health Research Management

The Master of Science in Health Research Management (MRM) program at Alfaisal will provide experienced health science professionals with updated skills, strategies, and resources for developing and managing products, treatment protocols, and other processes associated with clinical research and patient care.

Type of Courses	Total Cr Hours
Core Courses	12
Subject Courses	12
Electives	12
Project	6
Total	**42**

Core courses (12 credits)

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MPH 521	Health Informatics	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Subject courses (12 credits)

Item #	Title	Credits
MRM 501	Clinical Research Management Fundamentals	2
MRM 502	Law in Healthcare Delivery; Compliance, Legal, & Reg Issues	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 504	Ethical Conduct and Review Board	2
MRM 505	Financial Management of Research	2
MRM 506	Leadership and Quality Management in Research	2

Elective courses (12 credits)

Item #	Title	Credits
MPH 503	Environmental & Occupational Health	3
MPH 522	Global Health	3
MRM 507	J Club/seminar (contemporary issues in research management)	3
MRM 5XX	Elective	3
		36

Semester 1

Item #	Title	Credits
MRM 502	Law in Healthcare Delivery; Compliance, Legal, & Reg Issues	2
MPH 521	Health Informatics	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MRM 501	Clinical Research Management Fundamentals	2
MRM 502	Law in Healthcare Delivery; Compliance, Legal, & Reg Issues	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 504	Ethical Conduct and Review Board	2
MRM 505	Financial Management of Research	2

Semester 3

Item #	Title	Credits
MRM 506	Leadership and Quality Management in Research	2
MPH 503	Environmental & Occupational Health	3
MPH 522	Global Health	3
MRM 5XX	Elective	3

Semester 4

Item #	Title	Credits
MRM 507	J Club/seminar (contemporary issues in research management)	3
MRM 601	Project	6

Master of Health Research Management
Health Research Management (Thesis option)

Program

College of Medicine

Master of Health Research Management

The Master of Health Research Management (MRM) program at Alfaisal will provide experienced health science professionals with updated skills, strategies,

and resources for developing and managing products, treatment protocols, and other processes associated with clinical research and patient care.

Type of Courses	Total Cr Hours
Core Courses	12
Subject Courses	12
Thesis	18
Total	**42**

Core courses

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MPH 521	Health Informatics	3
MPH 502	Principles of Epidemiology	3

Subject courses (12 credits)

Item #	Title	Credits
MRM 501	Clinical Research Management Fundamentals	2
MRM 502	Law in Healthcare Delivery; Compliance, Legal, & Reg Issues	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 504	Ethical Conduct and Review Board	2
MRM 505	Financial Management of Research	2
MRM 506	Leadership and Quality Management in Research	2

Thesis (18 credits)

Item #	Title	Credits
MRM 600	Thesis	18
		42

Semester 1

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MPH 521	Health Informatics	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MRM 501	Clinical Research Management Fundamentals	2
MRM 502	Law in Healthcare Delivery; Compliance, Legal, & Reg Issues	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 504	Ethical Conduct and Review Board	2
MRM 505	Financial Management of Research	2

Semester 3

Item #	Title	Credits
MRM 506	Leadership and Quality Management in Research	2
MRM 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MRM 600 B	Thesis B	9

Master of Health Research Management - Clinical Coordinator Track

Clinical Coordinator

Program

College of Medicine

Master of Health Research Management - Clinical Coordinator Track

Clinical Coordinator Track

The growing demand for clinical research in Saudi Arabia, coupled with a shortage of qualified coordinators, creates a compelling market need for a Masters/Higher Diploma in Clinical Research Coordination (CRC) program. This program can address critical industry needs, enhance career prospects, and contribute to the advancement of high-quality research within the Kingdom.

Suggested Curriculum

Type of Courses	Compulsory	Total
Subject Courses	24	24
Thesis	18	18
Total	**42**	**42**

Core courses (6 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Subject courses

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MRM 501	Clinical Research Management Fundamentals	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 507	J Club/seminar (contemporary issues in research management)	3
MRM 508	Pharmacology Research	2
MRM 509	Scientific and Medical Writing	2
MRM 510	Screening and Diagnosis	2
MRM 511	Bioinformatics and Health Economics	3

Thesis (18 credits)

Item #	Title	Credits
MRM 600	Thesis	18
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
REC 504	Biomedical Ethics	3
MRM 511	Bioinformatics and Health Economics	3

Semester 2

Item #	Title	Credits
MRM 501	Clinical Research Management Fundamentals	2
MRM 503	Fundamentals of Device & Drug Development	2
MRM 508	Pharmacology Research	2
MRM 509	Scientific and Medical Writing	2
MRM 510	Screening and Diagnosis	2
MRM 507	J Club/seminar (contemporary issues in research management)	3

Semester 3

Item #	Title	Credits
MRM 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MRM 600 B	Thesis B	9

Master of Radiation Medicine Radiation Medicine

Program

College of Medicine

Master of Radiation Medicine

The Master of Radiation Medicine at Alfaisal University aims to provide health science professionals with cutting edge skills, knowledge, and strategies to develop and manage translational research in physics applied to medicine, and more precisely to cancer treatments. On the long term it aims to provide the theoretical education for professional Middle East medical physicists in collaboration with accredited residency programs.

Curriculum

Type of Courses	Total Credits
Subject Courses	15
Core Courses	9
Thesis	18
Total	**42**

Core courses (9 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Thesis

Subject courses (15 credits)

Item #	Title	Credits
MRA 501	Interactions of Radiation with Matter	3
MRA 502	Radiation production	3
MRA 503	New Frontiers in Radiation Oncology and Imaging	3
MRA 504	Specialized radiotherapy	3
MRA 505	Research assignment	3

Thesis (18 credits)

Item #	Title	Credits
MRA 600 A	Thesis A	9
MRA 600 B	Thesis B	9
		42

Semester 1

Item #	Title	Credits
MRA 501	Interactions of Radiation with Matter	3
MRA 502	Radiation production	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MRA 503	New Frontiers in Radiation Oncology and Imaging	3
MRA 504	Specialized radiotherapy	3
MRA 505	Research assignment	3
REC 503	Research Methodologies	3

Semester 3

Item #	Title	Credits
MRA 600 A	Thesis A	9

Semester 4

Item #	Title	Credits
MRA 600 B	Thesis B	9

Master of Science in Health economics Health Economics

Program

College of Medicine

Master of Science in Health economics

The Master in Health Economics program is ideal for professionals already working within health technology policy formulation, as well as those with roles in management and evidence-based commissioning and purchasing, as well as those in the pharmaceutical, medical devices or diagnostics industries. This program will equip successful graduates with professional-level competency in the design, commissioning, and review of health technology assessments in multiple jurisdictions, delivering perspectives in product development, planning, prioritization of research, and local and international health policy planning.

Suggested Curriculum

Type of Courses	Compulsory	Total
Subject Courses	24	24
Thesis	18	18
Total	**42**	**42**

Subject courses (24 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MHE 500	Health Economics	3
MHE 501	Methods and Processes in Health Technology Assessment	3
MHE 502	Healthcare Systems and Reimbursement	3
MHE 503	Modeling in Health Economics	3
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3

Thesis (18 credits)

Item #	Title	Credits
MHE 600 A	Thesis A	9
MHE 600 B	Thesis B	9
		42

First Year first semester

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MHE 500	Health Economics	3
MHE 501	Methods and Processes in Health Technology Assessment	3

first year second semester

Item #	Title	Credits
MHE 502	Healthcare Systems and Reimbursement	3
MHE 503	Modeling in Health Economics	3
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3

Second year first semester

Item #	Title	Credits
MHE 600 A	Thesis A	9

Second year second semester

Item #	Title	Credits
MHE 600 B	Thesis B	9

Master of Cardiac Nursing Cardiac Nursing

Program

College of Medicine

Master of Cardiac Nursing

Alfaisal University College of Medicine in collaboration with the Prince Sultan Cardiac Centre (PSCC) is offering a 42-credit two-year Master of Cardiac Nursing (MCN) program consisting of lectures, clinical courses, and a capstone project. This specialty Nursing master's degree is a response to the need within the healthcare sector and will be supported by scholarships from PSCC.

This master's degree is designed to advance registered nurses' cardiac knowledge and skills enabling them to meet contemporary challenges in advanced cardiac nursing. Participation in the program will develop understanding of the nursing and medical care requirements for all levels of adult and paediatric patient complexity and assist the registered nurse to integrate theory into practice supporting both academic and clinical competence. By enhancing the theoretical knowledge and the practical abilities, qualified cardiac registered nurses' graduates will be able to deliver adept clinical assessment, decision making and patient management skills, while supporting the imperative of evidence-based practice more effectively. The Master of Cardiac Nursing will enable graduate nurses to develop their professional autonomy while providing role models, as well as educational and leadership support for junior staff.

Credit Hours Required for a Master of Cardiac Nursing(MCN)

Types of Courses	Total Credit Hours
Core Courses(including Practicum)	36
Project/Capstone	6
Total	**42**

Core Courses

Item #	Title	Credits
MCN 511	Cardiovascular Pulmonary 1	3
MCN 512	Cardiology Diseases	3
MCN 514	Quality and Safety Consideration in Nursing Care	3
MCN 521	Cardiovascular Pulmonary 2	3
MCN 522	Clinical Cardiology (Pediatrics, Adults) & Intensive care	3
MCN 523	Evidence-based Practice	3
MCN-C 531	Clinical Pediatric Cardiology	3
MCN-C 532	Clinical Adult Cardiology	3
MCN-C 533	Clinical Cardiac Surgery	3
MCN-C 534	Clinical Cardiac Intensive Care	3
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Capstone Project

Item #	Title	Credits
MCN 601	Capstone Project	6
		42

Semester 1

Item #	Title	Credits
MCN 511	Cardiovascular Pulmonary 1	3
MCN 512	Cardiology Diseases	3
REC 504	Biomedical Ethics	3
MCN 514	Quality and Safety Consideration in Nursing Care	3

Semester 2

Item #	Title	Credits
MCN 521	Cardiovascular Pulmonary 2	3
MCN 522	Clinical Cardiology (Pediatrics, Adults) & Intensive care	3
MCN 523	Evidence-based Practice	3
REC 503	Research Methodologies	3

Semester 3

Item #	Title	Credits
MCN-C 531	Clinical Pediatric Cardiology	3
MCN-C 532	Clinical Adult Cardiology	3
MCN-C 533	Clinical Cardiac Surgery	3

Semester 4

Item #	Title	Credits
MCN 601	Capstone Project	6
MCN-C 534	Clinical Cardiac Intensive Care	3

Master of Clinical Psychology
Clinical Psychology

Program

College of Medicine

Master of Clinical Psychology

The Master of Clinical Psychology is offered academically by the College of Medicine in collaboration with King Fahad Medical City (KFMC) for the clinical aspect of the degree. The courses of the Master program of Clinical Psychology are designed as a practical program and includes a research/capstone project. Most of the courses have a practical element which will be applied at the Mental Health Department of the National Neuroscience Institute in King Fahad Medical City.

Credit Hours Required for a Master of Master of Clinical Psychology(MCP)

Types of Courses	Compulsory	Elective	Total
Subject	24	-	24
Practicum & Clinical Internship Rotations	24	-	24
Research/Capstone Project	6	-	6
Total	54	-	54

Subject Courses

Item #	Title	Credits
MCP 500	Neuropsychology	3
MCP 501	Clinical Psychology	3
MCP 502	Schools of Psychotherapies	3
MCP 503	Case Formulation	3
MCP 504	Assessment and Clinical Interview	3
MCP 505	Cognitive Behavioural Therapy	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3

Clinical Rotations & Internship

Item #	Title	Credits
MCP 602 B	Internship B	12

Research/Capstone Project

Item #	Title	Credits
MCP 601-A	Research/Capstone Project	3
MCP 601-B	Research/Capstone Project	3
		54

Semester 1

Item #	Title	Credits
MCP 500	Neuropsychology	3
MCP 501	Clinical Psychology	3
MCP 503	Case Formulation	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MCP 502	Schools of Psychotherapies	3
MCP 504	Assessment and Clinical Interview	3
MCP 505	Cognitive Behavioural Therapy	3
REC 502	Biostatistics	3

Semester 3

Item #	Title	Credits
MCP 602 A	Internship A	12
MCP 601-A	Research/Capstone Project	3

Semester 4

Item #	Title	Credits
MCP 601-B	Research/Capstone Project	3
MCP 602 B	Internship B	12

Master of Clinical Psychology - Child Life Track
Child Life

Program

College of Medicine

Master of Clinical Psychology - Child Life Track

The Master's of Clinical Psychology (Child life track) at Alfaisal University with an exit option of a Higher Diploma is committed to educating, preparing, and empowering future child life specialists of the highest caliber. The master's program will provide clinical child life professionals with the competencies, skills, and practice required to provide evidence-based, developmentally, and psychologically appropriate interventions and clinical child life services that meet the emotional, developmental, and cultural needs of pediatric patients and their families undergoing healthcare encounters or hospitalization in hospitals across Saudi Arabia and the world. Additionally, the program will prepare students to sit for the Child Life

certification exam with the Association of Child Life Professionals (ACLP), the certifying body of the profession of Child Life based in the United States.

Curriculum Thesis Option Master's of Clinical Psychology (Child life track)

Type of Courses	Total Cr Hours
Core Courses	06
Subject Courses	30
Thesis	12
Total	**48**

Core courses (6 credits)

Item #	Title	Credits
REC 503	Research Methodologies	3
REC 504	Biomedical Ethics	3

Subject courses (30 credits)

Item #	Title	Credits
MCP 520	Introduction to child life theory and practice	3
MCP 521	Growth and development: Early childhood (0 to 8 years)	3
MCP 522	Growth & development: Middle childhood to adolescence (9-18 years)	3
MCP 523	Family systems	3
MCP 524	Therapeutic play for child life specialists in hospitals	3
MCP 525	Grief, loss, and bereavement	3
MCP 526	Childhood illnesses, injuries, diseases and Disorders	3
MCP 527	Culturally sensitive & diverse child life practice & emotional safety	3
MCP 528	Pediatric palliative care and hospice care	3
MCP 529	Child life program development, administration, & leadership	3

Internship & Thesis

Item #	Title	Credits
MCP 603	Internship	0
MCP 600	Thesis	12
		48

Semester 1

Item #	Title	Credits
MCP 520	Introduction to child life theory and practice	3
MCP 521	Growth and development: Early childhood (0 to 8 years)	3
MCP 523	Family systems	3
MCP 524	Therapeutic play for child life specialists in hospitals	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MCP 525	Grief, loss, and bereavement	3
MCP 522	Growth & development: Middle childhood to adolescence (9-18 years)	3
MCP 526	Childhood illnesses, injuries, diseases and Disorders	3
MCP 527	Culturally sensitive & diverse child life practice & emotional safety	3
REC 503	Research Methodologies	3

Summer

Item #	Title	Credits
MCP 603 A	Clinical Internship	0

Semester 3

Item #	Title	Credits
MCP 528	Pediatric palliative care and hospice care	3
MCP 600 A	Thesis	6

Semester 4

Item #	Title	Credits
MCP 529	Child life program development, administration, & leadership	3
MCP 600 B	Thesis B	6

Master of Clinical Speech- Language Pathology

Clinical Speech- Language Pathology

Program

College of Medicine

Master of Clinical Speech- Language Pathology

A Speech Language Pathologist (SLP) is an allied health professional that works to "identify, help prevent, assess, diagnose, and treat a wide range of disorders affecting speech, language, social communication, cognitive-communication, and swallowing in children and adults". According to the American Speech and Hearing Association (ASHA), SLPs "work with the full range of human communication and swallowing disorders in individuals of all ages from new-born to the elderly. Having Speech Language Pathologist in a developing country is of primary importance since whereas swallowing is vital to sustain an individual's life, language is the mental and spiritual mean by which one can connect and communicate with others. Therefore, there is a need to develop professionals who have the skills and knowledge to tackle these disorders, and in addition carry out cultural and linguistically valid research to develop Saudi Arabian normative data as well as valid and reliable assessment and therapy protocols.

The master's in clinical Speech Language Pathology is offered academically by the College of Medicine at Alfaisal University. The Speech Language Pathology Clinic at King Faisal Specialist Hospital & Research Centre will carry out the clinical aspects of the degree. The courses are designed based on several educational pillars; in classroom taught courses and supervised clinical practice along with either a project or a thesis. Successful completion of these core elements leads to a graduate as a specialized speech therapy practitioner.

Credit Hours Required for a Master of Clinical Speech- Language Pathology(MSP)

Types of Courses	Compulsory	Total
Core	6	6
Subject	21	21
Practicum	9	9
Project	6	6
Total	42	42

Core Courses

Item #	Title	Credits
REC 503	Research Methodologies	3
REC 502	Biostatistics	3

Subject Courses

Item #	Title	Credits
MSP 500	Clinical Methods and Ethical Considerations	3
MSP 501	Feeding and Swallowing Disorders	3
MSP 502	Fluency & Speech Sounds Disorders	3
MSP 503	Neurogenic Acquired Communication Disorders	3
MSP 504	Alternative and Augmentative Communication	3
MSP 505	Developmental Language Disorders	3
MSP 509	Principles of Voice Production and Disorders	3

Project

Item #	Title	Credits
MSP 601	Research/Capstone Project	6

Practicum

Item #	Title	Credits
MSP 514	Practicum I: Pediatric Populations	3
MSP 515	Practicum II: Adult Populations	3
MSP 516	Practicum III: Specialized Populations	3
		42

Semester 1

Item #	Title	Credits
MSP 500	Clinical Methods and Ethical Considerations	3
MSP 501	Feeding and Swallowing Disorders	3
MSP 502	Fluency & Speech Sounds Disorders	3
MSP 514	Practicum I: Pediatric Populations	3

Semester 2

Item #	Title	Credits
MSP 504	Alternative and Augmentative Communication	3
MSP 505	Developmental Language Disorders	3
MSP 515	Practicum II: Adult Populations	3
MSP 503	Neurogenic Acquired Communication Disorders	3

Semester 3

Item #	Title	Credits
REC 502	Biostatistics	3
MSP 503	Neurogenic Acquired Communication Disorders	3
MSP 516	Practicum III: Specialized Populations	3

Semester 4

Item #	Title	Credits
MSP 601	Research/Capstone Project	6
MSP 509	Principles of Voice Production and Disorders	3

Master of Genetic Counselling Genetic Counselling

Program

College of Medicine

Master of Genetic Counselling

The goal of this courses-only program is to meet the current and future demand of healthcare system for highly qualified, competent, and culturally sensitive genetic counsellors in Saudi Arabia and in the region. Students graduating from the program will be recognized by the Saudi Commission for Health Specialties (SCHS) as a *Specialist in Genetic Counselling*.

Credit Hours Required for a Master of Master of Genetic Counselling(MGC)

Types of Courses	Compulsory	Elective	Total
Subject	21	-	21
Practicums & Clinical Rotations	15	-	15
Research/Capstone Project	6		6
Clinical Internship	0		0
Total	42	-	42

Subject Courses

Item #	Title	Credits
MGC 501	Topics in Genetic Counselling I	2
MGC 502	Topics in Genetic Counselling II	2
MGC 503	Psychosocial Aspects of Genetic Counselling	2
MGC 504	Genetic Basis of Inherited Disease	2
MGC 505	Cancer Genetic Counselling	2
MGC 509	Introduction to Anatomy & Physiology	2
MGC 515	Genetic Counselling & Islam	2
MGC 518	Introduction to Medical & Population Genetics I	2
MGC 519	Introduction to Medical & Population Genetics II	2
REC 503	Research Methodologies	3

Practicum & Clinical Rotations

Item #	Title	Credits
MGC 506	Biochemical and Newborn Lab Practicum	2
MGC 508	Molecular Genetics Practicum	2
MGC 510	Observational Clinic Rotation	1
MGC 511	Medical Genetics Clinic Practicum	2
MGC 512	Prenatal Clinic Practicum	2
MGC 513	Advanced Medical Genetics Clinic Practicum	2
MGC 514	Ultrasound Clinic Practicum	2
MGC 516	Cytogenetics Laboratory Practicum	2

Research/Capstone Project

Item #	Title	Credits
MGC 601	Research/Capstone Project	6

Clinical Internship

Item #	Title	Credits
MGC 517	Clinical Internship	0
		42

Semester 1

Item #	Title	Credits
MGC 501	Topics in Genetic Counselling I	2
MGC 505	Cancer Genetic Counselling	2
MGC 509	Introduction to Anatomy & Physiology	2
MGC 515	Genetic Counselling & Islam	2
MGC 518	Introduction to Medical & Population Genetics I	2

Semester 2

Item #	Title	Credits
MGC 502	Topics in Genetic Counselling II	2
MGC 510	Observational Clinic Rotation	1
MGC 516	Cytogenetics Laboratory Practicum	2
MGC 519	Introduction to Medical & Population Genetics II	2
REC 503	Research Methodologies	3

Semester Summer

Item #	Title	Credits
MGC 517	Clinical Internship	0

Semester 3

Item #	Title	Credits
MGC 503	Psychosocial Aspects of Genetic Counselling	2
MGC 504	Genetic Basis of Inherited Disease	2
MGC 506	Biochemical and Newborn Lab Practicum	2
MGC 508	Molecular Genetics Practicum	2
MGC 511	Medical Genetics Clinic Practicum	2

Semester 4

Item #	Title	Credits
MGC 512	Prenatal Clinic Practicum	2
MGC 513	Advanced Medical Genetics Clinic Practicum	2
MGC 514	Ultrasound Clinic Practicum	2
MGC 601	Research/Capstone Project	6

Master of Public Health Biostatistics & Epidemiology (Courses-Only Option)

Program

College of Medicine

Master of Public Health

Curriculum (Courses-Only Option)

Credit Hours required for a Master of Public Health: courses option

Type of Courses	Compulsory	Elective	Total
Core	18	-	18
Subject	9	-	9
Elective	-	6	6
Practicum	3	-	3
Research/Capstone Project	6	-	6
Seminar	1	-	1
Total	**37**	**6**	**43**

Core Courses

Item #	Title	Credits
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3
REC 502	Biostatistics	3

Subject Courses

Item #	Title	Credits
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3
MPH 509	Regression Analysis	3

Elective Courses

Choose 6 Credit Hours

Item #	Title	Credits
MPH 516	Survival Analysis	3
MPH 517	Categorical Data Analysis	3
MPH 518	Ethics in Research	3
MPH 519	Public Health and Healthcare Systems in KSA	3
MPH 520	Health Economics	3
MPH 521	Health Informatics	3
MPH 523	Research Design	3

Practicum

Item #	Title	Credits
MPH 525	Practicum	3

Res/Capstone Project

Item #	Title	Credits
MPH 601	Research/Capstone Project	6

Seminar

Item #	Title	Credits
MPH 526	Seminar	1
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3

Semester 3

Item #	Title	Credits
MPH 509	Regression Analysis	3
	MPH Elective	3
	MPH Elective	3

Semester 4

Item #	Title	Credits
MPH 525	Practicum	3
MPH 601	Research/Capstone Project	6
MPH 526	Seminar	1

Master of Public Health Biostatistics and Epidemiology (Thesis option)

Program

College of Medicine

Master of Public Health

Curriculum Thesis Option

Credit Hours Required for a Master of Public Health

Type of Courses	Total Credit Hours
Core Courses	16
Subject Courses	9
Thesis	18
Total	**43**

Core courses (16 credits)

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 527	Communicable & Non-Communicable Diseases	3
MPH 526	Seminar	1
MPH 506	Social & Behavioural Determinants of Health	3

Subject courses (9 credits)

Item #	Title	Credits
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3
MPH 509	Regression Analysis	3

Thesis (18 credits)

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 600 B	Thesis B	9
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 527	Communicable & Non-Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 506	Social & Behavioural Determinants of Health	3
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3
MPH 509	Regression Analysis	3

Semester 3

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 526	Seminar	1

Semester 4

Item #	Title	Credits
MPH 600 B	Thesis B	9

Master of Public Health Health Policy & Management (Courses-Only Option)

Program

College of Medicine

Master of Public Health

Curriculum (Courses Only Option)

Credit Hours required for Master of Science in Public Health: course option

Type of Courses	Compulsory	Elective	Total
Core	18	-	18
Subject	9	-	9
Elective	-	6	6
Practicum	3	-	3
Res/Capstone Project	6	-	6
Seminar	1	-	1
Total	**37**	**6**	**43**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3

Subject Core Courses

Item #	Title	Credits
MPH 513	Health Insurance & Health Policy	3
MPH 514	Quality Assurance in Public Health	3
MPH 515	Health Care Management	3

Elective Courses

Students choose 6 Credit Hours.

Item #	Title	Credits
MPH 523	Research Design	3
MPH 524	Nutrition	3
MPH 518	Ethics in Research	3
MPH 519	Public Health and Healthcare Systems in KSA	3
MPH 519	Public Health and Healthcare Systems in KSA	3
MPH 520	Health Economics	3
MPH 521	Health Informatics	3
MPH 522	Global Health	3

Practicum

Item #	Title	Credits
MPH 525	Practicum	3

Res/Capstone Project

Item #	Title	Credits
MPH 601	Research/Capstone Project	6

Seminar

Item #	Title	Credits
MPH 526	Seminar	1
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 513	Health Insurance & Health Policy	3
MPH 514	Quality Assurance in Public Health	3

Semester 3

Item #	Title	Credits
MPH 515	Health Care Management	3
	MPH Elective	3
	MPH Elective	3

Semester 4

Item #	Title	Credits
MPH 525	Practicum	3
MPH 601	Research/Capstone Project	6
MPH 526	Seminar	1

Master of Public Health Health Policy & Management (Thesis Option)

Program

College of Medicine

Master of Public Health

Curriculum (Thesis Option)

Credit Hours required for a Master of Public Health

Type of Courses	Compulsory	Elective	Total
Core	15	-	18
Subject	6	-	9
Elective	-	-	6
Practicum	3	-	3
Thesis	18	-	6
Seminar	1	-	1
Total	**43**	**0**	**43**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 527	Communicable & Non-Communicable Diseases	3

Subject Courses

Item #	Title	Credits
MPH 513	Health Insurance & Health Policy	3
MPH 515	Health Care Management	3

Practicum

Item #	Title	Credits
MPH 525	Practicum	3

Thesis

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 600 B	Thesis B	9

Seminar

Item #	Title	Credits
MPH 526	Seminar	1
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 513	Health Insurance & Health Policy	3

Semester 2

Item #	Title	Credits
MPH 525	Practicum	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 515	Health Care Management	3
MPH 527	Communicable & Non-Communicable Diseases	3

Semester

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 526	Seminar	1

Semester 4

Item #	Title	Credits
MPH 600 B	Thesis B	9

Master of Public Health Mass Gatherings Health - Hajj & Umrah (Courses-Only Option)

Program

College of Medicine

Master of Public Health

Curriculum (Courses-Only Option)

Credit Hours required for a Master of Public Health

Type of Courses	Compulsory	Elective	Total
Core	18	-	18
Subject	9	-	9
Elective	-	6	6
Practicum	3	-	3
Res/Capstone Project	6	-	6
Seminar	1	-	1
Total	**37**	**6**	**43**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3

Subject Courses

Item #	Title	Credits
MPH 510	Principles of Mass Gatherings Health	3
MPH 511	Principles of Disaster Management	3
MPH 512	Emerging Infections & Infectious Diseases Management	3

Elective Courses

Students can choose 6 Credit Hours

Item #	Title	Credits
MPH 523	Research Design	3
MPH 524	Nutrition	3
MPH 518	Ethics in Research	3
MPH 519	Public Health and Healthcare Systems in KSA	3
MPH 520	Health Economics	3
MPH 521	Health Informatics	3
MPH 522	Global Health	3

Practicum

Item #	Title	Credits
MPH 525	Practicum	3

Res/Capstone Project

Item #	Title	Credits
MPH 601	Research/Capstone Project	6

Seminar

Item #	Title	Credits
MPH 526	Seminar	1
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 504	Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 505	Non-Communicable Diseases	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 510	Principles of Mass Gatherings Health	3
MPH 511	Principles of Disaster Management	3

Semester 3

Item #	Title	Credits
MPH 512	Emerging Infections & Infectious Diseases Management	3
	MPH Elective	3
	MPH Elective	3

Semester 4

Item #	Title	Credits
MPH 525	Practicum	3
MPH 601	Research/Capstone Project	6
MPH 526	Seminar	1

Master of Public Health Mass Gatherings Health - Hajj & Umrah (Thesis Option)

Program

College of Medicine

Master of Public Health

Curriculum (Thesis Option)

Credit Hours required for a Master of Public Health

Type of Courses	Compulsory	Elective	Total
Core	19		19
Subject	6		6
Thesis	18		18
Total	**43**		**43**

Core Courses

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 525	Practicum	3
MPH 526	Seminar	1
MPH 527	Communicable & Non-Communicable Diseases	3

Subject Courses

Item #	Title	Credits
MPH 510	Principles of Mass Gatherings Health	3
MPH 513	Health Insurance & Health Policy	3

Thesis

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 600 B	Thesis B	9
		43

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 513	Health Insurance & Health Policy	3
MPH 527	Communicable & Non-Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 503	Environmental & Occupational Health	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 510	Principles of Mass Gatherings Health	3
MPH 525	Practicum	3

Semester 3

Item #	Title	Credits
MPH 600 A	Thesis A	9
MPH 526	Seminar	1

Semester 4

Item #	Title	Credits
MPH 600 B	Thesis B	9

Higher Diploma in Biomedical Sciences Analytical Biochemistry

Program

College of Medicine

Higher Diploma in Biomedical Sciences

		0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 505	Advanced Biochemistry	3

Semester 2

Item #	Title	Credits
REC 504	Biomedical Ethics	3
MBS 551	OMICS Techniques & their Applications	3
MBS 552	Advanced Analytical Biochemistry	3
MBS 553	Analytical Techniques for Clinical Biochemistry	3

Higher Diploma in Biomedical Sciences Biotechnology

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 503	Research Methodologies	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 505	Advanced Biochemistry	3

Semester 2

Item #	Title	Credits
REC 504	Biomedical Ethics	3
MNT 502	Nanobiotechnology	3
MBS 541	Analytical Biotechnology	3
MBS 542	Techniques of Biotechnology	3

Higher Diploma in Biomedical Sciences Cancer nanoscience

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MNT 551	Cancer mechanisms as therapy targets	3
MNT 552	Advanced Topic in Cancer Biology and Theranostics	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MNT 553	Cancer Genomics and Bioinformatics	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 506	Biosensors, nanodiagnostic and Lab on a Chip	3

Higher Diploma in Biomedical Sciences Clinical Anatomy

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 506	Human Gross Anatomy	3
MBS 500	Basics of Molecular & Cell Biology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 507	Clinical Embryology	3
MBS 508	Human Neuroanatomy	3
MBS 509	Histology and Cell biology	3

Higher Diploma in Biomedical Sciences Clinical Embryology & Reproductive Biology

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 521	Reproductive Biology and Embryology	2
MBS 525	Advanced Assisted Reproduction	2

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 522	Introduction to Assisted Reproduction	2
MBS 523	Infertility and Reproductive Medicine	2
MBS 524	Semen Analysis and Processing/Andrology	2
MBS 527	Practical Molecular Biology	2

Higher Diploma in Biomedical Sciences Infection Control

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 531	Basics of Microbiology	3
MBS 532	Fundamentals of Epidemiology and Surveillance	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 533	Infection Control Program Design & Management	3
MBS 534	Environmental Management	3
MBS 535	Patient Care Processes & Evidence Based Infection Control Practices	3

Higher Diploma in Biomedical Sciences Laboratory Quality Management

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBA 514	Organisational Behaviour	3
MBS 560	Method Comparison & Validation	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 558	Quality Management and Laboratory Accreditation	3
MBA 534	Leading Organisational Change	3
MBA 560	Healthcare Management	3

Higher Diploma in Biomedical Sciences Molecular & Cell Biology

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 500	Basics of Molecular & Cell Biology	3
MBS 501	Topics in Integrated & Systems Biology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 502	Methods in Molecular & Cellular Biology	3
MBS 503	Signal Transduction I	3
MBS 505	Advanced Biochemistry	3

Higher Diploma in Biomedical Sciences Nanomedicine & Nanodiagnostics:

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
MNT 510	Introduction to Nanoscience & Nanotechnology I	3
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MNT 502	Nanobiotechnology	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 503	Special Topics in Nanomedicine	3
MNT 506	Biosensors, nanodiagnostic and Lab on a Chip	3

Higher Diploma in Biomedical Sciences Thrombosis and Hemostasis

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 554	Transfusion Medicine and Blood Banking	3
MBS 555	Molecular Diagnostics in Blood Transfusion	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 557	Pathogenesis of Blood Disorders	3
MBS 563	Practical Hemostasis	3
MBS 558	Quality Management and Laboratory Accreditation	3

Higher Diploma in Biomedical Sciences Transfusion Medicine & Stem Cells

Program

College of Medicine

Higher Diploma in Biomedical Sciences

0

Semester 1

Item #	Title	Credits
REC 502	Biostatistics	3
REC 504	Biomedical Ethics	3
MBS 554	Transfusion Medicine and Blood Banking	3
MBS 555	Molecular Diagnostics in Blood Transfusion	3

Semester 2

Item #	Title	Credits
REC 503	Research Methodologies	3
MBS 556	Stem Cell Transplantation Technology	
MBS 557	Pathogenesis of Blood Disorders	3
MBS 558	Quality Management and Laboratory Accreditation	3

Higher Diploma in Clinical Psychology Child Life

Program

College of Medicine

Higher Diploma in Clinical Psychology

0

Semester 1

Item #	Title	Credits
MCP 520	Introduction to child life theory and practice	3
MCP 521	Growth and development: Early childhood (0 to 8 years)	3
MCP 523	Family systems	3
MCP 524	Therapeutic play for child life specialists in hospitals	3
REC 504	Biomedical Ethics	3

Semester 2

Item #	Title	Credits
MCP 525	Grief, loss, and bereavement	3
MCP 522	Growth & development: Middle childhood to adolescence (9-18 years)	3
MCP 526	Childhood illnesses, injuries, diseases and Disorders	3
MCP 527	Culturally sensitive & diverse child life practice & emotional safety	3
REC 503	Research Methodologies	3

Summer

Item #	Title	Credits
MCP 603 A	Clinical Internship	0

Higher Diploma in Public Health Biostatistics & Epidemiology Curriculum

Program

College of Medicine

Higher Diploma in Public Health

Biostatistics & Epidemiology Curriculum (Diploma Option)

0

Semester 1

Item #	Title	Credits
MPH 500	Principles of Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 527	Communicable & Non-Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 509	Regression Analysis	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 507	Advanced Biostatistics	3
MPH 508	Advanced Epidemiology	3

Higher Diploma in Public Health Healthcare Policy & Management

Program

College of Medicine

Higher Diploma in Public Health

Healthcare Policy & Management Curriculum (Diploma Option)

0

Semester 1

Item #	Title	Credits
MPH 500	Principles of Biostatistics	3
MPH 502	Principles of Epidemiology	3
MPH 503	Environmental & Occupational Health	3
MPH 527	Communicable & Non-Communicable Diseases	3

Semester 2

Item #	Title	Credits
MPH 525	Practicum	3
MPH 506	Social & Behavioural Determinants of Health	3
MPH 515	Health Care Management	3
MPH 513	Health Insurance & Health Policy	3

Higher Diploma in Child Mental Health Child Mental Health

Program

College of Medicine

Higher Diploma in Child Mental Health

This is a mission driven, blended-learning, part-time program, it designed as a comprehensive one-year course, totaling 24 credit hours. It aims to equip a multidisciplinary workforce dealing with children's mental health in different sectors to manage mild/moderate mental health problems. It also equips them with the tools for early detection to make appropriate referrals for specialized services when needed. The program is a result of a unique cross-cultural collaboration. It is designed and directed by Saudi faculty to ensure it meets the local need and taught by world class faculty at Massachusetts General Hospital/ Harvard Medical School

Core courses (18 credits)

Item #	Title	Credits
DCM 511	Wellness and Resiliency in Children and their Communities	3
DCM 512	Introduction to Child Mental Health	3
DCM 513	Child and Adolescents Mental Health Assessment	3
DCM 514	School Mental Health	3
DCM 515	Interventions in Child Mental Health	3
DCM 516	The Interface between Physical and Mental Health	3

Capstone project (6 credits)

Item #	Title	Credits
DCM 517	Capstone project	6
		24

Semester 1

Item #	Title	Credits
DCM 511	Wellness and Resiliency in Children and their Communities	3
DCM 512	Introduction to Child Mental Health	3

Semester 2

Item #	Title	Credits
DCM 513	Child and Adolescents Mental Health Assessment	3
DCM 514	School Mental Health	3
DCM 515	Interventions in Child Mental Health	3
DCM 516	The Interface between Physical and Mental Health	3

Semester 3 (Summer)

Item #	Title	Credits
DCM 517	Capstone project	6

College of Science and General Studies

Master of Nanoscience & Nanotechnology Nanomaterials for Energy & Environmental Applications

Program

College of Science and General Studies

Master of Nanoscience & Nanotechnology

Credit Hours Required for a Master of Nanoscience & Nanotechnology Nanomaterials for Energy & Environmental Applications (MNT)

Types of Courses	Compulsory	Elective	Total
Core	12	-	12
Subject	12	-	12
Thesis	18	-	18
Total	42		42

Core Courses

Item #	Title	Credits
MNT 510	Introduction to Nanoscience & Nanotechnology I	3
MNT 520	Introduction to Nanoscience & Nanotechnology II	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 540	Experimental Techniques in Nanotech - II	3

Choose one Subject Courses from below

Item #	Title	Credits
MNT 502	Nanobiotechnology	3
MNT 503	Special Topics in Nanomedicine	3
MNT 504	Biosensors & Lab-on-a-Chip	3

Subject Courses

Choose 3 courses.

Item #	Title	Credits
MNT 511	Renewable Energy Storage Systems	3
MNT 512	Polymer Nanocomposites	3
MNT 513	Topics in Nanomaterials Science	3
REC 503	Research Methodologies	3

Thesis

Item #	Title	Credits
MNT 600	Thesis A	9
MNT 600	Thesis B	9
		42

Semester 1

Item #	Title	Credits
MNT 510	Introduction to Nanoscience & Nanotechnology I	3
MNT 530	Experimental Techniques in Nanotech - I	3
MNT 511	Renewable Energy Storage Systems	3
	MNT Subject	3

Semester 2

Item #	Title	Credits
MNT 520	Introduction to Nanoscience & Nanotechnology II	3
MNT 540	Experimental Techniques in Nanotech - II	3
MNT 512	Polymer Nanocomposites	3
MNT 513	Topics in Nanomaterials Science	3

Semester 3

Item #	Title	Credits
MNT 600	Thesis A	9

Semester 4

Item #	Title	Credits
MNT 600	Thesis B	9

Courses

General MBA

General: The Alfaisal University College of Business MBA degree provides students with the theoretical knowledge and practical skills needed to take advantage of career opportunities and to deal effectively and responsibly with complex business challenges. Global and regional organizations require their managers and leaders to have a variety of technical, analytical, critical thinking, management, and interpersonal skills. The Alfaisal University MBA will equip students with the skills and qualification needed to realize these objectives and better serve your organization, your community, and your nation.

MBA 510 : Financial Accounting

At the end of this course, students will be able to analyse and interpret financial data and information and appreciate the consequences of their financial decisions. Students will study the assumptions and concepts underlying financial reporting, using the basic accounting equation, accounting adjustments and interpretations of the income statement, balance sheet, and statement of cash flow. The students will also explore topics such as earnings management and various other issues that permeates business operations.

Grad Scheme
Letter
Credits 3
Prerequisites
MBA 511

MBA 511 : Quantitative Analysis

At the end of this course, students will be able to explain quantitative and optimization methods and their applications in businesses. Emphasis will be put on demonstrating the uses, capabilities, and limitations of various mathematical models and statistical procedures for the purposes of exploring, summarizing and presenting data, as well as interpreting the results of statistical procedures and tests to make informed business decisions.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MBA 512 : Marketing Management

At the end of this course, students will be able to demonstrate the application, analysis and synthesis of marketing management concepts and strategies. Students will demonstrate and evaluate current approaches in marketing, consumer decision making, the marketing environment, product management, pricing decisions, distribution systems, integrated marketing communications, and managing the marketing effort. Key strategic concepts and processes are emphasized using lectures, case studies, client presentations, and through the development of marketing plans.

Grad Scheme
Letter
Credits 3
Prerequisites
NONE

MBA 513 : Managerial Economics

At the end of this course, students will be able to explain the relationship between the economic environment and business operations, apply microeconomic principles, including supply and demand, elasticity and their implication for product pricing strategies, analyse a range of macroeconomic variables including inflation, unemployment and economic growth, as well as fiscal and monetary policy tools.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MBA 514 : Organisational Behaviour

At the end of this course, students will be able to synthesise relevant knowledge to explain and evaluate solutions to various challenges facing a modern organization. The focus will be upon translating management and organizational behaviour theory to practices that result in organizational effectiveness, efficiency, and human resource development. In addition, students will be able to apply and analyse material to interpret, justify, and evaluate behaviour in simulated or live organisational applications.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MBA 515 : Business Analytics

The objective of this course is to deepen students' understanding of basic tools, concepts, and methodologies related to business analysis and also to enhance students' critical thinking and analytical skills. Students will learn to use computer tools including Excel, STATA, SPSS, COGNOS and/or TABLEAU in applying statistical methodologies related to applied problems commonly encountered in today's business environment. In addition, the course will enhance students' abilities to present complex business topics to diverse audiences and help integrate quantitative business analytics into their decision-making.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 511

MBA 516 : Managerial Finance

At the end of this course, students will understand the language and tools of finance as they relate to a modern business environment. The course will provide students with the capacity to understand relevant theories, as well as applying the tools and techniques to real world situations. Students will be able to value bonds and stocks, estimate asset returns according to their risk characteristics, and choose projects that maximize share- and stakeholder wealth. They will also develop a good understanding of firm valuation and how firms finance their capital expenditures.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 513

MBA 517 : Communication & Writing for Accountants

Emphasizes analysing business situations and preparing written and oral reports including informational reports, problem-solving reports, and formal analytical reports. Students will analyse accounting situations to identify problems and factors relevant to understanding and make a recommendation to propose a course of action.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 515

MBA 518 : Human Resource Management

At the end of this course, students will be able to explain and appraise key principles and practices for line managers and HRM practitioners in managing people and performance across organisations. They will also be able to evaluate HRM principles and practices for competitive relevance and strategic coherence. Topics covered include strategic HRM, HR planning, talent management, training & development, rewards & motivation, workplace effectiveness and commitment.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 514

MBA 519 : Strategic Management

At the end of this course, students will be able to understand and evaluate key concepts, tools, and principles of strategy formulation as they relate to internal firm characteristics and external competitive environment. This course serves as an integrative capstone course that seeks to provide a comprehensive examination of organizations using tools such as environmental scanning, corporate response to environmental change and sustainability, strategic and ethical behaviour, and industry analysis. The course is structured to foster analytical, reflective, and verbal skills, and to expose students to the intricacies of organizational decision-making within a global context.

Grad Scheme

Letter

Credits 3

Prerequisites

six MBA core courses

MBA 520 : Internal Controls, Audit & Fraud Prevention & Detection

Students learn about the auditing function and how to conduct an audit, including evaluation of internal controls, analytical testing, substantive testing and other methods to help minimize exposure to misstatements, irregularities, losses, and risk. The course is structured to enhance the student's ability to understand, find and correct misstatements, irregularities, losses and to assess risks that may exist in the firm's operating environment.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 511

MBA 521 : Advanced Topics in Financial Reporting

Utilization of strategic, analytical, and critical thinking skills to investigate financial accounting issues. Through the analysis of intra-disciplinary cases,

students show that they have the relevant research skills and technological sophistication to access, evaluate and interpret relevant information needed for decision making.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 516

MBA 522 : Operations Strategy
At the end of this course, students will be able to organize people and resources to gain a competitive advantage in the delivery of goods and services. Emphasis in this course includes capacity and location planning, layout planning, resource planning, scheduling, supply chain, forecasting, inventory control, and quality assurance.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 511

MBA 523 : Taxation of Business Entities
A comprehensive study of Corporate income taxation and also their major shareholders. Emphasis placed on reading and interpreting tax laws to determine the tax consequences of completed transactions and generate tax planning strategies for future taxations. Emphasis is placed on understanding how taxes relate to business decisions and planning.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 516

MBA 524 : International Taxation
Explores the application of international tax law relevant to entities conducting international transactions, as well as foreign individuals and entities conducting domestic transactions. Topics include the distinction between domestic and foreign-source income, taxation of foreign corporations, international tax treaties, taxation of cross-border acquisitions, and transfer pricing.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 523

MBA 525 : Zakat
This course includes studying the major characteristics of Zakat and taxation, including the estimation process of Zakat and taxation according to the Saudi Law. Additional topics include settlement of cases related to zakat disputes. The course emphasizes the link between theory and practice.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 523

MBA 527 : Marketing Intelligence
This course demonstrates the benefits of using a systematic and analytical approach to marketing decision making. An analytical perspective will enable students to understand how firms can systematically evaluate their strategies for managing the specific opportunities and challenges posed by analytics-driven decision making in today's data era. It will further prepare them to use and execute data analytic techniques on real-life company data and case studies to understand how to solve marketing analytics problems in a scientific and process-driven manner. More specifically, the course will provide a gentle introduction to analytic techniques such as customer choice analysis, conjoint analysis, customer lifetime value analysis, segmentation analysis, and structural equation modelling. After successful completion of this course, students will be well equipped to make return on investment cases for marketing expenditures, which companies are increasingly requesting from their executives.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 512

MBA 528 : Managerial Accounting
At the end of this course, students will be able to understand the role of accounting information systems in managerial decision-making and strategy execution. Students will learn how business managers use cost behaviour and cost analysis to enhance profitability of their products, services and customers. Students will also learn how managers use financial and non-financial information to improve processes and develop strategies and value drivers to attain sustainable competitive advantages.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 510

MBA 529 : Marketing Strategy
This upper-level marketing course is one of the capstones for MBA Digital Marketing students. It builds

on the “first principles” of marketing strategy approach which unites concepts discussed in previous marketing courses and concentrates on the development and application of value-enhancing strategies. More precisely, it argues that marketing strategies should be designed considering four principles: All customers are different, all customers change, competitors will react to a firm’s strategic changes, and every firm must allocate their budget to implement efficient and effective strategies. Students will learn the components and construction of a strategic marketing plan and gain considerable experience in making complex marketing decisions.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 512

MBA 530 : Managing Strategic Business Projects
At the end of this course, students will be able to apply project management principles and processes to effectively manage the implementation of business initiatives and projects and their alignment with organizational performance improvements and strategic objectives. The students will also be able to evaluate the impact of interrelated processes on project management, such as stakeholder management, leadership, triple constraints, and earned value management.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 531 : Marketing Research Project
Students in this course will conduct a marketing research project individually or in small groups. The project will aim to answer a marketing-related research question using qualitative or quantitative empirical methods. Further, they learn how to document, present, and discuss their findings. By providing an independent contribution to a complex research project, students will link theory and practice while also acquiring additional social skills through group work. The project includes reviewing literature, devising causal relationship hypotheses, collecting data, and testing hypotheses. Through this practical course, students will gain experience in using empirical methods, particularly data collection and evaluation (e.g., using multivariate analysis methods). The students will have discussions in milestone meetings with the supervisor and a final presentation of their results and implications.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 527

MBA 532 : Supply Chain Management
At the end of this course, students will not only be able to address the activities involved in managing the chain of supplies, but also to obtain the necessary skills to assess and evaluate supply chain performance and make recommendations to increase supply chain competitiveness. The course will provide students with the knowledge and tools necessary to develop, implement, and sustain strategies for the purpose of managing supply chain issues. Topics include building a strategic framework to analyse supply chains, designing supply chain networks, planning demand and supply, managing inventories, sourcing, transporting, pricing, and revenue management.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 522

MBA 534 : Leading Organisational Change
At the end of this course, students will be able to analyse the role that organisational cultures play to facilitate or impede organisational change and renewal. Students will also apply and evaluate the application of principles and processes of change management in contemporary business organisations.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 535 : Applied Business Research Project
At the end of this course, students will be able to apply relevant research skills to meet the requirements of a systematic research plan, which has been agreed by the student and supervisory faculty & approved by the MBA Office. Applied Business Research Projects relate to the following fields of MBA study: Economics, Finance, Management, Accounting, Project Management, Operations Management, Human Resource Management, Strategy, E-business, Health Management, Entrepreneurship, & Marketing.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 536 : Digital & Social Media Marketing

This core course aims to build a thorough understanding of the digital and social media marketing instruments that serve to achieve an organization's marketing objectives by providing a coherent customer experience along the customer decision journey. The course covers the contemporary methods and approaches of marketing to connected customers with outbound and inbound digital and social media marketing instruments. State of the art methods for measuring the performance and return on investment of these instruments are also discussed.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 512

MBA 537 : Global Marketing

The course provides a comprehensive understanding of the issues and challenges inherent in the formulation and implementation of global marketing programs. Such programs must account for international differences among the needs and preferences of customers with varying levels of purchasing power as well as disparate cultures, languages, and climates. Therefore, key emphasis is placed on the various forces affecting international marketing decisions, such as whether a company should internationalize and, if so, which markets it should enter and how. These topics are discussed through the lens of an increasingly global consumer culture.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 512

MBA 538 : Entrepreneurship and Innovation

At the end of this course, students will be able to develop an entrepreneurial orientation towards sustainable business growth. Students will also be provided with an integrated and practical approach to bringing innovation to market. In addition, they will be able to examine and evaluate the creative processes of innovation and introduce techniques that effectively solve problems and promote inventive solutions.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 514

MBA 540 : Islamic Finance

This course introduces and explains the basic pillars of Shari'ah Law as applied to finance and explores its various dimensions and interpretations, highlighting best practice. The course emphasizes the functions of the Islamic Financial System, including products and services such as Murabaha, Mudarabah, Musharakah, Bai Salam, Istisna, Ijarah, Sukuk and other instruments.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 516

MBA 541 : HR Planning, Recruitment & Selection

At the end of this course, students will be able to analyse and evaluate the principles and models of strategic HR planning, recruitment and selection. Students will also be able to develop action plans for managerial applications of effective strategic HR planning, recruitment and selection in the workplace, appropriate for maximizing stakeholder value.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 518

MBA 542 : Contemporary Economic & Financial Issues

At the end of this course, students will be able to demonstrate an awareness and understanding of current economic issues while applying advanced economic theory and knowledge to a selection of current economic and financial issues within a local and global context.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 513

MBA 543 : Internet Marketing Strategy

At the end of this course, students will be able to demonstrate the implementation and synthesis of marketing techniques that are particular to the Internet. Students will demonstrate and explore the marketing mix over the Internet, online consumer behaviour, online marketing research, website developments, legal and ethical issues, and social media marketing.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 512

MBA 544 : Financial Statement Analysis & Security Valuation

At the end of this course, students will be able to comprehensively understand financial statement analysis. Student will learn how to evaluate a firm's past performance, make judgment about its earnings quality, determine its current financial position, examine the underlying accounting assumptions of its major assets and liabilities, forecast its future prospect and estimate its fundamental value. The core emphasis of this course is on using financial statement analysis for equity valuation purposes. Students will apply methods of fundamental analysis and equity valuation in a series of assignments and projects using financial data of publicly traded Saudi and non-Saudi companies.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 510

MBA 545 : Independent Study

At the end of this course, students will be able to demonstrate relevant learning outcomes to meet the requirements of a learning plan, which has been agreed by the student and supervisory faculty member and approved by the MBA Office and the Dean. The following fields of MBA study are applied in Independent Study: Economics, Finance, Management, Accounting, Project Management, Operations Management, Human Resource Management, Strategy, E-business, Health Management, Entrepreneurship, and Marketing.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 515

MBA 546 : Comparative Management

At the end of this course, students will be able to analyse, compare, and evaluate the contextually appropriate application of management approaches in a variety of international settings. Students will also be able to design and apply a comparative benchmarking processes to differentiate and reconstruct relevant management responses for local applications.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 514

MBA 547 : Contemporary International Management Issues

At the end of this course, students will be able to demonstrate their ability to responsibly gather intelligence about specific contemporary international business and/or managerial topics. Students will also analyse and evaluate the opportunities and threats posed by these topics and respond with locally relevant recommendations and strategies.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 514

MBA 549 : Corporate Finance

This course analyses theoretical issues and practical applications in corporate finance. Topics include capital structure, liquidations preferences as suggested by agency models, pecking order theory, timing models, dividend policy, two fund separation theorem, convertible securities, initial public offerings, mergers and acquisition, and capital budgeting.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 516

MBA 550 : Service Marketing

At the end of this course, students will be able to demonstrate how they use the relevant body of marketing knowledge to develop, implement, and evaluate the effectiveness of the design of marketing programs in the service sector, such as bank/financial intuitions, healthcare, education, tourism, consultancy/training, insurance and telecommunications.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MBA 512

MBA 551 : Derivative Securities

This course is designed to expand students' understanding of derivative-related financial instruments & their use in investment & corporate finance situations. The course focuses on the practical applications of these instruments for speculation & tactical asset allocation strategies. Valuation models are explored and used within an arbitrage framework. The course develops basic mathematical tools necessary for analysis and pricing and covers forwards, futures, options, swap contracts, hedging, and derivatives-pricing models.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 549

MBA 553 : Bank Management
This course is designed to provide techniques for the financial management of commercial banks. Topics include risk management strategies based on industry structure, interest-rate risk, duration, lending practices, and international banking rules and regulations. It also covers capital management and financial gap analysis. The purpose and functions of central banking are also studied with attention to monetary targets and policies.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 516

MBA 555 : Corporate Governance, Business Ethics, & Corporate Social Responsibility
The course aims to develop an understanding of the underlying concepts of corporate governance, business ethics and CSR which are relevant to the contemporary business environment. It is designed to foster students' understanding of the ethical influences on economic, financial, managerial, and environmental aspects of business. The course further aims to develop students' ability to critically analyse ethical issues in business. This course reviews different regulatory processes essential to the understanding of the principles of corporate governance in Saudi Arabia, the region and Europe.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 510

MBA 558 : Value Innovation Strategy
At the end of this course, students will be able to explain challenges and shortcomings of conventional strategy and develop a foundation for competing using value innovation strategy. Students will also be able to explain key concepts, frameworks and tools of value innovation strategy. The application of fundamental methodology for creating and capturing new market space is of paramount importance, as is the logic and methods commonly used for strategic business moves.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 512

MBA 560 : Healthcare Management
At the end of this course, students will be able to explain the foundations of healthcare management - as a discipline and as a management process. Students will analyse and evaluate the ethical and legal considerations of healthcare decisions. In addition, they will be able to demonstrate an understanding of the healthcare system, policies, healthcare quality, patient safety and decision-making in hospitals and healthcare organisations.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 561 : Investment & Portfolio Theory
This course provides a comprehensive coverage of portfolio management and covers both theoretical and practical asset pricing models and management techniques for the purpose of evaluating the results of financial portfolios. It also explores topics related to market efficiency and evaluation of portfolio managers.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 516

MBA 562 : Health Informatics
Health Informatics provides an overview of health information management systems (HIMS), including the data within these systems and the translation of the data into interpretable information and subsequent knowledge. Students are introduced to information systems infrastructure and how information is incorporated into the operational process, clinical environments and medical research. At the end of the course, students will be able to analyse data, data flow and other pertinent information related to healthcare organizations.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 560

MBA 563 : Management Control & Performance Measurement
The objective of this course is to show how to design, implement and use management control and performance tools, techniques and systems to achieve business objectives both tactically and strategically. This includes analysing the impact of control and performance management on organizational

governance how management can measure and evaluate performance of the firm at various levels and what types of management incentives and rewards can be used to achieve proper performance and decision making.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 560

MBA 565 : HR Development and Performance
At the end of this course, students will be able to explain, assess, and leverage training and development to maximize workforce performance, improve organizational effectiveness, and increase the attractiveness of the organization by offering the benefits of skill acquisition and intellectual capital development.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 518

MBA 567 : Practicum & Seminar
The aim of this course is to develop student skills and to demonstrate the application of classroom knowledge and theory through a practice experience relevant to their areas of interest. The students will have the opportunity to provide evidence of application to potential employers. The practicum will be supervised and evaluated by a qualified preceptor/ academic advisor and must be framed and carried out within a public health practice context with an established organization or agency and apply public health skills and competencies.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 560

MBA 568 : Financial Econometrics
This course introduces basic principles and tools of econometrics using finance theories and relevant empirical applications. Students conduct applied financial research using appropriate statistical software such as SPSS and E-Views while covering essential theoretical concepts and statistical tools. The course will cover the fundamentals of probability, statistics, and regression analysis, as well as ARCH and GARCH models and other techniques appropriate for financial modelling.

Grad Scheme
Letter
Credits 3

MBA 569 : Sales & Value-Added Tax
This course explores a variety of topics in indirect taxation, including value-added taxes, sales and use and goods and services taxes and other indirect taxation methods frequently used by authorities. Import and export taxes are also covered.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 523

MBA 570 : Risk Management
This course is designed to be an introduction to the concepts, theories and practical applications associated with the measurement and management of financial, interest rate, and exchange rate risks. The course introduces students to forward, future and option markets as a means of reducing financial risk.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 571 : Integrated Marketing Communications
This course offers an in-depth exploration of all promotional activities that help businesses produce an integrated, market-focused brand message, including direct marketing, advertising, sales promotion, personal selling, public relations, social media, and publicity. While marketing is calculated and planned, this course will also highlight the role of creativity and how brands can appeal to consumers through memorable messaging.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 512

MBA 573 : Applied Econometrics
At the end of this course, students will be able to analyse economic data using real-world examples and applying statistical and mathematical methods for the purpose of giving empirical content to economic theory – either verifying it or refuting it. Students will also be able to evaluate economic / financial theories and their empirical applications.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 574 : Global Economics

At the end of this course, students will be able to demonstrate their comprehension of macroeconomic theories, models, tools of analysis and applications to help assess the impact of the dynamic global business environment on their business decisions. Students will also be able to analyse the global effects of monetary and fiscal policies using real-life macroeconomic data. Analytical tools will be applied to analyse global economic data for informed business decisions.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 513

MBA 575 : Negotiations

At the end of this course, students will be able to apply a variety of negotiation practices, using role-playing simulations that address distributive, integrative, team-based, and multi-party negotiations. Students will also evaluate conflict, ethics, and dispute resolution from the perspectives of a negotiator and as a third party.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 580 : Consumer Behaviour and Insights

This course examines behavioural theories and research findings, emphasising consumer evaluation of purchasing alternatives and decision making, and the marketing organization's role in influencing those decisions. Students will analyse, review and evaluate advanced readings from the consumer behaviour literature, develop an empirical study examining a specific topic in consumer research, and present it to their fellow students.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 512

MBA 581 : Managerial Decision Making

This course is designed to help students make better managerial decisions. It helps students recognize decision-oriented problems; how to represent and model the core structure, and how to analyse the problem using both formal and informal tools grounded in decision theory. It provides students with the skill to think effectively about the inputs into a decision analysis, whether to trust the analysis, and how to use the outputs to guide actions.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 582 : Total Quality Management

The many factors that affect the quality of products and services comprise the broad subject called total quality management (TQM). The goal of this course is to familiarize students with all aspects of TQM and to provide them with the knowledge they need to become designers of, and participants in, TQM programs. The topics covered in this course include strategic quality planning, organization structure for quality, quality in design and processes, statistical tools for quality assurance and process management.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 584 : Organizational Theory

This course examines different perspectives on organization theory and their relevance for management of organizations, both for-profit and non-profit. We will discuss how organization theory conceptualizes organizational environment, social structure, technology, culture, power, and conflict and how these subjects are reflected in real-life situations encountered in organizational practices. While examining various organizational theories, we will also be reading and discussing numerous cases so that difficult to understand, abstract concepts and theories become easier to grasp and apply in practice.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 585 : Leadership in Organizations: Principles & Practice

This course examines the theory and practice of leadership in different settings, from small groups to large, multinational corporations. We will study different types of leadership, such as authentic leadership, servant leadership, transformational leadership and adaptive leadership, and their relevance and adjustments in different cultures, business climates and practical situations. Based on lectures and business cases, students will learn to act as good leaders, engage in effective problem solving and prepare for their leadership roles and managerial

responsibilities for the purpose of exercising a positive, beneficial impact on organizations, communities and society.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 514

MBA 590 : Real Estate Analysis
At the end of this course, students will be able to gain a broad overview of real property concepts and characteristics, legal considerations, influences on real estate values, economic principles, market area analysis, investment and financing issues, and brokerage and management. Special emphasis will be given to the methods of creating economic and social value and the dynamics of emerging markets and trends.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 516

MBA 591 : Insurance
This course will present risk exposures with respect to individuals and firms. A wide variety of risk reduction techniques will be studied including life, property and casualty insurance. Students will explore topics related to liability insurance, health insurance, employee benefits, social insurance, legal principles, and functional and financial operations of insurers. In addition, the course will examine the problems faced by insurers, such as reinsurance and investment policies.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBA 515

MBA 592 : Digital strategy
This course examines the strategic use of digital technologies to create value and adapt to the rapidly evolving business landscape. By analyzing past digital revolutions and current trends like the Internet of Things, 5G networks, and the Fourth Industrial Revolution, we will explore how to effectively develop and strategically manage digital capabilities. The course will focus on aligning business and IT strategies, mitigating risks, and adhering to regulatory standards to ensure the successful implementation of digital strategies to advance organizational objectives.
Grad Scheme
Letter
Credits 3

Executive MBA General

The goal of the program is to educate private- and public-oriented supervisors and managers which will add substantial value to the Kingdom in line with Vision 2030. The Executive MBA will equip graduates with the analytical tools, techniques, and management skills necessary to create value in their companies and the Kingdom at large. The enrolled students are to complete 630 hours of course work, which is equivalent to 42 credit hours

MBA 571 : Managerial Finance
The objective of the module is to provide the student with the basic analytical tools required to make value-creating financial decisions. The student will be provided with an introduction to theoretical foundations and practical applications in financial decision-making. Topics covered in the module include analysis of financial and operating performance, assessment of financial health, working capital and growth management, the time value of money, the risk-return trade-off, valuation of financial and real assets, investments in revenue-generating assets, funding mechanisms and mergers and acquisition-related topics.
Grad Scheme
Letter
Credits 2

MBE 511 : Statistical Analysis: Uncertainty, Prediction and Quality Control
This course focuses on how to use partial information to draw conclusions about the underlying population. Managers will learn how to make inferences about the population based on sample data followed by the study of statistical process control that will enable the monitoring of a production process or service quality. Time will be spent on learning simple and multiple regression which are useful for prediction and forecasting. The module will also consider some other statistical modelling tools and techniques such as non-parametric tools. The emphasis of this module is on learning the methodologies (what they mean and what they are used for, seeing their applications, and interpreting outputs rather than focusing on learning a computer package or on studying the underlying mathematical details. Participants will also practice how to make decisions based on models, data, and quantitative reasoning.

Grad Scheme
Letter
Credits 2

MBE 512 : Data Analytics
Students will understand the terminology used in the big data and data analytics. They will also explore the applications of big data and data analytics in various corporate settings and introduce students to using, at an introductory level, menu-driving data analytics tools
Grad Scheme
Letter
Credits 2

MBE 513 : Data-Driven Decision Making
Extracting useful insights from the vast amount of information involves a combination of analytical skills and intuition. It is both art and science. The pedagogic philosophy in this course embraces the principle of learning-by-doing. You will learn a framework to guide effective decision-making during the analytics process, which helps ensure a sound business strategy based on facts. You will practice developing the questions, understanding stakeholder needs, identifying risks and uncertainties, and analyzing plan components, and will determine how to gather and analyze data to evaluate and communicate alternatives to upper management for decision-making. Examples, relevant discussions, and the use of Microsoft Excel will provide you with value that can be transferred back to the real-world environment
Grad Scheme
Letter
Credits 1

MBE 514 : Supply Chain Management, Optimization & Risk Management
At the end of this module, students will not only be able to address the activities involved in managing the chain of supplies, but also to obtain the necessary skills to assess and evaluate supply chain performance and make recommendations to increase supply chain competitiveness. The module will provide students with the knowledge and tools necessary to develop, implement, and sustain strategies for the purpose of managing supply chain issues. To meet these goals and objectives, the module covers fundamental optimization tools for quantitative analysis in the management area of management decisions. The module follows a practical spreadsheet-based approach to provide hands-on experience with software such as Excel Solver. The many factors that affect the quality of products and services comprise the broad subject called total quality management (TQM) are also covered.
Grad Scheme
Letter
Credits 2

MBE 520 : Risk & Reputation Management
Reputational risks and crises of all types are inevitable. Failures due to these risks and crises are not inevitable. The mission of this course is to help equip you to develop your decision-making tools to identify and effectively address risks and crises in our increasingly risk-laden dynamic and uncertain world. Unanticipated reputational crises can destroy a brand, enterprise, firm or person and their reputation. Properly anticipated, the damage, reputational or otherwise, from a crisis may be mitigated or, possibly, avoided totally. Marketing and communications play a substantial role in both risk assessment and crisis management processes. This course seeks to increase your awareness of dimensions of reputational risks so you can manage them more effectively while giving you more perspective on the complex inter-relationships of elements and disciplines at work in business development and management. Building and preserving your reputation is critical and impacts all image aspects.
Grad Scheme
Letter
Credits 1

MBE 530 : Financial Accounting
This module will allow executives to gain an understanding in use of accounting terminology and understand the basics of accounting regulation; understand the economic context of financial reporting and the interplay between different interested parties in this process; interpret trends and encounter red flags in the four financial statements (balance sheet, income statement, cash flow statement and the statement of shareholder’s equity); as well as understand the interrelation between those statements. This will be followed by a section of the module where executives learn about what impact future changes in internal and external factors may have on the financial results of a company. The quality of financial reporting, and how to identify possible management practices to achieve specific goals and objectives are introduced.
Grad Scheme
Letter
Credits 2

MBE 531 : Strategic Cost Management & Accounting-Based Decision Making

This module covers managerial accounting and cost management practices that can be strategically applied across the various functions of a business organization to improve organizational performance. The module emphasizes the methods available to measure and evaluate costs for decision-making and performance evaluation purposes. This course also focuses on developing and using financial and non-financial information to support decision-making, not only in a technical sense but also in a strategic sense. The course examines the application of financial and management accounting 'tools' relevant to critical financial decisions using cases that emphasize the use of accounting information for making informed business decisions.

Grad Scheme

Letter

Credits 1

MBE 535 : Corporate Governance & Global Business Operations

The module aims to develop an understanding of the underlying concepts of corporate governance, which are relevant to the contemporary business environment. It is designed to foster participants' understanding of the ethical influences on economic, financial, managerial, and environmental aspects. This module reviews different regulatory processes essential to the understanding of the principles of corporate governance in Saudi Arabia, the region, the US, and Europe. The course also explores globalization, business strategy, operations, and practices, examining national differences, trade policies, and key choices in internationalization strategies.

Grad Scheme

Letter

Credits 1

MBE 540 : Leadership, Organizational Effectiveness, & Communication

This module explores the behavioral science research behind effective leadership and communication practices. It will examine key concepts of leadership, communication theory and practices for the purpose of further honing your skills/style and expanding impact of leadership and communication. Ethics theories and practices will also be covered focusing on what are the responsibilities of leaders to establish ethical climates in their organizations and communities and how to deal with the tensions that exists between ethics and leadership. Are there universal values and ethical principles in leadership? What models and approaches exist to ethical leadership?

Grad Scheme

Letter

Credits 1

MBE 541 : Applied Leadership, People & Organizational Effectiveness

The focus of this module is to develop applied leadership skills focusing on practical applications in organizations. The module explores power, influence, and persuasion in organizational contexts and allows you to practice advanced leadership skills, such as conflict management, negotiation, delegation, and group facilitation, with emphasis on supervising, persuading, and motivating others. The strategic component of the module emphasizes leadership strategies for driving organizational change and preparing for the future while maintaining team performance. Different types of leadership approaches are explored.

Grad Scheme

Letter

Credits 1

MBE 542 : Performance Management and Human Resource Management

Upon completing this module, students will be able to explain and appraise key principles and practices for line managers and HRM practitioners in managing people and performance across organizations. Human resources related topics covered include strategic HRM, HR planning, talent management, training & development, rewards & motivation, workplace effectiveness and commitment. We will discuss performance measurements in the context of its purposes; linkages to organizational mission, vision and/or strategic goals; and process, management, and leadership implications. The different tools of performance management such as: dashboards; balanced scorecards; and benchmarking will be examined and discussed.

Grad Scheme

Letter

Credits 1

MBE 550 : Core management

This module examines different perspectives on organization theory and their relevance for the management of organizations, both for-profit and non-profit. We will discuss how organization theory conceptualizes organizational environment, social

structure, technology, culture, power, and conflict and how these subjects are reflected in real-life situations encountered in organizational practices. While examining various organizational theories, we will also be reading and discussing numerous cases so that difficult-to-understand, abstract concepts and theories become easier to grasp and apply in practice.

Grad Scheme

Letter

Credits 2

MBE 551 : Negotaiations

At the end of this module, students will be able to apply a variety of negotiation practices, using role-playing simulations that address distributive, integrative, team-based, and multi-party negotiations. Students will also evaluate conflict, ethics, and dispute resolution from the perspectives of a negotiator and as a third party.

Grad Scheme

Letter

Credits 1

MBE 552 : Strategic Sustainable Competitive Advantage

This course focuses on problems faced by, and the decisions made by, executive leaders who must balance the needs and expectations of stakeholders, customers, and employees with the requirements of local country practices and government regulations. By focusing on policy decisions, we will be concerned with the choice of goals as well as the organization, management, and deployment of scarce resources to pursue these goals within the context of an imperfect, changing, and competitive world. Based on value creation, this course provides concepts and ideas for the toolkit of the manager involved in the process of developing and sustaining a strategic competitive advantage. This leads to the general issue of how competitive advantages can be built in the long term.

Grad Scheme

Letter

Credits 1

MBE 553 : Strategic Change & Transformation

This module focuses on specific concepts, theories and tools that can guide executives to lead organizational change to successful execution. Students study change strategies, such as leading change, managing cultural change, and mergers or acquisitions, corporate transformation, managing growth, building the customer-centric organization, and managing radical organizational change.

Grad Scheme

Letter

Credits 2

MBE 554 : Managing Growth & Value Creation

The objective of this course is to provide students with insights into the problems and opportunities involved in managing growth and value creation. The course is designed to introduce a series of concepts, frameworks, and heuristics that enable people to manage growth in organizations of all sizes and types. The course focuses on the decisions and actions managers take in recognizing and choosing opportunities, obtaining and allocating resources, challenging, and directing personnel, and adapting personal goals and corporate strategies to changing personal and business conditions. Students learn strategic methods, working through operational decision-making processes, and learn how to identify opportunities for value creation, testing and improve value creation opportunities, develop a strategic plan for successful value creation, and structure operations to facilitate its execution

Grad Scheme

Letter

Credits 1

MBE 555 : Decision Making from a Psychological Perspective

This module is designed to help students make better managerial decisions. It helps students recognize decision-oriented problems; how to represent and model the core structure, and how to analyse the problem using both formal and informal tools grounded in decision theory. It provides students with the skill to think effectively about the inputs into a decision analysis, whether to trust the analysis, and how to use the outputs to guide actions.

Grad Scheme

Letter

Credits 1

MBE 556 : Entrepreneurship: Driving Innovation in Established Corporations

This module aims to understand the different factors that support innovation and entrepreneurial performance within an organization. Students are shown how innovations of products, services, processes, and organizational structure can create and destroy markets. Consideration is given to innovation within an organization, showing how innovation can be used to address social, environmental, and governance challenges. The students then integrate innovation into a managerial perspective, highlighting the entrepreneurial practices necessary to sustain

innovation and create new products and services. Students will analyze the factors that lead to the new and disruptive business models and how they impact organizational strategy and organization. Other covered areas include how to generate and manage ideas, opportunity assessment, and how to develop a plan to successfully execute a plan. Note that this is not a course in new product development.

Grad Scheme

Letter

Credits 2

MBE 557 : Project Management

The module develops knowledge of the most important project planning and control methods and techniques, both traditional and contemporary, in project management. It enhances understanding on how the variety of project management methods work through in-class applications, readings, and the use of relevant software. It addresses broader issues and challenges of managing projects successfully, including stakeholder engagement and management, risk and uncertainty, and the contribution of projects to innovation and operations.

Grad Scheme

Letter

Credits 1

MBE 558 : Management in Volatile, Uncertain, & Ambiguous Environments

In this course, you will gain insights into how you can identify and reduce the impact of volatility, uncertainty, complexity, and ambiguity in your workplace, elevating your opportunity to succeed. You will match your strengths and weaknesses with the leadership characteristics essential in today's VUCA world to formulate an action plan to guide you in improving your leadership skills. Finally, you will develop skills to improve your vision, courage, and character, ultimately preparing you to lead in a VUCA world

Grad Scheme

Letter

Credits 1

MBE 560 : Informatics & Digitalization

This is an overview course to prepare the general manager to be more effective in dealing (both strategically and organizationally) with the digital transformation of the global enterprise and its ecosystem of partnerships and suppliers. It is about the organizational transformation that takes place when any company wants to or needs to take a part of its business online and to “go digital.” Mastering the concepts, practices, and technologies of digital transformation is a critical skill for line managers in any area of business. Furthermore, the global dimension is becoming more critical as digital technologies and broadband networks change the speed and global reach by which enterprises can provide their services, partner with others, source their products, and enter remote markets. Additionally, the course explores various concepts related to informatics such as cyber security, database management, data storage and related issues.

Grad Scheme

Letter

Credits 2

MBE 561 : Artificial Intelligence & Machine Learning

AI technologies continue to expand their capabilities to perform human tasks, gaining interest from companies that seek to invest and embark on a transformational journey to improve the efficiency and effectiveness of their operations, products, and services. Before adopting these new technologies in their organizations, it is critical for leaders to understand what AI can do, the benefits it provides, and the challenges that might be encountered. The purpose of the course is to understand the general principles of automation with technology, understand the hype and reality of AI dangers, distinguish the different types of AI and what they are best used for, and see how machine learning and generative AI work.

Grad Scheme

Letter

Credits 1

MBE 570 : Economics

The course is concerned with understanding the nature of the competitive process and the source of firm-level competitive advantage. The focus is upon the economics of market competition, and the strategies that firms can adopt to gain a competitive advantage. The course explores the fundamental micro-economic principles of competition and applies these principles to the study of competitive advantages and strategies. It also provides students with an understanding of how macroeconomic performance is measured, how monetary and fiscal policies influence macroeconomic performance, and how these relate to everyday corporate business decisions.

Grad Scheme

Letter

Credits 1

MBE 571 : Managerial Finance

The objective of the module is to provide the student with the basic analytical tools required to make value-creating financial decisions. The student will be provided with an introduction to theoretical foundations and practical applications in financial decision-making. Topics covered in the module include analysis of financial and operating performance, assessment of financial health, working capital and growth management, the time value of money, the risk-return trade-off, valuation of financial and real assets, investments in revenue-generating assets, funding mechanisms and mergers and acquisition-related topics.

Grad Scheme

Letter

Credits 2

MBE 572 : Mergers & Acquisitions

The course examines the merger and acquisition process from the perspectives of both buyers and sellers. The course explores the difference between internal (make) versus external (buy) growth opportunities and their value-related consequences. Additional focus will be put on the interaction of strategic planning, value planning, financial strategies, and investment decisions. The goal of the course is to provide critical insights and powerful tools for the successful formulation and execution of an M&A strategy

Grad Scheme

Letter

Credits 1

MBE 580 : Marketing

This course addresses how to design and implement the best combination of marketing efforts to carry out a firm's strategy in its target markets. Specifically, this course seeks to develop the student's (1) understanding of how the firm can benefit by creating and delivering value to its customers, and stakeholders, and (2) skills in applying the analytical concepts and tools of marketing to such decisions as segmentation and targeting, branding, pricing, distribution, and promotion.

Grad Scheme

Letter

Credits 2

MBE 581 : Digital & Social Media Marketing

This module builds on the “first principles” of the marketing strategy approach, which unites concepts discussed in the Marketing for Healthcare module and concentrates on the development and application of value-enhancing strategies. More precisely, it argues that marketing strategies should be designed considering four principles: All customers are different, all customers change, competitors will react to a firm’s strategic changes, and every firm must allocate their budget to implement efficient and effective strategies. Students will learn the components and construction of a strategic marketing plan and gain considerable experience in making complex marketing decisions

Grad Scheme

Letter

Credits 2

MBE 582 : Branding and Product (Service) Strategy

This module aims to introduce the main theoretical and managerial concepts and issues related to business-to-consumer and business-to-business marketing and strategic market relations from a branding and product and service strategy perspective. The students are introduced to brand strategy frameworks, emphasizing how effective, strategy-linked brand positioning and architecture are essential in delivering a clearly defined and differentiating value proposition and customer offering. The emphasis will be on brand-building marketing and communication programs which can be used to meet company goals and objectives.

Grad Scheme

Letter

Credits 1

MBE 594 : Contemporary Topics in Business and Management I

The course allows students to update their knowledge and capabilities in business, management, and economics. The objective of this course is to help participants keep pace with future economic, business, management and technological developments that will impact business and society by providing them with a relevant knowledge bank, which may enhance their careers.

Grad Scheme

Letter

Credits 1

MBE 595 : Contemporary Topics in Business and Management II

Contemporary Topics in Business and Management II

Grad Scheme

Letter

Credits 1

MBE 596 : Contemporary Topics in Business and Management III

The course allows students to update their knowledge and capabilities in business, management, and economics. The objective of this course is to help participants keep pace with future economic, business, management and technological developments that will impact business and society by providing them with a relevant knowledge bank, which may enhance their careers.

Grad Scheme

Letter

Credits 1

MBE 599 : Capstone project

In consultation with faculty, the student will be required to complete a project report in the field of their choosing. The project is intended to solve a real-life problem through bridging theory and practice

Grad Scheme

Letter

Credits 5

MBE 601 : Capstone Project

In consultation with faculty, the student will be required to complete a project report in the field of their choosing. The project is intended to solve a real-life problem through bridging theory and practice.

Grad Scheme

Letter

Credits 3

Master of Engineering & Systems Management

The Ministry of Education (MOE) approved two-year M. Sc. in Engineering & Systems Management consists of both thesis and courses-only options. The program was developed in collaboration with the Centre for Complex Engineering Systems (CCES) at KACST (King Abdulaziz City for Science & Technology) and MIT (Massachusetts Institute of Technology). The elective courses span the themes: Decision Analysis & Data Analytics, Manufacturing & Supply Chain Management, and Development of Cyber-Physical Systems. This program is not an MBA; it is a technical master's degree focused on engineering, data science and computation. "Systems thinking" is an important part of the degree, whether applied to the improvement of existing systems and operations or the creation of new products and services. Personal engineering leadership development is a mandatory part of the program.

MEM 501 : Statistics and Data Analytics

Review of probability and probability distributions. Data description. Random samples and sampling distributions. Parameter estimation. Tests of hypotheses. Design and analysis of single-factor experiments: the analysis of variance. Design of experiments with several factors. Simple linear regression and correlation. Multiple regression. Nonparametric statistics. Introduction to statistical quality control and reliability engineering.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MEM 502 : Systems Architecture and Engineering

General introduction to systems engineering using both the classical V-model and the new META approach. Topics include stakeholder analysis, requirements definition, system architecture and concept generation, trade-space exploration and concept selection, design definition and optimization, system integration and interface management, system safety, verification and validation, and commissioning and operations. Discusses the trade-offs between performance, lifecycle cost and system operability. Readings based on systems engineering standards and papers. Students apply the concepts of systems engineering to a cyber-electro-mechanical system, which is subsequently entered into a design competition.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MEM 503 : Project & Program Management of Complex Systems

Covers the elements of project management critical to the success of engineering projects: project management framework, strategic management and project selection, project organization, human aspects of project management, conflicts and negotiations, scope management, time management, cost management, risk management, contracts and

procurement, project termination, the project management office, and modern developments in project management.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 504 : Advanced Engineering Economics & Cost Analysis
Covers the theory and application of advanced engineering economics principles and methods. Studies the effects of inflation, depreciation and taxes, cost estimation, sensitivity analysis, risk and uncertainty, capital budgeting, multi-attribute decision making, advanced asset replacement analysis and real option analysis.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 505 : Operations Engineering & Management
This course focuses on business processes, procedures, analytic methods and strategies used to transform various inputs into finished goods and services. The main course aim is to familiarize students with the problems and issues confronting operations managers, and provide them language, concepts, insights and tools to deal with these issues in order to gain competitive advantage through operations. Operational issues include designing, acquiring, operating, and maintain the facilities and processes; purchasing new materials; controlling and maintain inventories; and providing the proper labor to produce a good service so that customer expectations are met.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 506 : Leadership Development for Engineers & System Managers
This course includes topics such as public speaking, leading diverse and creative teams, dealing with uncertainty and adversity and strategies for having difficult conversations in the workplace. It is a general introduction of engineering leadership at the graduate level.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 507 : Applied Computation and Data Science
Presents fundamentals of computing and programming in an engineering context with an emphasis on data science. Introduces web computing, data structures, and techniques for data analysis. Includes filtering, linear regression, simple machine learning (clustering and classifiers), and visualization. Surveys techniques for ingesting, processing, analyzing, and visualizing big data from a range of fields, including environmental, transportation, supply chain, city data. Basic concepts of data storage and web server-side programming are covered. Students use JavaScript and HTML5 programming language to complete weekly assignments.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 501

MEM 508 : Stochastic Methods for Engineers & Syst Managers
Stochastic systems analysis applied to engineering problems. Topics include: Markov chains, queuing theory, queuing applications.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 509 : Systems Modeling and Simulation
Generating discrete and continuous random variables. Discrete-event simulation. Statistical analysis of simulated data.Variance reduction techniques. Statistical validation techniques. Markov chain and Monte Carlo methods. Experience with a modern discrete-event simulation package (e.g., ARENA, ProModel).

Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 510 : Decision & Risk Analysis for Eng & Syst Managers
Covers the theory and practice of analyzing decisions arising in engineering systems. Covers multiple objectives, influence diagrams, decision trees, and sensitivity analysis, and probability assessment, multi-attribute utility and human biases. Describes practical

applications through real world systems model building. Uses decision analysis software and spreadsheets to solve real-life problems through case studies.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 501

MEM 511 : Deterministic Management Science
Mathematical modeling and the operations research approach for solving engineering decision problems. Formulation and classification of optimization models. The concept of improving search directions. Formulation of linear programs (LPs).The simplex algorithm and alternative approaches for solving LPs. Duality and sensitivity analysis in linear programming. Multi-objective optimization and goal programming. Network flow models. Formulation and solution methods of integer programs. Nonlinear programming. Introduction to metaheuristics. The course emphasizes problem formulation and solution via modern optimization modeling software
Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 512 : Special Topics I
Selected topics of current interest in Engineering & Systems Management. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.
Grad Scheme
Letter
Credits 3
Prerequisites
Department Approval

MEM 513 : Special Topics II
Selected topics of current interest in Engineering & Systems Management. The course is designed to give the students an opportunity to pursue special studies not offered in other courses.
Grad Scheme
Letter
Credits 3
Prerequisites
Department Approval

MEM 514 : Logistics & Supply Chain Engineering
Explores key logistical issues related to the design, planning and operation of supply chain systems. Includes topics such as supply chain structure, supply chain performance metrics, network design, facility location in a supply chain, aggregate planning, planning and managing inventory in a supply chain, transportation in a supply chain, pricing and revenue management
Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 515 : Advanced Quality Engineering
Covers the techniques and applications of quality control using total quality management and reliability engineering. Includes sampling procedures, product quality and control, statistical process control charts and troubleshooting, product acceptance sampling plans, process capability analysis, an introduction to six sigma and design of experiment, time-to-failure, failure rate, reliability and system reliability.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 501

MEM 516 : Methodologies for Operational Excellence
Development of the concept of a lean organization. Identification of waste activities. How to use flow analysis to analyze a process and identify non-value-added activities. Understanding of the standard lean operations tools: 6S, visual workplace and visual order control, manufacturing cells, use of takt time, setup time reduction, standard worksheets, etc. The benefits of incorporating lean concepts during the development phase of new products. Error-controlling devices and how they can be used during the manufacturing process to reduce errors. Understanding what sigma quality concepts are, introduction to how to conduct kaizen blitzes, and why continuous improvement is important to the organization.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 517 : Production Systems Analysis & Design
This course investigates fundamental properties that govern production systems and utilizes them for analysis, design and continuous improvement. Using actual case studies of real-world problems and successful, implemented solutions, this course teaches students to design novel, efficient production systems, understand reasons for lost productivity and design

continuous improvement projects, and use Measurement-Based Management techniques for operating production systems in Just Right regimes. Topics include quantitative methods for analysis of production systems; analytical methods for design of lean in-process and finished goods buffering; measurement-based methods for identification and elimination of production system bottlenecks; and system-theoretic properties of production lines.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 518 : Warehouse Systems Analysis & Design

This course focuses on efficient warehouse operations and covers the following topics: Management of warehouse fundamentals: space and time; Storage policies: dedicated and shared, and their use; Warehouse analytics: discover opportunities for improvement. Size and stock a forward area for split-pallet and split-case picks. Pallet operations and layout; Order-picking in high-volume and in low-volume environments; Benchmarking warehouse performance; Maintaining inventory accuracy; Warehouse Management Systems; and Issues and trends in automation.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MEM 505

MEM 519 : Product & Service Development

The focus of this course is the integration of marketing, design, and production functions of the firm in creating a new product or service. The course is designed to prepare students to contribute in the development of strategies and tasks relevant to new product or service introductions.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 520 : Rapid Prototyping for Cyber-Physical Systems

Design and prototype of large-scale technology intensive systems. Design project incorporating infrastructure systems and areas such as transportation and hydrology; for example, watershed sensor networks, robot networks for environmental management, mobile Internet monitoring, open societal scale systems, crowd-sources applications, traffic management. Design of sensing and control systems, prototyping systems, and measures of system performance. Modeling, software and hardware implementation.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 521 : Internet of Things

The course introduces the Internet of Things (IoT) along with its definition, its enabling technologies, and its applications in various sectors. It further describes technology models for tagging, sensing and actuation, as well as data generation and processing. The latter includes both cloud- and edge-based IoT management and processing architectures. The course involves a hands-on-experience that culminates in an implementation project.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 522 : Information Systems Analysis and Design

This course provides students with concepts of the analysis and design processes and allows students to use industry standard methodology and framework to develop Industrial business information systems. The course combines terminology with conceptual and practical approaches to designing and implementing business systems. Analytical and problem-solving skills are developed through a modern integrated, structured approach. Predictive and adaptive approaches to systems development life cycle (SDLC) using an iterative approach are covered. The course contains the entire analysis and design process from conception through implementation, including training and support, system documentation and maintenance, and relevant project management techniques.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 523 : Telecommunications & Network System Analysis & Design

The course introduces telecommunications networks and their various design and operation considerations. After a review of the widely used technologies and

their applications, the course focuses on technical and economic aspects of network design including architecture considerations (access-core-homing); link and network quality indicators; basics of teletraffic engineering; preliminaries of network provisioning and backbone design; and CAPEX/OPEX considerations and tradeoffs. The course culminates in a real-world network analysis and/or design case study.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 524 : Artificial Intelligence
Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 525 : Machine Learning
Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 526 : Advanced Big data
Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 527 : Industrial Internet of Things (IIoT)
Grad Scheme
Letter
Credits 3
Prerequisites
None

MEM 600 : Thesis A
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MEM 600 : Thesis B
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MEM 601 : Research/Capstone Project
This intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on atopic approved by the graduate advisor, collection and analysis of data, project report preparation and defence. Although this course officially begins in second year the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the fall of their second year.
Grad Scheme
Letter
Credits 6

Master of Science in Applied Artificial Intelligence

The MSc in Applied Artificial Intelligence (AAI) at Alfaisal University offers a comprehensive, four-semester graduate program that prepares students to pioneer advancements in AI. The curriculum provides a robust foundation in the core disciplines of AI, with an emphasis on both theoretical and practical

knowledge. By combining theory with hands-on practice, the program facilitates active learning through collaborative projects that reflect real-world challenges.
The program is uniquely designed to cater to students from diverse academic backgrounds, enabling those with degrees in computing disciplines, healthcare, business, or other related fields to leverage their prior knowledge within one of four specialized tracks: Applied Artificial Intelligence, Intelligent Robotic Systems, Artificial Intelligence in Healthcare, and Business Intelligence. This approach ensures that graduates develop a profound understanding of AI as it applies specifically to their area of expertise.

MAI 5XX : Elective
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective II
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective III
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective IV
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective V
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective VI
Grad Scheme
Letter
Credits 3

MAI 5XX : Elective I
Grad Scheme
Letter
Credits 3

MAI 551 : Machine Learning
This course covers advanced topics in machine learning; supervised learning (linear regression, logistic regression, classification, support vector machines, kernel methods, decision tree, Bayesian methods, ensemble learning, neural networks); unsupervised learning (clustering, EM, mixture models, kernel methods, dimensionality reduction); learning theory (bias/variance trade-offs); and reinforcement learning and adaptive control.
Grad Scheme
Letter
Credits 3

MAI 553 : Trustworthy and Ethical AI Systems
This course delves into the critical aspects of creating AI systems that are both trustworthy and ethical. It covers the principles of ethical AI design, including transparency, fairness, privacy, and accountability. Students will explore various frameworks and guidelines for ethical AI development, discuss case studies of AI systems with significant societal impacts, and learn how to implement techniques for bias detection and mitigation. The course also addresses the importance of trust in AI, focusing on building reliable systems that earn user confidence through ethical decision-making processes. Through interactive discussions, hands-on projects, and critical analysis, participants will learn how to navigate the ethical challenges in AI development and contribute to the creation of responsible AI technologies.
Grad Scheme
Letter
Credits 3

MAI 554 : Deep Learning
Advanced deep learning concepts and natural language processing (NLP) fundamentals, Language modeling, Vector space semantics and Embeddings, Sequence labeling, Syntactic parsing, semantic analysis, Information Extraction, Machine translation, Discourse Coherence, Question Answering, Dialogue Systems and Chatbots, and Natural language summarization. The course also covers deep learning models in the context of language processing
Grad Scheme
Letter
Credits 3
Prerequisite Courses MAI 551

MAI 555 : Computer Vision and Pattern Recognition
The course will focus on algorithms used in computer vision applications while explaining the pattern recognition aspect of these algorithms. Topics include Taxonomy of computer vision tasks, applications of computer vision, image representation in the spatial and frequency domains, image formation, image filtering, feature detection and matching, image segmentation, image classification, object detection,

image alignment and stitching, motion estimation and tracking, depth estimation, and deep learning for computer vision.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MAI 551
MAI 552

MAI 556 : Generative AI

This course offers a comprehensive exploration of modeling in Generative AI applications, focusing on the cutting-edge Generative Pre-trained Transformer (GPT) language processing model. Students will delve into the fundamentals of natural language processing, deep learning, and the intricate mechanisms behind GPT. Throughout the course, participants will acquire hands-on experience in constructing and customizing their own GPT models for a diverse range of language processing applications.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MAI 551

MAI 560 : Selected Topics in Applied AI

This is an advanced course designed to explore the cutting-edge applications and methodologies of artificial intelligence across a variety of sectors. This course offers a deep dive into specialized AI domains such as autonomous systems, AI in healthcare, natural language processing advancements, and ethical AI deployment. Through a blend of lectures, case studies, and project-based learning, students will engage with the latest AI research and tools, applying their knowledge to solve real-world problems. Emphasizing innovation and critical thinking, this course prepares participants to contribute to the advancement of AI technologies and their applications, while considering the societal impacts and ethical implications of their work.

Grad Scheme
Letter
Credits 3

MAI 561 : Advanced Artificial Intelligence

Fundamental concepts and techniques of intelligent systems. Principles and methods for heuristic search, knowledge representation, problem-solving, planning and reasoning with uncertainty, game, and adversarial search, and their application to building intelligent systems in a variety of domains. Basics of machine learning, visual perception, and natural language processing and introduction to AI programming

Grad Scheme
Letter
Credits 3

MAI 562 : Human-Centered AI

This course provides an overview and introduction to the field of human-computer interaction and its applications in AI-enabled systems. It introduces students to tools, techniques, and sources of information about HCI and provides a systematic approach to design. The course increases awareness of bias in data-driven AI models, good and bad design through observation of existing technology, and teaches the basic skills of task analysis, and analytic and empirical evaluation methods. Graduate students will also participate in a laboratory where they will practice HCI techniques in an independent, self-defined project.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MAI 551

MAI 563 : Artificial Intelligence: Principles and Techniques

In this course, students are divided into teams to survey the field of AI applications, make presentations to the faculty and fellow students on areas that are ripe for AI development, and develop a product proposal, which will be carried through for the semester-long term project. Students learn and build deep learning applications using TensorFlow and Python. Topics include supervised learning, feed-forward neural networks, flow graphs, dynamic computational graphs, convolutional neural networks, and recurrent neural networks. Students will use high-level tools to engineer functioning machine learning models.

Grad Scheme
Letter
Credits 3

MAI 564 : Systems and Tool Chains for AI

Analysis is the systematic examination of an artifact to determine its properties. This course will focus on analysis of software artifacts--primarily code, but also including analysis of designs, architectures, and test suites. We will focus on functional properties, but also cover quality attributes like performance and security. In order to illustrate core analysis concepts in some depth, the course will center on static program analysis; however, the course will also include a breadth of techniques such as testing, model checking, theorem proving, dynamic analysis, and type systems.

Concern for realistic and economical application of analysis will also be evident in a bias toward analyses that are scalable and incremental. The course emphasizes the fundamental similarities between analyses (in their mechanism and power) to teach the students the limitations and scope of the analyses, rather than the distinctions that arose historically (static vs. dynamic, code vs. spec). The course will balance theoretical discussions with lab exercises in which students will apply the ideas they are learning to real artifacts.

Grad Scheme

Letter

Credits 3

MAI 565 : Software Testing & Quality Assurance in AI Systems

This course is designed to give an understanding of the key concepts and principles in creating and managing successful software testing for AI-enabled systems to meet specific requirements using best practices of software quality assurance. Topics covered include software quality assurance, testing process, test design & coverage techniques, and testing strategy. Best practice strategies in AI software testing are also discussed. An overview of test automation methods and tools is also covered

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 551

MAI 566 : Principles and Engineering Applications of AI

This course offers an in-depth exploration into the core concepts and innovative applications of Artificial Intelligence in the engineering domain. This course aims to equip learners with a robust understanding of AI fundamentals, including machine learning, neural networks, natural language processing, and robotics, alongside their practical implications in solving real-world engineering challenges. Through a balanced approach of theory and hands-on projects, participants will delve into the process of designing, developing, and deploying AI systems across diverse sectors such as healthcare, automotive, and environmental engineering. By the end of this course, students will not only grasp the theoretical underpinnings of AI but also acquire the practical skills necessary to apply AI technologies in engineering contexts, preparing them for advanced roles in the rapidly evolving AI landscape.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 551

MAI 567 : AI in Cybersecurity

The course is designed to merge the fields of Artificial Intelligence and cybersecurity, providing students with insights into how AI technologies can enhance security protocols and defense mechanisms. This concise program covers the application of machine learning algorithms, anomaly detection, and AI-driven threat intelligence to predict, detect, and counteract cyber threats effectively. Participants will engage in real-world scenarios to develop AI-powered security solutions, preparing them for the challenges of safeguarding digital assets in an increasingly complex cyber landscape.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 551

MAI 568 : Natural Language Processing and Large Language Models

This comprehensive course on Natural Language Processing (NLP) and Large Language Models (LLMs) introduces participants to the foundational concepts and advanced techniques in the realm of machine learning that enable computers to understand, interpret, and generate human language. Through a blend of theoretical instruction and practical exercises, students will explore key topics such as text processing, sentiment analysis, language generation, and the architecture of state-of-the-art models like GPT-4. Students will gain hands-on experience in training, fine-tuning, and deploying large language models for a variety of applications, including chatbots, automated content creation, and linguistic data analysis. Emphasizing ethical considerations and the societal impacts of NLP technologies, this course equips students with the skills to leverage the power of language models responsibly and innovatively in their future projects or research.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 554

MAI 569 : Information Theory in AI Systems

This course delves into the pivotal role of Information Theory in Artificial Intelligence (AI) systems, offering a deep dive into how principles of data transmission, compression, and entropy underpin the efficiency and effectiveness of AI technologies. Through engaging

lectures and hands-on labs, students will explore the mathematical frameworks and algorithms that facilitate machine learning models' ability to learn from data, make predictions, and improve over time. The curriculum covers essential topics such as Shannon's entropy, information gain, and mutual information, applied in the context of optimizing neural networks, enhancing data encoding schemes, and ensuring secure AI communication channels. Designed for both theorists and practitioners, this course empowers participants with the knowledge to harness information theory concepts in developing advanced AI systems, optimizing their performance, and pioneering innovative solutions in the field.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 554

MAI 570 : Speech Recognition and Understanding

This course on Speech Recognition and Understanding bridges the gap between human language and machine processing, providing students with a comprehensive overview of the technologies that enable machines to recognize, interpret, and respond to human speech. Participants will explore the core algorithms and statistical models that power speech recognition systems, such as Hidden Markov Models (HMMs) and deep neural networks, alongside techniques for noise reduction, accent adaptation, and semantic analysis. Through practical exercises, students will learn to build and refine speech recognition models, implement natural language understanding (NLU) components, and develop applications capable of interacting with users through spoken language. Emphasizing current challenges and future directions in speech technology, this course prepares learners to innovate and lead in the rapidly evolving field of voice-enabled AI

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 552

MAI 571 : AI in Robotics

This dynamic course on AI in Robotics introduces students to the cutting-edge intersection of artificial intelligence and robotics, equipping them with the skills to design, program, and deploy intelligent robotic systems. Through a blend of theory and hands-on projects, participants will delve into the core concepts of machine learning, computer vision, sensor integration, and autonomous decision-making, applying these principles to solve real-world robotics challenges. The curriculum covers the development of robots capable of navigating complex environments, performing tasks with precision, and learning from their interactions. By exploring contemporary case studies and engaging in collaborative projects, students will gain a comprehensive understanding of

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 552

MAI 572 : AI-Driven Data Science Techniques

This dynamic course offers a deep dive into AI-Driven Data Science Techniques, equipping students with the knowledge to harness the power of artificial intelligence in extracting insights, making predictions, and driving decisions from complex datasets. Covering a broad spectrum of methodologies, including machine learning algorithms, deep learning networks, and reinforcement learning, participants will learn to apply these techniques to real-world data science problems. Through hands-on projects, learners will tackle challenges in various domains such as finance, healthcare, and social media analytics, utilizing AI to uncover patterns, predict trends, and optimize outcomes. The course also emphasizes ethical considerations and the responsible use of AI in data science, preparing students to become proficient and conscientious data scientists in a technology-driven world.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MAI 552

MAI 600 : Master’s Thesis in Applied Artificial Intelligence

Students enrolled in the thesis option prepare an MSc thesis proposal that includes the research problem(s) to be addressed by the proposed applied AI research, a thorough literature review of the related works, the objectives, the methodology to be followed, the results and contributions expected from the proposed research, as well as timeline and schedule of the proposed research. The research proposal will be evaluated according to the university regulations and college/department internal procedures.
Students are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a master’s Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of

Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Letter

Credits 18

MAI 600 A : Thesis A

Students enrolled in the thesis option prepare an MSc thesis proposal that includes the research problem(s) to be addressed by the proposed applied AI research, a thorough literature review of the related works, the objectives, the methodology to be followed, the results and contributions expected from the proposed research, as well as timeline and schedule of the proposed research. The research proposal will be evaluated according to the university regulations and college/department internal procedures.

Students are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Letter

Credits 9

MAI 600 B : Thesis B

Students enrolled in the thesis option prepare an MSc thesis proposal that includes the research problem(s) to be addressed by the proposed applied AI research, a thorough literature review of the related works, the objectives, the methodology to be followed, the results and contributions expected from the proposed research, as well as timeline and schedule of the proposed research. The research proposal will be evaluated according to the university regulations and college/department internal procedures.

Students are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Letter

Credits 9

MAI 601 : Master's Project in Applied Artificial Intelligence

This course first prepares the student for the project that shall be completed by students who take the coursework (project) path. Students work closely with the supervisor to define the scope of the AI-enabled project (of appropriate complexity) and understand its requirements, identify the tools required to do the project, and review relevant related literature. The student shall submit a written report to his supervisor at the end of the semester.

Following the project preparation study, the students apply the knowledge gained throughout the program. The project can take the form of a theoretical or experimental study (analysis, evaluation, comparison, etc.) or the design and/or implementation and/or maintenance of one or more components of a system. Students write a report describing their work and perform an oral presentation in front of an examination committee.

Grad Scheme

Letter

Credits 12

MAI 601 A : Project A

This course first prepares the student for the project that shall be completed by students who take the coursework (project) path. Students work closely with the supervisor to define the scope of the AI-enabled project (of appropriate complexity) and understand its requirements, identify the tools required to do the project, and review relevant related literature. The student shall submit a written report to his supervisor at the end of the semester.

Following the project preparation study, the students apply the knowledge gained throughout the program. The project can take the form of a theoretical or experimental study (analysis, evaluation, comparison,

etc.) or the design and/or implementation and/or maintenance of one or more components of a system. Students write a report describing their work and perform an oral presentation in front of an examination committee.

Grad Scheme

Letter

Credits 6

MAI 601 B : Project B

This course first prepares the student for the project that shall be completed by students who take the coursework (project) path. Students work closely with the supervisor to define the scope of the AI-enabled project (of appropriate complexity) and understand its requirements, identify the tools required to do the project, and review relevant related literature. The student shall submit a written report to his supervisor at the end of the semester.

Following the project preparation study, the students apply the knowledge gained throughout the program. The project can take the form of a theoretical or experimental study (analysis, evaluation, comparison, etc.) or the design and/or implementation and/or maintenance of one or more components of a system. Students write a report describing their work and perform an oral presentation in front of an examination committee.

Grad Scheme

Letter

Credits 6

Master of Science in Cybersecurity

The MSc in Cybersecurity program emphasizes a rigorous foundation in the core disciplines of information security and software engineering. The program is designed in line with the best practices of prominent universities offering similar programs. The program offers students fundamental knowledge, skills, and first-hand experience in cybersecurity by balancing theory and practice, engaging students in active learning, and encouraging collaboration on projects drawn from real-world contexts. Our students enter the program with a strong foundation in computer science or applied computing. They leave the program with a deep knowledge of cybersecurity

MCS 5XX : Elective

Grad Scheme

Letter

Credits 3

MCS 501 : Cryptography

This technical course thoroughly explores the principles as well as practices of cryptography in Information Technology systems, concentrating on securing communication and data through various and available encryption methods. Key topics to be covered in this course include asymmetric and symmetric encryption techniques, digital signatures, cryptographic protocols, hash functions, as well as cryptographic attacks.

Grad Scheme

Letter

Credits 3

MCS 502 : Vulnerability and Security Assessment

This course provides students with comprehensive knowledge and practical skills essential for identifying, evaluating, and mitigating vulnerabilities in digital systems and networks. Through a combination of theoretical frameworks and hands-on practical exercises, students delve into various methodologies and tools used in vulnerability assessment and penetration testing, preparing them for real-world scenarios in cybersecurity.

Grad Scheme

Letter

Credits 3

MCS 503 : Advanced Secure Software Engineering

The Secure Software Development course focuses on imparting students with essential skills for building secure and resilient software applications. Covering secure coding practices, threat modeling, authentication mechanisms, encryption, and secure software development lifecycle (SDLC) methodologies, the course emphasizes integrating security into every phase of the software development process. Through hands-on exercises and real-world examples, students learn to design and develop software solutions that adhere to industry-standard security principles, ensuring the protection of sensitive data from malicious threats

Grad Scheme

Letter

Credits 3

MCS 504 : Advanced Network Security

This course provides an in-depth study of network security principles and techniques for protecting computer networks from unauthorized access, attacks, and data breaches. Topics include network

vulnerabilities, encryption protocols, intrusion detection systems, firewalls, virtual private networks (VPNs), and secure network design.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MCS 501

MCS 505 : Security Ethics, Law, and Policy (Health, Financial, Military, Industrial)
This course explores the ethical, legal, and policy dimensions of security within various sectors including health, finance, military, and industrial domains. Topics include ethical frameworks in security, regulations and compliance, privacy laws, security policies, and the impact of security breaches on different sectors.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MCS 504

MCS 506 : Computer forensics
This course focuses on applying scientific methods to retrieve, preserve, and evaluate electronic proof from computers, storage systems, and digital networks. Computer forensics is crucial in cybersecurity, law enforcement, incident response, and judicial processes. Subjects covered are forensic investigation processes, evidence collecting and preservation, file system analysis, network forensics, and legal aspects of digital investigations.

Grad Scheme
Letter
Credits 3

MCS 507 : Advanced Ethical Hacking and Penetration Testing
The Advanced Ethical Hacking and Penetration Testing course offers students an in-depth exploration of the techniques, tools, and methodologies used in both offensive hacking and defensive security measures within work and Internet Hacking and Defense. The course emphasizes real-world attack methodologies employed by experienced penetration testers, covering a wide range of techniques from weaponizing Python, manipulating network access and control, and exploiting network devices, to advanced exploit writing against modern operating systems. Through hands-on labs and exercises, students will conduct sophisticated attack vectors to understand and mitigate potential security flaws.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MCS 502
MCS 504

MCS 508 : Security for Emerging Technologies
This course provides an exploration of security principles, challenges, and solutions related to emerging technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), and other new technological paradigms. It addresses the cybersecurity threats that accompany these technologies, emphasizing the design and implementation of robust security frameworks. The course aims to equip students with the tools to secure modern emerging technologies and systems against evolving threats.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MCS 502

MCS 521 : Special topics in Cybersecurity
The course "Special Topics in Cybersecurity" offers an in-depth exploration of emerging trends, advanced concepts, and specialized areas within the field of cybersecurity. Through a combination of theoretical study, practical exercises, and case studies, Students delve into cutting-edge topics relevant to the rapidly evolving landscape of cybersecurity.

Grad Scheme
Letter
Credits 3

MCS 522 : Advanced Cryptography and Cryptanalysis
The advanced cryptography and cryptanalysis course delves into the advanced theories and methodologies of cryptography, with a strong focus on cryptanalysis—the study of breaking cryptographic systems.

Building on the cryptography foundation presented in the prerequisite course, Cryptography 501, this course emphasizes both the creation and breaking of cryptographic mechanisms. Students will explore complex cryptographic algorithms, advanced encryption techniques, cryptographic protocols, and cutting-edge cryptanalysis methods. The course will cover topics such as advanced symmetric and asymmetric encryption techniques, cryptographic hash functions, digital signatures, and an in-depth study of cryptographic attacks, including modern cryptanalysis techniques and countermeasures

Grad Scheme

Letter
Credits 3
Prerequisite Courses MCS 501

MCS 523 : Database Security
This course provides an in-depth exploration of security mechanisms and best practices related to the protection of databases. The course covers a range of topics including database security models, access control, encryption, SQL injection, auditing, and compliance. Students will learn to identify vulnerabilities within database environments, implement robust security measures, and ensure the confidentiality, integrity, and availability of data. This course emphasizes both theoretical concepts and practical skills necessary to secure modern database systems against various threats and attacks.
Grad Scheme
Letter
Credits 3

MCS 524 : Web Application Security
This course covers the security challenges and solutions associated with web applications. It focuses on understanding the vulnerabilities in web technologies, the techniques used by attackers to exploit these vulnerabilities, and the strategies for defending against such attacks. Through theoretical knowledge and practical exercises, students will learn how to secure web applications throughout the development lifecycle, from design to deployment and maintenance.
Grad Scheme
Letter
Credits 3

MCS 600 A : Thesis A
Students enrolled in the thesis option prepare an MSc thesis proposal that includes the research problem(s) to be addressed by the proposed cybersecurity research, a thorough literature review of the related works, the objectives, the methodology to be followed, the results and contributions expected from the proposed research, as well as timeline and schedule of the proposed research. The research proposal will be evaluated according to the university regulations and college/department internal procedures.

Students are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Letter
Credits 9

MCS 600 B : Thesis B
Students enrolled in the thesis option prepare an MSc thesis proposal that includes the research problem(s) to be addressed by the proposed cybersecurity research, a thorough literature review of the related works, the objectives, the methodology to be followed, the results and contributions expected from the proposed research, as well as timeline and schedule of the proposed research. The research proposal will be evaluated according to the university regulations and college/department internal procedures.

Students are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Letter
Credits 9

MCS 601 A : Project A
This course first prepares the student for the project that shall be completed by students who take the coursework (project) path. Students work closely with the supervisor to define the scope of the Cybersecurity project (of appropriate complexity) and understand its requirements, identify the tools required to do the project, and review relevant related literature. The student shall submit a written report to his supervisor at the end of the semester.

Following the project preparation study, the students apply the knowledge gained throughout the program. The project can take the form of a theoretical or

experimental study (analysis, evaluation, comparison, etc.) or the design and/or implementation and/or maintenance of one or more components of a system. Students write a report describing their work and perform an oral presentation in front of an examination committee.
Grad Scheme
Letter
Credits 6

MCS 601 B : Project B
This course first prepares the student for the project that shall be completed by students who take the coursework (project) path. Students work closely with the supervisor to define the scope of the Cybersecurity project (of appropriate complexity) and understand its requirements, identify the tools required to do the project, and review relevant related literature. The student shall submit a written report to his supervisor at the end of the semester.

Following the project preparation study, the students apply the knowledge gained throughout the program. The project can take the form of a theoretical or experimental study (analysis, evaluation, comparison, etc.) or the design and/or implementation and/or maintenance of one or more components of a system. Students write a report describing their work and perform an oral presentation in front of an examination committee.
Grad Scheme
Letter
Credits 6

Doctor of Biomedical Science

The PhD program is prepared in line with Vision 2030 of the government and to fulfill the human capital needs of the healthcare transformation of the country. The Ph.D. in biomedical sciences program aims to prepare individuals for successful careers in research, academia, and industry by providing a strong foundation in biomedical science principles and applications. On completing the Ph.D. program, graduate students will have developed their critical thinking and problem-solving skills with specific application to biomedical sciences issues and opportunities of interest to the Kingdom. The program will also produce graduates who will be able to participate in and lead research teams in conducting effective biomedical research laboratory practice, and biotechnology projects.

DBS 7XX : Elective
Grad Scheme
Letter
Credits 3

DBS 701 : Scientific Communication
Scientific Communication is a specialized course designed for doctoral students in the Biomedical Sciences program. The course focuses on the principles and practices of effective scientific communication, including writing scientific papers, grant proposals, and technical documents, presenting scientific data, and communicating scientific concepts to a non-scientific audience. The course also delves into ethical issues related to scientific publishing and communication.
Grad Scheme
Letter
Credits 3

DBS 702 : Special Topics I: Emerging Trends in Molecular Biology
This course is designed to explore the latest research, methodologies, and concepts in molecular biology. It allows students to engage with emerging fields and cutting-edge technology in molecular biology, fostering an environment of innovative thinking and discovery.
Grad Scheme
Letter
Credits 3

DBS 703 : Special Topics II: Emerging Trends in Cell Biology
Special Topics II focuses on the current and emerging trends in cell biology. This course will delve into advanced research themes and novel experimental approaches, fostering an environment of in-depth understanding and discovery in cell biology.
Grad Scheme
Letter
Credits 3

DBS 704 : Advanced Biochemistry
Advanced Biochemistry is a PhD level course tailored for students enrolled in the Biomedical Sciences PhD program. The course builds upon the foundational principles of biochemistry and expands into detailed explorations of complex biochemical processes and phenomena that are central to the understanding of

human health and disease. The curriculum will touch upon a variety of key biochemical topics such as molecular biology, enzymology, metabolic pathways, and bioenergetics, all in the context of their biomedical applications

Grad Scheme

Letter

Credits 3

DBS 705 : Advanced Methods in Molecular and Cellular Biology

Advanced Methods in Molecular and Cellular Biology offers a deep dive into the cutting-edge methodologies employed in contemporary biomedical research. This course will equip students with comprehensive theoretical knowledge and practical expertise in a broad range of techniques used in molecular and cellular biology, from genome editing and single cell sequencing to high-resolution microscopy and bioinformatics. The integration of these advanced methods with explorations of current research challenges will facilitate a sophisticated understanding of how technical innovation drives scientific discovery.

Grad Scheme

Letter

Credits 3

DBS 706 : Advanced Molecular Biology

Advanced Molecular Biology is a specialized course designed for PhD students in the Biomedical Sciences program. It offers an in-depth exploration of the principles and methods of molecular biology with a focus on their application in the biomedical field. Students will delve into the molecular mechanisms governing cell function, gene expression, and genomics, gaining a comprehensive understanding of how these processes impact human health and disease.

Grad Scheme

Letter

Credits 3

DBS 707 : Signal Transduction I

Signal Transduction explores the fundamental principles of cellular signalling mechanisms, emphasizing the recognition of signals by cellular receptors, the transduction of these signals into cellular responses, and their implications for cellular function. Students will delve into the underlying biochemical pathways, molecular interactions, and cellular processes involved in signal transduction.

Grad Scheme

Letter

Credits 3

DBS 708 : Signal Transduction II

Building upon Signal Transduction I, this course delves deeper into the complexities of cellular signaling networks and their roles in human health and disease. Students will explore advanced topics, including cross-talk between signaling pathways, signal integration, and the use of transduction pathways in therapeutic interventions

Grad Scheme

Letter

Credits 3

DBS 709 : Advanced Assisted Reproductive Technologies

This course delves deep into the forefront of assisted reproductive technologies (ART), providing a comprehensive understanding of the fundamental principles, latest advancements, and ethical considerations in this fast-evolving field. The course offers a robust platform for exploring a variety of techniques such as in-vitro fertilization (IVF), intracytoplasmic sperm injection (ICSI), preimplantation genetic testing (PGT), and more. Students will critically analyze the science underlying ART, including genetics, embryology, reproductive biology, and the clinical application of these technologies

Grad Scheme

Letter

Credits 3

DBS 710 : Advanced Transfusion Medicine and Immunohematology

This course is designed for advanced PhD students in the Biomedical Sciences program and delves deep into the fields of transfusion medicine and immunohematology. It provides comprehensive knowledge on blood banking, donor compatibility, blood group systems, and the immunological responses related to transfusion. The course also covers the challenges, ethical considerations, and latest advances in the field.

Grad Scheme

Letter

Credits 3

DBS 711 : Advanced Clinical Anatomy

The Advanced Clinical Anatomy course is a highly specialized, in-depth offering for PhD candidates in Biomedical Science. It is designed to provide students with a comprehensive understanding of the complexities of human anatomy applicable to clinical practice, research, and teaching. The course integrates advanced theoretical concepts and cutting-edge

techniques in the discipline of clinical anatomy. Students will explore macro- and micro-anatomical structures, focusing on functional relationships in the human body, with an emphasis on clinical disorders and diseases. Topics include neuroanatomy, musculoskeletal, cardiovascular, respiratory, gastrointestinal, and reproductive systems. Throughout the course, students will engage with case-based learning scenarios, critically evaluate scientific literature, and discuss clinical implications of their findings. The course will capitalize on innovative teaching methods, including 3D imaging technologies, virtual dissection, and functional simulation models. By the end of the program, candidates will have gained the skills to conduct independent research and contribute to advancements in biomedical concepts within the field of clinical anatomy.

Grad Scheme

Letter

Credits 3

DBS 712 : Advanced Biotechnology

The core objective of this course is to foster a thorough understanding of advanced biotechnological concepts and methods, develop students' ability to apply these principles in innovative biomedical research, and imbibe ethical and professional values imperative to their roles as future scientists and leaders.

Grad Scheme

Letter

Credits 3

DBS 713 : Advances in Nanomedicine

Advanced Nanomedicine is a highly specialized course tailored for doctoral students. The course explores the burgeoning field of nanomedicine, delving into the application of nanotechnology in the diagnosis, treatment, and prevention of diseases. From nanoparticle drug delivery systems to nanoscale diagnostics and regenerative medicine, students will learn about the transformative potential and challenges of nanomedicine.

Grad Scheme

Letter

Credits 3

DBS 714 : Genomics and Transcriptomics

Genomics and Transcriptomics is an advanced course tailored for doctoral students in the Biomedical Sciences program. The course covers the principles, technologies, and applications of genomics and transcriptomics, two central pillars of modern molecular biology. Students will gain knowledge of how DNA and RNA analyses can illuminate complex biological systems and contribute to disease understanding and precision medicine.

Grad Scheme

Letter

Credits 3

DBS 715 : Sequencing Technologies

Sequencing Technologies is a specialized course tailored for doctoral students in the Biomedical Sciences program. This course delves into the principles, methodologies, and applications of various sequencing technologies including Sanger sequencing, Next-Generation Sequencing (NGS), and Third Generation Sequencing (TGS). Students will comprehend the technological advances and challenges in sequencing, its applications in genomics, transcriptomics, epigenomics, and their impact on biomedical research

Grad Scheme

Letter

Credits 3

DBS 716 : Cancer Biology I

Cancer Biology I is the first part of a two-course series designed for doctoral students in the Biomedical Sciences program. This course provides a deep understanding of the molecular and cellular underpinnings of cancer, exploring the fundamental mechanisms of oncogenesis, tumor biology, and metastasis.

Grad Scheme

Letter

Credits 3

DBS 717 : Cancer Biology II

Cancer Biology II, the second part of the two-course series, delves further into the complexities of cancer biology. The course focuses on the immunological aspects of cancer, tumor heterogeneity, therapeutic strategies, and recent advances in cancer treatment including immunotherapy, targeted therapy, and personalized medicine.

Grad Scheme

Letter

Credits 3

DBS 718 : Immunology and Transplant biology

Immunology and Transplant Biology is a specialized course for doctoral students in the Biomedical Sciences program. This course delves into the fundamental principles and latest advancements in immunology and transplant biology, with a focus on immune responses, transplant immunology,

immunosuppression, and graft rejection. The course also discusses the ethical, legal, and social implications of organ transplantation.

Grad Scheme

Letter

Credits 3

DBS 719 : Proteomics and Metabolomics

Proteomics and Metabolomics is an advanced course tailored specifically for doctoral students in the Biomedical Sciences program. This course delves deep into the principles, techniques, and applications of proteomics and metabolomics, two key pillars of systems biology. Students will gain profound knowledge of how protein and metabolite analyses can unravel complex biological phenomena and contribute to precision medicine and disease understanding.

Grad Scheme

Letter

Credits 3

DBS 720 : Bioinformatics

Bioinformatics is a comprehensive course designed specifically for doctoral students in the Biomedical Sciences program. This course covers the principles, methodologies, and applications of bioinformatics, which forms the backbone of contemporary biomedical research. Students will learn how to analyze and interpret high-throughput biological data, including genomics, transcriptomics, proteomics, and metabolomics data, and understand how these analyses contribute to disease understanding and precision medicine.

Grad Scheme

Letter

Credits 3

DBS 721 : Stem Cells and Regenerative Medicine

This rigorous and cutting-edge course provides an advanced exploration of stem cell biology and regenerative medicine. Students will delve into the intricate biology of different types of stem cells, their roles in tissue homeostasis, the mechanisms governing their pluripotency and differentiation, and their potential in regenerative therapies. The course will also explore the latest techniques in stem cell manipulation and genomic editing, alongside a critical examination of the ethical, legal, and social implications of stem cell research.

Grad Scheme

Letter

Credits 3

DBS 722 : Seminar

The Seminar course in the PhD program in Biomedical Sciences offers an intellectually stimulating and collaborative learning environment for advanced graduate students. This course aims to cultivate critical thinking, research presentation, and communication skills essential for successful scholars in the biomedical sciences. Through interactive seminars, students engage in in-depth discussions of cutting-edge research topics, emerging methodologies, and interdisciplinary advancements in the field. Emphasizing student-driven participation, the course promotes knowledge exchange, fosters interdisciplinary connections, and encourages the exploration of novel research directions. Students will enhance their ability to critically analyze scientific literature, constructively critique research presentations, and articulate complex ideas to diverse audiences

Grad Scheme

Letter

Credits 0

DBS 723 : Advanced Clinical Chemistry

This course provides an in-depth study of the qualitative and quantitative measurement of biochemical constituents in body fluids and their implications in disease. Topics covered include the examination of the liver and biliary system, enzymology, endocrinology, toxicology, and specialized testing. There is an emphasis on human health and disease, methodologies, theory, and utilization of biochemical instrumentation, including photometry, electrochemical, and electrophoresis, along with the introduction of new clinical tests in clinical chemistry. Through this course, students will gain comprehensive knowledge essential for clinical chemistry analysis and its significance in healthcare settings.

Grad Scheme

Letter

Credits 3

DBS 724 : Advanced Biostatistics

This course is designed for PhD students in Biomedical Sciences who have a strong foundation in statistics and are seeking to advance their statistical skills in order to conduct rigorous and meaningful research. The course will cover advanced statistical methods commonly used in biomedical research, with an emphasis on applications in clinical trials, epidemiology, and observational studies.

Grad Scheme

Letter
Credits 3

DBS 725 : Infectious Disease

This course provides a comprehensive overview of infectious diseases, encompassing the fundamental principles of bacteriology, virology, parasitology, and mycology. Students will explore the complex interplay between pathogens, hosts, and the environment, focusing on mechanisms of pathogenesis, host immune responses, and the evolution of drug resistance

Grad Scheme
Letter
Credits 3

DBS 800 A : Dissertation A

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Fail
Credits 6

DBS 800 B : Dissertation B

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an Advisory Committee. Length and style of the dissertation vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Fail
Credits 6

DBS 800 C : Dissertation C

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an Advisory Committee. Length and style of the dissertation vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Fail
Credits 6

DBS 800 D : Dissertation D

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an Advisory Committee. Length and style of the dissertation vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Fail
Credits 6

DBS 800 E : Dissertation E

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an Advisory Committee. Length and style of the dissertation vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Fail
Credits 6

DBS 800 F : Dissertation F

Students completing a PhD degree are expected to write a report, referred to as a Dissertation, on the results of an original investigation, in conjunction with an Advisory Committee. Length and style of the dissertation vary by college/department. All these are filed with the Office of Graduate Studies. An Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Dissertation Proposal, and later advise the student in the execution of the research, the dissertation write-up, and help the student to prepare for the oral defense.

Grad Scheme

Pass/Fail

Credits 6

DBS 801 : Laboratory Rotation I

Grad Scheme

Pass/Fail

Credits 3

DBS 802 : Laboratory Rotation II

Grad Scheme

Pass/Fail

Credits 3

DBS 822 : Advanced Bioanalytical Techniques

Advanced Clinical Chemistry for Biomedical Sciences is a graduate-level course designed to provide PhD students with in-depth knowledge and practical skills in state-of-the-art analytical techniques used in biomedical research. The course covers theoretical principles, instrumentation, and applications of advanced analytical methods, with a focus on their relevance to solving complex biological problems.

Grad Scheme

Letter

Credits 3

DBS 823 : Advanced Biosensors and Lab on a chip Technologies

This is advanced course covers the fundamentals and advanced level of biosensing platforms, nanobiosensors, biophotonics and bioelectronics. The course will cover up to date topics related to nano/biosensors, lab on a chip and micro/nano-arrays such as the various transduction platforms, materials used in fabricating the devices, micro/nano-fabrication techniques, recognition receptors used in biosensors, immobilization of recognition receptors and application in biomedical, security, food and environmental applications. In addition, business and market analysis of current and future biosensing and lab on a chip devices will be provided

Grad Scheme

Letter

Credits 3

Higher Diploma in Child Mental Health

This is a mission driven, blended-learning, part-time program, it designed as a comprehensive one-year course, totaling 24 credit hours. It aims to equip a multidisciplinary workforce dealing with children's mental health in different sectors to manage mild/moderate mental health problems. It also equips them with the tools for early detection to make appropriate referrals for specialized services when needed. The program is a result of a unique cross-cultural collaboration. It is designed and directed by Saudi faculty to ensure it meets the local need and taught by world class faculty at Massachusetts General Hospital/Harvard Medical School

DCM 511 : Wellness and Resiliency in Children and their Communities

To empower professionals with the knowledge of the strategies necessary to promote well-being and resilience in children and their communities, enhancing their capacity to support and nurture young individuals in various settings.

Grad Scheme

Letter

Credits 3

DCM 512 : Introduction to Child Mental Health

This course covers fundamentals of child mental health, focusing on developmental psychopathology, common disorders, and early interventions.

Grad Scheme

Letter

Credits 3

DCM 513 : Child and Adolescents Mental Health Assessment

This course equips professionals from various fields with practical skills in mental health assessment, it focuses on using assessment tools, identifying concerns, interpreting findings, and applying strategies to support children's mental health through interdisciplinary collaboration.

Grad Scheme
Letter
Credits 3

DCM 514 : School Mental Health
This course Introduce professionals to key concepts and knowledge for working with schools and students to manage unpleasant moods, difficult behaviors, and challenging events in an educational setting.
Grad Scheme
Letter
Credits 3

DCM 515 : Interventions in Child Mental Health
This course equips the professionals with knowledge and skills needed to address various mental health challenges in children. It covers a range of evidence-based interventions and techniques aimed at reducing symptoms of stress and anxiety, addressing mood problems and problem health and encourage behavior change.
Grad Scheme
Letter
Credits 3

DCM 516 : The Interface between Physical and Mental Health
This course examines the connection between physical and mental health conditions influence mental wellbeing and how mental health affect physical health. It provides foundational knowledge on the relationship between the two and the importance of integrated care.
Grad Scheme
Letter
Credits 3

DCM 517 : Capstone project
Grad Scheme
Letter
Credits 6

Master of Biomedical Sciences

The Ministry of Education (MOE) approved two-year Graduate Program which is open to both male and female students, Saudi and non-Saudi, allows students to choose to join one of six tracks. All tracks are Thesis Option.

MBS 500 : Basics of Molecular & Cell Biology
This course is designed to introduce the student to basic cell structure and function as well as the molecular mechanisms by which cells interact with their environment.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 501 : Topics in Integrated & Systems Biology
This course is designed to allow students to study the fundamental principles of biomedical sciences and how the different organs or biological systems work together in an integrated fashion to attain “homeostasis”.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 502 : Methods in Molecular & Cellular Biology
This course is designed to allow students to develop skills in basic cellular and molecular biology techniques. These objectives will be covered both in a formal lecture setting where students apply their theoretical knowledge to practice the techniques in the laboratory.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBS 500

MBS 503 : Signal Transduction I
This course is designed to allow students to develop an understanding of the major signal transduction pathways and how such pathways can influence metabolism as well as gene expression.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MBS 500

MBS 505 : Advanced Biochemistry
The course aims to provide an advanced understanding of the core principles and topics of Biochemistry including, nutrients and nutrient sensing systems, cell cycle regulation and oncogene function in cancer, protein structure and function, enzymology, electrolytes and acid – base imbalance, major metabolic pathways, with an emphasis on metabolic interrelationships.

Grad Scheme
Letter
Credits 3
Prerequisites
Biochemistry

MBS 506 : Human Gross Anatomy
This course is a study of human anatomy and imaging for MSc Clinical Anatomy. The course consists of dissection and tutorials in gross anatomy. Students should expect to spend at least 6 hours/wk in the lab and 2-4 hr/wk in tutorials. By the end of this course the student will be able to:

- Describe the normal gross anatomy of all the major body regions and systems according to their identification on cadavers, functional explanations and clinical relevance.
- Apply their anatomical knowledge to develop a diagnostic reasoning approach to basic clinical and pathological scenarios.
- Create a virtual patient case study by integrating cadaveric findings with independent research.
- Develop stronger problem-solving, communication and collaboration skills through classroom discussions, group work and verbal assessments.

Grad Scheme
Letter
Credits 3

MBS 507 : Clinical Embryology
This course is a study of human clinical embryology for MSc Clinical Anatomy. The course consists of Lectures and tutorials in embryology.

Course Objectives:

- Describe the embryology of all the major body regions and systems and relate it to common type of congenital abnormalities.
- Apply their anatomical knowledge to develop a diagnostic reasoning approach to basic clinical and pathological scenarios.
- Develop stronger problem-solving, communication and collaboration skills through classroom discussions, group work and verbal assessments.

Grad Scheme
Letter
Credits 3

MBS 508 : Human Neuroanatomy
The purpose of this course is to provide a general introduction to the structure and function of the human nervous system. Lectures will provide an overview of the anatomy, interconnections, and function(s) of specific regions/structures of the human nervous system. The laboratories offer a hands-on opportunity to identify the major landmarks of the brain and better understand the three-dimensional architecture of the brain, spinal cord and Head Neck region. Collectively, the lectures and laboratories will provide the anatomical and functional foundation necessary to understand disorders of the nervous system. A variety of disorders affecting the nervous system, such as stroke, schizophrenia, cancer, Parkinson's disease, and Huntington's disease, will be discussed in terms of clinical signs/prognosis and cause/pathology. In addition, clinical issues will be examined using case studies. Each student will be assigned a case study to independently investigate and present to the class using basic and clinical primary research sources.
Grad Scheme
Letter
Credits 3

MBS 509 : Histology and Cell biology
This course is a detailed study of the microscopic structure of cells, tissues and organs, with emphasis on man and on animals used in biomedical research. In this course relationship of structure to function are stressed. This course is a survey course of mammalian histology with emphasis on clinical applications relevant to healthcare professionals. The course expects and highly encourages student participation and uses tutorial-style microscopic exploration of histologically sectioned material and demonstrations.
Grad Scheme
Letter
Credits 3

MBS 510 : Clinical rotation in Surgery, Radiology and Pathology
The purpose of this course is to exposed students to clinical practice and understands the utility of anatomy in clinical fields. The students will spend two weeks observership in each of these clinical disciplines.
Grad Scheme
Letter
Credits 2

MBS 521 : Reproductive Biology and Embryology

Reproductive Biology and Embryology course provides students with comprehensive understanding of human reproductive biology. It is designed to offer students required knowledge to pursue assisted reproductive technology and/or a reproductive biology research career.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 522 : Introduction to Assisted Reproduction

Introduction to Assisted Reproduction course provides students with basic understanding of human assisted reproduction and clinical embryology. It is designed to offer students required knowledge and practical skills to pursue assisted reproductive technology and clinical embryology.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 523 : Infertility and Reproductive Medicine

The Infertility and Reproductive Medicine course provides students with a comprehensive understanding of infertility from a clinical perspective. It is designed to offer students required knowledge to pursue assisted reproductive technology and/or a reproductive biology research career.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 524 : Semen Analysis and Processing/ Andrology

Semen analysis and processing/Andrology course provides students with necessary theoretical and practical aspects of examination and processing of human semen. It is designed to offer students to understand to most recent WHO recommendation on the standardization of semen analysis and processing.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 525 : Advanced Assisted Reproduction

The Advanced Assisted Reproduction course provides students with practical part of human assisted reproduction and clinical embryology. It is designed to offer students required knowledge and practical skills to pursue assisted reproductive technology and clinical embryology.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 527 : Practical Molecular Biology

Practical Molecular Biology course introduces students to basic experimental techniques and procedures widely used in molecular biology research and clinical genetic analysis.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MBS 531 : Basics of Microbiology

The course will encompass the study of the general characteristics of microorganisms, the processes by which these microorganisms cause human disease and how these pathogens are identified in the diagnostic laboratory. The classification and mechanism of action of major groups of antibiotics as well as methodologies for antibiotic susceptibility testing will also be covered. The development of antibiotic resistance and associated concerns will be discussed and related to the global situation. This course will also encompass the study of infectious diseases in the healthcare setting with reference to healthcare associated infections (HCAI). The challenges of emerging and re-emerging infections in the clinical setting will also be addressed.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 532 : Fundamentals of Epidemiology and Surveillance

This course is designed to introduce the fundamental concepts in epidemiology and surveillance as it applies to institutional infection control. The uses of epidemiological data in clinical decision-making for infection control programs will be addressed. This

course explores the contemporary principles of the science and practice of surveillance and monitoring and outbreak management it applies to institutional infection control. The design of surveillance systems, collection, compilation and interpretation of surveillance data will be covered

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 533 : Infection Control Program Design & Management

The course explores the role of the infection control practitioner, systems of clinical governance, infection control framework and management plans, and performance indicators for infection prevention and control. Students develop skills in the management and coordination of infection control programs, with a particular emphasis on prevention. The students will also develop the skills needed to assess needs, develop goals and measurable objectives, and prepare lesson plans for educational offerings.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 534 : Environmental Management

The course is designed to help students to develop a clear understanding of the importance of various cleaning, sterilization and disinfection processes as essential elements of an infection control program. The indications, approaches, equipment and agents utilized for cleaning, sterilization and disinfection processes in the healthcare setting will be discussed. The criteria for selecting and monitoring the usefulness of the agents, equipment and monitoring approaches used for sterilization & disinfection will be covered.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 535 : Patient Care Processes & Evidence Based Infection Control Practices

The course is designed bring together all the concepts learnt in the previous courses and enable students apply these concepts in various scenarios in the health care setting. This course sets the stage for the more intensive hands-on experience that students will be engaged in during the second year of the course.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 536 : Competencies in Infection Control

This is a practical course during which students will be mentored by experienced infection prevention and control professionals in assigned hospital units. Students will observe and perform a pre-determined number of procedures under the supervision of the mentor.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 541 : Analytical Biotechnology

This course focuses on enhancement technology development by promoting cross-disciplinary approaches directed toward solving key problems in biology and medicine. The purpose is to support and teach the fundamental principles and practical uses of major instrumental techniques. Techniques related to HPLC, capillary electrophoresis, gel electrophoresis, and mass spectrometry will be covered in the course. Fundamentals in analytical biotechnology include basic and practical aspects of characterizing and analyzing DNA, proteins, and small metabolites.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 542 : Techniques of Biotechnology

This course focuses on the fundamentals of DNA tools biotechnology, molecular genetics biotechnology, DNA isolation, manipulation and amplification techniques, restriction enzymes, microarrays and biochips, DNA sequencing, genetic engineering and biotechnology, biotechnology revolution, gene therapy, gene doping and beyond.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MBS 551 : OMICS Techniques & their Applications
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 552 : Advanced Analytical Biochemistry
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 553 : Analytical Techniques for Clinical Biochemistry
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 554 : Transfusion Medicine and Blood Banking
This course is a comprehensive investigation into the theoretical and practical basis involving the selection and processing of donated blood. It offers a thorough understanding of the physiological, pathological and practical aspects of blood storage and transport. The course covers the principles and practical aspects of blood collection, testing, and blood component preparation and storage. It also gives an in-depth knowledge of the blood group antigens and transfusion therapy. It covers the principle of laboratory techniques used in transfusion medicine laboratories. It includes practical experience in problem-solving of patient /donor typing problems and identifying antibodies to blood group antigens.
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MBS 555 : Molecular Diagnostics in Blood Transfusion
This course combines emerging modern laboratory diagnostic techniques and their application to blood groups typing and detection of blood pathogens. Topics include discussion of principles of Sanger sequencing, next generation sequencing, Nanopore sequencing technology and other third generation sequencing technologies. The course will discuss principles of nucleic acid testing (NAT) molecular technique for screening blood donations for pathogens such as HIV, HCV and HBV.
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MBS 556 : Stem Cell Transplantation Technology
An in-depth look is provided at the immune system and its relation to stem cell and cord blood transplantation. A formal study is offered of the aspects of histocompatibility, in relation to stem cell transplantation and platelet transfusion. Histocompatibility antigens and nomenclature is discussed. The course will also cover the selection of matching donors/cord blood unit for hematopoietic stem cell transplantation (HSCT), related and unrelated donors, haploidentical donors, techniques used for HLA typing, anti-HLA antibody, and chimerism.
Theory Hours 2
Practical Hours 1
Prerequisites
None

MBS 557 : Pathogenesis of Blood Disorders
This course offers an advanced study in the pathological mechanisms underlying red blood disorders, including anemias, hemolytic disease of the fetus and newborn, autoimmune hemolytic anemias, drug-dependent hemolytic anemias and other blood disorders requiring regular blood transfusion and component therapy.
Grad Scheme
Letter
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MBS 558 : Quality Management and Laboratory Accreditation
Blood banking and transfusion medicine encompass many areas from donor recruitment and selection, blood collection laboratory practices and use of blood components and products. Hemovigilance is closely linked to all these and strict regulations and quality management is needed. This course will cover definitions of quality systems, emphasizing the importance of total quality management and quality elements. The graduates are intended to demonstrate

proficiency in maintaining the quality of blood components and transfusion services as per international and local standards. Overview of proper use of instrumentation and computerization in transfusion services will be included.
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MBS 560 : Method Comparison & Validation
The aim of this course is to familiarize students to the methods to verify the quality of diagnostics kits in a clinical laboratory. Validation procedures, measuring total allowable error and steps to introduce new tests will be presented. Topics covered will include compliance with proficiency testing requirements (CAP, AABB, CBAHI and ISO), determination and validation of tests reference ranges, cut-off points and quantitative and qualitative methods evaluation.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MBS 561 : Basics and molecular genetics of coagulation system
This course is a comprehensive investigation into the theoretical basis of coagulation system. It offers a thorough understanding of the physiological, pathological and molecular genetics of coagulation factors and different proteins involved in hemostasis, thrombosis and fibrinolysis. It also gives an in-depth knowledge of the interaction between these proteins to maintain the homeostasis and patency of blood vessels and prevent bleeding and thrombosis. It covers the principle of the genetics and the causes of inherited bleeding and thrombophilia.
Grad Scheme
Letter
Credits 3

MBS 562 : Pathophysiology and aetiology of bleeding and thrombosis
The course will discuss the biological mechanism(s) underlying acquired and genetic risk factors for VTE that express disease phenotypes (obesity, spontaneous thrombosis) or that lack genes key to the mechanistic pathways of interest. Expose the student to relevant biochemical and molecular technologies for the diagnosis of different thrombosis and thrombophilia. This course combines emerging modern laboratory diagnostic techniques and its application to the management of venous thromboembolic events. It will also provide an in-depth look at the pathophysiology and treatment of inherited and acquired bleeding disorders, with a special focus on von Willebrand disease and haemophilia and exposure to rare bleeding disorders. Also there will be exposure to different anticoagulation drugs and the methods of monitoring patients on these therapies. There will be a practical part of this course where the students will be involved in testing patients with thrombosis and thrombophilia with possible attendance of a clinic to expose to clinical management of patients with thrombosis
Grad Scheme
Letter
Credits 3

MBS 563 : Practical Hemostasis
This is a course with major focus on basic and advanced laboratory methods in the diagnosis of hemostatic and thombotic disorders. The methods range from biochemical to molecular genetic studies. Topics include discussion of different coagulation tests, principles of Sanger sequencing, next generation sequencing, Nanopore sequencing technology and other third generation sequencing technologies. The students will practice different specialised coagulation tests for diagnosis and monitoring of various factor deficiencies and estimation of the level post treatment with factor concentrate. The student will have a chance to attend the haemophilia and bleeding clinics.
Grad Scheme
Letter
Credits 3

MBS 600 : Thesis A
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Fail

Credits 9

MBS 600 : Thesis B

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Pass/Not Pass

Credits 9

REC 502 : Biostatistics

This course is designed to review the fundamental principles of probability and statistics. This will be covered both in a formal lecture setting, self-directed learning setting with tutorials, and during the statistical analysis lab. This course will give students direct practice in the statistical reasoning skills needed to choose appropriate procedures for analyzing research data and to better understand the design, conduct, and analysis and subsequently interpret the results of biomedical research studies with examples of applications in biomedical sciences, radiological & imaging sciences, and epidemiology & public health.

Grad Scheme

Letter

Credits 3

Prerequisites

None

REC 503 : Research Methodologies

This course is designed to understand fundamentals of research, characteristics of research, research designs, methods of sampling, data collection, processing and analysis, ethical considerations and use of literature review, sources of information and organization of information.

Grad Scheme

Letter

Credits 3

Prerequisites

None

REC 504 : Biomedical Ethics

This course is designed to introduce students to the basic principles and methods of analysis from ethical theories applicable to contemporary moral problems in biomedical research and professional practice. This includes evaluation of scientific misconduct in relation to international standards of research through case studies with examples from international settings.

Grad Scheme

Letter

Credits 3

Prerequisites

None

Master of Cardiac Nursing

Alfaisal University College of Medicine in collaboration with the Prince Sultan Cardiac Centre (PSCC) is offering a 42-credit two-year Master of Cardiac Nursing (MCN) program consisting of lectures, clinical courses, and a capstone project. This specialty Nursing master's degree is a response to the need within the healthcare sector and will be supported by scholarships from PSCC.

This master's degree is designed to advance registered nurses' cardiac knowledge and skills enabling them to meet contemporary challenges in advanced cardiac nursing. Participation in the program will develop understanding of the nursing and medical care requirements for all levels of adult and paediatric patient complexity and assist the registered nurse to integrate theory into practice supporting both academic and clinical competence. By enhancing the theoretical knowledge and the practical abilities, qualified cardiac registered nurses' graduates will be able to deliver adept clinical assessment, decision making and patient management skills, while supporting the imperative of evidence-based practice more effectively. The Master of Cardiac Nursing will enable graduate nurses to develop their professional autonomy while providing role models, as well as educational and leadership support for junior staff.

MCN-C 531 : Clinical Pediatric Cardiology

This course positions the student in pediatric cardiology wards. The students will be planning, implementing assessing and evaluating nursing care of the pediatric cardiology patient.

Grad Scheme

Letter

Credits 3
Prerequisites
None

MCN-C 532 : Clinical Adult Cardiology
This course positions the student in adult cardiology wards. The students will be planning, implementing assessing and evaluating nursing care of the adult cardiology patient.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN-C 533 : Clinical Cardiac Surgery
This course positions the student in cardiac surgical wards. The students will be planning, implementing assessing and evaluating nursing care of adult and pediatric cardiac surgical patients.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN-C 534 : Clinical Cardiac Intensive Care
This course positions the student in cardiac intensive care units. The students will be planning, implementing assessing and evaluating nursing care of adult and pediatric cardiac intensive care patients.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 511 : Cardiovascular Pulmonary 1
This course introduces the registered nurse to the cardiovascular and pulmonary systems. The course unpacks the normal structures and functions of the human body. It then focusses upon the anatomy, physiology, hemodynamics, microbiology, biochemical processes, immunology, and pathology of the cardiovascular and pulmonary systems. At the completion of the course, the student should be able to discern between normal and abnormal cardiopulmonary anatomy and physiology, and microbiological, biochemical and immunological laboratory data.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 512 : Cardiology Diseases
This course introduces the registered nurse to both congenital and acquired cardiac anomalies and the metabolic heart diseases prevalent to the Saudi Arabian neonatal, pediatric, adolescent, and adult population. The course unpacks the pathophysiology, treatments, and complications of these disorders. Topics explored include, metabolic heart disease, acyanotic lesions with increased pulmonary blood flow, acyanotic lesions with left ventricular and aortic outflow tract obstruction, cyanotic lesions with decreased pulmonary blood flow and cyanotic lesions with mixed venous and systemic blood flow. At the completion of the course, the students will be able to describe the aberrant hemodynamics and or clinical pathways of these disorders as well as the recommended surgical and or interventional treatments across all age groups.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 514 : Quality and Safety Consideration in Nursing Care
This course introduces the registered nurse to the notions of quality and safety in the context of care delivery in hospitals. The registered nurse will be introduced to the competencies set forth by the Quality and Safety Education for Nurses (QSEN) organization. Systematically, the course educates the nurse to incorporate quality and safety competencies when planning, implementing, assessing and evaluating nursing care. At the completion of the course, the students will be able to articulate a rational behind their integration of quality and safety competencies into planned nursing care.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 521 : Cardiovascular Pulmonary 2
This course builds upon and reviews the content taught in AAA 111 Cardiovascular-Pulmonary Systems – 1. In the context of these two systems, the course unpacks the importance of understanding the growth and developmental milestones from the neonatal period through to that of the geriatric period. Understanding the influence of milestone

development on the interpretation of physical assessment findings and subsequent nursing care decision making is fundamental in the provision of effective care delivery. The participants of the course will reflect on nursing considerations in the context of a nursing care model, patient and family centered care, professional nursing standards, and quality and safety considerations. At the completion of the course, the student should be able to undertake a full physical assessment, reflecting upon laboratory results and radiological findings to determine priorities of care in context of the patient's age.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 522 : Clinical Cardiology (Pediatrics, Adults) & Intensive care

This course introduces the registered nurse to the specialty of clinical cardiology for patients across the age spectrum and their care in the intensive care setting. The course demonstrates how the disruption to one of the five major systems can lead to more widespread dysfunction in other systems whilst describing in detail the pathophysiology of ischemic heart disease and the various risk factors that are attributed to its development. The students will develop the knowledge, skills and attributes required in assessing and managing patients with ischemia, angina and myocardial infarction. Further, the course unpacks the more critical nursing considerations required when caring for an individual managed in the intensive care unit (ICU). Further, students will be introduced to specific knowledge, skills and attributes requisite to ICU setting. At the completion of the course, the students will be able to predict appropriate ICU management considerations when presented with typical ICU case scenarios. Further, they will be able to identify possible risks and the nursing management actions that would mitigate these risks. Finally, the students will be able to explain the development, assessment and management of ischemic heart disease be able to assess rhythm strips and 12 Lead ECGs for aberrant arrhythmias as well ischemia, injury and infarction changes.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 523 : Evidence-based Practice

This course introduces the registered nurses to the foundational knowledge, skills and attributes pertaining to evidence-based practice in healthcare. The course historically contextualizes the registered nurses understanding to the importance of research and evidence-based practice. Topics included in the course are: construction of clinical questions; types and levels of evidence; strengths and weaknesses of evidence; literature search strategies and databases; critical appraisal tools. At the completion of the course, the student will have the knowledge and skills to build and subsequently submit a clinical project proposal.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MCN 601 : Capstone Project

The intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on a topic approved by the graduate advisor, collection and analysis of data, project report preparation and defense. Although this course officially begins toward the end of the second year, the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the winter of their second year.

Grad Scheme
Letter
Credits 6
Prerequisites
None

Master of Clinical Psychology

The Master of Clinical Psychology is offered academically by the College of Medicine in collaboration with King Fahad Medical City (KFMC) for the clinical aspect of the degree. The courses of the Master program of Clinical Psychology are designed as a practical program and includes a research/capstone project. Most of the courses have a practical element which will be applied at the Mental Health Department of the National Neuroscience Institute in King Fahad Medical City.

MCP-C 507 : Child & Adolescent Psychology Unit

Interaction with children and adolescence is much more challenging than when engaging with and adult. Clinicians will be taught how to approach children and how to evaluate and access the psyche of a child. Moreover, they will engage on a face-to-face interaction with individuals suffering from mental retardation apply diagnostics as well as formulate treatment plans for children with ADHD, mood and stress disorders.

Grad Scheme

Letter

Credits 6

Prerequisites

None

MCP-C 508 : Neuropsychology Unit

After passing the Neuropsychology course, students will visit the Neurology and Neuro-surgery unit. Students will interact with patients that experiences different kinds of neurological problems, such as epilepsy, Parkinson's and stroke. They will learn to apply the skills that they have learned in class in a clinical setting.

Grad Scheme

Letter

Credits 6

Prerequisites

None

MCP-C 509 : Adult Psychology Unit

During this phase of the internship students will go through the process of interviewing patients and conceptualizing a clinical case of mental complains that relate to different forms of psychological problems such as depression, anxiety, panic attacks, etc., offering psychological intervention based on evident-based approach.

Grad Scheme

Letter

Credits 6

Prerequisites

None

MCP 500 : Neuropsychology

The purpose of this course is to equip clinical psychology practitioners with the knowledge of how biological factors affect behavior. At the conclusion of the course, students will be able to explain how neurons communicate between them and the function of synapses. Higher order brain functions are going to be covered such as future planning, the frontal lobe and behavioral inhibition (e.g. criminal offending in adolescence), emotion centers in the brain as well as reward pathways (e.g. drug addiction). The course will close on sleep cycles and stages of sleep along with variables that may be influencing disturbances in the circadian rhythm.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 501 : Clinical Psychology

At the end of this course, students will acquire knowledge on the development of clinical psychology from an Islamic perspective and its shift to western sciences. Furthermore, they will be able to understand what mental illness and its definition is. The reason behind each mental illness will be discussed and analyzed, considering biological and psychologically theories. Identify symptoms and what are the guidelines for pharmacological treatment and different method of psychotherapy that is been used. Finally, the prognosis of each illness and an understanding of the mental illness classification, in particular to DSM-5 classification system.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 502 : Schools of Psychotherapies

This course has been developed to equip the students with the major evidence-base psychotherapies. Student will learn about the four waves of psychotherapy in addition to their critical forms of analysis. Students will need to develop an understanding in relation to the values of these schools, beliefs, assumptions about human nature, and the common worldview trend.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 503 : Case Formulation

In this course, students will be taught the leading psychological theories in explaining human behaviors and sickness. They will be taught how to formulate a case based on certain theories and how to diagnose based on the Diagnostic and Statistical Manual of Mental Disorder (5th Ed). Consequently, they will be

also taught the evident base of psychological therapy. In other words, how to explain the client's symptoms, personality characteristics, cognitions, feelings, and behaviors in light of a particular theory or integration of theories.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 504 : Assessment and Clinical Interview

Equip clinical psychologists with the knowledge of appropriate methods for psychological assessment and their application as well as appropriateness to different groups and ages. In addition to the ethical course running in parallel, understand the legal and ethical issues surrounding test administration and interpretation. This course includes some historical background of the developments of psychological assessment in clinical psychology practice as well as the theoretical foundations of the assessment tools. By the end of this course, the psychologist should be able to choose the appropriate assessment tool to be applied for a certain age range and according to the specific symptoms described. Furthermore, the psychologist should be able to score and interpret the results as well as write a detailed report about the client.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 505 : Cognitive Behavioural Therapy

This course has been developed to equip the students with the major evident-base psychotherapies with an emphasis on Cognitive Behavioral Therapy. Student will learn about the four waves of psychotherapy with its critical analysis as well as self-reflection in relation to values, beliefs, assumptions about human nature, and worldview.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MCP 520 : Introduction to child life theory and practice

This course is designed to provide a comprehensive overview of the Child Life profession. The course will support students in the application of knowledge of child development to educate, prepare, and support children and their families through the processes of hospitalization and changes in family dynamics due to illness. The course will cover the scope of child life practice, impact of illness, family centered care, therapeutic play, and child life preparation within the context of healthcare settings. Additionally, the course will review essential documents and standards of the child life profession. The course is taught by a Certified Child Life Specialist who meets the requirements set forth by the Association of Child Life Professionals.

Grad Scheme

Letter

Credits 3

MCP 521 : Growth and development: Early childhood (0 to 8 years)

This course is designed to cover child development from birth to 8 years and to study the physical, language, cognitive, and social/emotional growth, and development of the child from birth to young adult in the contexts of family, school, peer, and community. In the course there is an emphasis on translation of theory to child life practice.

Grad Scheme

Letter

Credits 3

MCP 522 : Growth & development: Middle childhood to adolescence (9-18 years)

This course is designed to explore physical, social, behavioral development in all stages of adolescence (preadolescence, early adolescence, and late adolescence) in the context of family, school, peers, and community. In the course there is an emphasis on translation of theory to child life practice.

Grad Scheme

Letter

Credits 3

MCP 523 : Family systems

This course designed to study the historical and contemporary theories related to family structure and functions, family dynamics including broader societal perspectives of diversity and cultural variance, family relationships and the dynamics of family life, adaptations in family structure and interaction patterns during times of transition, adult-child interactions and family roles, and exploration of current research and theory as it applies to family systems

Grad Scheme

Letter

Credits 3

MCP 524 : Therapeutic play for child life specialists in hospitals

This course is designed to study the classical and contemporary theories of play, play as an essential element for children's growth, development, and learning, and influence of play environments on children's play. An understanding of expressive therapies: music, play, art and drama will also be incorporated into the course content.

Grad Scheme

Letter

Credits 3

MCP 525 : Grief, loss, and bereavement

This course is designed to study the historical, current, cultural, spiritual, and religious perspectives. Additionally, various theories and practice specific interventions that assist children/youth or family members when they encounter issues of death, loss, and or grief. The topics of the course will include loss, transition, palliative care, self-awareness, and self-care.

Grad Scheme

Letter

Credits 3

MCP 526 : Childhood illnesses, injuries, diseases and Disorders

This course provides an overview of the common childhood illnesses, injuries, diseases, and disorders for psychosocial support staff who work in the healthcare field. Students will develop the knowledge and skills necessary to work with diverse pediatric populations, including children with special needs and children who have experienced trauma. Additional pediatric topics include cystic fibrosis, cancer, diabetes, sickle cell disease, traumatic brain injury, congenital heart deformities, psychiatric diagnoses, and gastrointestinal diseases.

Grad Scheme

Letter

Credits 3

MCP 527 : Culturally sensitive & diverse child life practice & emotional safety

This course is designed to study and examine the practice of child life and child life programs/services within the context of the Middle East, especially the Gulf region. Additionally, this course will cover the clinical components of emotional safety and the adoption of specialized strategies including atraumatic, patient and family-centered, trauma-informed, culture-centered, and developmentally appropriate care to create a new standard of emotionally safe care.

Grad Scheme

Letter

Credits 3

MCP 528 : Pediatric palliative care and hospice care

This course is designed to introduce pediatric palliative care and hospice services. It identifies the broad spectrum of palliative care and hospice care, explains multidisciplinary team members' roles working with chronically and terminally ill children, and gives examples of pediatric palliative care and hospice program frameworks. The course also explores the different aspects of holistic approach to care for end of life and palliative care. These aspects include pain and symptom management, communication techniques, education, child life services, spiritual care, and grief and bereavement support to support the patient, sibling, and their parents/carers.

Grad Scheme

Letter

Credits 3

MCP 529 : Child life program development, administration, & leadership

This course is designed to explore the topics for advancing the profession of child life as well as the ethical responsibilities and considerations for emerging leaders within the field. Students will gain information on leadership styles, theories, and explore other relevant and vital topics such as diversity, inclusion, communication, feedback, change management, and clinical supervision techniques.

Grad Scheme

Letter

Credits 3

MCP 600 : Thesis

Grad Scheme

Letter

Credits 12

MCP 600 A : Thesis

Master's degree students expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one

of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Letter

Credits 6

MCP 600 B : Thesis B

Master's degree students expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Letter

Credits 6

MCP 601-A : Research/Capstone Project

This intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on atopic approved by the graduate advisor, collection and analysis of data, project report preparation and defense. Although this course officially begins in second year the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the fall of their second year.

Grad Scheme

Letter

Credits 3

MCP 601-B : Research/Capstone Project

This intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on atopic approved by the graduate advisor, collection and analysis of data, project report preparation and defense. Although this course officially begins in second year the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the fall of their second year.

Grad Scheme

Letter

Credits 3

MCP 602 A : Internship A

After being taught about the biology of the brain students will visit the neurorehabilitation unit. Students will interact with patients that experience both psychological and physical changes as a result of brain injury. During this three-month phase students will learn the cognitive therapies applied to evaluate as well as restore motor and cognitive function in patients that have suffered a head injury, or stroke.

Grad Scheme

Letter

Credits 12

Prerequisites

None

MCP 602 B : Internship B

During this internship, students delve into the intricacies of mood disorders, psychoses, and various mental health conditions. Throughout this immersive experience, future clinical psychologists will transition from theoretical understanding to practical application, gaining invaluable experience in clinical settings. Participants will actively engage in the process of gathering patient information by engaging in face-to-face interactions, conducting psychometric tests for accurate diagnoses and assessment, and ultimately selecting the most appropriate therapeutic interventions based on individual case formulations. This hands-on approach allows interns to witness the real-life application of classroom teachings, enhancing their clinical skills and confidence.

Grad Scheme

Pass/Fail

Credits 12

MCP 603 : Internship

Grad Scheme

Letter

Credits 0

MCP 603 A : Clinical Internship

All students in the Child Life program must complete a minimum 600-hour clinical internship in child life under the direct supervision of a Certified Child Life Specialist.

Internships are experience-based and are designed to teach and develop independent skills of child life practice. Individuals are expected, by the conclusion of the internship, to be able to function as job-ready, competent child life professionals

Grad Scheme

Pass/Fail

Credits 0

MCP 603 B : Clinical Internship

All students in the Child Life program must complete a minimum 600-hour clinical internship in child life under the direct supervision of a Certified Child Life Specialist.

Internships are experience-based and are designed to teach and develop independent skills of child life practice. Individuals are expected, by the conclusion of the internship, to be able to function as job-ready, competent child life professionals

Grad Scheme

Letter

Credits 0

Master of Clinical Speech-Language Pathology

A Speech Language Pathologist (SLP) is an allied health professional that works to "identify, help prevent, assess, diagnose, and treat a wide range of disorders affecting speech, language, social communication, cognitive-communication, and swallowing in children and adults". According to the American Speech and Hearing Association (ASHA), SLPs "work with the full range of human communication and swallowing disorders in individuals of all ages from new-born to the elderly. Having Speech Language Pathologist in a developing country is of primary importance since whereas swallowing is vital to sustain an individual's life, language is the mental and spiritual mean by which one can connect and communicate with others. Therefore, there is a need to develop professionals who have the skills and knowledge to tackle these disorders, and in addition carry out cultural and linguistically valid research to develop Saudi Arabian normative data as well as valid and reliable assessment and therapy protocols.

The master's in clinical Speech Language Pathology is offered academically by the College of Medicine at Alfaisal University. The Speech Language Pathology Clinic at King Faisal Specialist Hospital & Research Centre will carry out the clinical aspects of the degree. The courses are designed based on several educational pillars; in classroom taught courses and supervised clinical practice along with either a project or a thesis. Successful completion of these core elements leads to a graduate as a specialized speech therapy practitioner.

MSP 500 : Clinical Methods and Ethical Considerations

Exploration of the fundamentals of clinical methods, including evaluation process, goal setting, behavior management, pacing of therapy, shaping of behavior, tracking performance/learning, and professional and ethical behavior through observation of clinical interactions. Discussion of data collection and documentation methods. Introduction to the assessment process. Exploring counseling; development of appropriate intervention plans that meet patient needs in collaboration with patient and relevant others; communicating effectively and recognizing needs, values, preferred mode of communication, and cultural linguistic background of patient, family, caregivers, relevant others; providing counseling to patients, family, and caregivers regarding communication and swallowing disorders.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MSP 501 : Feeding and Swallowing Disorders

This course will include a review of the structural and functional aspects of the aero digestive tract and motor control for swallowing. It will also include a review of the development of anatomy and physiology of feeding and swallowing in infants and children. Exploration of the physiological and anatomical disturbances affecting swallow function. Focus will be on assessment (instrumental and bedside) and treatment of both adult and pediatric with swallowing disorders.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MSP 502 : Fluency & Speech Sounds Disorders

The course will include an overview of the typical speech/sound acquisition, and theoretical approaches

to phonological analysis. These will include characteristics of speech sound disorders in children focusing on the assessment, diagnosis, and treatment of articulation and phonological disorders as well as childhood apraxia of speech. Emphasis will be placed on integrating normative data, scientific knowledge and clinical practice of the Arabic Speech Sounds.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 503 : Neurogenic Acquired Communication Disorders
Overview of communication disorders secondary to brain damage in adults; The course will include the assessment, diagnosis and treatment of social aspects of communication as well as the management of acquired cognitive-communication disorders associated with traumatic brain injury, right hemisphere damage, and neurodegenerative diseases. The assessment, diagnosis, prognosis, treatment and recovery processes associated with aphasia, dysarthria and apraxia will also be covered. Emphasis on the integration of normative data, scientific knowledge, and clinical practice.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 504 : Alternative and Augmentative Communication
Examination of the potential etiologies requiring assistive communication methodologies. The course will include discussion of the approaches in the development of alternative modes of communication for individuals with severe communication impairments.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 505 : Developmental Language Disorders
Advanced topics in the natural receptive and expressive language development as well as the social and behavioral aspects of communication. This course will cover the potential etiologies and characteristics of language disorders in children with specific language impairment, autism spectrum disorders, and cognitive based language impairments as well as the interaction between language, learning, and literacy. The focus of the course will be in the assessment, diagnosis and effective treatment of language disorders in pediatrics.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 509 : Principles of Voice Production and Disorders
Basic physical, physiological principles in understanding typical voice production, professional, nonprofessional, impaired voice production; vocal anatomy, voice classification; control of loudness, pitch, register, quality; efficient, inefficient use of voice; instrumentation for voice analysis, synthesis. In addition to application of methods of intervention in development, training, rehabilitation of vocal behavior; motor learning, efficacy of treatment strategies, factors affecting compliance with recommended therapy.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 514 : Practicum I: Pediatric Populations
Clinical experience in the evaluation and treatment of pediatric clients. Including assignment to clinical teams, clinical team meetings addressing clinical methods with pediatric patients.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 515 : Practicum II: Adult Populations
Clinical experience in the evaluation and treatment of adult clients. Including assignment to clinical teams, clinical team meetings addressing clinical methods with adult patients.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 516 : Practicum III: Specialized Populations
Clinical experience in the evaluation and treatment of specialized clients. Including assignment to clinical teams, clinical team meetings addressing clinical methods with pediatric patients.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MSP 601 : Research/Capstone Project
This intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on atopic approved by the graduate advisor, collection and analysis of data, project report preparation and defense. Although this course officially begins in second year the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the fall of their second year.
Grad Scheme
Letter
Credits 6
Prerequisites
None

Master of Genetic Counselling

The goal of this courses-only program is to meet the current and future demand of healthcare system for highly qualified, competent, and culturally sensitive genetic counsellors in Saudi Arabia and in the region. Students graduating from the program will be recognized by the Saudi Commission for Health Specialties (SCHS) as a *Specialist in Genetic Counselling*.

MGC 501 : Topics in Genetic Counselling I
This course will serve as an introduction to the profession of Genetic Counselling and will provide students with the information necessary to function in the clinical setting. Basic skills used by genetic counsellors will be introduced and practiced. Psychodynamic approaches to counselling and their relevance to the field of genetic counselling will be reviewed.
Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 502 : Topics in Genetic Counselling II
The course will build upon the foundation established in the second semester and continue to develop the clinical skills used in genetic counselling. Interview and letter writing skills will be reinforced; techniques for presenting genetic information to different age groups, to individuals with cognitive delay and to individuals from different cultural backgrounds will be reviewed. Available medical and social services for the individual/family with a genetic condition will be discussed.
Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 503 : Psychosocial Aspects of Genetic Counselling
This course will deal with ethical issues in genetic counselling with special emphasis on prenatal diagnosis. The student will be expected to understand the psychological and social impact genetic disease has on patients and families and how counselling techniques can be modified accordingly. The student will be expected to demonstrate skillful assessment of psychosocial needs of patients and families and to provide appropriate counselling intervention.
Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 504 : Genetic Basis of Inherited Disease
This course describes the chromosomal basis of human disease and stresses the molecular and biochemical mechanisms underlying inherited disorders. Diagnostic laboratory methods will be an important aspect of this course.
Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 505 : Cancer Genetic Counselling
This course will introduce students to the molecular basis, clinical characteristics and management of hereditary cancer syndromes. Specific types of cancer syndromes will be reviewed with emphasis on

pedigree evaluation, pathology, management and genetic testing options. The psychosocial impact of these conditions on the family and individual will also be examined.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 506 : Biochemical and Newborn Lab Practicum

Students will develop an understanding of general biochemical laboratory methods, sample requirements and set up, biochemical techniques and quality control issues.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 508 : Molecular Genetics Practicum

Students will develop an understanding of general molecular biology methods, sample requirements, set up, molecular genetic techniques such as DNA isolation, PCR, multiplex PCR, Southern blotting, analysis of results and development of accuracy estimates.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 509 : Introduction to Anatomy & Physiology

An introduction to the structure and function of human body systems, such as the cardiovascular, musculoskeletal, respiratory, nervous, digestive, renal, reproductive and endocrine systems, including metabolism and homeostasis.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 510 : Observational Clinic Rotation

In their second semester, students will have the opportunity to observe in wide variety of specialty clinics to learn first-hand about some of the clinical issues faced by individuals/families with these genetic conditions. Students are expected to attend two half-day clinics per week.

Grad Scheme
Letter
Credits 1
Prerequisites
None

MGC 511 : Medical Genetics Clinic Practicum

In the third semester, students will gain practical experience performing supervised counselling for patients referred to the medical genetics' clinic for a variety of health concerns. Students will be responsible for researching the reason for referral, establishing a management plan, obtaining all necessary and available historical information, eliciting and constructing a pedigree, and presenting the patient to the attending physician. Students will have increasing responsibility for counselling patients in clinic, under the supervision of a staff genetic counsellor and/or geneticist.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 512 : Prenatal Clinic Practicum

This rotation will provide students with practical experience performing genetic counselling for patients referred for prenatal diagnosis.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 513 : Advanced Medical Genetics Clinic Practicum

This 8-wk. rotation, in the students second year, provides them with an opportunity to further develop and refine their genetic counselling skills. Students will perform supervised genetic counselling for patients referred for a variety of health concerns. Students will have increasing responsibility for counselling including results follow-up and counselling letters.

Grad Scheme
Letter
Credits 2
Prerequisites
None

MGC 514 : Ultrasound Clinic Practicum

This 8-wk. rotation will provide students with practical experience performing genetic counselling for patients referred for prenatal diagnosis of fetal anomalies on ultrasound.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MGC 515 : Genetic Counselling & Islam

This course will deal with an exploration of the teachings of Islam as they apply to the practice of genetic counseling within the Kingdom of Saudi Arabia. This course will also introduce students to the basic principles and methods of analysis from ethical theories applicable to contemporary moral problems in biomedical research and professional practice. Course content consists of; Foundations of Bioethics: ethical theories, moral principles, and medical decisions; Ethics of Termination: abortion; impaired infants; euthanasia and physician-assisted suicide; Teachings of Islam as they apply to the practice of genetic counseling within the Kingdom of Saudi Arabia.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MGC 516 : Cytogenetics Laboratory Practicum

Students will develop an understanding of general cytogenetic laboratory methods, sample requirements and set up, timing, harvesting, slide preparation and analysis. Under the supervision of a technologist, students will perform and complete chromosome analysis on a sample of their own blood (students may request use of another specimen if they wish). Observation of molecular cytogenetic techniques will provide students with an understanding of the process necessary to perform fluorescence in-situ hybridization analysis (FISH).

Grad Scheme

Letter

Credits 2

Prerequisites

None

MGC 517 : Clinical Internship

Grad Scheme

Pass/Not Pass

Credits 0

Prerequisites

None

MGC 518 : Introduction to Medical & Population Genetics I

This course is designed to introduce fundamental principles of medical genetics with emphasis on the genes and molecular mechanisms operating in human diseases. The general principles of disease inheritance, pathogenesis, diagnosis, management and counselling will be reinforced through case studies. Principles of Population Genetics will be taught including the Hardy-Weinberg Law, mutation selection & genetic drift, Association, linkage disequilibrium, and pedigree & Bayesian analysis.

Grad Scheme

Letter

Credits 2

Prerequisites

None

MGC 519 : Introduction to Medical & Population Genetics II

This course is designed to introduce fundamental principles of medical genetics with emphasis on the genes and molecular mechanisms operating in human diseases. The general principles of disease inheritance, pathogenesis, diagnosis, management and counseling will be reinforced through case studies. Principles of Population Genetics will be taught including the Hardy-Weinberg Law, mutation selection & genetic drift, Association, linkage disequilibrium, and pedigree & Bayesian analysis.

Grad Scheme

Letter

Credits 2

Prerequisite Courses MGC 518

MGC 601 : Research/Capstone Project

This intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on atopic approved by the graduate advisor, collection and analysis of data, project report preparation and defence. Actual submission to a journal will be encouraged, but not required. Although this course officially begins in second year the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the fall of their second year.

Grad Scheme

Letter

Credits 6

Prerequisites
None

Master of Public Health

This is a two-year program consisting of both thesis and courses-only options and was designed for working physicians, residents, fellows, public health officials, policy makers and college graduate students interested in public health. Students can design and conduct community research as well as public health research. At the end of the two-year program, students should develop a comprehensive understanding of the public health professional practice through experience with both academic specialists and experienced practitioners. Students must choose one of three possible tracks: *Mass Gatherings Health (Hajj and Umrah), Biostatistics and Epidemiology, or Health Policy & Management.*

MPH 500 : Principles of Biostatistics
Principles of Biostatistics course is the first in a series of courses designed to provide the students with basic understanding of main biostatistical concepts. This course provides an introduction to the use of biostatistics in the fields of epidemiology and public health. Topics include descriptive statistics, probability distributions, parameter estimation, hypothesis testing, sampling techniques, analysis of variance, and correlation. It provides basic training in statistical analysis using statistical software.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 502 : Principles of Epidemiology
Principles of Epidemiology course introduces basic epidemiologic concepts and methods and their use in public health. Specifically, it covers measures of disease occurrence, common sources and types of data, measures of association, bias and confounding, main study designs, and sources of error in epidemiologic studies.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 503 : Environmental & Occupational Health
The Environmental & Occupational Health course covers the basic principles of environmental and occupational health and the sources of hazards to human health that exist within the Saudi workplace and environment. This knowledge allows students to develop strategies that effectively intervene to alleviate and potentially, on the long run, prevent adverse health effects caused by environmental agents and conditions prevalent in the Kingdom.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 504 : Communicable Diseases
Communicable diseases are illnesses that can be transmitted from person to person or animal to person. There are more than 70 Communicable diseases, such as Tuberculosis, Malaria, Corona Virus, HIV/Aids etc. Socioeconomic, environmental and behavioural factors, as well as international travel and migration, foster and increase the spread of communicable diseases. Vaccine-preventable, foodborne, zoonotic, health care-related and communicable diseases pose significant threats to human health and may sometimes threaten international health security. This course envisions creating public health tools to help physicians implement effective disease prevention and control programs to address their risk factors. The course also addresses the current paradigms and controversies in epidemiology, health systems and policy research related to communicable diseases, equipping participants with the language and skills to progress further in their fields. The objective is to train students in the interdisciplinary approaches to communicable diseases prevention, treatment and care. The course will also expose participants to key theoretical and empirical knowledge in communicable diseases' research from a range of disciplines, including epidemiology, economics and health systems in the Kingdom of Saudi Arabia, surrounding regions and internationally.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 505 : Non-Communicable Diseases

Non-Communicable Diseases course addresses the major non-communicable diseases (NCDs) including cardiovascular diseases, diabetes, cancer and chronic lung disease, and their risk factors such as diet, exercise, tobacco, and alcohol, which are responsible for considerable morbidity and premature adult mortality globally and specifically in the KSA. The course is based on an understanding the evidential basis for the cause of NCDs from epidemiological and bio-medical studies, followed by detailed analysis of population health risk factors and the challenges they pose for population approaches to prevention and control of NCDs. The course will address the challenges of different population approaches to NCDs control, and their record of success and failures globally and in the Kingdom.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 506 : Social & Behavioural Determinants of Health

Social & Behavioural Determinants of Health course covers the basic principles of the field of social and behavioural determinants of health including the theoretical and methodological approaches to the study of social and behavioural determinants of health, the role of social and behavioural determinants in the health of individuals and society, and present evidence for social and behavioural determinants of health and their relationship to health outcomes.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 507 : Advanced Biostatistics

Advanced Biostatistics builds on the material learned in previous biostatistics and epidemiology courses. Specifically, the course will focus on analysis of variance, linear regression, logistic regression, Cox proportional hazards regression, analysis of categorical data, and model building techniques. Emphasis will be placed on the practical implementation of modern biostatistical methods in analyzing public health data.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500

MPH 508 : Advanced Epidemiology

Advanced Epidemiology course builds on material learned in previous Biostatistics and Epidemiology courses. The course will focus on applying that knowledge to the design, implementation, analysis and interpretation of observational epidemiologic studies including cross-sectional, case-control and cohort studies. The course addresses issues related to the validity of measures of exposure and disease, and sources of potential errors in interpreting epidemiologic studies. This course also introduces the basic principles of clinical epidemiology.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 502

MPH 509 : Regression Analysis

Regression Analysis course covers estimation, and testing hypotheses in linear and logistic regression, regression diagnostics, analysis of variance, and adjusting for covariates. Emphasis is on the application of regression method covered in this course. This is a hands-on, applied course where students will use statistical software to analyze data drawn primarily from the fields of medicine, epidemiology and public health.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500

MPH 510 : Principles of Mass Gatherings Health

The course covers the public health principles of hajj and umra as events of mass gatherings. It discusses the dynamics of the hajj and umra events, their boundaries, dates and available contingencies. It also defines the main elements of the Incident Command System, describes the responsibilities of the various services participating in the preparation, monitoring, and response during Hajj and Umra, and finally summarizing interdependence of various health and safety services related to engineering, and health communications in mass gatherings areas.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 511 : Principles of Disaster Management

The course introduces students to the different aspects of natural and industrial disasters, while integrating public health research principles, designs and practices. The course covers recent and historical case studies as a basis for developing the critical thinking and leadership skills needed by public health professionals in crisis situations. The course addresses international, regional, and local settings, as well as the social, economic, and political aspects of disaster planning, preparedness, and alleviation.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 500
MPH 502

MPH 512 : Emerging Infections & Infectious Diseases Management

Emerging Infections and Infectious Diseases Management course introduces the concepts of microbes and infection, examines some basic tools to understand infectious diseases and the pathogens, and illustrates the importance of infectious disease in the history of humankind. It covers the emergence of new pathogens, the re-emergence of old pathogens, the growing problem of antimicrobial resistance, and the threat of bioterrorism pose to public health and patient management. It also covers the role of nations in the global control of emerging infectious diseases, with special reference to the Kingdom of Saudi Arabia and the Gulf Region. Class discussion explores some of the controversial issues in the prevention and management of infectious diseases.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 505
MPH 502

MPH 513 : Health Insurance & Health Policy

The course addresses the impact that health insurance & policy development and analysis have on public health. It provides students with the basic skills for collecting, analyzing and communicating information on health insurance & health policy issues. Students will learn what health insurance & health policy are; who the policymakers are in public health; who the actors are that are affected by health care policy; and the major influences in determining what insurances & policy get implemented. It provides students with a framework for understanding, developing and analyzing a range of health care insurance & policy issues. The course begins by introducing an approach for analyzing any public health insurance & policy issues. It explores how insurance & policy formation impact access, quality, costs, as well as medical innovation.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 500
MPH 502

MPH 514 : Quality Assurance in Public Health

The Public Health Quality Forum (PHQF) defined public health quality as, “The degree to which policies, programs, services, and research for the population increase desired health outcomes and conditions in which the population can be healthy.” Quality Assurance in Public Health course provides students with an overview of public health quality assurance principles and practices and their role and impact on public health. The course covers the basics of developing, implementing and evaluating measurable indicators of quality for public health medicine.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 500
MPH 502

MPH 515 : Health Care Management

The main purpose of this course is to develop the knowledge themes that management of healthcare depends on including leadership perspectives, health care policy, ethics and legal aspects of healthcare. The development of such themes allows the MPH students to apply them in real life situations.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 500
MPH 502

MPH 516 : Survival Analysis

Survival Analysis course demonstrates statistical methods for analyzing and interpreting time-to-failure data. The techniques described include the construction and analysis of failure rates, survival curves, significant tests for comparing survival curves, and semi-parametric models for the analysis of time-to-failure data including the proportional hazards model. Skills for using statistical software to perform the analyses are developed. In addition, study design is covered, including sample size and power calculations.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 517 : Categorical Data Analysis
Categorical Data Analysis course provides an overview of methods used in analyzing binary and other discrete response data, with applications to epidemiological and public health studies. It is an introductory level course that presumes some knowledge of applied statistics and epidemiology. Topics discussed include 2 × 2 tables, m × 2 tables, tests of independence, measures of association, power and sample size determination, stratification and matching in design and analysis. This is followed by an introduction to logistic regression analysis.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 518 : Ethics in Research
Ethics in Research course covers the ethical fundamentals and national regulations of human subject's research. Issues considered include informed consent, studies of vulnerable populations, clinical trials, and epidemiologic research studies. It also studies ethical concerns surrounding public health issues including conflicts of interest, social accountability, and risk benefit analyses.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MPH 519 : Public Health and Healthcare Systems in KSA
An introductory course takes a policy and politics angle to healthcare's three main topics - access, cost and quality. The roles of patients, physicians, hospitals, insurers, and pharmaceutical companies will be established. The courses discussed the interaction between the government and these different groups. Current national health care policy initiatives and, especially, the interests of class members will steer the specific topics covered in the course. The course provides skills for critical and analytical understanding of the Saudi Healthcare Systems.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 520 : Health Economics
Health Economics course develops an understanding of the relevance of economic concepts to the healthcare and public health sectors. It provides an application of economic models to demand, supply, and their interaction in the Saudi medical economy. It also covers the role of economic factors in the development of public policy concerning health, and healthcare. The course develops an understanding of the functioning and limitations of the market system and applying micro models in economic problem solving activities. The theoretical framework of this course includes the basic economic problems, supply and demand, analysis, consumer theory, production and cost theory, market structure, market failure and microeconomic policy.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 521 : Health Informatics
Health Informatics course provides an overview of health information management systems (HIMS), the data within these systems and the translation of the data into information and subsequently knowledge. The course will begin with a look at the types of data that flows through healthcare organizations. Students will then be introduced to information systems infrastructure, architecture, and types of systems that exist within organizations. Finally, students will examine how information is incorporated into operational processes, clinical processes, and medical research.
Grad Scheme
Letter
Credits 3
Prerequisite Courses MPH 500
MPH 502

MPH 522 : Global Health
Global Health with a concentration on the developing world and emerging economies (LMIC) is an introduction to the major health issues of LMIC nations, social determinants of health, models for addressing health disparities, innovations for improving health, health and human rights and the role of international organizations in improving global health. Students will explore the major demographic

and economic changes, causes of morbidity and mortality, review factors which influence these outcomes, look at health systems, examine the role of human rights and analyze strategies to improve health and recommendation sustainable solutions.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MPH 523 : Research Design

Research Design course covers the basic concepts and skills of research design, highlighting how they relate to public health research. The course identifies the strengths and weaknesses of key epidemiologic study designs, and how to draft a research proposal. It covers the basics of public health data collection, and analysis and strategies to manage bias and assess the quality of published research. The Course structure is designed to move research methodology from a teaching process to an investigational process, from memorizing to brainstorming, from knowledge transfer to knowledge creation, and from competitive learning to collaborative learning.

Grad Scheme

Letter

Credits 3

Prerequisite Courses MPH 500

MPH 524 : Nutrition

Nutrition course studies nutrition from the perspective of the community rather than the individual, including the scientific basis for nutritional requirements and recommendations, nutrition through the life span, and the role of nutrition in health promotion and disease prevention.

Grad Scheme

Letter

Credits 3

MPH 525 : Practicum

The practicum is an opportunity for students to apply classroom knowledge and theory to real world public health practice. It is a program accreditation requirement. The aim of the course is to develop student skills and to demonstrate the application of these skills through a practice experience relevant to their areas of interest. The students will have the opportunity to provide evidence of application of these skills to potential employers subsequent to completion of the MPH program. The practicum must be supervised and evaluated by a qualified preceptor/ academic advisor, and must be framed and carried out within a public health practice context with an established organization or agency, and apply public health skills and competencies.

Grad Scheme

Letter

Credits 3

MPH 526 : Seminar

As a part of the Alfaisal MPH program and the MBA-Health Management Track curriculum, the MPH 526 Seminar is a practical course, in which the graduate students are trained in presentation skills. At the same time, guest lecturers will be invited to present and discuss with the students state-of-the-art topics in public health and health management.

Grad Scheme

Letter

Credits 1

MPH 527 : Communicable & Non-Communicable Diseases

Communicable diseases are illnesses that can be transmitted from person to person or animal to person. Non communicable diseases (NCDs) including cardiovascular diseases, diabetes, cancer and chronic lung disease, are responsible for considerable morbidity and premature adult mortality globally. This course envisions creating public health tools to help physicians implement effective disease prevention and control programs to address their risk factors. The objective is to train students in the interdisciplinary approaches to diseases prevention, treatment and care. The course will also expose participants to key theoretical and empirical knowledge in diseases' research from a range of disciplines, including epidemiology, economics and health systems in the Kingdom of Saudi Arabia, surrounding regions and internationally.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MPH 600 A : Thesis A

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three

members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Pass/Not Pass

Credits 9

MPH 600 B : Thesis B

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme

Pass/Not Pass

Credits 9

MPH 601 : Research/Capstone Project

The capstone project involves identifying public health problems in a real-world setting and developing the skills to address it. Each student is required to complete a six-credit "capstone" project which may be a research or an intervention project. The capstone project utilizes knowledge gained through classroom coursework and is the degree's culminating work. The end product of the project is something that can be implemented and used. The capstone includes the design of an approved individual or group research or implementation project demonstrating professional-level knowledge and skills. Students may begin their projects after completing all the MPH required core courses.

Grad Scheme

Letter

Credits 6

Master of Radiological & Imaging Sciences

The program which is open to training men and women, Saudi and non-Saudi, local and international students, is designed in two specialization tracks: Radiological & Imaging Sciences (Education & Management) and Ultrasound. Both tracks are courses-only option. The Saudi Commission for Health Specialties (SCFHS) has certified (Hajri 14/04/1438) the main track *Radiological & Imaging Sciences*. The *Ultrasound* track has been submitted.

MRS 500 : Radiation Counting Statistics

This course is designed to review the fundamental principles of probability and statistics as applied to the radiologic and imaging sciences. The course cover formal in-classroom lectures, self-directed learning with guided tutorials, and statistical analysis sessions. At the conclusion of the course, students will have developed necessary skills to understand and perform basic statistical analysis of radiation counting and biomedical research data and interpretation.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MRS 502 : Radiological Research

This course requires students to work in groups on a hypothetical research grant application in the general area of their research interest based on a list of case studies provided by the instructor. Upon completion of the course students will be able to: prepare a comprehensive literature review on a specific research area; write concise project objectives; expand on project objectives by developing a salient methodology; propose a management plan to coordinate a project; write a detailed budget estimate; explain (briefly) the expected results; and develop a short resume/CV.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MRS 503 : Ethics in Radiology
This course is designed to introduce students to the basic principles of ethical theories applicable to exposing humans to radiation, a known carcinogen. It will also discuss ethics of biomedical research and professional practice, including scope and code of practice in each radiologic profession as set by its respective professional organization.
Grad Scheme
Letter
Credits 2
Prerequisites
None

MRS 504 : Radiological and Imaging Sciences I
This course discusses basic sciences of radiological professions including physical principle, sources of radiation and radioactivity, radiation interactions, radiation detection instrumentation, data capture, processing and management.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 505 : Radiological and Imaging Sciences II
This course will review the basic of radiological imaging modalities in preparation for advanced training. Topics include conventional and digital radiography, mammography, and interventional radiology. Computer tomography, bone densitometry, magnetic resonance imaging and ultrasound imaging. Image storage and transmission systems PACS, and teleradiology.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 506 : Topics in Medical Imaging
This is the first of three required courses of all students in the program. These courses discuss technical advancements in medical diagnostic imaging. The first course is designed to review and survey digital diagnostic medical imaging modalities, their physical principles, and their clinical applications. Examples include digital radiography, magnetic resonance imaging, computed tomography, and interventional procedures.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 507 : Topics in Radiation Therapy
This is the second of a series of three required courses of all students in the program. The course is designed to discuss all radiation therapy modalities, their physical principles and their clinical applications. Examples include brachytherapy, external beam therapy including advance methods like cyberknife, IMRT and IGRT.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 508 : Topics in Nuclear Medicine
This is the third of three required courses of all students in the program. The course is designed to discuss all nuclear medical imaging and therapeutic modalities, their physical principles and their clinical applications. Examples include planar nuclear imaging, SPECT/CT and PET/CT as well as radionuclidic therapy applications.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 509 : RIS Seminar
The course aims to train the students for in-classroom research presentation in preparation for their oral defense of their capstone project. The primary aim of the course is to orient student to the latest and most current research in the field. In doing so, they will be asked to research the literature on current developments in the radiological and imaging sciences, prepare slide presentations, write brief reports and present their slide to peers in the classroom.
Grad Scheme
Pass/Fail
Credits 1
Prerequisites
None

MRS 510 : Academic Program Management
Orientation to academic program directorship, faculty and staff management, student affairs, faculty and academic affairs, the higher education system in the KSA, USA and other examples and how colleges and

universities work. Self-study preparation, applying for and maintaining accreditation, site visits, etc. Introduction to the meaning and concepts of serving as radiological and imaging sciences faculty. Topics include scholarship, advisement, teaching plus faculty recruitment, retention, and development. Principles and practice of effective pedagogy, curriculum development and evaluation in radiological and imaging sciences.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 511 : Faculty Development

Pedagogical orientation to academic programs, faculty and staff management, student affairs, faculty and academic affairs, and the higher education system in the KSA. Principles and practice of effective pedagogy, curriculum development and evaluation in radiological and imaging sciences.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 512 : RIS Instruction & Assessment

RIS instruction and assessment includes principles and practice of effective pedagogy, curriculum development and evaluation in radiological and imaging sciences. Outcome assessments, benchmarking.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 513 : RIS Academic Program Accreditation

Preparation of a complete application of a self-study for professional academic program accreditation. Accreditation requirements of all three JRCs will be discussed in depth. Emphasis on the role of the radiological educators and program directors. Additional discussion on the NCAAA requirements and accreditation schemes are also covered.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 514 : Radiologic Financial Management

This course is designed to survey the field of finance and provide the foundation in relation to the health sciences industry. Topics include sources of business and financial information, financial statement analysis, the time value of money, the nature and measurement of risk, financial institutions, investments and corporate finance.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 515 : Personnel Management in Radiology

This course provides an in-depth review of case studies in contemporary, diverse workforce issues in a variety of health care environments. Students examine current human resource theories and models and published studies on personnel management issues. They then develop simulations and formulate innovative solutions for recruiting, training, and retaining health care personnel.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 516 : Clinical Accreditation & QM

Application for and maintenance of professional accreditation of clinical operations, i.e, ACR and IAC . Emphasis on the role of the radiological technical administrator. Students will learn to view quality from a variety of functional perspectives and in the process, gain a better understanding of the problems associated with improving quality, also quality tools utilized in service and international/ environments.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 517 : Professional Development

Discusses matters and topics related to personnel management in the radiologic and imaging sciences. Topics include professional development as well as certification maintenance requirements; continuing education course design, accreditation and offering; professional career development and advancement and peer mentoring.

Grad Scheme

Letter
Credits 3
Prerequisites
None

MRS 518 : Ultrasound Physics
Presents general acoustic principles including sound wave parameters, energy transfer, through wave propagation, pulsed and continuous wave generation and parameters, surface reflection processes, and transducer construction. Discusses beam profile consideration and an introduction to A-mode, B-mode, and M-mode. Emphasizes applied principles of physics, knobology, and instrumentation relative to ultrasound. Discussion of properties of sound and presents advanced concepts including computer technology and the instrumentation used to create and store the ultrasound image, and introduction to fluid dynamics, spectral, color and amplitude Doppler. Emphasizes advanced principles of physics, knobology, acoustical artifacts, bioeffects/safety and quality assurance relative to ultrasound.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 519 : Sonography Cross-Sectional Anatomy
Introduces gross anatomic structures and abnormalities of cranial, neck, thoracic, abdominal and pelvic regions relative to diagnostic ultrasound. Presents correlations to cadaver slides as well as CT and MRI images.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 520 : Abdominal Sonography
Presents normal and pathophysiological abdominal anatomy, physiology, related vasculature, scanning techniques and protocols regarding the abdominal sonographic examination.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 521 : Pelvic Sonography
Presents female pelvic anatomy, physiology, pathophysiology, related vasculature, scanning techniques and protocols regarding the pelvic sonographic examination. Reviews the anatomy and physiology of reproduction. Presents normal and abnormal first trimester sonography.
Grad Scheme
Letter
Credits 3

MRS 522 : Obstetrical Sonography
Presents obstetrical applications of diagnostic ultrasound. Reviews the anatomy and physiology of fetal development. Presents normal and abnormal second and third trimester sonography. Emphasizes obstetrical measurements and fetal dynamics.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 523 : Clinical Sonography
Students perform sonographic procedures during clinical rotations at affiliate sites under the supervision of designated clinical instructors. Evaluation of cognitive, effective and psychomotor skills is based on competency in scanning protocols and techniques, professionalism and proficiency in patient care. Provides supervised clinical practice of obstetrical and gynecological sonography in a clinical setting.
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 524 : Sonography Procedures
Grad Scheme
Letter
Credits 3
Prerequisites
None

MRS 525 : Musculoskeletal, Neonatal & Pediatric Sonography
This course introduces students to anatomy and physiology relevant to sonographers in the imaging of the musculoskeletal system, neonatal brain, hips and abdomen. The focus of the course is on relational and cross-sectional anatomy in the musculoskeletal system, neonatal brain, hips and abdomen. Sectional human anatomy in the transverse, sagittal and coronal planes. Pediatric abdominal organs associated with the gastrointestinal tract such as liver, gallbladder and pancreas are emphasized. In addition, structure and

function of the spleen, kidneys, adrenal glands and the blood vessels supplying the region is included in the course.

Grad Scheme
Letter
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MRS 526 : Sonographic Vascular & Postoperative Imaging
Sonographic scanning methods, techniques and protocols related to selected examinations of the cardiovascular system. Gross anatomical structure and function and relevant pathophysiological disorders associated with the cardiovascular and immune systems. Interpretational skills in respect to artifacts and the sonographic appearances of the examinations addressed will be gained. The process of organ rejection and the role of ultrasound in the postoperative evaluation of liver and renal transplants. Quality assurance, sonographic measurement techniques, the utilization of specific duplex modalities and the use of stents and grafts in vascular surgery
Grad Scheme
Letter
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MRS 527 : Echocardiography Imaging
This course will cover the cardiac structure, function, pathophysiology and scanning techniques at an advanced level. During this unit students will progress through standard heart views to focus on the ultrasound appearance and Doppler haemodynamics of congenital and acquired cardiac abnormalities and common syndromes. Students will develop the ability to recognise fetal arrhythmias. Students will acquire knowledge of advanced imaging techniques tailored to echocardiography including spatio-temporal imaging correlation (STIC), 3 / 4-D colour Doppler, tissue Doppler imaging (TDI) and some common cardiac physiological measurements.
Grad Scheme
Letter
Credits 3
Theory Hours 2
Practical Hours 1
Prerequisites
None

MRS 600 : Thesis A
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MRS 600 : Thesis B
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MRS 601 : Research/Capstone Project
The intent of this project is to enable to the student to learn to pursue a chosen topic through a literature search on a topic approved by the graduate advisor, collection and analysis of data, project report

preparation and defense. Although this course officially begins toward the end of the second year, the trainees are encouraged to identify a project topic and supervisor in their first year so that they are able to begin their research project in the winter of their second year.

Grad Scheme
Letter
Credits 6
Prerequisites
None

Higher Diploma in Biomedical Science

The Higher Diploma of Biomedical Science Program at Alfaisal University Riyadh is a post-graduate training program designed to provide advanced competencies in biomedical science. This program prepares students to become successful biomedical scientists, medical researchers and professionals in various industries and settings. The program is a one-year degree program divided into two semesters of study. During each semester, students must complete a minimum of 12 credit hours of core and subject based courses, which are divided into theory classes, practical classes and group projects. The core curriculum includes biomedical science core subjects such as analytical chemistry, infectious diseases, clinical embryology clinical anatomy, transfusion medicine & stem cells, bioinformatics, biochemistry, immunology, and laboratory management. The specialized courses are tailored according to specialized tracks and cover diverse topics. The program ensures comprehensive and well-rounded learning for students by engaging them in practical sessions and real-world training. The faculty members are highly experienced and are involved in research projects and publications related to biomedical sciences. Upon successful completion of the program, students are awarded a Higher Diploma of Biomedical Science from Alfaisal University Riyadh.

MNT 506 : Biosensors, nanodiagnostic and Lab on a Chip

Grad Scheme
Letter
Credits 3

Master of Science in Applied Health Research

The Master of Science in Applied Health Research (MAR) at the College of Medicine will provide scientists and clinicians with training in biomedical statistical methodology. Advanced statistical techniques will be combined with practical lab-based training. The R statistical language will be used for programming and analyses, conveniently taught through RStudio and Jamovi. This Master program is aimed at creating frontline researchers in Health Science.

MAR 501 : Advanced Clinical Statistics

This course will introduce more advanced statistical methodology. There will be an emphasis on hands-on learning of key statistical methodologies relevant to medical research. Students will use jamovi statistical software and then learn the advanced statistical programming language R using RStudio. The course aims to give students an increased skill set of biostatistical methods that are of particular relevance to medical research.

Grad Scheme
Letter
Credits 3

MAR 502 : Clinical Trials

This course will focus on the research design and statistical methodology used in clinical trials. The course aims to give students a working knowledge of clinical trials to allow them to design them and analyses their data.

Grad Scheme
Letter
Credits 3

MAR 503 : Clinical Data Management

This course will introduce students to issues involved in the management of clinical data. Students will learn the importance of data management in a research setting, involving important issues of data quality and storage.

Grad Scheme
Letter
Credits 2

MAR 504 : Real Data Analysis

This course to strengthen and build on previous courses, students will analyse real data from actual studies. It may provide an opportunity for students to meet researchers and discuss the statistical aspects of

a research study. On completion of this course students will be able to 1)Analyse some real medical research data obtained from an active research group in Riyadh 2)Advise medical researchers on study design and sample size estimates 3)Communicate with the researchers regarding analysis of the data 4) present a report on their experience and their final analysis conclusions.

Grad Scheme
Letter
Credits 3

MAR 505 : Qualitative Research Methods
This course will introduce students to non-numerical approaches known as qualitative statistical methodology. The students will be familiar with the various different qualitative methodologies and know how to apply them depending on the contexts and research goals. On completion of this course students will be able to 1) Describe the scope of qualitative methods 2) Describe different research paradigms 3) Carry out data collection and analysis 4) Describe coding of data 5) Discuss the mixed-methods approach 6) Communicate clearly results from qualitative research 7) Describe qualitative research reported in the literature.

Grad Scheme
Letter
Credits 1

MAR 506 : Systematic Review and Meta-analysis
This course will introduce students to the methods of reviewing and analyzing published data.

Students will know how to extract data/statistics from published research to perform meta-analyses and undertake a systematic review.

Grad Scheme
Letter
Credits 3

MAR 600 A : Thesis A
Master's degree students expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense

Grad Scheme
Letter
Credits 9

MAR 600 B : Thesis B
Master's degree students expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense

Grad Scheme
Letter
Credits 9

MAR 601 : Project
Grad Scheme
Letter
Credits 6

Master of Science in Clinical Neuroimaging

The MNI program will provide students with the theoretical and clinical skills necessary to practice high quality brain imaging work using multiple modalities in both healthy and patient populations. The program will also familiarize the students with evidence-based practices.

The program will introduce new modalities, radiological technologies, radiological informatics, and digital imaging to establish the requisite breadth of knowledge in the discipline. The program also focuses on establishing an in-depth mastery of entry-level knowledge and skills through series of classroom lectures, research-based courses, and practical clinical internship rotations at affiliate training sites.

Upon graduation, students will have developed a deeper understanding of clinical neuroradiology in terms of neuroanatomy, neuropathology, imaging techniques and analyses. In addition, the graduates of this program will be uniquely positioned to make considerable contributions to research in the field of brain neuroimaging.

MNI 528 : Foundational Neuroanatomy and Systems

This course aims to establish a foundational knowledge of neuroanatomy and the systems in the brain. It will help students refresh their knowledge in the area and better engage in the advanced level courses. The main aspects covered under this course are Neuroanatomy and Neurophysiology. Basic concepts of memory and behavioral localization will also be covered.

Grad Scheme
Letter
Credits 3

MNI 529 : Methods of Functional Human Brain Mapping

This advanced course provides a comprehensive introduction to the methodologies, technologies, and analytical approaches used to map the functional organization of the human brain. Students will explore both established and emerging techniques for measuring, analyzing, and interpreting brain activity data across multiple spatial and temporal scales.

Grad Scheme
Letter
Credits 3

MNI 530 : Physics of Medical Imaging

This course provides a comprehensive introduction to the physical principles underlying modern medical imaging technologies. Students will explore the fundamental physics concepts that enable healthcare professionals to visualize the human body's internal structures and functions non-invasively. Students will gain an understanding of how each imaging technology generates, detects, and processes signals to create diagnostic images. The course also covers image quality considerations, radiation safety principles, and emerging developments in medical imaging technology.

Grad Scheme
Letter
Credits 3

MNI 531 : Pathology and Diagnostic Neuroimaging

This course aims to give students a broad introductory knowledge of some common, important neurological pathologies and of the role of Neuroimaging in the diagnosis, treatment, and follow-up of these conditions. The course focuses on Tumors, Epilepsy, Degenerative Diseases, Trauma, Pediatric Neuroradiology, and Artificial Intelligence in Neuroradiology.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MNI 530

MNI 532 : Advanced Image Analysis

This course aims to provide theoretical background and practical instruction on several key advanced methods in neuroimaging analysis, including connectivity, multivariate pattern analysis, advanced diffusion and PET methods, M/EEG source estimation, and fMRI.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MNI 530

MNI 601 A : Research Capstone Project

The course is designed to enhance the students' knowledge and capabilities that are required to provide effective, comprehensive, and high-quality research needed for their graduation capstone project. The course will also enhance their academic writing skills that are needed in their postgraduate studies.

Grad Scheme
Letter
Credits 3

MNI 601 B : Research Capstone Project B

The course is designed to enhance the students' knowledge and capabilities that are required to provide effective, comprehensive, and high-quality research needed for their graduation capstone project. The course will also enhance their academic writing skills that are needed in their postgraduate studies.

Grad Scheme
Letter
Credits 3

MNI 601 B : Research Capstone Project B
The course is designed to enhance the students' knowledge and capabilities that are required to provide effective, comprehensive, and high-quality research needed for their graduation capstone project. The course will also enhance their academic writing skills that are needed in their postgraduate studies.
Grad Scheme
Letter
Credits 3

MNI 602 A : Clinical Internship A
These internships aim to provide the students with focused, hands-on clinical training in clinical neuroimaging sub-specialties such as:

- Training in PET-MR and PET-CT
- Training in MRI and CT
- Training in MEG, EEG and TMS
- Training in Neuronavigation

Grad Scheme
Letter
Credits 6

MNI 602 B : Clinical Internship B
These internships aim to provide the students with focused, hands-on clinical training in clinical neuroimaging sub-specialties such as:

- Training in PET-MR and PET-CT
- Training in MRI and CT
- Training in MEG, EEG and TMS
- Training in Neuronavigation

Grad Scheme
Letter
Credits 6

Master of Science in Clinical Neuropharmacology

The MSc in Clinical Neuropharmacology permits the students to investigate the structure and functions of the nervous system and the influence of the drugs on the nervous system. This will allow the students to apply the relevant knowledge to find novel targets and treatment to neurological and psychological disorders. The course is designed for students with a pharmacology background. Due to the rich content of the course, graduates of the program will be qualified to pursue their PhD, work in hospitals, universities, research centers, or the pharmaceutical industry.

This unique multidisciplinary program provides students with an excellent opportunity to develop a specific interest in the Clinical Neuropharmacology field required for understanding the mechanisms of pathophysiology, diagnostic procedures, and treatments of various diseases of the brain and nervous system in parallel with high involvement in psychophysics, data analysis and statistical modelling.

Strategically, the program utilizes many instructional methods, including, but not limited to, interactive lectures, seminars, computing sessions and laboratory sessions. Problem case sessions are conducted by academic and clinical experts from different subspecialties. In addition, candidates must complete clinical placements and research projects related to neuropharmacology.

The program will be conducted in collaboration with King Fahad Medical City (KFMC).

CNP 500 : Structure and Function of the Nervous System
This module will provide a detailed understanding of the structure and function of the nervous system. For instance, the module will start with the development of the nervous system and then students will focus on the adult nervous system.
Grad Scheme
Letter
Credits 2

CNP 501 : The Psychopathology, Clinical features, and Molecular Neuropathology of Brain Disorders
This course will provide knowledge and understanding of psychosis, mood disorders, dementias, neurodegenerative disorders, movement disorders, epilepsy, headache and chronic pain, neuro-inflammatory disorders such as multiple sclerosis, and encephalopathies.
Grad Scheme
Letter
Credits 3

CNP 502 : Pharmacological, Neurological and Psychiatric Treatments

This course will evaluate the conventional treatments with antidepressants, dopamine-based therapies, mood stabilizers, anticonvulsants, deep brain stimulation, transcranial stimulation, cognitive/ mindfulness therapies and highlight their limitations.

Grad Scheme

Letter

Credits 3

CNP 503 : Basic Concepts in Neurochemistry & Drug Discovery

This course will provide students with knowledge on molecular structures and modelling, pharmacodynamics, pharmacokinetics, principles of drug discovery, molecular cell biology underpinning drug discovery, drug metabolism, and how this knowledge is tied to drug discovery.

Grad Scheme

Letter

Credits 2

CNP 504 : Experimental Models of Neurological Disorders

This course will provide insights into available technologies and strategies for brain drug discovery including molecular and cellular phenotypes, induced pluripotent stem cells models, single cell approaches in neurobiology, animal models, human experimental models, target discovery and validation, genome engineering.

Grad Scheme

Letter

Credits 2

CNP 505 : Neurodegenerative & neuroinflammatory autoimmune diseases

This course will address inflammatory and neurodegenerative diseases of the central and peripheral nervous system, and the clinical presentation and treatment approaches available.

Grad Scheme

Letter

Credits 2

CNP 506 : Clinical trials, mobile technology, and digital health

This course will provide insights into neuroscience and ethics, ethical governance, principles and design of clinical trials, data management and analysis, trial monitoring, mobile technology for patient monitoring, and current advances in digital health

Grad Scheme

Letter

Credits 1

CNP 507 : Seminars & journal clubs

All students will receive seminars on ethics and neuroscience, essay writing, and information about their project rotations. Each seminar will provide written information and guidance for students. Students will also attend a journal club to critically appraise a research article on the topics covered during the two semesters of the first year.

Grad Scheme

Letter

Credits 2

CNP 507 A : Seminars & journal clubs

Grad Scheme

Letter

Credits 1

CNP 507 B : Seminar & Journal Clubs

All students will receive seminars on ethics and neuroscience, essay writing, and information about their project rotations. Each seminar will provide written information and guidance for students. Students will also attend a journal club to critically appraise a research article on the topics covered during the two semesters of the first year.

Grad Scheme

Letter

Credits 1

CNP 600 : Clinical Rotation

All students will complete clinical placements during this year. They will spend 24 weeks in the psychiatry and neurology wards at KFMC. The students will apply knowledge and gain skills in delivering treatments for patients in hospital settings under the supervision of a specialist pharmacist.

Grad Scheme

Pass/Fail

Credits 10

CNP 600 A : Clinical Rotation A

All students will complete clinical placements during this year. They will spend 24 weeks in the psychiatry and neurology wards at KFMC. The students will apply knowledge and gain skills in delivering treatments for patients in hospital settings under the supervision of a specialist pharmacist.

Grad Scheme

Pass/Fail

Credits 5

CNP 600 B : Clinical Rotation B

All students will complete clinical placements during this year. They will spend 24 weeks in the psychiatry and neurology wards at KFMC. The students will apply knowledge and gain skills in delivering treatments for patients in hospital settings under the supervision of a specialist pharmacist.

Grad Scheme

Pass/Fail

Credits 5

CNP 601 : Research Project

Students will complete laboratory placements during this year. In addition, they will visit research labs/ groups in their first term and select their project towards the end of the first year. The projects will cover various topics, from molecular to cognitive studies

Grad Scheme

Letter

Credits 6

CNP 601 A : Research Project A

Students will complete laboratory placements during this year. In addition, they will visit research labs/ groups in their first term and select their project towards the end of the first year. The projects will cover various topics, from molecular to cognitive studies

Grad Scheme

Letter

Credits 3

CNP 601 B : Research Project

Students will complete laboratory placements during this year. In addition, they will visit research labs/ groups in their first term and select their project towards the end of the first year. The projects will cover various topics, from molecular to cognitive studies

Grad Scheme

Letter

Credits 3

Master of Science in Health Economics

The Master in Health Economics program is ideal for professionals already working within health technology policy formulation, as well as those with roles in management and evidence-based commissioning and purchasing, as well as those in the pharmaceutical, medical devices or diagnostics industries. This program will equip successful graduates with professional-level competency in the design, commissioning, and review of health technology assessments in multiple jurisdictions, delivering perspectives in product development, planning, prioritization of research, and local and international health policy planning.

MHE 500 : Health Economics

This course is designed to give MHEOR students an understanding of health economics issues. The course will cover a wide range of economic theories and conceptual models. It will go over resource constraints, trade-offs, efficiency, and equity. By the end of this course, students will have developed a set of analytical and conceptual tools that can be used to gain valuable insights into a variety of health care issues and problems from an economic standpoint.

Grad Scheme

Letter

Credits 3

MHE 501 : Methods and Processes in Health Technology Assessment

This course is intended to introduce MHEOR students to a variety of economic evaluation methods used to evaluate health care programs, services, technologies, and other interventions. The course will cover the theory, methods, and applications of technology assessment in health care. Applications will be accepted from a variety of health care settings, including pharmaceuticals.

Grad Scheme

Letter

Credits 3

MHE 502 : Healthcare Systems and Reimbursement

This course provides a foundation in healthcare systems and reimbursement systems in Saudi Arabia. Students will be able to analyze and evaluate the ethical and legal considerations of healthcare decisions, demonstrate an understanding of the transformation of the healthcare system, policies, funding systems, healthcare quality, patient safety and decision-making in healthcare organizations. This course will equip students with knowledge and skills of using and applying health technology assessment methodologies in a variety of governmental and non-governmental bodies to ensure the efficient use of resources to deliver the healthcare in Saudi Arabia.

Grad Scheme

Letter
Credits 3

MHE 503 : Modeling in Health Economics
This course is designed to give MHEOR students with a hands-on experience in conducting empirical cost-effectiveness analysis using Excel program using different model techniques. Also, students will learn how to synthesis evidence using meta-analysis and network meta-analysis
Grad Scheme
Letter
Credits 3

MHE 600 A : Thesis A
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A *Master's Advisory Committee* will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Fail
Credits 9
Prerequisite Courses REC 502
MPH 502
MHE 500
MHE 501
MHE 502
MHE 503
MPH 507
MPH 508

MHE 600 B : Thesis B
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Fail
Credits 9
Prerequisite Courses REC 502
MPH 502
MHE 500
MHE 501
MHE 502
MHE 503
MPH 507
MPH 508

Master of Science in Health Research Management

The Master of Health Research Management (MRM) program at Alfaisal will provide experienced health science professionals with updated skills, strategies, and resources for developing and managing products, treatment protocols, and other processes associated with clinical research and patient care.

MRM 5XX : Elective
Grad Scheme
Letter
Credits 3

MRM 501 : Clinical Research Management Fundamentals
The course is designed to train participants in how to effectively manage clinical research. The course focuses on the spectrum of clinical research and the research process by highlighting epidemiologic methods, study design, protocol preparation, patient monitoring, quality assurance, and regulatory issues encompassing Saudi Food and Drug Administration (SFDA) and National Committee of Bioethics (NCBE). This course will be of significant interest and value to graduate students and other health care professionals planning post-graduate training.
Grad Scheme
Letter
Credits 2
Prerequisite Courses REC 504

MRM 502 : Law in Healthcare Delivery; Compliance, Legal, & Reg Issues

This course provides a broad exposure to basic principles and practices of the Saudi Food, Drug, Medical devices, Cosmetics, and Pesticides Act regulating the research and development of pharmaceuticals and biologics for humans and animals. It will include an analysis of legal and social framework affecting academic clinical investigators and the industry with emphasis on MOH and SFDA enforcement actions. Discussions will cover the specific, general, and global issues associated with these laws and regulatory topics. Several field trips and site visits are scheduled during the course to reinforce understanding of the selected topics.

Grad Scheme

Letter

Credits 2

Prerequisite Courses REC 504

MRM 503 : Fundamentals of Device & Drug Development

This course provides a broad exposure to introduction to pharmaceutical industry, process of drug development, and drug development phases (1-4). Regulatory requirements of the Saudi Food and Drug Administration (SFDA) and FDA are reviewed along with the content of the investigational new drug application (IND), new drug application (NDA), marketing authorization application (int'l), and the pharmaceutical regulatory affairs. The course emphasis will be on drug development in addition to development of biologics, OTC, and devices. This course focuses on drug discovery through IND submission and clinical development including portfolio decision-making. The roles and responsibilities of the principal investigator, coordinator, sponsor, and monitor are discussed.

Grad Scheme

Letter

Credits 2

Prerequisite Courses REC 502

MRM 504 : Ethical Conduct and Review Board

This course is designed to encourage well-informed critical discussions of ethical issues in research management. Scientific considerations in research management policy and interventions occasionally cause political and ethical conflicts. Issues of autonomy, individual rights, coercion, justice, community, and multicultural values are pivotal in ethical research. A population-based perspective of research management goals should be ethically balanced with the preservation of human rights and protection of civil liberties. Goals of this course are: Stimulating the moral imagination, recognizing ethical issues, developing analytical skills, eliciting a sense of moral obligation and responsibility, and coping with moral ambiguity. The course will enable students to recognize, analyse, criticize, and evaluate ethical issues and equip them with practical knowledge to construct arguments and make decisions in research management

Grad Scheme

Letter

Credits 2

Prerequisite Courses REC 502

MRM 505 : Financial Management of Research

This course provides an in-depth analysis of clinical research financial regulations, budget process, clinical trial revenue cycle, and patient remuneration. This course describes the significance of ensuring that the investigator and study team are integrated into the financial components of the study to mitigate the risks associated with non-compliance with research billing regulations. Students will understand and be able to apply concepts of financial management, decision-making, and quality assessment to health systems and be able to develop broad policy statements concerning research management. Strategies for developing operational efficiencies and establishing communication channels to enhance sponsor reimbursements will also be discussed.

Grad Scheme

Letter

Credits 2

Prerequisite Courses REC 502

MRM 506 : Leadership and Quality Management in Research

This course provides an in-depth analysis of effective leadership skills encompassing specific human capital, organizational behaviour and project management issues facing research facilities as larger, integrated organizations. Selected topics include high impact communications, negotiating, motivation and recognition. A detailed overview of research leadership and quality management systems, regulations and guidelines has been provided. Development and management of total quality systems meeting regulatory expectations has been highlighted. The covered topics include development, management, usage/maintenance of Standard Operating Procedures (SOPs), deviation/non-

conformance systems, corrective/preventative action systems, validation, and process controls via key performance indicators to ensure quality in research.

Grad Scheme

Letter

Credits 2

Prerequisite Courses REC 504

MRM 507 : J Club/seminar (contemporary issues in research management)

Grad Scheme

Letter

Credits 3

MRM 508 : Pharmacology Research

This course is designed for students pursuing the Masters in Clinical Research Coordinator program, offering an in-depth exploration of advanced pharmacological research methods and practices. This course provides a comprehensive understanding of the critical components involved in pharmaceutical research, including drug development, epidemiological considerations, pharmacoeconomics, medication safety, and regulatory affairs. Through a combination of theoretical knowledge and practical application, students will acquire the skills and ethical values required to excel in coordinating, managing, and conducting pharmacological research. This course empowers students to contribute to the advancement of pharmaceutical science and the improvement of healthcare outcomes.

Grad Scheme

Letter

Credits 2

MRM 509 : Scientific and Medical Writing

The course is designed to equip students with the essential skills required for effective scientific and medical communication. Through a series of comprehensive modules, students will gain proficiency in
research proposal writing, literature search strategies, ethical considerations, manuscript preparation, and publication practices. This course empowers students to become adept in articulating their research findings, ensuring compliance with ethical standards and authorship criteria, and contributing to the dissemination of scientific knowledge.

Grad Scheme

Letter

Credits 2

MRM 510 : Screening and Diagnosis

This course is designed to provide students with a comprehensive understanding of screening and diagnostic tests in medicine. Through a series of in-depth modules, students will explore the principles, methodologies, and ethical considerations involved in effective screening and diagnosis. This course equips students with the knowledge, skills, and ethical values necessary to excel in coordinating, managing, and conducting screening and diagnostic studies, ensuring the highest standards of patient care and research integrity.

Grad Scheme

Letter

Credits 2

MRM 511 : Bioinformatics and Health Economics

This course is an integral part of the Masters in Clinical Coordinator program and provides a comprehensive exploration of the intersection between bioinformatics and health economics within the
context of clinical coordination. Students will delve into the intricate relationship between data-driven insights and economic principles, developing a strong foundation for effective decision-making in healthcare. Through a blend of theoretical knowledge and practical applications, participants will gain the skills and expertise needed to excel in this dynamic field.

Grad Scheme

Letter

Credits 3

MRM 600 : Thesis

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A *Master's Advisory Committee* will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Not Pass
Credits 18

MRM 600 A : Thesis A
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A *Master's Advisory Committee* will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MRM 600 B : Thesis B
Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A *Master's Advisory Committee* will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.
Grad Scheme
Pass/Not Pass
Credits 9

MRM 601 : Project
Grad Scheme
Letter
Credits 6

Master of Science in Pathologist's Assistant

The program is designed to provide students with advanced knowledge and skill in human gross anatomy, physiology and general pathology, specimen collection and handling, forensic autopsies (medicolegal/clinical), with hands-on training in the form of clinical rotations under qualified and well-trained pathologists and pathologists' assistants. Through hands on experience in KFMC, students will learn to perform tasks, such as the dissection of surgical specimens and autopsies, under the direct supervision of a qualified faculty. As part of the program, students will also develop a research project that will advance scientific knowledge and understanding of the field.

MPA 501 : General Mechanism of Disease
The course serves as a transition from the foundational modules to the organ systems courses. It focuses on the general mechanisms of disease, introducing students to microbiology and infectious disease, principles for discriminating healthy from unhealthy conditions and predicting clinical manifestations. The course consists of face-to-face lectures by basic science faculty focusing on major principles and their biomedical applications. Exams are used to assess foundational knowledge and facilitate knowledge integration and are designed to facilitate student review and self-assessment.
Grad Scheme
Letter
Credits 2

MPA 502 : Organ System Pathology I
This course is a comprehensive introduction to integrative organ system pathology. Organ system pathology including interrelationships of structure and function are reinforced throughout the course. The flow of the course is intended to interphase with topic material being taught concurrently in autopsy and surgical pathology techniques. The course introduces an interactive learning experience that exposes the student to all the major organ system pathology as is presented in Robbins Pathology and will provide the student with a strong background for fulfilling the competency requirements for a career as a Pathologists' Assistant.

Grad Scheme
Letter
Credits 3

MPA 503 : Organ System Pathology II
This course is a comprehensive introduction to integrative organ system pathology. Organ system pathology including interrelationships of structure and function are reinforced throughout the course. The flow of the course is intended to interphase with topic material being taught concurrently in autopsy and surgical pathology techniques. The course introduces an interactive learning experience that exposes the student to all the major organ system pathology as is presented in Robbins Pathology and will provide the student with a strong background for fulfilling the competency requirements for a career as a Pathologists' Assistant.
Grad Scheme
Letter
Credits 3

MPA 505 : Surgical Pathology I
These surgical pathology rotations during the second year of study provide the student with didactic and practical experience in anatomic pathology dissection with respect to surgically excised specimens, including specimen identification, tissue triaging for ancillary studies, review and interpretation of clinical data, gross specimen description, specimen photography, and get the guidance from Consultant Pathologist regarding cancer staging by gross pathology.
Grad Scheme
Letter
Credits 3

MPA 506 : Surgical Pathology II
These surgical pathology rotations during the second year of study provide the student with didactic and practical experience in anatomic pathology dissection with respect to surgically excised specimens, including specimen identification, tissue triaging for ancillary studies, review and interpretation of clinical data, gross specimen description, specimen photography, and get the guidance from Consultant Pathologist regarding cancer staging by gross pathology.
Grad Scheme
Letter
Credits 3

MPA 507 : Surgical Pathology III
These surgical pathology rotations during the second year of study provide the student with didactic and practical experience in anatomic pathology dissection with respect to surgically excised specimens, including specimen identification, tissue triaging for ancillary studies, review and interpretation of clinical data, gross specimen description, specimen photography, and get the guidance from Consultant Pathologist regarding cancer staging by gross pathology.
Grad Scheme
Letter
Credits 3

MPA 508 : Surgical Pathology IV
These surgical pathology rotations during the second year of study provide the student with didactic and practical experience in anatomic pathology dissection with respect to surgically excised specimens, including specimen identification, tissue triaging for ancillary studies, review and interpretation of clinical data, gross specimen description, specimen photography, and get the guidance from Consultant Pathologist regarding cancer staging by gross pathology.
Grad Scheme
Letter
Credits 3

MPA 509 : Autopsy Pathology & Toxicology
Autopsy rotations during the second year of study allow the student to become proficient in all phases of the human post-mortem examination, including review of consent forms and death certifications, review of medical records, decedent identification, evisceration, organ block dissection, description of findings, and preparation of postmortem reports. Students receive basic instruction in the function of the autopsy service and the hospital morgue. Practical aspects of specimen photography are also presented during the course. Students are exposed to basic concepts of the medicolegal investigation of death in a four-week rotation where the students receive "hands on" instruction in forensic autopsies.
Grad Scheme
Letter
Credits 3

MPA 601 A : Research Capstone Project A
The intent of this course is to enable to the student to learn to pursue a chosen topic through a literature search, collection and analysis of data, project report preparation and defense. Although this course officially begins in the second year, the trainees are encouraged to identify the project topic and supervisor, in their first year so that they are able to begin the research project in the fall of their second year.

Grad Scheme
Letter
Credits 3

MPA 601 B : Research Capstone Project B
The intent of this course is to enable to the student to learn to pursue a chosen topic through a literature search, collection and analysis of data, project report preparation and defense. Although this course officially begins in the second year, the trainees are encouraged to identify the project topic and supervisor, in their first year so that they are able to begin the research project in the fall of their second year.

Grad Scheme
Letter
Credits 3

Master of Science in Radiation Medicine

The Master of Radiation Medicine at Alfaisal University aims to provide health science professionals with cutting edge skills, knowledge, and strategies to develop and manage translational research in physics applied to medicine, and more precisely to cancer treatments. On the long term it aims to provide the theoretical education for professional Middle East medical physicists in collaboration with accredited residency programs

MRA 501 : Interactions of Radiation with Matter
This course will consist of four sub-sections including 1) Fundamentals of the interactions of radiation and matter; 2) The concept of dose; 3) treatment planning; and 4) Hands on treatment planning

501.1 Fundamentals of the Interactions of Radiation with Matter: This course reviews of the basics of atomic and nuclear physics. Matter composition and law governing the interaction of radiation with matters, including energy to matter or waves equivalences, will be explained in very practical way and with quasi-exclusive use of visuals. Emphasis will be put on practical understanding of how radiations interact with matter. Basics of decay theories including Bateman equations will be explained. Particle interactions as well as beam attenuation including the Bert Lambert law will be described. The concept of KERMA and dose, energy degradation down to chemical reactions will be explained. Potential clinical and research applications will be reviewed.

501.2 The Concept of Dose – Theory, detectors, and applications: This chapter will review the quantification of energy deposition in matter, including cavity theories (Bragg & Gray, Attix and Burlin). The concepts of ionization, exposure, dose, and KERMA will be reviewed. Absolute and relative dosimeter. Chemistry under radiation and the Fricke dosimeter. Film dosimetry and nuclear track detectors. The simplifications that are commonly used will be explored. Innovative and future approaches of measuring absorbed dose (scintillation, calorimetry…) will be described.

501.3 Treatment planning and dose distribution optimization – Treatment Planning Systems (TPS) and calculation techniques to predict and estimate dose distributions will be presented. Computer algorithms designed to model dose deposition ranging from look-up tables with simple correction factors to scatter correction-based techniques, pencil beam, pencil kernel and convolution algorithms, to full Monte Carlo modeling of the radiation interactions will be reviewed. Classical dosimetry metrics including equivalent field size, inverse square law, CF, SF, RDF, PSF, TAR, SAR, TPR, TMR, Mayneord factor will be explained. The role of forward and inverse plan optimization will be examined, and the evolution of intensity modulation up to VMAT in modern radiation treatment introduced. Dose-volume histograms, beam weighting, dose normalization, radiotherapy prescription, and MU calculation models will be explained.

501.4 Hands on treatment planning – Basic workflow for treatment planning. Organ contouring and ICRU nomenclature, use of guidelines and peer review evaluation. Example of 2D planning, with pair or parallel-opposed beam with wedges, 3D planning, 3D-CRT, IMRT and VMAT. Electron dosimetry. MU calculation and Medical Physics QA.
Grad Scheme
Letter
Credits 3

MRA 502 : Radiation production
This course will include five sub-sections including :1) History of accelerators, from radium bomb to modern

linacs; 2) Linacs and Radiology Devices Commissioning; 3) Fundamentals of radiobiology; 4) Hadrontherapy; and 5) Hands-on Monte Carlo simulation.

502.1 History of accelerators, from radium bomb to modern linacs – Physics underlying charged particles accelerator will be discussed, from conventional electron accelerators to research cyclotrons. The engineering and complexity of a modern accelerator for improved accuracy and precision will be presented, with special focus on the technical requirements for high precision radiotherapy. This course includes a 2-hour hands-on session at the machine.

502.2 Linacs and Radiology Devices Commissioning – Machine acceptance, commissioning, and routine dosimetry QA. Imaging modalities QA. High precision radiotherapy QA, Winston Lutz, isocenter sphere. Use of various phantoms including water tank, and detectors including Gafchromic films, TLD and OSLD. Machine selection and tender process. This course includes a 2-hour hands-on session at the machine.

502.3 Fundamentals of radiobiology – This chapter will review the molecular, cellular, and tissue impact of radiation. Dose/fractionation, linear quadratic model, and dose/volume effect. The role of hyperthermia. Low and high dose rate. Impact of oxygen and LET.

502.4 Hadrontherapy – This chapter will review various heavy particle therapies, including protontherapy, neutrontherapy, and carbon ion therapy. This includes particle production, functioning of a cyclotron, dose deposition in matter, beam diffraction and raster scanning, and the modulation of Bragg peak. For particles heavier than alpha this includes the radiobiology including RBE, oxygen effect to calculate the spread of Bragg peak in RBE equivalent. Worldwide development of the technique including pros and cons will be discussed, including clinical results and imaging research. Practical application includes the Model-based approach for protontherapy.

502.5 Hands on Monte Carlo simulation – Workshop on Monte Carlo simulation using research software, with practical examples on 60Co depth dose curve, 120kVp beam hardening, and LDR seeds dose distribution in heterogeneous media.

Grad Scheme

Letter

Credits 3

MRA 503 : New Frontiers in Radiation Oncology and Imaging

This course will include four sub-sections including: 1) Fundamentals of imaging in

Radiotherapy; 2) Advanced radiotherapy techniques; 3) Advanced imaging technique in IGRT and ART; and 4) Innovation in external beam radiotherapy.

503.1 Fundamentals of imaging in Radiotherapy – This course discusses the fundamentals, production, benefits, and limitations of imaging modalities currently in use in radiation oncology (X-Ray, CT, Ultrasound), as well as those (MRI/MRSI, MRI and spectrometry and hyperpolarized atoms, PET/SPECT, single photon counting) that will play an increasingly important role in tumor identification/ delineation, radiation treatment planning and patient follow-up.

503.2 Advanced radiotherapy techniques – This course covers the description of highly sophisticated and advanced techniques used daily in modern radiation oncology for selected patient's presentations, often for a small number and delivered in highly specialized/ academic centers. The goal of those innovations is both to improve radiotherapy precision, corresponding to the dose distribution conformality around the target, and accuracy, or adequacy between the dose distribution and target geographical accuracy. Those techniques include SRS (stereotactic radiosurgery), SRT (stereotactic radiotherapy), ZAP and g-knife, SBRT (stereotactic body radiotherapy), IGRT (image guided radiotherapy) and SGRT (surface guided radiotherapy).

503.3 Advanced imaging technique in IGRT and ART – There has been a large range of innovation in image guided radiotherapy to enable more precise registration (shifts of the patient on the treatment table to ensure accuracy) and to enable ART (adaptive radiotherapy). Many of those modalities are still at the research stage. They include the MR-linac, various CT-linacs with 3D portal images that are very close to CT-scanner quality and resolution, and PET-Linacs. The development of each platform led to engineering choices that could prevent their application to all patients. The pros and cons of those technologies will be thoroughly reviewed.

503.4 Innovation in external beam radiotherapy – This course will review innovative research in radiation oncology with promising or failing clinical applications. The concept of the therapy, the clinical application status worldwide and the limitation to adoption will be explained. The purpose of this lecture is to learn from success and failures, and to help students to select sound projects for their academic carrier. At a higher altitude the course will help clarifying the difference between the academic goal, where grants and publications count most, and the health care needs, where treating efficiently and resourcefully patients is essential. The technique which will be reviewed include boron neutron capture therapy, hyperthermia, flash therapy, and gold nanoparticle radiosensitization.

Grad Scheme

Letter

Credits 3

MRA 504 : Specialized radiotherapy

This course will include 4 subsections including: 1) Brachytherapy dosimetry; 2) Brachytherapy clinical applications; 3) Radioprotection and patient's safety; and 4) Patient workflow and radiation program management.

504.1 Brachytherapy dosimetry

Brachytherapy is a technique where a radioactive source is inserted into a body cavity or percutaneously to irradiate a tumor, limiting hence the tissue architecture destruction following surgical procedures. This lecture covers the radiation sources used in brachytherapy, historically, currently, and as well as potentially future sources. Historical systems and dose calculation algorithms, including the TG43 and TG186 formalism, will be detailed. This lectures also detail in vivo dosimetry applications.

504.2 Brachytherapy clinical applications

This course review applications of brachytherapy, including the patient's workflow, US, CT or MRI image acquisition pre-implant or intra-operative planning, as well as the clinical outcomes of specific brachytherapy applications including H&N brachytherapy, partial breast brachytherapy, gynecology brachytherapy, and prostate brachytherapy. The lecture will end with a 4hour hands on brachytherapy dosimetry exercise.

504.3 Radioprotection and patient's safety

Radiation safety standards from basic dose/response data will be discussed. Practical shielding calculations in a modern radiation therapy department will be discussed. Patient's lifetime risk of secondary cancer will be demonstrated, using as example lowrisk breast cancer patients treated with various techniques.

504.4 Patient workflow and radiation program management

This lecture will present the evolution of patient's workflow and care path and review how innovation in SBRT, IGRT and ART are complexifying beyond logic treatment processes. Starting from classical in room treatment start, to the introduction of CTsimulation, contouring and peer review. SBRT workflow, and its difference with standard workflow will be presented. The benefit and challenge of the current workflow with the introduction of IGRT will be highlighted. Possible solutions will be presented. The course will also review the evolution of manpower and training in radiation oncology. Finally, the course will present the basic device requirements needed to start-up a radiotherapy program.

Grad Scheme

Letter

Credits 3

MRA 505 : Research assignment

This course will include the following two sub-sections

505.1 Academic research techniques and definition of research subjects

This lecture will add to the core course REC 503 – Research methodologies and focus more specifically on Radiation Oncology research, using multiple examples of successful research done by prominent researchers in Radiation Oncology and Medical Physics. This lecture will emphasize the metrics used to judge the research quality and productivity which are mostly based on citations. More specifically this lecture aims to develop the communication skills to ensure achieving academic success in a competitive North American environment, addressing questions like: How is research valued (the impact factor and H index)? How to develop an academic resume? How publish in radiation oncology, starting from a high-altitude bullet point to AI assisted redaction, selecting the best journal, and responding to fierce peer review? How to ensure the largest visibility of your publications through social media? How to apply for peer review grants? What are the rules and tips for excellence in

scientific presentations. This lecture will end with each student selecting a topic for the seminar series (505.2).

505.2 Student led seminars and reports

During this week seminar series each student will present the final version of their research assignments. This includes a 60 mn student presentation, followed by questions from peer students (30 mn) and faculties (30 mn). A maximum of 4 presentations are planned each day corresponding to 8+ hours of work.

Grad Scheme

Letter

Credits 3

MRA 600 A : Thesis A

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Credits 9

MRA 600 B : Thesis B

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/ department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Proposal, and later advise the student in the execution of the research, the Thesis write-up, and help the student to prepare for the oral defense.

Credits 9

Master of Nanoscience & Nanotechnology

The program is materials-oriented with emphasis in materials chemistry, micro-electronics, photonics, and their biomedical and energy applications. Tracks include *Cancer Nanoscience, Nano materials for Energy & Environmental Applications, and Nano medicine & Nano diagnostics.* All tracks are Thesis Option.

MNT 502 : Nanobiotechnology

Classification and categories of nanodiagnostic technologies. Types of nanoparticles and nanotag biolabels. Types of Nanobiosensors. DNA-based nanobiosensors. Diagnosis of diseases using nanobiosensors. Nanoformulation of drugs and their delivery with nanocarriers. Regenerative nanomedicine. Characterization of nanobiosystems. Biomimetic nanotechnology. Ecological advantages and risks of nanotechnology.

Grad Scheme

Letter

Credits 3

Prerequisites

None

MNT 503 : Special Topics in Nanomedicine

An in-depth study of a selected topic in Nanomedicine. Topics are chosen according to the interests of students and faculty.

Grad Scheme

Letter

Credits 3

Prerequisites

MNT 510, MNT 530

MNT 504 : Biosensors & Lab-on-a-Chip

To provide students with advanced, state of the art, knowledge of bioelectronics, biosensors and associated electronic interfaces, bio-analytical chemistry, biomedical imaging, micro fabricated biosensor systems, and lab-on-a-chip technologies.

Grad Scheme

Letter

Credits 3

Prerequisites

MNT 510, MNT 530

MNT 510 : Introduction to Nanoscience & Nanotechnology I

This course focuses on the fundamentals of nanoscience such as the basic properties of nanoparticles, structural control of nanoparticles, characterization methods for nanostructured materials, characteristics and behavior of nanoparticles, Environmental and safety issues with nanoparticles.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MNT 511 : Renewable Energy Storage Systems

The course offers an overview of Energy Storage technologies. A special focus is given to technologies that can be utilized at grid scale for renewable energy systems. Both the theory and the applied technologies of direct electric, electromechanical, and electrochemical energy storage systems are covered. Technologies include pumped hydroelectric, flywheel, compressed air, Nickel Metal hydride, Sodium-Sulfur, capacitors, and magnetic energy storage. The coverage of these technologies relates them to their application scope of power quality, bridging power, and energy management. In addition, design factors are addressed including efficiency computations and cost per unit storage capacity.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MNT 512 : Polymer Nanocomposites

This is introductory course in polymer nanocomposites will focus on materials, manufacturing methods, characterization, and applications. It will include different types of nanomaterials that are commonly used in modifying the polymer matrix composites.

Grad Scheme
Letter
Credits 3
Prerequisites
MNT 510, MNT 530

MNT 513 : Topics in Nanomaterials Science

An in-depth study of a selected topic in materials sciences and nanomaterials. Topics are chosen according to the interests of students and faculty.

Grad Scheme
Letter
Credits 3
Prerequisites
MNT 510, MNT 530

MNT 520 : Introduction to Nanoscience & Nanotechnology II

This course focuses on various applications of nanotechnologies such as: Catalysis; surface area of nanoparticles and porous materials. Carbon nanostructures; Nanodevices and Nanomedicine.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MNT 530 : Experimental Techniques in Nanotech - I

The courses will focus on a variety of instrumental methods and techniques commonly applied to the characterization of nanomaterials. Particular attention will be placed on the theory behind the measurements, instrument safety, sample preparation and data analysis/interpretation. Experimental Techniques in part one, Experimental Techniques in Nanoscience I (MNT 530) will focus on X-ray, optical and electron characterization techniques.

Grad Scheme
Letter
Credits 3
Prerequisites
None

MNT 540 : Experimental Techniques in Nanotech - II

The courses will focus on a variety of instrumental methods and techniques commonly applied to the characterization of nanomaterials. Particular attention will be placed on the theory behind the measurements, instrument safety, sample preparation and data analysis/interpretation. Part two, Experimental Techniques in Nanoscience II (MNT 540), will cover morphological and physical properties characterization tools.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MNT 510
MNT 530

MNT 551 : Cancer mechanisms as therapy targets

The course provides a comprehensive overview of the core aspects of cancer biology. The emphasis will be

placed on the molecular mechanisms of cancer pathophysiology at the nanoscale resolution- such as molecular complexes that regulate DNA damage and repair; cell division, death and senescence as well as on system biology, microevolution of tumors, and interaction between tumor and the host. The course will include in-depth analysis of the signal transduction mechanisms in cancer; and whether those mechanisms are druggable targets.

Grad Scheme
Letter
Credits 3
Co-Requisite Courses MNT 530

MNT 552 : Advanced Topic in Cancer Biology and Theranostics

The course is primarily based on most recent publications in the field of cancer research from top journals (Nature Reviews Cancer, Cancer Cell, Cancer Discovery etc.). A flexible course structure is designed to keep up with the accelerating rate of discovery in the area of translational cancer research and with the current shift to knowledge-guided targeted therapies based on precision medicine and theranostic concepts. The course will focus on high quality publications that provide in-depth analysis of deregulated signaling mechanisms manifested as potential drivers for cancer and discuss novel strategies for cancer prevention, diagnosis and treatment. Special emphasis will be made on innovative diagnostic and treatment approaches that utilize effective nanotherapeutic and nanodiagnostic modalities.

Grad Scheme
Letter
Credits 3
Prerequisite Courses MNT 551
MNT 510
Co-Requisite Courses MNT 520

MNT 553 : Cancer Genomics and Bioinformatics

The course is aimed at meeting the contemporary high demands of cancer researchers for efficient utilization of the rapidly accumulated and publicly available "omics" data. Cancer research has rapidly embraced high throughput technologies (HT) and Cloud computing. Large amounts of data are being generated from microarray, tissue array, and next generation sequencing platforms. Dedicated computing clouds such as the Cancer Genome Collaboratory facilitate complex analyses on big cancer data sets from projects hosting their data in the Cloud. Now more than ever, having the informatics skills and knowledge of available bioinformatics resources specific to cancer and how to access and use available data sets is critical.

Grad Scheme
Letter
Credits 3

MNT 600 : Thesis A

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Not Pass
Credits 9

MNT 600 : Thesis B

Students completing a Thesis Option master's degree are expected to write a report, referred to as a thesis, on the results of an original investigation, in conjunction with a Master's Advisory Committee. Length and style of the thesis vary by college/department. All these are filed with the Office of Graduate Studies. A Master's Advisory Committee will be formed for each student and will consist of three members; an Alfaisal faculty member as the Major Advisor and Chair, and two other members, one of whom may be from an organization outside of the University. The Chair of the Committee must have research and graduate student advising experience. This Committee will assist the student in the formulation of the Thesis Project Proposal, and later advise the student in the execution of the research project, the Thesis write-up, and help the student to prepare for the oral defense.

Grad Scheme
Pass/Not Pass
Credits 9