



MOHAMED BIN ZAYED
UNIVERSITY OF
ARTIFICIAL INTELLIGENCE



Mohamed bin Zayed University
of Artificial Intelligence

University Catalogue

2022-2023

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Professor Eric Xing

President, Mohamed bin Zayed University
of Artificial Intelligence



Message from the president

As a graduate research university dedicated to advancing AI as a global force for humanity, we are home to world-class thinkers and doers in computer vision, machine learning, natural language processing, and more. Our ambition is to lead the region, and the world, in AI research, education, and innovation.

As a field, AI is enabling new capabilities, redefining business models, and increasing the pace of scientific discovery. AI is a truly transformative technology. Like the steam engine, electricity, and the semiconductor before it, AI is reshaping people's daily lives and the societies we live in.

We want you to have the experience and the credentials you'll need, to go every bit as far as your passion and determination are willing to take you. That's why we've developed an advanced curriculum with your success in mind.

We've designed our instruction, research, internships and more to align your efforts with some of the world's greatest challenges. The result should be your entrance into the burgeoning new field of artificial intelligence.

At MBZUAI you'll find a nurturing environment — one where you can expand your knowledge and hone your research capabilities. We want you to have the best possible training from some of the top faculty in the AI field. And we want you to excel as the leaders of tomorrow's industry.

As you start on this journey, I counsel you to adopt the essential qualities of a technologist. Challenge existing results from established researchers. Think creatively and independently. Accept criticism as a way of life. Put your knowledge into practice.

Be a thinker and a doer and you're sure to go far.

Sincerely,

Professor Eric Xing
President, MBZUAI

Academic calendar 2022-2023

| | Day | Date | Event |
|---------------------------------|--------------------|--------------------------|--|
| FALL SEMESTER (2022) | Monday - Friday | August 15 to 19 | Students' orientation |
| | Monday | August 22 | First day of classes |
| | Friday | August 26 | Last day to add / drop courses |
| | Monday | August 29 | Start of the supervisors' selection process |
| | Friday | September 2 | Last day to apply for course withdrawal / leave of absence without penalty |
| | Monday | October 17 | Students' deadline to submit the supervisor's selection form |
| | Monday | October 31 | End of the supervisors' selection process |
| | Monday - Friday | November 21 to 25 | Early registration for spring 2023 semester |
| | Friday | December 9 | Last day of classes |
| | Sunday - Friday | December 11 to 16 | Final exams period |
| | Wednesday | December 14 | Commencement ceremony - fall 2022 graduates |
| | Tuesday | December 20 | Faculty to submit grades |
| | Monday | December 26 | Grades announcement |
| | Thursday | December 29 | Students' deadline to submit grade appeals |
| WINTER BREAK | Day | Date | Event |
| | Monday - Friday | December 19 to January 6 | Winter break for students |
| | Wednesday - Friday | December 21 to 30 | Winter break for faculty |

The official holidays observed by the university during the fall 2022 semester:

| Occasion | Date | Holiday duration |
|---------------------------|---------------------------|------------------|
| Prophet Mohammed Birthday | October 7 or October 8 | One day |
| UAE National Day | December 1 and December 2 | Two days |
| Commemoration Day | December 30 | One day |

| SPRING SEMESTER (2023) | Day | Date | Event |
|-------------------------------------|--------------------|----------------|--|
| | Monday | January 9 | First day of classes |
| | Friday | January 13 | Last day to add / drop courses |
| | Friday | January 20 | Last day to apply for course withdrawal / leave of absence without penalty |
| SPRING BREAK | Day | Date | Event |
| | Monday - Friday | March 27 to 31 | Spring break for students and faculty |
| SPRING SEMESTER CONTINUES (2023) | Day | Date | Event |
| | Friday | April 7 | Publish the fall 2023 class schedule |
| | Monday - Friday | April 10 to 14 | Early registration for fall 2023 semester |
| | Tuesday | May 2 | Last day of classes |
| | Wednesday - Friday | May 3 to 5 | Final exams preparation period |
| | Monday - Friday | May 8 to 12 | Final exams period |
| | Wednesday | May 17 | Faculty to submit grades |
| | Tuesday | May 23 | Grades announcement |
| | Friday | May 26 | Students' deadline to submit grade appeals |
| | Monday | May 29 | Qualifying exam for Ph.D. students - first attempt |
| | Monday | June 12 | Qualifying exam for Ph.D. students - second attempt |
| SUMMER VACATION | Day | Date | Event |
| | Monday | May 15 | Start of summer vacation for students |
| | Thursday | May 18 | Start of summer vacation for faculty |

The official holidays observed by the university during the spring 2023 semester:

| Occasion | Date | Holiday duration |
|-------------|----------------|------------------|
| Eid Al Fitr | April 20 to 23 | Four days |

Some of the above dates are subject to change. Please contact the Registrar's Office for the most up-to-date version.

Email directory

| | |
|--------------------------------|--|
| Office of the President | president@mbzuai.ac.ae |
| Admission | admission@mbzuai.ac.ae |
| Registrar | registrar@mbzuai.ac.ae |
| Career and internship | careerservices@mbzuai.ac.ae |
| IT Helpdesk | helpdesk@mbzuai.ac.ae |
| Research | research@mbzuai.ac.ae |
| Facilities management | facilities@mbzuai.ac.ae |
| Finance | finance@mbzuai.ac.ae |
| Human resources | hr@mbzuai.ac.ae |
| Security | security@mbzuai.ac.ae |

The university

Overview

The Mohamed bin Zayed University of Artificial Intelligence (“MBZUAI”) is established in the Emirate of Abu Dhabi, with a clear mission to drive AI knowledge creation, development, fostering economic, social growth and positioning the UAE as a hub for the international AI community.

The university, in addition to its academic offerings, will have a direct and indirect impact on AI advancement in the UAE in multiple ways including, but not limited to:

Attract international talents (students and faculty staff) and ensure the transition to enter the UAE market

Create an active AI community and collaborate in AI research and publications

Host conferences that attract AI experts to the UAE and the region

Support technology and AI related startups in the UAE

Support governments and businesses by providing AI consulting services and AI solutions / applications

Conduct training and workshops in various AI fields for government entities and businesses

**MBZUAI will offer
three Ph.D. and three M.Sc. programs
in the three AI specializations**

Machine learning (ML)

Computer vision (CV)

Natural language processing (NLP)

MOHAMED BIN ZAYED UNIVERSITY OF ARTIFICIAL INTELLIGENCE

Institutional history

MBZUAI was established as an independent local entity in Abu Dhabi and shall be affiliated to the Executive Council. The university has a Board of Trustees comprising of seven members including the chairman of the board.

Vision

MBZUAI will drive excellence in knowledge creation, transfer and the use of AI to foster economic growth, while positioning Abu Dhabi as a hub for the international AI community.

Mission

UAE's visionary leaders established MBZUAI to educate and develop top talent, foster an innovation ecosystem, and act as a strategic think tank for the public and private sectors.

Strategic objectives

As a unique institution, purpose built to lead the world in AI research, MBZUAI seeks to be a paradise for transformative research; a cradle for the best minds in computer science; and a hub for startups and high-tech innovation.

- 1 Attract the best talent focused on AI
- 2 Develop, train, and retain talent for the UAE economy
- 3 Lead Abu Dhabi's efforts to build and sustain an AI-based knowledge economy
- 4 Develop real business applications in collaboration with industry and the public sector to enhance innovation, productivity, and growth
- 5 Be the birthplace for high-tech innovation and AI startups in the UAE and the MENA region

Licensing and accreditation

The MBZUAI is located in Abu Dhabi, and is officially licensed from March 10, 2020 by the Ministry of Education of the United Arab Emirates (UAE) to award degrees/qualifications in higher education.

MBZUAI leadership



His Highness Sheikh Mohamed bin Zayed Al Nahyan President of the UAE

Among his many interests, His Highness Sheikh Mohamed bin Zayed Al Nahyan is known for his unwavering commitment to enhance educational standards in the Emirate of Abu Dhabi and raise them to be on par with the best international standards. The university is named in his honor.

Board of Trustees

The Board of Trustees (BoT) comprises of several members, including a chairman of the board. The BoT candidates were identified based on their knowledge and expertise in academia and AI applications across various industries. The BoT has been formed through a resolution issued by the chairman of the Executive Council. The board shall exercise all the powers needed to conduct the work of the university, supervise the management of its affairs, and achieve its objectives. The BoT meets quarterly.



**His Excellency
Dr. Sultan Ahmed Al Jaber**
Minister of Industry and Advanced Technology
and member of the Federal Cabinet
Chairman of the MBZUAI Board of Trustees



Professor Sir Michael Brady
Emeritus Professor of Oncological Imaging
in the Department of Oncology
of the University of Oxford



Professor Anil K. Jain
Distinguished Professor in the Department
of Computer Science and Engineering
at Michigan State University



Dr. Kai-Fu Lee
Chairman and CEO of Sinovation Ventures
and President of Sinovation Venture's
Artificial Intelligence Institute



Professor Daniela Rus

Professor of Electrical Engineering and Computer Science and Director of the Computer Science and Artificial Intelligence Laboratory (CSAIL) at Massachusetts Institute of Technology



Peng Xiao

CEO of Abu Dhabi-based Group42 Ltd



His Excellency Mansour Ibrahim Al Mansoori

Group Chief Operating Officer
of Abu Dhabi-based Group42 Ltd

University leadership



Professor Eric Xing

President

The president is the chief executive officer of MBZUAI. The president is appointed by a virtue of a resolution issued by the Chairman of the Executive Council, based on the nomination of the Board of Trustees. The president shall, subject to the direction and under the supervision of the Board of Trustees, have the necessary powers to manage the university, discharge its affairs and represent it before other parties and judiciary.



Professor Fakhreddine (Fakhri) Karray

Provost

Reporting to the president, the provost oversees the academic integrity of the university and provides leadership in planning; budgeting; curriculum; and program development and research activities and ensure compliance with various accreditation agencies as well as local and international accreditation requirements and regulations. He is supported by two associate provosts.



Professor Timothy Baldwin
Associate Provost for Academic
and Student Affairs

Reporting to the provost, the associate provost supports the university and the provost's office in matters of academic curriculum and student affairs. The role assists with strengthening the curriculum and academic offerings as well as enriching the learning experience of our students.



Ian Mathews
Vice President of Corporate Services

Reporting to the president, the Vice President of Corporate Services ensures that the academic and research functions of the university have access to the administrative support and the financial and physical resources necessary to carry out the mission of MBZUAI. The Vice President of Corporate Services manages the IT, finance, procurement, and general services functions of MBZUAI.



Sultan Al Hajji
Vice President for Public Affairs
and Alumni Relations

Reporting to the president, the Vice President for Public Affairs and Alumni Relations oversees the university's non-academic mission, which outreaches the broader community, government agencies and industrial partners. It further supports the development and implementation of executive education programs and alumni activities for MBZUAI graduates.

Available services for students on campus

From the time students are admitted into MBZUAI until graduation, access shall be provided to a range of support services, facilities, and programs at the campus. Students have access to a range of other services, such as: advising, IT support, health services and insurance, prayer rooms, dining facilities and student lounges.

Premise, resources and physical setting

MBZUAI is based in Masdar City, one of the world's most sustainable urban communities, a low-carbon development made up of a rapidly growing clean-tech cluster, business free zone and residential neighborhood with restaurants, shops and public green spaces, surrounded by a student-friendly environment with all the needed amenities. The campus spaces are designed to be fully supportive of an optimal educational experience and compliant with local authorities' regulations as well as international educational standards.

Recreational facilities

MBZUAI is equipped with a sports facility, and a sizeable male and female gym, and swimming pool.

MBZUAI apartments

The residences at MBZUAI 1A is split into four blocks, comprising of three floors of apartments, while 1B contains additional housing blocks of four floors each. The blocks are divided into male, females. Each male and female apartment has a bedroom, kitchen, toilet and shower, living / dining, and study area. Some of the apartments comprise more than one bedroom. All apartments have private balconies.

Common system in 1A building apartments:

- Master switch is provided in each room at the entrance to activate all MEP systems (lighting, AC and water)
- Lights relate to Delmatic system which will work with motion sensors as per occupancy (it can be adjustable (time increase or decrease) with timing according to the programming of Delmatic system and it can be controlled by the switch as well, which is available inside the room)
- AC units were installed on the ceiling, and it has own programming controller, ON and OFF switch (thermostats) are not available to control the AC temperatures inside the rooms as per building design, AC unit's temperature ON and OFF can be controlled from Building Management System (BMS) based on request
- Centralized fresh air available which is feeding from AHU's to each room and corridors
- Hot and cold water is available all the time, washbasin taps will work with sensors
- Each room is equipped with an electric hot plate, fridge, microwave, and furniture
- All the room entrance doors were secured with a centralized access control system (access cards will be provided accordingly)
- Window blind curtains are available, and it can be operated manually
- Common laundry room is available in each residential building
- Centralized garbage chutes are available in each floor with designated bins (general waste, plastic, organic, and aluminum can)



Common system in 1B building apartments:

- Master switch is provided in each room in 1B building apartments. User must insert the card in the master switch to activate all MEP systems (lighting, AC and water)
- Lights relate to Delmatic system which will work with motion sensors as per occupancy (it can be adjustable (time increase or decrease) with timing according to the programming of Delmatic system and it can be controlled by the switch as well, which is available inside the room)
- AC units were installed on the ceiling, and it has own programming controller; the thermostats are available in the rooms, AC units (temperature) can be controlled by ON and OFF switch (thermostats) which is available in each room
- Centralized fresh air available which is feeding from AHU's to each room and corridors
- Hot and cold water is available all the time, washbasin taps will work with sensors
- Each room is equipped with two types of hot plate - an electric hot plate and induction hot plate (only induction pans will work on the induction hot plate), fridge, microwave, and furniture
- All the room entrance doors were secured with a centralized access control system (access cards will be provided accordingly)
- Window blind curtains are available, and it can be operated manually
- Common laundry room is available in each residential building
- Centralized garbage chutes are available in each floor with designated bins (general waste, plastic, organic, and aluminum can)

Catering arrangements

All apartments are equipped with an electric cooker, fridge, and microwave, although there is no oven. Cookware, crockery, and cutlery are not provided. Apartments in 1B blocks have shared freezers on each floor.

Each floor while 1A blocks have small freezers in their refrigerators. There is also a canteen on site where breakfast, lunch, and dinner can be purchased. Additionally, a number of retail outlets including restaurants, cafés are located on campus.

Bedrooms are equipped with a bed, built-in wardrobe, and bedside cabinet. Bedding is not provided. Bathroom facilities consist of a shower, toilet, and sink. Towels are not provided. Dining table and chairs, study desk and chair and soft furnishings are provided.

Laundry

There is a laundry located within each of the blocks. There are also a number of common lounges and external balcony areas within each of the blocks. Students are responsible for providing their own laundry detergent. The use of washing / drying machines is free of charge in all facilities.

Majlis / common areas

Common areas are provided on the podium level of the campus. Male and female majlis areas are located in 1A and 1B. Common space can be found in 1B and in the Learning Center and restaurants, cafés, and the canteen.

Cleaning

The common areas are cleaned frequently. It is the residents' responsibility to clean their own apartment.

Prayer rooms

There are both male and female prayer rooms located within the campus. In 1B building, there are two prayer rooms for males and females. The male prayer room is located in the Hydro residential building and the female Prayer room is located in the Tidal residential building.

In 1A building also there are two prayer rooms for the male and female. Male prayer room is located in the Knowledge Center building and the female prayer room is located in Biomass residential building.

Parking

At the Masdar City campus, parking is permitted on campus at the North Car Park. Parking spaces are available for faculty, staff, and students and cannot be reserved.

Transportation

Bus services, routes and fared taxis

All taxi services in UAE use meters around the city so you will not need to negotiate fares. Drivers in Abu Dhabi speak English and there is a central national transport phone number that can be used to locate the nearest available taxi: 600 535353.

Banking facilities

| Bank | Telephone | Web Site |
|---------------------------|------------------|----------------------|
| First Abu Dhabi Bank | Tel: 02 681 1511 | www.bankfab.ae |
| Abu Dhabi Commercial Bank | Tel: 02 672 0000 | www.adcb.com |
| Abu Dhabi Islamic Bank | Tel: 02 610 0600 | www.adib.ae |
| Citibank | Tel: 02 674 2484 | www.citibank.com/uae |
| HSBC | Tel: 600 55 4722 | www.hsbc.ae |

Most banks have several branches in each city. Contact the bank or visit their website for details of the most convenient branch for you.

Masdar Park

Masdar Park is now double the size at 2,500 square meters. Open daily from 9 a.m. to 10 p.m. the park features a children's playground, a music wall and art installations themed on sustainability. Visitors can charge their phones and digital devices using the park's solar-powered benches and interact with The Tree of Light made from recycled building materials. The Tree of Light changes colors when touched. For more information, visit <https://masdar.ae/en/masdar-city/the-city/recreation>.

Travel and tourism

The Abu Dhabi Department of Culture and Tourism and Visit Abu Dhabi contains lots of information regarding travel and tourism:

<http://visitabudhabi.ae/en/default.aspx>

<https://www.abudhabi.ae/portal/public/en/homepage>



- | | | | |
|--------------------------|---------------|--------------------|-----------------------|
| MBZUAI campus facilities | Classrooms | Canteen | Medical Center |
| Knowledge Center | Laboratory | Wind tower | Gym (male and female) |
| Recreation | Library | Student residences | Public washroom |
| Residential and retail | PRT station | Male prayer room | Car park |
| | Swimming pool | Female prayer room | Assembly point |

MBZUAI is equipped with a sports facility, and a sizeable male and female gym and swimming pool.



Health, wellness and safety

Health and safety

The MBZUAI is committed to providing a safe and healthy environment for our students, staff and visitors. However, students are expected to take responsibility for their own actions and not put themselves or others at risk.

Any occupational health and safety issues identified will be taken seriously and addressed promptly. If a student identifies any health and safety risks or has any health and safety concerns, they must contact Student Affairs promptly to report any injuries or incidents that occur. Smoking is not allowed on the MBZUAI campus.

Security

MBZUAI is concerned that all individual students are properly authorized to enter the premises. All MBZUAI premises have security gates with security personnel stationed at each entrance. These security officers will only allow those who are properly authorized to enter the campus.

Fire drills

In case of fire, each academic department has procedures to follow. Students should learn where emergency exits, fire alarms and fire extinguishers are located. In the event of a fire drill or emergency, students must follow the directions of their professor or security personnel.

Medical emergencies

If a student is seriously ill and their professor needs to help, he / she will call student affairs staff who will provide assistance and contact a family member. An ambulance will be called if necessary.

Health services

On-campus assistance is available in the form of first aid kits placed around the campus for minor injuries. Students may use their health insurance cards provided by MBZUAI, to visit a hospital or medical center for more serious injuries.

- MBZUAI will be providing each student with health insurance during their academic journey
- The health card can be used for medical services in emergency cases and for basic routine treatment. A policy list will be provided stating the coverages included and allocated limits
- In the event of a serious injury, call an ambulance by dialing 999. For minor injuries or medical complaints, a medical clinic is available on campus which is located in the Solar building podium and is available 24/7. The clinic is fully equipped and ready to accommodate all first aid needs

Medical clinic is available on campus which is located in the Solar building podium and is available 24/7.

The clinic is fully equipped and ready to accommodate all first aid needs.



Student's IT services at MBZUAI

Internet access and student email

MBZUAI students can connect their laptop, mobile phone, or tablet to the MBZUAI wireless network to get fast secure internet access. Students in residences can also connect to wireless network. Connections from outside campus are secured using a Virtual Private Network (VPN).

In the first instance, student affairs staff will help set up the required username and password. It is the student's responsibility to keep their password secure and not misuse it. If a student forgets their password, they should contact the IT Helpdesk. Details are below. Before a student is given a password to access the internet and their email account, he / she shall be required to sign the MBZUAI *Acceptable Use Policy*. Student email is considered an official form of communication between MBZUAI and the students. Users of the internet are governed by the MBZUAI *Acceptable Use Policy*.

MBZUAI website, portal, and e-Services

The MBZUAI website, contains a wealth of useful information, including news channels, links to the available library resources, research activities, the academic calendar and more. Students can find the *MBZUAI Catalogue* on the website. It contains detailed information about programs, MBZUAI's policies, procedures, and requirements.

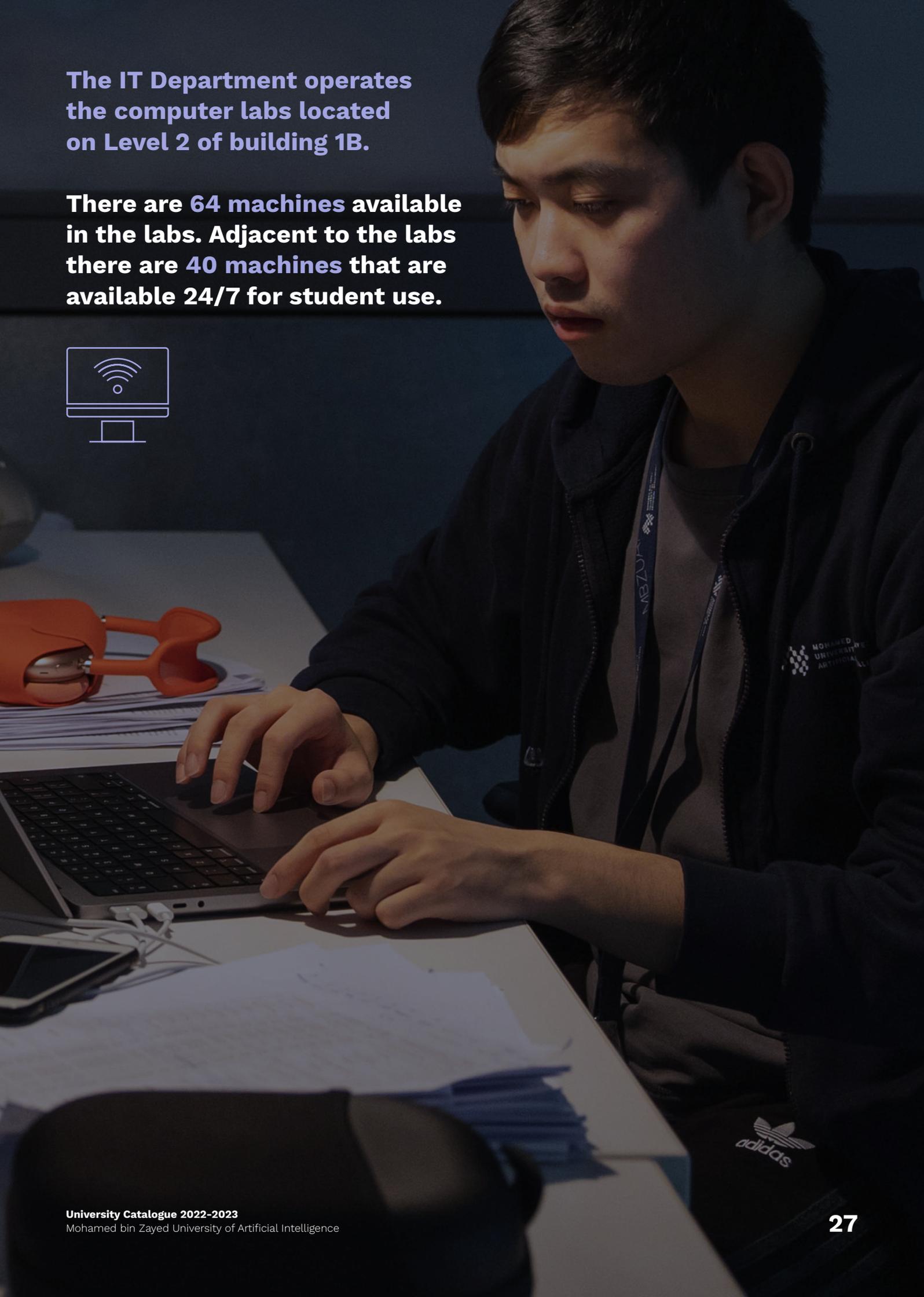
The MBZUAI website has a link to the restricted access MBZUAI portal. Students can access their email through the portal and will be offered a full e-Services Portfolio. Students gain access to the portal with their username and password. This can be done using a computer on the campus, at home or anywhere with an Internet connection.

In addition to the services mentioned above the following is a list of other systems and services that may be of interest.

- Student Information System (SIS)
- Class schedule
- Program curriculum
- Student careers and alumni services
- *Student Handbook*
- Housing manual
- Microsoft Office 365 (email, MS Teams, Word, Excel, PowerPoint, and OneDrive)
- Printing services
- Learning management system (Moodle)
- MATLAB

The IT Department operates the computer labs located on Level 2 of building 1B.

There are 64 machines available in the labs. Adjacent to the labs there are 40 machines that are available 24/7 for student use.



Labs and computing

The IT Department operates the computer labs located on level 2 of building 1B. The labs are set up for teaching but are available for students when teaching is not taking place. There are 64 machines available in the labs. Adjacent to the labs there are 40 machines that are available 24/7 for student use on a first come, first served basis. There are also several shared screens, keyboards, and mice available for student use with their own laptops.

Access to high performance computing (HPC) resources

Ph.D. students are granted access to the MBZUAI HPC resources at MBZUAI and must adhere to the fair use policy that is in place. Master's students can apply for access to HPC resources with the express permission of their supervisor. Details can be obtained from the IT Helpdesk.

Student representation

There are two representatives of the Graduate Student Council (GSC) that serve on the IT Committee. The two representatives meet bi-weekly with the Director of IT to discuss students IT needs and issues and can be contacted at gsc@mbzuai.ac.ae. The council also operate a SharePoint site.

[Graduate Student Council - Home \(sharepoint.com\)](#)

IT Helpdesk contact details

There is an IT Helpdesk located on Level 1, Building 1B on campus to help students with general IT queries. The helpdesk provides a walk-in service, a telephone service (extension 3000) and an email service helpdesk@mbzuai.ac.ae.

The helpdesk operates during university business hours, Monday to Friday.

Admission

Admission – Master’s programs

In order to be considered for admission to a master of science program at MBZUAI, an applicant must provide evidence of the following:



A completed Bachelor’s degree in a STEM field such as computer science, electrical engineering, computer engineering, mathematics, physics and other relevant science and engineering majors, from an accredited university or college recognized by the UAE Ministry of Education (MoE), without the need of prior work experience.

Applicants must provide their complete degree certificates and transcripts (in English) when submitting their application. Senior-level students can apply initially with a copy of their transcript and upon admission must submit official complete degree certificate/transcript. A degree attestation (for degrees from the UAE) or an equivalency certificate (for degrees acquired outside the UAE) should also be furnished within their first semester at the university.

Knowledge, skills and competencies in some of the following subjects:

- Programming skills such as Python, C, C++ or MatLab
- Math skills such as:
 - Data structures and algorithms
 - Linear algebra
 - Probability and statistics
 - Calculus

A minimum undergraduate CGPA of 3.2 (on a 4.0 scale) or equivalent or top 20% among students of the same class.

An English Language Proficiency Certificate which must remain valid during the application process. Minimum requirements are:

- TOEFL iBT with a minimum total score of 90; or
- IELTS Academic with a minimum overall score of 6.5; or
- EmSAT English with a minimum total score of 1550

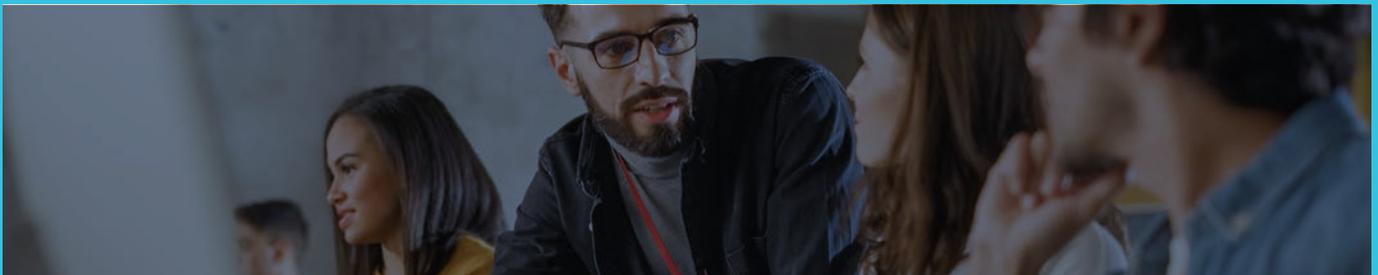
TOEFL iBT, IELTS academic and EmSAT English certificates should be valid during the application process.

Waiver requests from applicants who undertook all their schooling (K-12) plus a bachelor's degree in English in a reference English speaking country (e.g. UK, USA, Australia, New Zealand) may be processed in accordance with the admission procedure.

Applicants must submit notarized copies of their documents during the application stage and attested documents upon admission. Waiver decisions will be given within seven days after receiving all requirements.

A minimum of two letters of recommendations from mentors and supervisors or others with good knowledge of the applicant's qualification are mandatory.

A Graduate Record Examination (GRE) general score may be optionally submitted.



Statement of purpose:

In an 800-word essay, the applicant should present his/her motivation for applying to the university. It may include information regarding the applicant's personal and academic background as well as his/her chosen career path, goals as a prospective student, graduation plans, and other details that will support the application.

All applications for admission to master of science programs must be submitted online providing all required documentation.

Admission – Ph.D. programs

In order to be considered for admission to a doctor of philosophy program at MBZUAI, an applicant must provide evidence of the following:

Completed degree - either:

- Bachelor's degree in a STEM field such as computer science, electrical engineering, computer engineering, mathematics, physics and other relevant science and engineering majors, from a university accredited or recognized by the UAE Ministry of Education (MoE) which demonstrates academic distinction in a discipline appropriate for the doctoral degree. Students should have a CGPA of at least 3.5 (on a 4.0 scale) or equivalent and valid Graduate Record Examination (GRE) scores of at least 150 (verbal reasoning), 150 (quantitative reasoning) and three (analytical writing)

OR

- Bachelor's and master's degrees in STEM fields such as computer science, electrical engineering, computer engineering, mathematics, physics and other relevant science and engineering majors, from a university accredited or recognized by the MoE. Students should have a minimum CGPA of 3.2 (on a 4.0 scale) or equivalent or top 20% among students of the same class.



Applicants must provide their complete degree certificates and transcripts (in English) when submitting their application. Senior students can apply initially with a copy of their transcript and upon admission must submit official complete degree certificate/transcript. A degree attestation (for degrees from the UAE) or an equivalency certificate (for degrees acquired outside the UAE) should also be furnished within their first semester at the university.

Knowledge, skills and competencies in some of the following subjects:

- Programming skills such as Python, C, C++ or MatLab
- Math skills such as:
 - Data structures and algorithms
 - Linear algebra
 - Probability and statistics
 - Calculus
- Knowledge of basic machine learning algorithms such as linear regression, decision trees, support vector machines, etc.

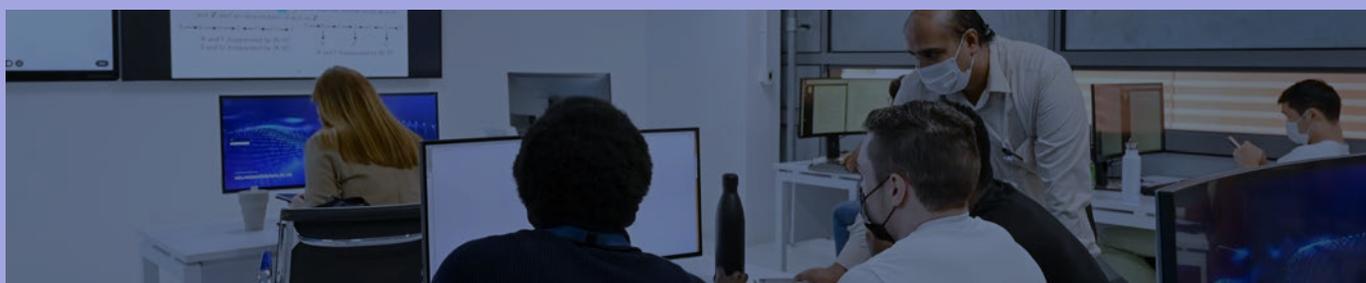
English Language Proficiency Certificate (for applications submitted from fall 2021 intake onwards). Minimum requirements are:

- TOEFL iBT with a minimum total score of 90; or
- IELTS Academic with a minimum overall score of 6.5; or
- EmSAT English with a minimum total score of 1550
- TOEFL iBT, IELTS Academic and EmSAT certificates should be valid during the application process.

Waiver requests from applicants who undertook all their schooling (K-12) plus a bachelor's degree and/or a master's degree, as applicable, in English in a reference English speaking country (e.g. UK, USA, Australia, New Zealand) may be processed in accordance with the admission procedure.

Applicants must submit notarized copies of their documents during the application stage and attested documents upon admission. Waiver decisions will be given within seven days after receiving all requirements.

Three letters of recommendations from mentors and supervisors or others with good knowledge of the applicant's qualification are mandatory.



Statement of purpose:

In an 800-word essay, the applicant should present his/her motivation for applying to the university. It may include information regarding the applicant's personal and academic background as well as his/her chosen career path, goals as a prospective student, graduation plans, and other details that will support the application.

Research statement:

A one to three page document which provides a high-level overview of your past research experience and the research you are interested in working on, including your motivation for wanting to investigate this area. Note, applicants are expected to write a research statement completely independently. The selection team will read an applicant's research statement and use it as one of the measures to determine if an applicant's interests and past experience make them a good fit for MBZUAI's research programs. MBZUAI faculty will NOT help applicants write a research statement for the purpose of the application. It is recommended that the statement contains few sections including introduction, literature review, problem definition, methods (optional), timeline, and a list of references.

All applications for admission to Ph.D. programs must be submitted online providing all required documentation.

Credit transfer

Students applying for admission who wish to transfer credit from a federal or licensed institution in the UAE, or a foreign institution of higher learning based outside the UAE and accredited in its home country must provide evidence, as outlined in the Admission Procedure, which will allow the Admission Committee to make a determination regarding the transfer.

- The limit for the number of transfer credits which may be accepted for a specific degree program is 25% of total credit hours for M.Sc. and Ph.D. programs
- Transfers will only be permitted for students who are in good academic standing and who are eligible to return to their current or former institution
- MBZUAI will accept the transfer of credits only for courses relevant to the degree that provide equivalent learning outcomes and in which the student earned a grade of B (3.0 on a 4.0 scale) or better
- The grade of the transfer credit course will be recorded as a “TC” on the transcript record. The approved transfer credits will be calculated towards the credit hours but not included in GPA calculation.
- The course transfer credits may not have been used previously in any graduate program to fulfil the requirement of any other graduate degree
- The course credits must have been completed no more than a maximum of two (2) years prior to the student’s acceptance into the program of MBZUAI

The MBZUAI Admission Committee will have the ultimate right to accept or reject the transfer requests for any student.

All applications for transfer credit to master’s or Ph.D. programs must be submitted online providing all required documentation.

Recognition of prior learning

MBZUAI does not recognize prior learning and does not award credit for informal and non-formal learning that has taken place prior to admission into its academic programs, other than the credit specified in the admission policy and associated procedures.

Prior learning in the form of professional certification, training programs, credit bearing courses of non-accredited degrees, and other similar programs will not receive any credit towards academic degree programs.

Course exemptions

A student may be granted a course exemption, rather than credit, if the student can provide evidence that a course previously studied at a federal or licensed institution in the UAE, or a foreign institution of higher learning based outside the UAE and accredited in its home country is equivalent to a course that forms part of the program for which the student is applying. Course exemptions are usually only granted for mandatory courses or those which form a prerequisite for other courses.

The student must provide evidence, as outlined in the admission procedure, which will allow the Admission Committee to decide regarding the course exemption.

MBZUAI will consider applications for course exemption only for courses relevant to the degree that provide equivalent learning outcomes and in which the student earned a grade of B (3.3/4) or better.

The grade of the exempted course will be recorded as a “EX” on the transcript record. The exempted course will have no credit assigned and will not be used in the calculation of the CGPA.

The exempted course will not count towards the course requirements for a program.

The previous study being used as evidence for the course exemption must have been completed no more than a maximum of two (2) years prior to the student’s acceptance into the program of MBZUAI.

The MBZUAI Admission Committee will have the ultimate right to accept or reject the application for course exemption for any student.

All applications for transfer credit to master’s or Ph.D. programs must be submitted online providing all required documentation.

Scholarships

All admitted students are granted full scholarship upon acceptance.

The scholarship includes 100% tuition fees, accommodation, health insurance and a competitive monthly stipend and annual ticket to home country.

To retain a scholarship, students must meet the following criteria:

- Maintain a CGPA of 3.3 or above
- Complete their degree requirements within the allowed duration as set out in the *Academic Progress Policy*.
- Maintain a clean deed record, and with no evidence of dishonest or unethical behavior.

Tuition fees

| Program | Fee per one credit |
|---------|--------------------|
| M.Sc. | AED 5,000 |
| Ph.D. | AED 6,600 |



Registration

Student ID

Every student at MBZUAI receives an MBZUAI identity card after being admitted and enrolled. The card is valid until the students complete their studies. These cards are issued by the Office of Student Affairs. ID cards will be distributed to all students during orientation week.

The student should ensure to carry his/her card at all times around the university and should not allow anyone else to use this card.

Academic advising

- MBZUAI will provide the appropriate infrastructure and student advising framework to allow students to complete their education and research in a timely and productive manner
- Student advising shall be impartial and focus on students' needs rather than those of individual departments or the university
- During the initial weeks of the first semester of study, faculty will showcase their research, by means of presentations.
- During that time, students are given the opportunity to schedule 1:1 meetings with any faculty they want to meet. All faculty are encouraged to open their calendar to accommodate such requests. If they do not engage in such meetings, they take the risk of not being matched to any students.
- At roughly mid-semester each student is asked to submit, via an e-form, their top three choices of faculty (no more than one co-supervisor is permitted during the first year of study, but students still need to provide a ranked list of faculty).
- Wherever possible, the preferences of students who have identified a preferred MBZUAI supervisor prior to their arrival at the University will be honored. Accordingly, they should submit their preference via the e-form, as outlined above, and include a comment noting the rationale for the preferred supervisor. However, the following should be noted and will be applied:
 - There is no guarantee that the preferred supervisor will be assigned.

MBZUAI follows an academic year that starts in August through to May, with a two semesters setup per year, of 17 weeks study per semester.

All courses in MBZUAI programs are offered in English only.



Academic regulations

Academic calendar

MBZUAI follows an academic year that starts in August through to May, with a two semesters setup per year, of 17 weeks study per semester.

Language of instruction

All courses in MBZUAI programs offered in English only.

Official communication method (email)

MBZUAI has adopted email as the primary means for official communication to its students, faculty, and staff. The university will send all official communication regarding academic and administrative matters, important information, and time-sensitive notices to the email accounts provided by the university. It is the student's responsibility to monitor their university email regularly to ensure that such communication is received. Failure to check email, errors in forwarding email, and returned email due to full mailbox, will not excuse a student from missing announcements or deadlines. Students are expected to use the email account provided by the university to communicate official matters to the university.

Duration of study

Students are required to make steady progress towards meeting degree requirements and must successfully pass all program components (as per their intake year - taught course, internship and thesis/dissertation) within the normal allowed time to completion.

The normal time to complete for a master's program is two years, and the maximum time to complete is four years, inclusive of any approved leave of absence.

The normal time to complete a Ph.D. program is four years, and the maximum time to complete is six years, inclusive of any approved leave of absence.

Change of program

To change the current program, a student must submit a program change e-form. The form must be approved by the student's supervisor and the department chair of both the student's current program and the student's requested program.

Changes of program are subject to:

- Space being available in the requested program
- The student can change his/her program only once and before the beginning of the second semester
- The student should be in good academic standing at the end of the first semester
- This change should not affect the allotted study duration of the program

Grading system

The following grades and guidelines are used at MBZUAI:

Grade letters, points, percentages and descriptors

| Grade | Grade Points | Percentage | Grade Definition |
|-------|--------------|--------------|--|
| A | 4.0 | 95 - 100 | Exceptional |
| A- | 3.7 | 89 - 94.99 | Excellent |
| B+ | 3.3 | 83 - 88.99 | Very good |
| B | 3.0 | 77 - 82.99 | Good |
| B- | 2.7 | 71 - 76.99 | Average |
| C+ | 2.3 | 65 - 70.99 | Below average |
| C | 2.0 | 59 - 64.99 | |
| C- | 1.7 | 50 - 58.99 | |
| F | Fail | Less than 50 | Failing grade in coursework |
| U | Fail | | Unsatisfactory in internship / thesis / research |
| WF | Fail | | Withdrawal after the add / drop week |

For Fall 2022 intake onwards, the following grades and guidelines will be used at MBZUAI:

Grade letters, points, percentages and descriptors

| Grade | Grade Points | Percentage | Grade Definition |
|-------|--------------|--------------|--|
| A+ | 4.0 | 97.0 - 100 | |
| A | 3.7 | 92.0 - 96.99 | |
| A- | 3.5 | 87.0 - 91.99 | |
| B+ | 3.3 | 80.0 - 86.99 | |
| B | 3.0 | 75.0 - 79.99 | |
| B- | 2.7 | 71.0 - 74.99 | |
| C+ | 2.3 | 67.0 - 70.99 | |
| C | 2.0 | 64.0 - 66.99 | |
| C- | 1.7 | 60.0 - 63.99 | |
| F | 0 | 0.0 - 59.99 | Failing grade in coursework |
| U | 0 | 0 | Unsatisfactory in internship / thesis / research |
| WF | 0 | 0 | Withdrawal after the add / drop week |

Additional letter grades are used to denote special cases. These letter grades do not have corresponding grade points, and hence are not used in calculating a student's grade point average.

Other letter grades

| Grade | Description |
|-------|--|
| I | Incomplete |
| TC | Transfer |
| W | Withdrawn |
| EX | Course exemption |
| S | Satisfactory in internship / thesis / research |

- **Term or Semester Grade Point Average (SGPA)**

The grade point average for a term or semester is calculated by dividing the sum of the quality points earned in that term or semester by the number of credit hours attempted.

- **Cumulative Grade Point Average (CGPA)**

The cumulative grade point average is calculated by dividing the sum of the quality points earned in all terms and semesters by the credit hours attempted in all those terms and semesters. This average is used to assess the student's overall academic standing at the university.

At the end of each semester, student grade point averages are used in determining academic actions (good standing, probation, dismissal, etc) and scholarship decisions.

Conversely, academic actions and scholarship decisions will be updated if a student's grade point average is altered due to approved faculty grade changes.

How to calculate your GPA

Fall semester

| Course | Credit hours | Grade | Grade value | Quality points |
|--|--------------|-------|-------------|----------------|
| ML701 | 4 | B | 3.00 | 12.00 |
| AI701 | 4 | A | 4.00 | 16.00 |
| MTH701 | 4 | B | 3.00 | 12.00 |
| Semester Total | 12 | | | 40.00 |
| Semester GPA = $40 \div 12 = 3.33$ | | | | |

Spring semester

| Course | Credit hours | Grade | Grade value | Quality points |
|--|--------------|-------|-------------|----------------|
| ML703 | 4 | B | 3.00 | 12.00 |
| ML702 | 4 | B | 3.00 | 12.00 |
| CV705 | 4 | A | 4.00 | 16.00 |
| Semester Total | 12 | | | 40.00 |
| Semester GPA = $40 \div 12 = 3.33$ | | | | |

| Course | Credit hours | Grade | Grade value | Quality points |
|--|--------------|-------|-------------|----------------|
| Cumulative GPA | 24 | | | 80.00 |
| CGPA = $80 \div 24 = 3.33$ | | | | |

Grade changes

Final course grades are officially reported by the instructor at the end of an academic semester and recorded by the Registrar's Office. Officially recorded grades can only be changed with the approval of the course instructor and department chair. A request to change a grade may be initiated in writing by the student or the course instructor. A student may appeal an officially recorded grade by submitting a Change Grade Request Form within three working days of when the final grade was posted to the Registrar's Office. Grade appeals will be processed as per the provisions in *Student Affairs Policy Manual*.

Managing courses



Course registration process

- A student must be officially registered in a course to earn academic credit
- Students must meet with their academic supervisor during the announced registration period to agree on the courses to be registered
- Students must register during the designated registration period as published in the university calendar each term until the degree has been formally awarded

Course load

Students admitted to MBZUAI programs are required to maintain a full-time status by registering in a minimum of 12 credit hours per semester during the first year. In exceptional circumstances, a student may be approved to carry a reduced credit load upon the approval of the academic supervisor, registrar and the provost.

Adding / dropping courses

A student may only change his/her schedule during the add/drop period as designated in the university calendar. If the deadline has passed, a student cannot change their class schedule unless they provide evidence for extenuating circumstances and after the approval of the academic Supervisor and the Registrar.

Course withdrawal

A student who encounters unanticipated difficulty in a course may withdraw from a course until the end of the second week from the start of the semester (as per the university calendar) through a Course Withdrawal Request Form approved by the student's academic Supervisor and the provost.

Withdrawing from a course after the deadline results in academic/financial penalty and requires the approval of the academic supervisor and the provost through a Course Withdrawal Request Form.

Course restrictions and prerequisites

Enrollment in some courses may be restricted. For example, a course may be open to students within a specific program or require that a student has master's or doctoral level standing. In some cases, registration may not be permitted without the approval of the course instructor. A program of study may also require that courses be taken in a certain order or taken together. A course that is required to be taken before another course is called a "pre-requisite". Students are not permitted to register for a course with a pre-requisite unless the pre-requisite course has been completed with a passing grade.

Limitation of courses offered

The university reserves the right to cancel any course listed in the catalogue or scheduled to be offered. Notification of a cancelled course will be sent to any affected students at their university email address.

Class cancelations

On rare occasions, it may be necessary to cancel a scheduled class. Under such circumstances, students will be notified in advance.

Course feedback

Students are required to give their feedback on all courses at the end of every semester, which ensures the quality of course delivery. Student feedback is further considered during course review and development.

Attendance, leave of absence, withdrawal and resuming studies

Attendance

Class attendance is not mandatory unless specified as a requirement in the course syllabus. However, all MBZUAI students are strongly encouraged to attend in person or online synchronous class meetings as there is a correlation between attendance and academic achievement. If attendance is a course requirement, the instructor will keep track of attendance in his/her classroom.

Leave of absence

A student may request a leave of absence for six months only during the period of study at MBZUAI for extenuating circumstances by submitting the Leave of Absence Request Form, approved by the academic supervisor and the provost.

If the student requests to extend the leave of absence for another six months, he/she should submit an appeal to the Appeal Committee.

If the student exceeds the approved leave of absence duration without a formal notification, he/she will be considered withdrawn from the university.

Resuming studies

A student who has been on a “leave of absence” or “suspension” status for a semester or more and would like to resume his/her studies, he/she should submit a Resume Study Request Form to the Registrar’s Office.

Annual leave

Full-time graduate students holding MBZUAI scholarship may be eligible to take annual leave as per the entitlement stated in the scholarship contract.

- Students must meet, discuss and obtain the approval of their advisor(s) prior to applying for leave. The advisor is responsible for guiding the student and approving annual leave requests.
- Students must notify the Office of Student Affairs after receiving their advisor’s approval
- Students must apply for annual leave at least two weeks prior to the first day of absence
- Generally, annual leave can be taken only during the official study breaks published in the university academic calendar

Withdrawal from the university

A student may voluntarily withdraw from the university after the approval of the Appeal Committee and subject to the terms and conditions of the scholarship contract.

- Students should be aware they shall pay to the university all expenses to include, tuition fees, monthly allowances, medical expenses, and any other expenses incurred by the university during the period of study
- If the student submits legitimate justification for withdrawal to the Appeal Committee, the university may, if it deems necessary, exempt the student from all or some of the obligations stipulated in the scholarship contract
- The student should complete the clearance process, which can be initiated by submitting the Application for Complete Withdrawal

Students assessments and examinations

Assessment and examination

All courses must have an approved course assessment plan. It is the responsibility of the faculty teaching a course to include the course assessment plan in the course syllabus and communicate the same, including deadlines, to students at the beginning of the course.

Faculty members are free to assess students' performance in their classes by using a variety of appropriate assessment methods. Assessment methods include, but are not limited to, written examinations, papers, presentations and projects.

In-class examinations must be proctored by faculty teaching the course or their designees. In all assessments, students must strictly comply with the policies on academic integrity. All course assessments will be graded as per the *Grading Policy*.

Faculty members must keep complete records of student assessments for a minimum period of two (2) years to ensure the accurate calculation of student performance and as a reference in the event of an appeal.

In the event of late submission of coursework, the faculty member shall decide whether to accept the coursework, apply a penalty for late submission or reject it.

Incomplete grades

Students are expected to complete their course(s) in the semester in which they are registered. In exceptional circumstances, a student may be allowed to complete a course in the following semester after securing permission from the course faculty member through an Incomplete Grade Request Form. A grade of “I” (incomplete) will be assigned for the course. Students must complete the course requirements no later than the first week of the following semester. Failure to meet the deadline, will cause the student to receive a grade of “F” for the course.

All final grades must be submitted by faculty members into the Student Information System within the deadlines specified by the registrar. The chair of each program must approve the submitted grades prior to the announcement of final grades by the Registrar’s Office.

A student may appeal a grade issued by MBZUAI. The students’ ability to appeal a grade once submitted, is strictly controlled in the context of the *Student Grievances and Appeals Policy*.

Records and transcripts

- The registrar is responsible for maintaining all students' personal and academic records, ensuring the privacy and confidentiality of these records, and ensuring compliance with the policies and regulations of MBZUAI. Electronic files will be secured with restricted access.
- Students have the right to review their personal information, academic and educational records, and to update or change their personal data and contact details
- The Registrar's Office is the only unit who has the authority to print official transcripts
- Disclosure of information of educational records to anyone within or outside MBZUAI, except as indicated in this policy, requires the student's written consent
- MBZUAI may have access, without the student's prior consent and without a record being made, to specific student records in which they have a legitimate educational interest. For this purpose, university officials include both academic and administrative personnel. Only those university officials who need to obtain information about the student may have access to that information.
- Educational records may be disclosed, with a student's prior consent, to officials of another educational institution in which the student seeks or intends to enroll, or in which the student is enrolled concurrently. Anonymized Information may be released to government ministries and agencies for compliance or accreditation purposes.
- Information related to grades, finances and some personal information is considered to be private. MBZUAI is responsible for the appropriate protection of private information, and holds the individuals who enter, maintain and review this data accountable in this regard.
- Any document that contains non-public information about students or applicants especially sensitive items such as admission applications, letters of recommendation, grades, or private addresses, should receive special handling when retention is no longer needed. It should either be shredded or destroyed in some way that maintains its confidentiality.
- MBZUAI will comply with all applicable laws, regulations and standards of Abu Dhabi and the UAE, governing the privacy and integrity of student information



Academic progress

Academic standing:

- A student's academic standing at the end of a semester will determine the students' eligibility to continue their progress towards earning their degree at MBZUAI
- For spring 2021 and fall 2021 intake: At the end of each semester, the academic standing of the students will be determined according to the following:
 - **If the student is registered in coursework:**

Cumulative Grade Point Average (CGPA). To remain in good academic standing a student must maintain a CGPA of 3.0/4.0 or above.
 - **If the student is registered in the research thesis:**

To progress in the research thesis, students must achieve a minimum evaluation of satisfactory by the supervisor(s) at the end of each semester.
- For fall 2022 intakes onwards: At the end of each semester, the academic standing of the students will be determined according to the following:
 - **If the student is registered in coursework:**

Cumulative Grade Point Average (CGPA). To remain in good academic standing a student must maintain a CGPA of 3.3/4.0 or above.
 - **If the student is registered in the research thesis:**

To progress in the Research Thesis, students must achieve a minimum evaluation of Satisfactory by the supervisor(s) at the end of each semester.
- Initial registration in the research thesis for Ph.D. students is contingent upon:
 - Successful completion of all coursework; and
 - Successfully passing the Qualifying Exam (QE). Students will have two (2) attempts at passing the qualifying exam. If a student fails both attempts, they will be dismissed from the Ph.D. Program. But those who have successfully completed their coursework will be allowed to continue on a Master's track and apply to receive a Master degree instead.
- Ongoing registration in the research thesis for Ph.D. students is contingent upon:
 - Successfully passing the Candidacy Exam (CE) at the end of the second thesis semester; and
 - Achieving a minimum evaluation of satisfactory by the student's supervisor(s) at the end of each semester.

Academic standing

Good Standing: Students shall be considered in Good Academic Standing if they maintain the required minimum Cumulative Grade Point Average (CGPA) as per their intake year.

Academic probation

A student will be placed on academic probation for a semester if:

- The CGPA is lower than the required CGPA as per the intake year
- The student receives a third (C) grade during his study tenure
- The student receives an “F” in any course in any semester
- The student receives a grade of unsatisfactory (U) for thesis/dissertation credits

Academic dismissal

A student will be given academic dismissal from MBZUAI if her/his CGPA remains lower than the required CGPA as per the intake year for two consecutive semesters. A student who has been given an academic dismissal from MBZUAI may submit an Academic Appeal Request.

Special probation

A student who has been granted an academic appeal against dismissal will be placed on special probation for one semester. The student should achieve the required minimum CGPA as per their intake year for that semester to be placed in good standing and continue his/her studies at MBZUAI. If the student could not achieve the required CGPA, then he/she will be academically dismissed, and he/she will not be entitled for any further appeals.



Graduation and commencement



A student must successfully pass all program components (taught courses and thesis) within the allowed time and maintain an overall CGPA of 3.0/4.0 or better to qualify for graduation.

For fall 2022 intake onwards:

- Internship will be considered as a graduation requirement in addition to all program components (courses and thesis)
- A student must successfully pass all program components (taught courses, internship, and thesis) within the allowed time and maintain an overall CGPA of 3.3/4.0 or better in order to qualify for graduation

Master's degree

- A master's degree consists of 36 credit hours
- The normal time to complete for a master's program is two years, and the maximum time to complete is four years, inclusive of any approved leave of absence

Doctoral degree

- A Ph.D. degree consists of 60 credit hours
- The normal time to complete for a Ph.D. program is four years, and the maximum time to complete is six years, inclusive of any approved leave of absence



Internships

Internships are non-credit-bearing experiences which add considerable value to a student's overall educational experience. At least one (1) internship is mandatory for M.Sc. and Ph.D. students as a graduation requirement for 2022 intakes and onwards.

For M.Sc. students, the internship should be conducted during the summer months, be six weeks in duration and align with the working hours of the host organization. While it is preferable to have the internship relate to the student's research area, it is not a necessary requirement.

For Ph.D. students, the internship is recommended to take place upon completion of the qualifying examination and all required courses. The duration of the internship should be three to four months during the summer and may also continue into the following semester (if in alignment with the student's MBZUAI supervisor). The internship should directly relate to the student's research.

There must be clearly defined, and specific learning outcomes which shall be negotiated between the student, MBZUAI supervisor and employer. The internship shall be conducted with the support of the student careers team, the MBZUAI the internship supervisor and employer.

Prior to undertaking an internship opportunity, students must have successfully completed the appropriate number of credit hours in the study program (for M.Sc. students 23 or 24 credit hours is dependent on whether the student has selected the thesis course and 24 credit hours for Ph.D. students). Students are required to maintain a CGPA of 3.3 or higher. This eligibility criteria may be waived by the Department Chair in certain circumstances.

Students must attend one of the internship orientation workshops conducted by the student careers team.

The student may either select an internship opportunity from the MBZUAI Student Careers Portal or discuss with the team if they have found their own opportunity with a different organization.

Regarding evaluation of the internship (for 2022 intakes onwards), the host organization shall complete an internship evaluation form, awarding a ranking for the internship. The student shall submit an internship report and deliver a presentation to the MBZUAI supervisor, upon which the MBZUAI supervisor shall award an evaluation for the internship.

Part-time internships shall be reviewed on a case-by-case basis but should be for a minimum of 150 hours and be allowed for one term only, directly related to the student's research at MBZUAI.

International internships during term time shall be reviewed on a case-by-case basis for Ph.D. students only (taking into account any existing requirements) and agreed in partnership with the student's MBZUAI supervisor and the department chair or deputy chair, as per feedback included from the university registrar.

Internship requests from employers or MBZUAI students, which differ from the criteria listed above, shall be reviewed on a case-by-case basis with all relevant internal stakeholders. In particular, this must be agreed in partnership with the student's MBZUAI supervisor, and the corresponding department chair or deputy chair to ensure on-going priority is given to MBZUAI commitments and the necessary measures, if applicable, are put in place to ensure that course learning outcomes will be met, and all assessment tasks satisfactorily completed.

Internship procedure:

If an internship has been secured independently:

- Students should book an appointment with the student careers team who shall support throughout the internship process, including finalizing the details of the internship with the employer

Applying for an internship opportunity via the MBZUAI Student Careers Portal:

- If successfully selected by the employer, the student should inform the student careers team and meet with their MBZUAI supervisor to discuss the learning outcomes of the proposed internship (within the internship framework provided by the employer). The learning outcomes of the internship and tracking of completed hours should be recorded by the student via the MBZUAI Student Careers Portal
- The number of hours per week, and therefore the total number of weeks, shall be agreed between the student careers team, MBZUAI supervisor, employer and student (taking into account the mandatory requirements listed above)

Student responsibilities:

- Students are expected to be diligent, thorough, responsible, and professional with all assigned tasks
- Students should adhere to the rules and regulations of the company where they are working during the period of the internship. Please also refer to the *MBZUAI Student Code of Conduct Policy*.
- Confidentiality in the workplace has to be observed at all times including posts regarding the company on social media
- Non-attendance must be reported to both the employer and the student careers team
- Students should try, when possible, to arrange medical appointments out of work hours. Sick leave letters should be submitted to both the employer and the student careers team
- Dress and behave in a professional manner, in accordance with the organization's dress code
- Track hours completed via the MBZUAI Student Careers Portal

Upon completing the internship:

- The employer shall be asked to submit the Employer Evaluation Form to the student careers team
- Students will be asked to complete a post internship report and deliver a presentation to their MBZUAI supervisor

Please note that receiving payment or an appreciation certificate is decided by the employer.

The internship program will offer students the opportunity to:

- Acquire real-world practical experience in an institution or an organization which would be beneficial in pursuit of an AI career
- Apply academic learning and classroom theory into practice and enhance professional, technical, entrepreneurship and research skills
- Align career and employment choices with personal skills and competencies.
- Develop business acumen, understanding of the organization and realize how specific projects relate and contribute to larger business goals
- Understand business processes and become familiar with the various roles and responsibilities of a variety of AI professionals through participation in routine procedures and activities of the organization
- Understand workplace culture and develop professional and interpersonal skills necessary to interact with colleagues, staff, and supervisor(s)
- Improve written and oral communication, organizational, and time management skills
- Grow a professional network and explore post-graduation employment opportunities

For more information on internships, refer to the *MBZUAI Internship Policy and Procedures*. Alternatively, you should book a meeting with the student careers team.

Students rights and responsibilities

MBZUAI seeks to create an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves its educational mission. MBZUAI assumes that all students come to the university for a serious purpose and expects them to be responsible individuals who demonstrate the highest standards of ethical behavior, honesty and academic integrity in their pursuit of knowledge.

Unethical behavior is not worthy of members of the university community and will be dealt with severely. Academic dishonesty in any form undermines the very foundations of higher education and will not be tolerated.

Academic dishonesty includes, but is not limited to, cheating, fabrication and falsification, misconduct in research, plagiarism, and recycling or multiple submissions.

The **Academic Integrity Policy** explains in greater detail the behaviors that are considered academic misconduct. The **Academic Integrity Procedure** sets out the steps and processes associated with the policy and clarifies the roles and responsibilities of the Academic Integrity Committee, faculty and students in the academic integrity processes.

Curriculum development

MBZUAI adheres to a curriculum development policy which encompasses all changes, additions and/or eliminations with respect to academic programs and credit-bearing courses in academic programs. The program and curriculum development, approval and revision section of the *Academic Programs Policy* provides a framework to guide decisions regarding MBZUAI's academic program development, delivery, assessment and improvement.



Use of graduate assistant

Graduate assistant selection and engagement

- Students may be selected as graduate assistants to assist faculty members in their course delivery tasks. Selection will be based on a student's academic results during their studies and their soft skills and proficiency. Thus, to be eligible for the Graduate Assistantship program, students must fulfill the following criteria:
 - Attain at least B+ in the course that the assistant will contribute to.
 - Demonstrate proficiency in terms of soft skills (e.g., communication and social skills, character or personality traits). Students may be evaluated through an interview conducted by the concerned faculty member or through informal observation.
 - Additional criteria set by the Provost and approved by the President such as previous experience in similar projects or courses, experience in carrying out literature searches, etc.
- Selected students will receive a financial compensation on an hourly basis, decided by the Provost
- The use of graduate assistants should not exceed 6 hours per week.
- The supervisor faculty member may assign different tasks to the Graduate Assistant that include, but not be limited to:
 - Preparation of laboratory material.
 - Marking of student assignments.
 - Assistance with exam organization.
 - Marking of exams.

Please refer to the Use of Graduate Assistants section of the Academic Programs Policy and associated procedure.

Student grievances

Grievances against grading or evaluation of academic work

Stage one

If a student suspects that an error has been made in recording a final grade, the initial recourse for the student should be to formally contact the faculty (via email). A student must be able to provide copies of graded assignments along with any other relevant documents to support the appeal. If an error is detected, faculty members should submit a Change Grade Request Form to the registrar with justification copying the department chair within two working days from the date of posting the grade.

Stage two

If a meeting and thorough discussions with the faculty member alone does not resolve the student's concern, the student should formally (via email) contact the department chair. The department chair will meet with the student and the faculty member, providing an independent review. If an error is detected, faculty members should submit a Change Grade Request Form to the registrar with justification copying the department chair within five working days from the date of posting the grade.

Stage three

If after having completed both levels of communication, the dispute persists, a student wishing to formally challenge a final grade, must submit an Appeal Statement Form to the Appeal Committee within seven working days of when the final grade was posted, chaired by the Provost.

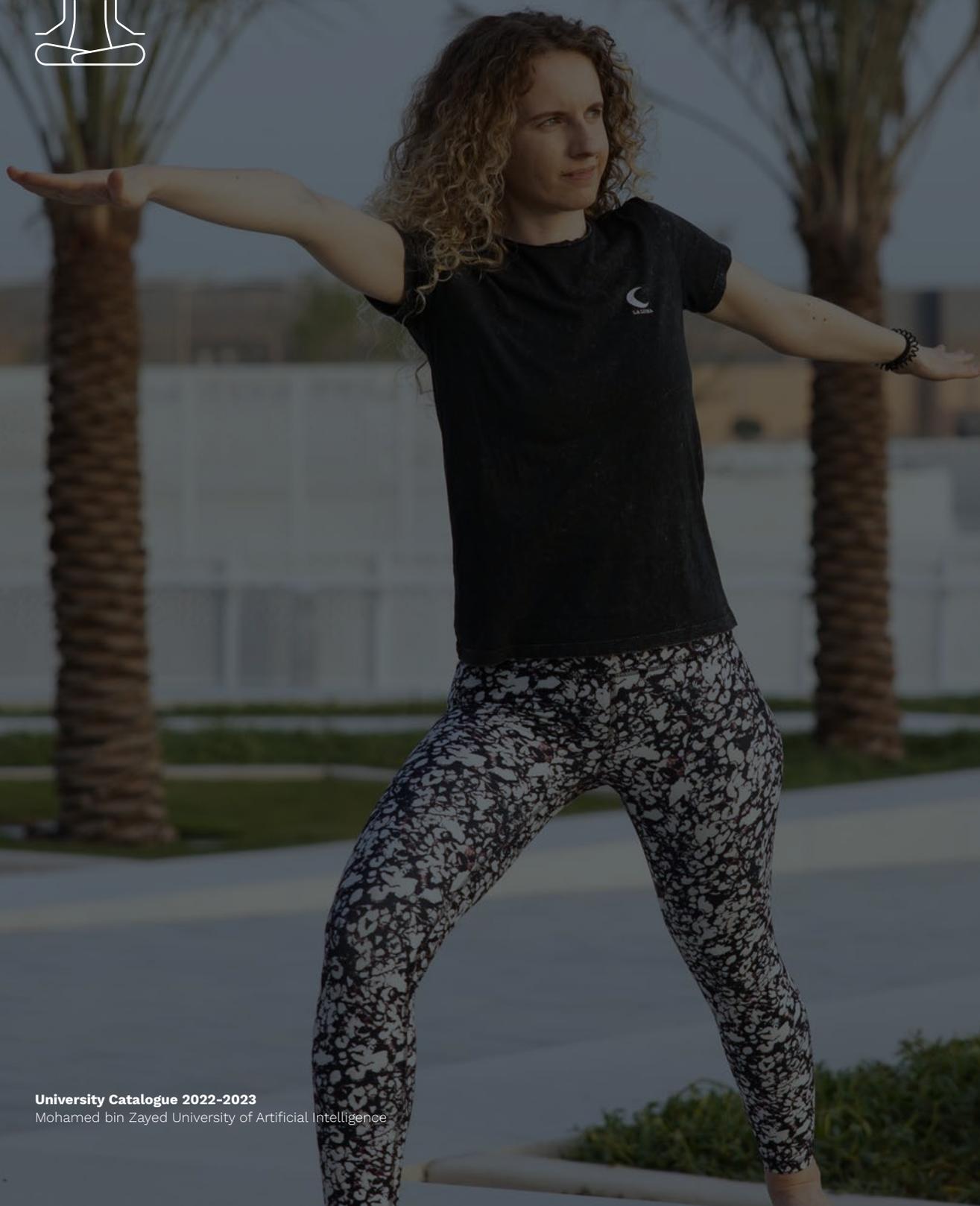
The following should be completed by the student:

- Must be able to demonstrate having followed the above required channels of communication with both the faculty member and department chair
- Must demonstrate that communication with the faculty member regarding the grade was initiated within five working days of when the final grade was posted
- Must be able to provide copies of graded assignments along with any other relevant documents to support the appeal
- The student's submission should describe in detail the conditions and factors that led to the perceived grievance and the actions taken during the resolution process
- If a member of the Appeal Committee was in any way involved in a student grievance, they shall recuse themselves and a replacement will be randomly selected from MBZUAI faculty or staff
- The committee investigates and consults with all the parties involved and after consideration of the case, the committee by a majority vote decides on an appropriate action:
 - Dismiss the grievance
 - Uphold the grievance and address it by instructing appropriate reparations including changes in the student's academic record no later than the end of drop / add week of the following semester as indicated in the university academic calendar
- Decision of the committee is final

Grievances against dismissal, suspension, and withdrawal from a program / withholding or termination of the scholarship

- The student submits an Appeal Form within three working days from posting the academic standing or posting the decision which led to the withholding or termination of scholarship to the Appeal Committee
- The student's submission should describe in detail the conditions and factors that led to the perceived grievance and the actions taken during the resolution process
- The committee investigates and consults with all the parties involved and after consideration of the case on an appropriate action as below:
 - Dismiss the grievance
 - Uphold the grievance and address it by instructing appropriate reparations including changes in the student's academic record / status no later than the end of drop / add week of the following semester as indicated in the university academic calendar
- Decision of the committee is final
- The final decision should be communicated to all concerned parties

Recreation facilities at MBZUAI include a variety of options for sports, leisure and cultural activities which exist on campus and in the surrounding Masdar community.



Student life activities

Student activities

All student entities and clubs are to be formed and governed by the policies and guidelines drawn up by the Office of Student Affairs and MBZUAI's vision, mission and strategic objectives.

The Office of Student Affairs is committed to offering its students extracurricular activities in the areas of culture, recreation, and sports. Extracurricular activities are to be in line with the MBZUAI's policies and procedures.

The student affairs department is committed to providing the facilities, planning, and resources needed to promote approved student activities.

The student affairs department will aid in the planning and coordination for the successful execution of student activities. The execution of the activity is the responsibility of the organizer(s).

If the activity is to take place off-campus, prior approval and coordination with the student affairs department is mandatory.

Student council

The Graduate Student Council (GSC) at MBZUAI is the elected student body authorized by the university administration to articulate student views and interests and be the voice of students.

Students who stand for election to the council should meet the following requirements:

- Be a full-time graduate student
- Maintain a GPA of 3.5 or above
- Be free from any academic violation
- Be in good financial standing with MBZUAI
- Completed all admissions criteria
- Should be able to serve one complete year in the position

The election of the council will take place on campus and will be announced by the student affairs department.

Student clubs and groups

The student life unit encourages students to be positive examples of on campus student leadership. Student clubs are a great way to develop interest and leadership. They empower and enrich students offering them the opportunity to enhance personal development; while providing excellent networking opportunities with like-minded members of the university community.

Active clubs must meet the following requirements:

- MBZUAI enrolled students
- Register with the student affairs department
- Have at least four main club members
- Sponsor at least two activities on campus each year. Typical activities could include, but are not limited to, participating in the annual club fair, hosting a fundraiser, coordinating a service project, sponsoring a program or attending a conference

Student housing

MBZUAI provides student housing. Living at MBZUAI residences offers students the opportunity to develop their social skills in tandem with their academic potential, while forging lasting friendships and participating in social activities.

Students enrolled at MBZUAI will be entitled to on campus accommodation for the duration of their study.

Recreation facilities at MBZUAI include a variety of options for sports, leisure and cultural activities which exist on campus and in the surrounding Masdar community.

They will be provided with accommodation containing en-suite facilities, kitchen and living area with internet connection. Facilities on campus for all students include a gym, multipurpose areas for sports activities, restaurants, coffee shops, laundry, plus a canteen that is open for breakfast, lunch, and dinner. When visiting the campus, students must collect the key to their on-campus accommodation from the student affairs department.



Career services

The student careers team aims to empower students and graduates to access AI related internship and employment opportunities by offering a high-quality personalized service.

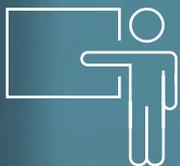
Through the careers service:

- Students will be provided with opportunities for career preparation and employment by the student careers team
- Students will have the opportunity to explore career options through the provision of accurate and relevant information on AI career pathways
- Students shall be able to book individual appointments via the MBZUAI Student Careers Portal to review career needs and identify realistic courses of action to follow up including developing, evaluating and implementing education, career, employment and entrepreneurial decisions and plans
- Students shall receive support with developing professional materials (resumes, cover letters, internship/job applications, LinkedIn and e-portfolios)
- The student careers team will facilitate opportunities for employer engagement including:
 - Internship/Opportunities Fairs
 - Interviews with employers and relevant research organizations
 - Networking events – Engagement in conversations with professionals from AI
 - Employer sessions – Organizations sharing industry knowledge and company insights
 - On-campus job interviews
- A range of workshops will be offered to help students develop their employability skills and obtain appropriate internship and employment opportunities such as networking skills, job search strategies and mock interview preparation
- Students shall have access to a database of internship and employment opportunities via the MBZUAI Student Careers Portal, achieved through close partnerships with industry
- Sign-posting to other departments and agencies as appropriate (for example, personal counseling)
- The student careers team will develop appropriate information and resources

What is expected from students using the careers service:

- Students are expected to keep confirmed appointments with the student careers team. Students should advise the student careers team, 24 hours prior to the appointment, if they are unable to attend.
- Students are expected to keep confirmed appointments with employers, such as on-campus/off-campus interviews. Students should advise the student careers team, 24 hours prior to the interview, if they are unable to attend.
- To represent MBZUAI in a professional manner with employers
- For professional materials such as resume/LinkedIn account to be approved by the student careers team prior to sending to an employer
- To review appropriate resources via the MBZUAI Student Careers Portal, MBZUAI Student Opportunities LinkedIn page and the Student Careers SharePoint, prior to attending an employer event and/or interview.
- To respond to requests for information as needed, for example, up-to-date/accurate student information, internship, employment and graduation data

Students work on research projects under the guidance of their supervisors, who are domain experts in their fields among MBZUAI faculty members.



Research matters

MBZUAI is an independent government entity and will ensure the highest possible standard of excellence and autonomy in research and thought leadership to all those associated with the university, whether students, faculty members or researchers.

MBZUAI creates and disseminates insightful and state-of-the-art research output in artificial intelligence and its numerous applications within the region and internationally.

Academic research initiatives are conducted by the academic affairs division, whereas the non-academic research initiatives are overseen mainly by the outreach department, supported by the research division, in collaboration with UAE public entities, external organizations or UAE external individuals.

Students work on research projects under the guidance of their supervisors, who are domain experts in their fields among MBZUAI faculty members.

MBZUAI students shall be bound by confidentiality regulations, as defined by the applicable laws and regulations in UAE in matters related to internal research projects (commissioned and non-commissioned).



Student conduct

Students should conduct themselves in a manner that contributes positively to the university environment in which respect, civility, diversity, opportunity, and inclusiveness are valued. They are expected to act honestly and responsibly and respect the University regulations, policies and guidelines to assure the success of both the individual and the community. Any student at MBZUAI must respect other students, faculty members, staff and the public.

The *Code of Conduct* sets out the right and responsibilities of students at MBZUAI.

The purpose of the code is to:

- Inform students of their rights and responsibilities
- Define the general standard of conduct expected of students
- Provide examples of conduct that may be subject to disciplinary action
- Clarify the procedures that the university will follow to address allegation and cases of non-academic misconduct
- Provide examples of disciplinary measures and potential sanctions that may be imposed by the university in case of violations
- Students are expected to be aware of, and to conduct themselves in accordance with the code



Library

MBZUAI has an equipped library and technological resource on campus to assist students in the effective completion of their academic work and research assignments. The following facilities are available to students on campus: Library, technology, and computer-based services and research laboratories.

The MBZUAI Library provides print and electronic resources, facilities, and services to support the academic, research and professional information needs of the students, faculty, and staff of MBZUAI.

Membership

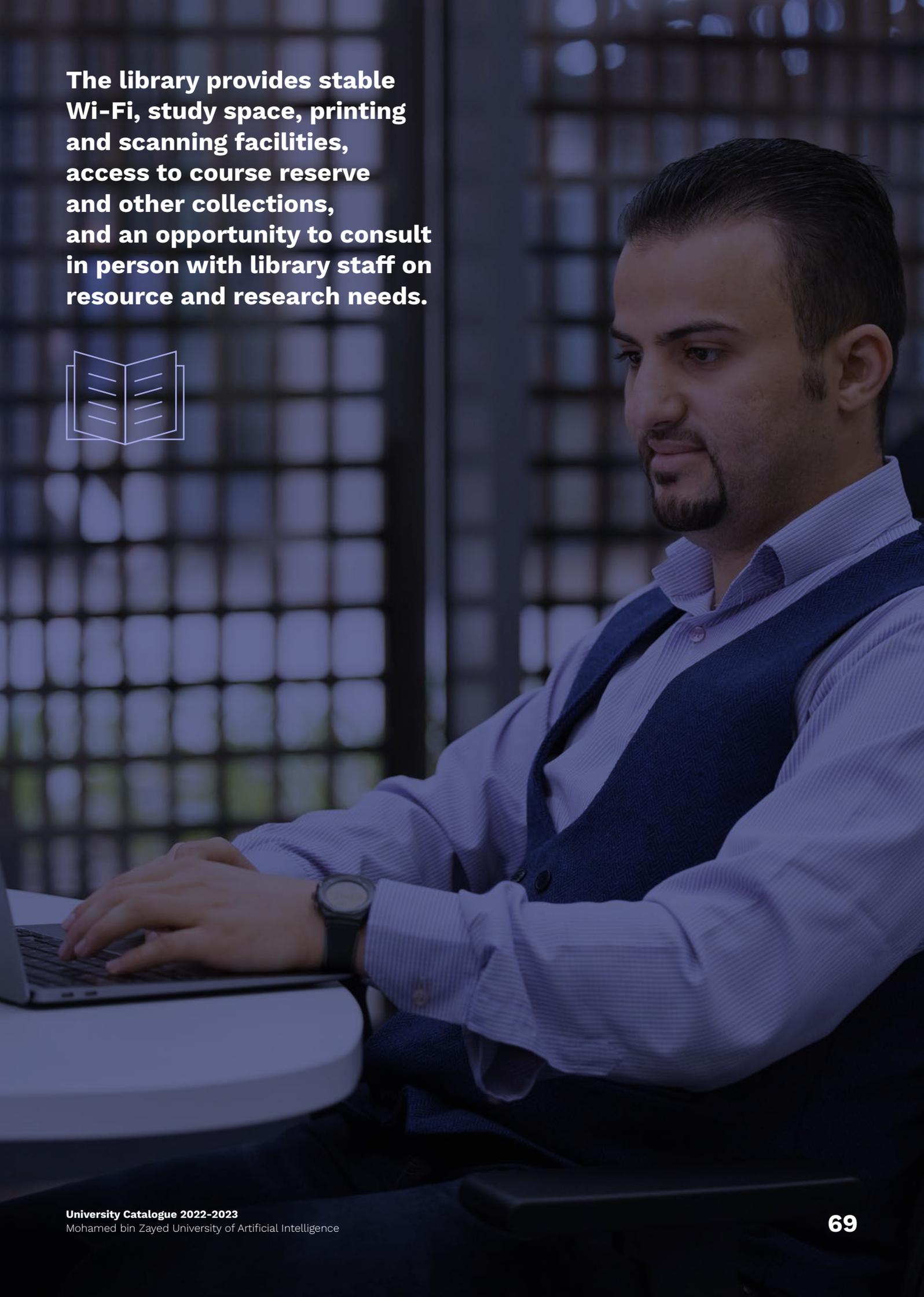
The library is open for the purpose of study and research to enrolled MBZUAI students, current faculty and staff, alumni, visiting researchers, and approved guests.

Collections

Collection development focuses on scholarly and academic publications in the interdisciplinary field of artificial intelligence, and additional resources are collected to support professional, teaching and learning needs and interests. All resources are discoverable through the library's single-search interface and materials available for borrowing include books, periodicals, course reserve materials and equipment.

- Physical collections are classified and arranged according to the Library of Congress Classification System
- Open collections (main collection, reference, and periodicals) are browsable.
- Access to closed collections (course reserve collections) is mediated by library staff
- Licensed electronic resources include bibliographic and full-text content and are available to enrolled students through university-provided credentials
- Access to faculty open access scholarship and MBZUAI student theses and dissertations is available through the institutional repository, eCommons
- Multiple copies of student textbooks are not typically purchased by the library however the library maintains a limited number of copies of required textbooks that are only available in print and makes these available on course reserve (short-term loans) to students
- Access to electronic textbooks is available through library eBook platforms or eRental platforms. Links to these resources are provided on the learning management system (Moodle) or directly through the library portal.

The library provides stable Wi-Fi, study space, printing and scanning facilities, access to course reserve and other collections, and an opportunity to consult in person with library staff on resource and research needs.



Facilities

The library provides stable Wi-Fi, study space, printing and scanning facilities, access to course reserve and other collections, and an opportunity to consult in person with library staff on resource and research needs.

Services

Students are provided with personal library accounts (My Account) to renew books, place holds, review outstanding fines and fees, and create booklists. Other eServices include title recommendations and requests, interlibrary loan requests, and resource and research consultations.

Librarians provide research and resource support, publish online guides, and host instruction through scheduled sessions and individual consultations, onsite and online.

Inter-library loans (ILL) and document delivery services are available to support students' resource needs not met by the library, and if available from a partner library or document delivery service. Quotas may be applied, and materials obtained through ILL are strictly intended for individual use.

An institutional repository, eCommons, is maintained by the library to curate and disseminate faculty scholarship and MBZUAI student theses and dissertations. Students are required to submit a digital copy of a correctly formatted and approved thesis/dissertation to meet graduation requirements.

Loan rules and periods

Student identification is required to borrow physical materials and university provided credentials are required to access licensed electronic content.

- Main collection material is available for long term borrowing (three weeks or longer) by enrolled students, faculty, and staff of MBZUAI
- High demand material, including course reserve items and equipment, is available for short-term borrowing and access may be restricted to in-library use
- Items located in reference, periodicals, special collections and archives are normally not available for circulation outside the library (non-circulating)
- Electronic content may have indefinite or varying periods of loan and can be accessed via the library's website or individual URL links provided on the learning management system (Moodle)

Materials are checked-out and returned at staffed circulation desks. All patrons remain responsible for items checked out on their names.

- Overdue notices are sent as a courtesy
- Fines may be levied for the late return of items, in accordance with notices displayed in the library and on the library's website and are charged at rates determined and approved annually by the Academic Committee
- Fines will continue to accumulate until an item is returned or reported missing, and up to 20 days for long-term loans and 50 hours for short-term loans, at which stage patrons will receive a statement for the replacement cost, including administrative charges and accumulated fines. Exceptions may apply.
- Students are required to clear all outstanding fines and fees directly with the finance department and borrowing privileges will be suspended for students with outstanding fines and fees of AED 300 or more
- Items that may not be renewed online through the My Account service include recalled and overdue items, course reserve items, and books borrowed from another library (interlibrary loans)
- Patrons may request a hold on an item currently checked out to another patron and the library reserves the right to recall an item. All items may be recalled for inventory purposes at the end of each semester.

All borrowing policies and fines are published on the [Library website > Services > Borrowing policies](#).

Library hours

Library opening hours support access to physical resources, facilities, and services and are posted on the library website.

Use of resources and facilities

Students are expected to acquaint themselves with the library's policies and regulations and refrain from any behavior that interferes with the right of others to access resources or use the library for the purpose of research and study. Library staff are empowered to interpret and enforce library policies, suspend privileges, and refer serious breaches of conduct to the Director of Student Affairs.

- Facilities and equipment, including the library computers, are intended to support MBZUAI academic and research programs and use may be mediated to ensure equitable access and appropriate use
- The use of computing and network resources, and licensed electronic resources must comply with the university's policies, licenses, contracts, and applicable laws
- The use of the library's printing and scanning equipment for the reproduction of copyright protected material requires compliance with copyright laws and conventions
- Posting notices, taking photos or video recording in the library, requires permission from the Head of Library Management
- With the exception of covered drinks, and for example coffee and tea, food and drinks should not be consumed in the library, and single-use plastic is discouraged

For more information, please refer to the [MBZUAI Library Resources and Services Policy](#).

Research labs



MBZUAI has the most advanced AI labs in the region, equipped with the best-in-class technologies for AI, including state-of-the-art computing labs, core lab facilities, industry labs and as well as departmental and faculty managed laboratories.

The labs represent a key enabler for MBZUAI learning and knowledge development. They are available for faculty, students, and researchers to support both teaching and research needs in terms of experimental research and computing resources.

Three types of labs will be available:

High Performance Computing Lab

Equipped with powerful workstations having NVIDIA Quadra RTX GPUs, data storages; along with commercial and academic software for data-intensive processing and high-performance computing for students to meet their various academic and research needs.

Data Acquisition Lab

Deployed with special equipment with latest technology such as camera systems, thermal imagers, dynamic vision sensors, acquisition systems, and drones.

Data Observatory Center

Equipped with high-resolution video walls incorporating latest visualization technologies to support the delivery of research and educational products.

Public Relations Officer will book an appointment for the medical test, Emirates ID application typing, fingerprint scan and issue health insurance to complete the required documents for the residence visa.



**MBZUAI
welcomes its
inaugural class**

mbzuai.ac.ae

Administration and important information

UAE entry permit and residency visa

Students must have a valid entry visa to enter the UAE (depending on their nationality). This permit will be issued and sent prior to leaving home. The validity of the visa depends on rules at the current time; they may be valid for 30 or 60 days from the date of issue. Therefore, entry to the UAE must be within this period.

For the initial processing of the entry permit(s) and insurance procedures, students will need to send the education certificate (bachelors / master's), photocopy of the passport, and color passport photo with white background. Please send the requested documents to admission@mbzuai.ac.ae.

It should be noted that there should be at least six months' validity on passports for entry into the UAE and application for the residence visa.

When all the relevant documents have been received, the admissions office will process and email a copy of the entry permit(s).

Students will need to show a copy of the entry permit to the airline / immigration at their point of departure. Students with certain nationalities must undergo a pre-medical test and pre-approval for the entry Permit in the home country through the UAE consulate before their departure. Upon arrival in the UAE, a public relations officer (PRO) will handle the residence visa procedures. The residence visa will be stamped on the passport.

To start these procedures, students should report to student affairs office, as soon as possible after their arrival, with the following documents:

- Original entry permit
- Passport

A PRO will book an appointment for the medical test, Emirates ID application typing, fingerprint scan (for the Emirates ID), and issue health insurance to complete the required documents for the residence visa.

Emirates ID card

As per the law of the Population Registry and the Identity Card program, all nationals and legal residents of the UAE must obtain the Emirates ID card.

Students will be required to obtain an Emirates ID card for themselves and MBZUAI will reimburse the cost of the Emirates ID card.

For further information, please see www.emiratesid.ae.

Driving license

To obtain a driving license, students should visit the Abu Dhabi Police Department's Office. Regulations for obtaining a driving license vary by nationality. Therefore, this department will advise of the latest regulations and provide guidance regarding the process required for obtaining a driving license.

Note: Students can only apply for a driving license when they have obtained their residence visa.

Embassies and consulates

There are many foreign embassies and consulates located in Abu Dhabi and Dubai.

Embassies and consulates are generally open from 8:45 a.m. to 1:30 p.m, Monday to Friday. Some may close early on Fridays.

Some embassies have websites while others do not. For a comprehensive list of embassies and consulates in the UAE, please see: www.indexuae.com/Top/Government/Embassies_and_Consulates.

Electricity

Electricity is 220 volts at 50 cycles per second. Transformers are readily available in the market for electronic equipment that runs on 110 volts. If students bring their personal computer for use in their home, they will need to purchase a transformer. Some computers switch either manually or automatically from 110 to 220 volts.

UAE newspapers

Newspapers are readily available in both English and Arabic, and delivery is available to campus housing. To view the comprehensive list of available newspapers, please view the following link: <http://www.onlinenewspapers.com/une.htm>

Potable water

Tap water in the Emirates is safe to drink. However, most people prefer bottled water, which can be delivered to individual house accommodations weekly, at a cost of approximately 10 dirhams per five-gallon bottle.

Useful websites

For additional information on working and living in the UAE, the following websites will prove useful.

<http://visitabudhabi.ae/en/default.aspx>
<https://www.abudhabi.ae/portal/public/en/homepage>

Dress code

MBZUAI has a multicultural environment that respects the norms of UAE society. Students must not behave or dress in a way that may offend cultural sensitivities. The following points must be observed regarding student dress at the university.

- No offensive wording, drawings, or pictures are allowed on clothing
- Clothing or attire must not interfere with the safe operation of duties or equipment
- In respect for the needs for identification and security, we request all female students to forgo the face covering veils while on campus
- Students should not wear revealing clothes. “Revealing clothes” refers to clothing that has very sheer fabric or clothing that is tight. Blouses, etc should have no cleavage visible. The lower back, abdomen and upper arms should be covered. Skirts should be below the knee
- All students are to wear appropriate business attire when representing the Institute on official trips such as conferences, summits and meetings with external organizations

Examples of acceptable clothing:

- Female students - UAE National attire, long skirts / pants / dresses with length that covers the knees, long sleeve blouses, smart T-Shirts, jumpers, jackets, and suits (note: no sleeveless)
- Male students - UAE National attire, business suits, sports jackets, blazers, trousers / slacks, smart T-shirts and shirts



Academic programs

Master of Science in Computer Vision

National Qualifications Framework - Five Strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided into the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program learning outcomes

Upon completion of the program requirements, the graduate will be able to:

- 1** Exhibit comprehensive and highly specialized knowledge of computer vision in- line with the underlying mathematical and computational principles (Knowledge)
- 2** Perform critical literature survey and develop new ideas by integrating multidisciplinary knowledge (Knowledge and Skill)
- 3** Apply advanced problem-solving skills to analyze, design and execute solutions for the existing and new problems in computer vision faced by both industry and academia (Skill)
- 4** Become highly skilled in initiating, managing, and completing multifaceted computer vision projects, and be able to clearly communicate concepts, complex ideas, and conclusions both orally and in the form of technical reports (Skill and Role in context)
- 5** Function independently and in a team to address computer vision problems under complex and unpredictable real-world settings (Autonomy and responsibility)
- 6** Demonstrate a fundamental understanding of computer vision discipline at an advanced level suitable to pursue a Ph.D. degree and contribute to cutting-edge computer vision research to produce new knowledge or take responsibility to lead innovative and impactful computer vision projects in industry (Self-development, Knowledge and Role in context)
- 7** Manifest the right learning attitude during coursework and research that clearly shows ownership, personal and technical growth, and responsibility (Self-development)
- 8** Understand legal, ethical, environmental, and socio-cultural ramifications of computer vision technologies, and be able to make informed and fair decisions on complex practical issues (Autonomy and responsibility, and Self-development)



The PLOs are mapped to a level nine (9) qualification according to the five strands of learning outcomes as per the [National Qualifications Framework](#) set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|-------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PL01 | K-1L9 | - | - | - | - |
| PL02 | K-2L9 | S-1L9 | - | - | - |
| PL03 | - | S-2L9 | - | - | - |
| PL04 | - | S-3L9 | - | RC-1L9 | - |
| PL05 | - | - | AR-1L9 | - | - |
| PL06 | K-3L9 | - | - | RC-2L9 | SD-1L9 |
| PL07 | - | - | - | - | SD-2L9 |
| PL08 | - | - | AR-2L9 | - | SD-3L9 |

Aligning PLOs for Master of Science in Computer Vision to QF Emirates Level 9 Framework.

Program study plan

The students are expected to complete coursework in the first year of degree and focus more on the research project and thesis writing in the second year. However, this is an indicative plan and students have the flexibility to take a light course load in the second year as well and similarly can start research in the first year (e.g., literature review, background study, data collection or initial framework design) with the approval of their supervisory panel.

A typical study plan is as follows:

| Semester 1 | |
|---------------|---|
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| CV701 | Human and Computer Vision |
| Semester 2 | |
| CV702 | Geometry for Computer Vision OR |
| CV703 | Visual Object Recognition and Detection |
| | + 1 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to six weeks) |
| Semester 3 | |
| CV699 | Master's Research Thesis |
| | Research Training |
| Semester 4 | |
| CV699 | Master's Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Master of Science in Computer Vision is 36 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|--|--------------|
| Core | 4 | 16 |
| Electives | 2 | 8 |
| Research thesis | 1 | 12 |
| Internship | At least one internship of up to six weeks duration must be satisfactorily completed as a graduation requirement | 0 |

Program courses

Core courses

The Master of Science in Computer Vision is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and CV701 as mandatory courses. They can select either CV702 or CV703 along with two electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision OR | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |

Elective courses

Students will select a minimum of two elective courses, with a total of eight (or more) credit hours. One must be selected from List A and one must be selected from List A or B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Master of Science in Computer Vision are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV704 | Advanced Techniques in Low-Level Vision | 4 |
| CV705 | Advanced 3D Computer Vision | 4 |
| CV706 | Advanced Techniques in Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |

| List B | Course title | Credit hours |
|--------|--------------------------------------|--------------|
| AI702 | Deep Learning | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |
| NLP701 | Natural Language Processing | 4 |
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |

Research thesis

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|-------|--------------------------|--------------|
| CV699 | Master's Research Thesis | 12 |
| | Research Training | 0 |

Master of Science in Machine Learning

National Qualifications Framework - Five strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided into the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program learning outcomes

Upon completion of the program requirements, the graduate will be able to:

- 1** Exhibit highly specialized understanding of the modern machine learning pipeline: data, models, algorithmic principles, and empirics (Knowledge)
- 2** Achieve advanced skills in data-preprocessing and using various exploration and visualization tools (Skill)
- 3** Demonstrate critical awareness of the capabilities and limitations of the different forms of learning algorithms (Knowledge)
- 4** Obtain advanced capabilities to critically analyze, evaluate, and continuously improve the performance of learning algorithms (Knowledge and Skill)
- 5** Acquire advanced abilities to analyze computational and statistical properties of advanced learning algorithms and their performance (Knowledge and Skill)
- 6** Gain expertise in using and deploying machine learning-relevant programming tools for a variety of complex machine learning problems (Skill)
- 7** Develop advanced problem-solving skills through independently applying machine learning methods to multiple complex problems, and demonstrate expertise in dealing with ambiguity in a problem statement (Autonomy and responsibility, and Role in context)
- 8** Apply sophisticated skills in initiating, managing, and completing multiple project reports and critiques on a variety of machine learning methods, that demonstrate expert understanding, self-evaluation, and advanced skills in communicating highly complex ideas (Autonomy and responsibility, Role in context, and Self-development)



The PLOs are mapped to a level nine (9) qualification according to the five strands of learning outcomes as per the [National Qualifications Framework](#) set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|-------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PLO1 | K-1L9 | - | - | - | - |
| PLO2 | - | S-1L9 | - | - | - |
| PLO3 | K-2L9 | - | - | - | - |
| PLO4 | K-3L9 | S-2L9 | - | - | - |
| PLO5 | K-4L9 | S-3L9 | - | - | - |
| PLO6 | - | S-4L9 | - | - | - |
| PLO7 | - | - | AR-1L9 | RC-1L9 | - |
| PLO8 | - | - | AR-2L9 | RC-2L9 | SD-1L9 |

Aligning PLOs for Master of Science in Machine Learning to QF Emirates Level 9 Framework.

Program study plan

The students are expected to complete coursework in the first year of degree and focus more on the research project and thesis writing in the second year. However, this is an indicative plan and students have the flexibility to take a light course load in the second year as well and similarly can start research in the first year (e.g., literature review, background study, data collection or initial framework design) with the approval of their supervisory panel.

A typical study plan is as follows:

| Semester 1 | |
|---------------|---|
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| ML701 | Machine Learning |
| Semester 2 | |
| ML702 | Advanced Machine Learning OR |
| ML703 | Probabilistic and Statistical Inference |
| | + 1 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to six weeks) |
| Semester 3 | |
| ML699 | Master's Research Thesis |
| | Research Training |
| Semester 4 | |
| ML699 | Master's Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Master of Science in Machine Learning is 36 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|--|--------------|
| Core | 4 | 16 |
| Electives | 2 | 8 |
| Research thesis | 1 | 12 |
| Internship | At least one internship of up to six weeks duration must be satisfactorily completed as a graduation requirement | 0 |

Program courses

Core courses

The Master of Science in Machine Learning is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and ML701 as mandatory courses. They can select either ML702 or ML703 along with two electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning OR | 4 |
| ML703 | Probabilistic and Statistical Inference | 4 |

Elective courses

Students will select a minimum of two elective courses, with a total of eight (or more) credit hours. One must be selected from List A and one must be selected from List A or B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Master of Science in Machine Learning are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| ML702 | Advanced Machine Learning | 4 |
| ML703 | Probabilistic and Statistical Inference | 4 |
| ML704 | Machine Learning Paradigms | 4 |
| ML705 | Topics in Advanced Machine Learning | 4 |
| ML706 | Advanced Probabilistic and Statistical Inference | 4 |

| List B | Course title | Credit hours |
|--------|---|--------------|
| AI702 | Deep Learning | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |
| NLP701 | Natural Language Processing | 4 |
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |

Research thesis

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|-------|--------------------------|--------------|
| ML699 | Master's Research Thesis | 12 |
| | Research Training | 0 |

Master of Science in Natural Language Processing

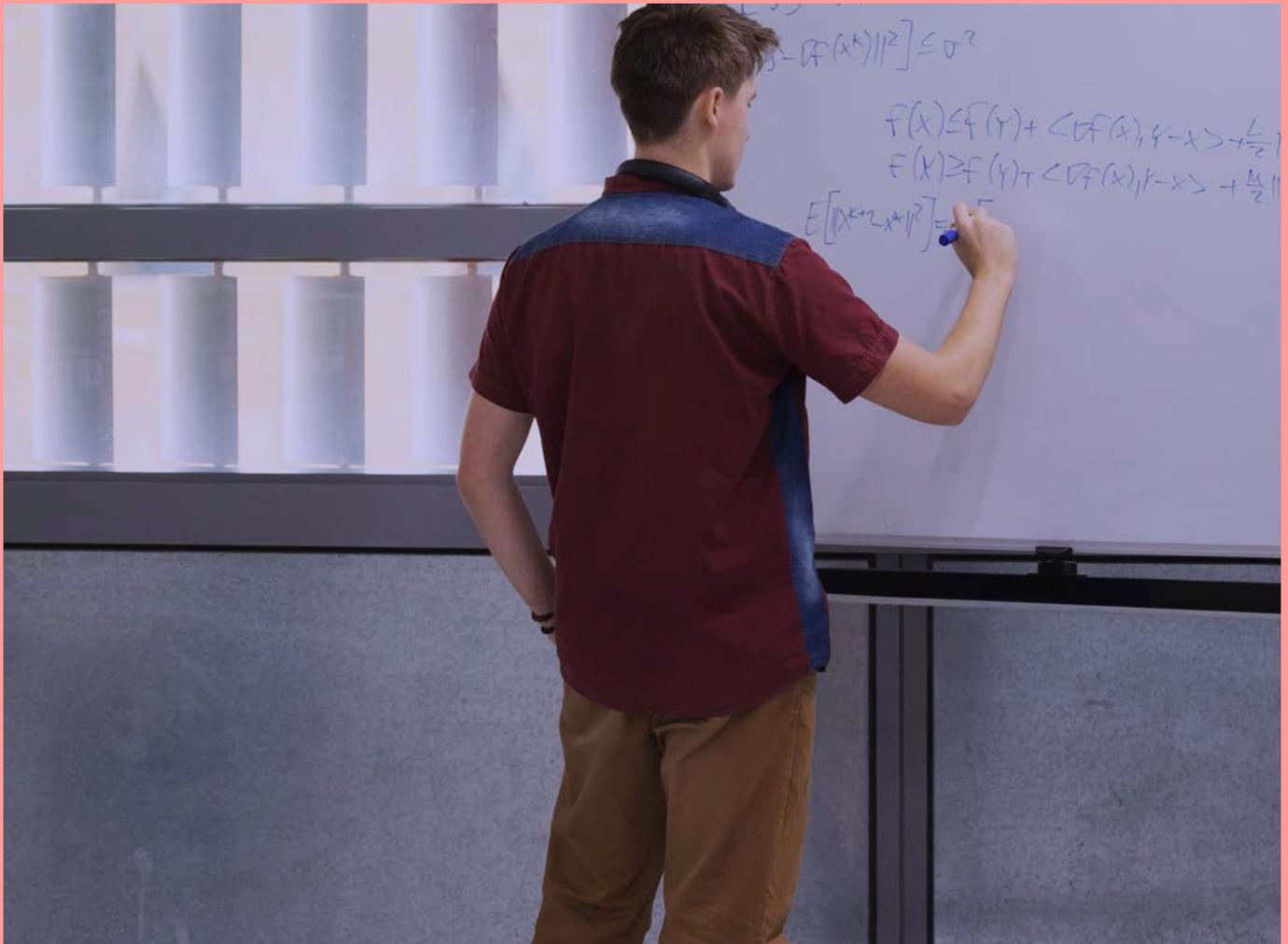
National Qualifications Framework - Five strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided into the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program learning outcomes

Upon completion of the program requirements, the graduate will be able to:

- 1 Demonstrate a highly specialized understanding of the computational techniques for analyzing and modelling textual and speech data with applications to real-world scenarios (Knowledge)
- 2 Have a deep understanding of the syntactic and semantic structures in speech and textual data (e.g., the predicate-argument structure) (Knowledge)
- 3 Obtain advanced capabilities to implement the cutting-edge NLP algorithms, and benchmark the achieved results (Skill and Role in context)
- 4 Have the capability to formulate own research questions, analyse the existing body of knowledge, propose and develop solutions to new problems (Autonomy and responsibility, Role in context)
- 5 Obtain expertise in using and deploying NLP related programming tools for a variety of NLP problems (Skill)
- 6 Work independently as well as part of a team, in a collegial manner, on NLP related projects (Autonomy and responsibility, Self Development)
- 7 Effectively communicate experimental results and research findings orally and in writing, and critique existing body of work (Role in context)



The PLOs are mapped to a level nine (9) qualification according to the five strands of learning outcomes as per the National Qualifications Framework set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|-------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PL01 | K-1L9 | - | - | - | - |
| PL02 | K-2L9 | - | - | - | - |
| PL03 | - | S-1L9 | - | RC-1L9 | - |
| PL04 | - | - | AR-1L9 | RC-2L9 | - |
| PL05 | - | S-2L9 | - | - | - |
| PL06 | - | - | AR-2L9 | - | SD-1L9 |
| PL07 | - | - | - | RC-3L9 | - |

Aligning PLOs for Master of Science in Natural Language Processing to QF Emirates Level 9 Framework.

Program study plan

The students are expected to complete coursework in the first year of degree and focus more on the research project and thesis writing in the second year. However, this is an indicative plan and students have the flexibility to take a light course load in the second year as well and similarly can start research in the first year (e.g., literature review, background study, data collection or initial framework design) with the approval of their supervisory panel.

A typical study plan is as follows:

| Semester 1 | |
|---------------|---|
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| NLP701 | Natural Language Processing |
| Semester 2 | |
| | + 2 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to six weeks) |
| Semester 3 | |
| NLP699 | Master's Research Thesis |
| | Research Training |
| Semester 4 | |
| NLP699 | Master's Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Master of Science in Natural Language Processing is 36 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|--|--------------|
| Core | 3 | 12 |
| Electives | 3 | 12 |
| Research thesis | 1 | 12 |
| Internship | At least one internship of up to six weeks duration must be satisfactorily completed as a graduation requirement | 0 |

Program courses

Core courses

The Master of Science in Natural Language Processing is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and NLP701 as mandatory courses. They can select three electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| NLP701 | Natural Language Processing | 4 |

Elective courses

Students will select a minimum of three elective courses, with a total of 12 (or more) credit hours. Two must be selected from List A and one must be selected from List A or B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Master of Science in Natural Language Processing are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |
| NLP704 | Deep Learning for Language Processing | 4 |
| NLP705 | Topics in Advanced Natural Language Processing | 4 |
| NLP706 | Advanced Speech Processing | 4 |

| List B | Course title | Credit hours |
|--------|---|--------------|
| AI702 | Deep Learning | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning | 4 |
| ML703 | Probabilistic and Statistical Inference | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |

Research thesis

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|--------|--------------------------|--------------|
| NLP699 | Master's Research Thesis | 12 |
| | Research Training | 0 |

Doctor of Philosophy in Computer Vision

National Qualifications Framework - Five strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided into the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program Learning Objectives

Upon completion of the program requirements, the graduate will be able to:

- 1 Master the fundamental knowledge of computer vision and develop expertise in several specialized areas of research in computer vision (Knowledge)
- 2 Grow expertise in comprehending existing literature, apply reasoning, and master necessary skills and techniques to develop novel ideas that are recognized by the experts of the computer vision discipline (Knowledge and Skill)
- 3 Apply advanced problem-solving skills to analyze, design and execute innovative solutions for the existing and/or new problems faced in both industry and academia (Skill)
- 4 Highly skilled in initiating, managing, and completing technically challenging computer vision projects, and be able to clearly communicate concepts, highly complex ideas, and key findings in the form of technical reports, scientific publications, and oral presentations at relevant technical venues (Skill, and Autonomy and responsibility)
- 5 Become an expert in selecting and using programming tools, libraries, and other relevant resources to solve real-world computer vision problems (Skill)
- 6 Develop advanced ability to work independently with substantial authority or in team collaboration with professional integrity to complete highly challenging computer vision projects in a timely manner (Autonomy and responsibility, and Role in context)
- 7 Develop deep understanding of existing body of knowledge and the ability to develop new knowledge in computer vision that makes students suitable for a role in academia or industry (Knowledge and Self-development)
- 8 Practice research ethics and commit to professional responsibilities while conducting cutting edge advancements in computer vision discipline (Self-development)
- 9 Understand legal, ethical, environmental, and socio-cultural ramifications of computer vision technologies, and be able to take a lead in making informed and fair decisions on complex issues (Autonomy and responsibility, and Self-development)



The PLOs are mapped to a level 10 qualification according to the five strands of learning outcomes as per the [National Qualifications Framework](#) set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|--------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PL01 | K-1L10 | - | - | - | - |
| PL02 | K-2L10 | S-1L10 | - | - | - |
| PL03 | - | S-2L10 | - | - | - |
| PL04 | - | S-3L10 | AR-1L10 | - | - |
| PL05 | - | S-4L10 | - | - | - |
| PL06 | - | - | AR-2L10 | RC-1L10 | - |
| PL07 | K-3L10 | - | - | - | SD-1L10 |
| PL08 | - | - | - | - | SD-2L10 |
| PL09 | - | - | AR-3L10 | - | SD-3L10 |

Aligning PLOs for Doctor of Philosophy in Computer Vision to QF Emirates Level 10 Framework.

Program study plan

The students are expected to complete course work in the first year of degree and focus on the research and thesis writing in the subsequent three years. Students must successfully pass a qualifying exam (QE) at the end of the first year to progress to the research component of the Ph.D. At the end of the second year, which is focused on research, students must present evidence of satisfactory research progress at a candidacy exam (CE) to progress to the final two years of research.

A typical study plan is as follows:

| | |
|-------------------|---|
| Semester 1 | |
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| CV701 | Human and Computer Vision |
| Semester 2 | |
| CV702 | Geometry for Computer Vision OR |
| CV703 | Visual Object Recognition and Detection |
| | + 1 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to four months) |
| Semester 3 | |
| CV799 | Ph.D. Research Thesis |
| | Research Training |
| Semester 4 | |
| CV799 | Ph.D. Research Thesis |
| Semester 5 | |
| CV799 | Ph.D. Research Thesis |
| Semester 6 | |
| CV799 | Ph.D. Research Thesis |
| Semester 7 | |
| CV799 | Ph.D. Research Thesis |
| Semester 8 | |
| CV799 | Ph.D. Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Doctor of Philosophy in Machine Learning is 60 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|---|--------------|
| Core | 4 | 16 |
| Electives | 2 | 8 |
| Research thesis | 1 | 36 |
| Internship | At least one internship of up to four-months duration must be satisfactorily completed as a graduation requirement. | 0 |

Program courses

Core courses

The Doctor of Philosophy in Computer Vision is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and CV701 as a mandatory courses. They can select either CV702 or CV703 along with two electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision OR | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |

Elective courses

Students will select a minimum of two elective courses, with a total of eight (or more) credit hours. One must be selected from List A and one must be selected from List B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Doctor of Philosophy in Computer Vision are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV704 | Advanced Techniques in Low-Level Vision | 4 |
| CV705 | Advanced 3D Computer Vision | 4 |
| CV706 | Advanced Techniques in Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |

| List B | Course title | Credit hours |
|--------|--|--------------|
| AI702 | Deep Learning | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning | 4 |
| ML704 | Machine Learning Paradigms | 4 |
| ML705 | Topics in Advanced Machine Learning | 4 |
| ML706 | Advanced Probabilistic and Statistical Inference | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |
| NLP701 | Natural Language Processing | 4 |
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |
| NLP704 | Deep Learning for Language Processing | 4 |
| NLP705 | Topics in Advanced Natural Language Processing | 4 |
| NLP706 | Advanced Speech Processing | 4 |

Research thesis

The Ph.D. research thesis exposes students to cutting-edge and unsolved research problems in the field of computer vision, where they are required to propose new solutions and significantly contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of three to four years. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|-------|-----------------------|--------------|
| CV799 | Ph.D. Research Thesis | 36 |
| | Research Training | 0 |

Doctor of Philosophy in Machine Learning

National Qualifications Framework - Five strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided in the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program learning objectives

Upon completion of the program requirements, the graduate will be able to:

- 1 Obtain rigorous mathematical background and advanced reasoning capabilities to express comprehensive and deep understanding of the pipelines at the frontier of machine learning: data, models, algorithmic principles, and empirics (Knowledge)
- 2 Master a range of skills and techniques in data-preprocessing, exploration, and visualization of data-statistics as well as complex algorithmic outcomes (Skill)
- 3 Have a critical awareness of the capabilities and limitations of the different forms of learning algorithms and the ability to critically analyze, evaluate, and improve the performance of the learning algorithms (Knowledge and Role in context)
- 4 Grow expert problem-solving skills through independently applying the principles and methods learned in the program to various complex real-world problems (Skill)
- 5 Develop a deep understanding of statistical properties and performance guarantees, including convergence rates (in theory and practice) for different learning algorithms (Knowledge and Skill)
- 6 Become an expert in using and deploying machine learning-relevant programming tools for a variety of machine learning problems (Skill)
- 7 Grow proficiency in identifying the limitations of existing machine learning algorithms and the ability to conceptualize, design, and implement an innovative solution for a variety of highly complex problems to advance the state-of-the-art in machine learning (Role in context, and Autonomy and responsibility)
- 8 Able to initiate, manage, and complete research manuscripts that demonstrates expert self-evaluation and advanced skills in communicating highly complex ideas related to machine learning (Role in context, and Self-development)
- 9 Obtain highly sophisticated skills in initiating, managing, and completing multiple project reports and critiques on a variety of machine learning methods, that demonstrates expert understanding, self-evaluation, and advanced skills in communicating highly complex ideas (Autonomy and responsibility, Role in context, and Self-development)



The PLOs are mapped to a level 10 qualification according to the FIVE strands of learning outcomes as per the [National Qualifications Framework](#) set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|--------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PL01 | K-1L10 | - | - | - | - |
| PL02 | - | S-1L10 | - | - | - |
| PL03 | K-2L10 | - | - | RC-1L10 | - |
| PL04 | - | S-2L10 | - | - | - |
| PL05 | K-3L10 | S-3L10 | - | - | - |
| PL06 | - | S-4L10 | - | - | - |
| PL07 | - | - | AR-1L10 | RC-2L10 | - |
| PL08 | - | - | - | RC-3L10 | SD-1L10 |
| PL09 | - | - | AR-2L10 | RC-4L10 | SD-2L10 |

Aligning PLOs for Doctor of Philosophy in Machine Learning to QF Emirates Level 10 Framework.

Program study plan

The students are expected to complete coursework in the first year of degree and focus more on the research project and thesis writing in the second year. However, this is an indicative plan and students have the flexibility to take a light course load in the second year as well and similarly can start research in the first year (e.g., literature review, background study, data collection or initial framework design) with the approval of their supervisory panel.

A typical study plan is as follows:

| Semester 1 | |
|------------|---|
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| ML701 | Machine Learning |
| Semester 2 | |
| ML702 | Advanced Machine Learning OR |
| ML703 | Probabilistic and Statistical Inference |
| | + 1 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to four months) |
| Semester 3 | |
| ML799 | Ph.D. Research Thesis |
| | Research Training |
| Semester 4 | |
| ML799 | Ph.D. Research Thesis |
| Semester 5 | |
| ML799 | Ph.D. Research Thesis |
| Semester 6 | |
| ML799 | Ph.D. Research Thesis |
| Semester 7 | |
| ML799 | Ph.D. Research Thesis |
| Semester 8 | |
| ML799 | Ph.D. Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Doctor of Philosophy in Machine Learning is 60 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|--|--------------|
| Core | 4 | 16 |
| Electives | 2 | 8 |
| Research thesis | 1 | 36 |
| Internship | At least one internship of up to four-months duration must be satisfactorily completed as a graduation requirement | 0 |

Program courses

Core courses

The Doctor of Philosophy in Machine Learning is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and ML701 as mandatory courses. They can select either ML702 or ML703 along with two electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning OR | 4 |
| ML703 | Probabilistic and Statistical Interface | 4 |

Elective courses

Students will select a minimum of two elective courses, with a total of eight (or more) credit hours. One must be selected from List A and one must be selected from List A or B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Doctor of Philosophy in Machine Learning are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| ML702 | Advanced Machine Learning | 4 |
| ML703 | Probabilistic and Statistical Inference | 4 |
| ML704 | Machine Learning Paradigms | 4 |
| ML705 | Topics in Advanced Machine Learning | 4 |
| ML706 | Advanced Probabilistic and Statistical Inference | 4 |

| List B | Course title | Credit hours |
|--------|--|--------------|
| AI702 | Deep Learning | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV704 | Advanced Techniques in Low-Level Vision | 4 |
| CV705 | Advanced 3D Computer Vision | 4 |
| CV706 | Advanced Techniques in Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |
| NLP701 | Natural Language Processing | 4 |
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |
| NLP704 | Deep Learning for Language Processing | 4 |
| NLP705 | Topics in Advanced Natural Language Processing | 4 |
| NLP706 | Advanced Speech Processing | 4 |

Research thesis

The Ph.D. research thesis exposes students to cutting-edge and unsolved research problems in the field of machine learning, where they are required to propose new solutions and significantly contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of three to four years. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|-------|-----------------------|--------------|
| ML799 | Ph.D. Research Thesis | 36 |
| | Research Training | 0 |

Doctor of Philosophy in Natural Language Processing

National Qualifications Framework - Five strands

The Program Learning Outcomes (PLOs) are aligned with [Emirates Qualifications Framework](#) and as such are divided in the following learning outcomes strands: Knowledge (K), Skills (S), Autonomy and responsibility (AR), Self-development (SD), and Role in context (RC).

Program learning outcomes

Upon completion of the program requirements, the graduate will be able to:

- 1 Develop a deep and comprehensive understanding of cutting-edge NLP algorithms with applications to real-life scenarios (Knowledge)
- 2 Implement, evaluate, and benchmark existing state-of-the-art in NLP scholarly publications and weigh- in on their respective pros and cons (Knowledge, Skills, Autonomy and responsibility)
- 3 Grow capabilities to identify open research problems, the gaps in the existing body of knowledge, and formulate new research questions (Knowledge, and Role in context)
- 4 Independently develop innovative solutions, through extensive research and scholarship, to resolve research problems in high-impact real-life applications of NLP (Skills, Role in context, and Autonomy and responsibility)
- 5 Demonstrate expert knowledge and highly specialized cognitive and creative skills in NLP to deliver state-of-the-art solutions to existing open research problems (Skills)
- 6 Pursue an NLP project either independently, or as part of a team in a collegial manner, with minimal supervision (Autonomy and responsibility, and Self-development)
7. Initiate, manage, and complete research manuscripts that demonstrate expert self-evaluation and advanced skills in scientifically communicating highly complex ideas (Role in context and Self-development)
8. Develop highly sophisticated skills in initiating, managing, and completing multiple project reports and critiques, on a variety of NLP problems, that demonstrate expert understanding and advanced skills in communicating highly complex ideas (Autonomy and responsibility, and Role in context)



The PLOs are mapped to a level 10 qualification according to the 5 strands of learning outcomes as per the National Qualifications Framework set by the UAE National Qualifications Authority (NQA) and the Ministry of Education (MoE):

| Program Learning Objectives | Knowledge | Skill | Aspects of competence | | |
|-----------------------------|-----------|--------|-----------------------------|-----------------|------------------|
| | | | Autonomy and responsibility | Role in context | Self-development |
| PL01 | K-1L10 | - | - | - | - |
| PL02 | K-2L10 | S-1L10 | - | RC-1L10 | - |
| PL03 | K-3L10 | - | - | RC-2L10 | - |
| PL04 | - | S-2L10 | AR-1L10 | RC-3L10 | - |
| PL05 | - | S-3L10 | - | - | - |
| PL06 | - | - | AR-2L10 | - | SD-1L10 |
| PL07 | - | - | - | RC-4L10 | SD-2L10 |
| PL08 | - | - | AR-3L10 | RC-5L10 | - |

Aligning PLOs for Doctor of Philosophy in Natural Language Processing to QF Emirates Level 10 Framework.

Program study plan

The students are expected to complete course work in the first year of degree and focus on the research and thesis writing in the subsequent three years. Students must successfully pass a qualifying exam (QE) at the end of the first year to progress to the research component of the Ph.D. At the end of the second year, which is focused on research, students must present evidence of satisfactory research progress at a candidacy exam (CE) to progress to the final two years of research.

A typical study plan is as follows:

| | |
|-------------------|---|
| Semester 1 | |
| AI701 | Foundations of Artificial Intelligence |
| MTH701 | Mathematical Foundations of Artificial Intelligence |
| NLP701 | Natural Language Processing |
| Semester 2 | |
| | + 2 elective from List A |
| | + 1 elective from List A or B |
| Summer | |
| | Internship (up to four months) |
| Semester 3 | |
| NLP799 | Ph.D. Research Thesis |
| | Research Training |
| Semester 4 | |
| NLP799 | Ph.D. Research Thesis |
| Semester 5 | |
| NLP799 | Ph.D. Research Thesis |
| Semester 6 | |
| NLP799 | Ph.D. Research Thesis |
| Semester 7 | |
| NLP799 | Ph.D. Research Thesis |
| Semester 8 | |
| NLP799 | Ph.D. Research Thesis |

Program degree requirements

Completion requirements:

The minimum degree requirements for the Doctor of Philosophy in Natural Language Processing is 60 credits, distributed as follows:

| Core courses | Number of courses | Credit hours |
|-----------------|--|--------------|
| Core | 3 | 12 |
| Electives | 3 | 12 |
| Research thesis | 1 | 36 |
| Internship | At least one internship of up to four-months duration must be satisfactorily completed as a graduation requirement | 0 |

Program courses

Core courses

The Doctor of Philosophy in Natural Language Processing is primarily a research-based degree. The purpose of coursework is to equip students with the right skillset, so they can successfully accomplish their research project (thesis). Students are required to take AI701, MTH701 and NLP701 as mandatory courses. They can select three electives. To accommodate a diverse group of students, coming from different academic backgrounds, students have been provided with flexibility in course selection. The decision on the courses to be taken will be made in consultation with students' supervisory panel, which will comprise of two or more faculty members. Essentially, the student's supervisory panel will help design a personalized coursework plan for each individual student, by looking at their prior academic track record and experience, and the planned research project. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

The following core courses must be taken by all students:

| Code | Course title | Credit hours |
|--------|---|--------------|
| AI701 | Foundations of Artificial Intelligence | 4 |
| MTH701 | Mathematical Foundations of Artificial Intelligence | 4 |
| NLP701 | Natural Language Processing | 4 |

Elective courses

Students will select a minimum of three elective courses, with a total of 12 (or more) credit hours. Two must be selected from List A and one must be selected from List A or B based on interest, proposed research thesis, and career aspirations, in consultation with their supervisory panel. The elective courses available for the Doctor of Philosophy in Natural Language Processing are listed in the tables below. For full descriptions of courses, please refer to *Appendix 1: Course descriptions*.

| List A | Course title | Credit hours |
|--------|--|--------------|
| NLP702 | Advanced Natural Language Processing | 4 |
| NLP703 | Speech Processing | 4 |
| NLP704 | Deep Learning for Language Processing | 4 |
| NLP705 | Topics in Advanced Natural Language Processing | 4 |
| NLP706 | Advanced Speech Processing | 4 |

| List B | Course title | Credit hours |
|--------|--|--------------|
| AI702 | Deep Learning | 4 |
| CV701 | Human and Computer Vision | 4 |
| CV702 | Geometry for Computer Vision | 4 |
| CV703 | Visual Object Recognition and Detection | 4 |
| CV704 | Advanced Techniques in Low-Level Vision | 4 |
| CV705 | Advanced 3D Computer Vision | 4 |
| CV706 | Advanced Techniques in Visual Object Recognition and Detection | 4 |
| CV707 | Digital Twins | 4 |
| DS701 | Data Mining | 4 |
| DS702 | Big Data Processing | 4 |
| HC701 | Medical Imaging: Physics and Analysis | 4 |
| ML701 | Machine Learning | 4 |
| ML702 | Advanced Machine Learning | 4 |
| ML703 | Probabilistic and Statistical Inference | 4 |
| ML704 | Machine Learning Paradigms | 4 |
| ML705 | Topics in Advanced Machine Learning | 4 |
| ML706 | Advanced Probabilistic and Statistical Inference | 4 |
| ML707 | Smart City Services and Applications | 4 |
| ML708 | Trustworthy Artificial Intelligence | 4 |
| MTH702 | Optimization | 4 |

Research thesis

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. For further details on the research thesis, please refer to *Appendix 1: Course descriptions*.

| Code | Course name | Credit hours |
|--------|-----------------------|--------------|
| NLP799 | Ph.D. Research Thesis | 36 |
| | Research Training | 0 |

Appendix 1:

Course descriptions

Teaching plan of courses throughout a semester:

Two lectures per week, each lecture of 1.5 hours, one lab per week of two hours.

AI701: Artificial Intelligence (4CR)

| | |
|-----------------------------|--------------|
| Pre-requisites: | None |
| Core course for: | All programs |
| Elective course for: | None |

This course provides the students a comprehensive introduction to modern artificial intelligence, and some of its representation applications. The students will be familiarized with both the historical and recent AI techniques that have proved successful in building practical systems.

AI702: Deep Learning (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive overview of different concepts and methods related to deep learning. Students will first learn the foundations of deep learning, after which they will be introduced to a series deep models: convolutional neural networks, autoencoders, recurrent neural network, and deep generative models. Students will work on case studies of deep learning in different fields such as computer vision, medical imaging, natural language processing, etc.

CV699: Computer Vision Master's Research Thesis (12CR)

| | |
|-----------------------------|--------------------------|
| Pre-requisites: | Coursework |
| Core course for: | M.Sc. in Computer Vision |
| Elective course for: | None |

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. Master's thesis research helps train graduates to pursue more advanced research in their Ph.D. degree. Further, it enables graduates to independently pursue an industrial project involving a research component.

CV701: Human and Computer Vision (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | None |
| Core course for: | M.Sc. in Computer Vision; Ph.D. in Computer Vision |
| Elective course for: | M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive introduction to the basics of human visual system and color perception, image acquisition and processing, linear and nonlinear image filtering, image features description and extraction, classification and segmentation strategies. Moreover, students will be introduced to quality assessment methodologies for computer vision and image processing algorithms.

CV702: Geometry for Computer Vision (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | CV701: Human and Computer Vision (or equivalent) |
| Core course for: | M.Sc. in Computer Vision; Ph.D. in Computer Vision |
| Elective course for: | M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

The course provides a comprehensive introduction to the concepts, principles and methods of geometry-aware computer vision which helps in describing the shape and structure of the world. In particular, the objective of the course is to introduce the formal tools and techniques that are necessary for estimating depth, motion, disparity, volume, pose and shapes in 3D scenes.

CV703: Visual Object Recognition and Detection (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | CV701: Human and Computer Vision (or equivalent) |
| Core course for: | M.Sc. in Computer Vision; Ph.D. in Computer Vision |
| Elective course for: | M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive overview of different concepts and methods related to visual object recognition and detection. In particular, the students will learn a large family of successful and recent state-of-the-art architectures of deep neural networks to solve the tasks of visual recognition, detection and tracking.

CV704: Advanced Techniques in Low-Level Vision (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | CV701: Human and Computer Vision (or equivalent) |
| Core course for: | None |
| Elective course for: | Ph.D. in Machine Learning; Ph.D. in Natural Language Processing; M.Sc. in Computer Vision; Ph.D. in Computer Vision |

This course provides focused coverage of the following special topics: 1) image restoration and enhancement, 2) hand-crafted features, and 3) visual object tracking. The students will develop skills to critique the state-of-the-art works on the aforementioned problems. Moreover, students will be required to implement papers with the aims of, (1) reproducing results reported in the papers and (2) improving performance of the published works. This course builds upon concepts from Human and Computer Vision (course code: CV701) and assumes familiarity with fundamental concepts in image processing.

CV705: Advanced 3D Computer Vision (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | CV702: Geometry for Computer Vision |
| Core course for: | None |
| Elective course for: | Ph.D. in Machine Learning; Ph.D. in Natural Language Processing; M.Sc. in Computer Vision; Ph.D. in Computer Vision |

The course exercises an in-depth coverage of special topics in 3D computer vision. The students will be able to critique the state-of-the-art methods on 3D reconstruction, 3D visual scene understanding and multi-view stereo. In addition, students will have to implement papers to accomplish the following goals: (1) reproduce results reported in the papers, and (2) improve the performance of published peer-reviewed works. This course builds upon concepts from Human and Computer Vision (CV701), Geometry for Computer Vision (CV702) and assumes that the students are familiar with the basic concepts of machine learning and optimization.

CV706: Advanced Techniques in Visual Object Recognition and Detection (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | CV703: Visual Object Recognition and Detection |
| Core course for: | None |
| Elective course for: | Ph.D. in Machine Learning; Ph.D. in Natural Language Processing; M.Sc. in Computer Vision; Ph.D. in Computer Vision |

This course provides focused coverage of special topics on object recognition and detection. The students will develop skills to critique the state-of-the-art works on visual object recognition and detection. Moreover, students will be required to implement papers with the following aims: (1) reproduce results reported in the seminal research papers, and (2) improve the performance of the published works. This course builds upon concepts from Human and Computer Vision (CV701), Visual Object Recognition and Detection (CV703) and assumes familiarity with fundamental concepts in machine learning and optimization.

CV707: Digital Twins (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive introduction to digital twins. Students will learn about digital twin technology, its common applications, and benefits, how to create a digital twin for predictive analytics using sensory data fusion, primary predictive modeling methods and how to implement and interacts with a digital twin using different platforms.

CV799: Computer Vision Ph.D. Research Thesis (36CR)

| | |
|-----------------------------|--------------------------|
| Pre-requisites: | Coursework |
| Core course for: | Ph.D. in Computer Vision |
| Elective course for: | None |

Ph.D. thesis research exposes students to cutting-edge and unsolved research problems, where they are required to propose new solutions and significantly contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of three to four years. Ph.D. thesis research helps train graduates to become leaders in their chosen area of research through partly-supervised study, eventually transforming them into researchers who can work independently or interdependently to carry out cutting-edge research.

DS701: Data Mining (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course is an introductory course on data mining, which is the process of discovering patterns in large data sets involving methods at the intersection of machine learning, statistics, and database systems.

DS702: Big Data Processing (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course is an introductory course on big data processing, which is the process of analyzing and utilizing big data. The course involves methods at the intersection of parallel computing, machine learning, statistics, database systems, etc.

HC701: Medical Imaging: Physics and Analysis (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | MTH701: Mathematical Foundations of Artificial Intelligence |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a graduate-level introduction to the principles and methods of medical imaging, with thorough grounding in the physics of the imaging problems. This course covers the fundamentals of X-ray, CT, MRI, ultrasound, and PET imaging. In addition, the course provides an overview of 3D geometry of medical images and the two classic problems in analysis of medical images: segmentation and registration.

ML699: Machine Learning Master's Research Thesis (12CR)

| | |
|-----------------------------|---------------------------|
| Pre-requisites: | Coursework |
| Core course for: | M.Sc. in Machine Learning |
| Elective course for: | None |

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. Master's thesis research helps train graduates to pursue more advanced research in their Ph.D. degree. Further, it enables graduates to independently pursue an industrial project involving research component.

ML701: Machine Learning (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | None |
| Core course for: | M.Sc. in Machine Learning; Ph.D. in Machine Learning; |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Natural Language Processing |

This course provides a comprehensive introduction to machine learning. It builds upon fundamental concepts in mathematics, specifically probability and statistics, linear algebra, and calculus. Students will learn about supervised and unsupervised learning, various learning algorithms, and basics of learning theory, graphical models, and reinforcement learning.

ML702: Advanced Machine Learning (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | ML701: Machine Learning or equivalent course |
| Core course for: | M.Sc. in Machine Learning; Ph.D. in Machine Learning |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Natural Language Processing |

This course focuses on recent advances in machine learning and on developing skills for performing research to advance the state of the art in machine learning. Students will learn concepts in kernel methods, statistical complexity, statistical decision theory, computational complexity of learning algorithms, and reinforcement learning. This course builds upon concepts from Machine Learning (ML701) and assumes familiarity with fundamental concepts in machine learning, optimization, and statistics.

ML703: Probabilistic and Statistical Inference (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | MTH701: Mathematical Foundations of Artificial Intelligence |
| Core course for: | M.Sc. in Machine Learning; Ph.D. in Machine Learning; |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Natural Language Processing |

Probabilistic and statistical inference is the process of drawing useful conclusions about data populations or scientific truths from uncertain and noisy data. This course will cover the different modes of performing inference including statistical modelling, data-oriented strategies and explicit use of designs and randomization in analyses. Furthermore, it will provide an in-depth treatment to the broad theories (frequentists, Bayesian, likelihood) and numerous practical complexities (missing data, observed and unobserved confounding, biases) for performing inference. This course presents the fundamentals of statistical and probabilistic inference and shows how these fundamental concepts are applied in practice.

ML704: Machine Learning Paradigms (4CR)

| | |
|-----------------------------|---|
| Pre-requisites: | ML701: Machine Learning or equivalent course |
| Core course for: | None |
| Elective course for: | Ph.D. in Computer Vision; Ph.D. in Natural Language Processing; M.Sc. in Machine Learning; Ph.D. in Machine Learning |

This course focuses on machine learning and on developing skills for performing research to the state of the art in machine learning. This course builds upon concepts from Machine Learning (ML701) and assumes familiarity with fundamental concepts in optimization, and statistics. Students will learn about methods in supervised, unsupervised learning, semi-supervised learning, transfer learning, multi-task learning, online learning, active learning, meta learning, and variational inference. The course will discuss variants of learning algorithms in various learning paradigms mentioned above.

ML705: Topics in Advanced Machine Learning (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | MTH701: Mathematical Foundations of Artificial Intelligence and ML702: Advanced Machine Learning |
| Core course for: | None |
| Elective course for: | Ph.D. in Computer Vision; Ph.D. in Natural Language Processing Ms.C. in Machine Learning; Ph.D. in Machine Learning |

This course focuses on recent advances in machine learning and on developing skills for performing research to advance the state of the art in machine learning. This course builds upon concepts from Machine Learning (ML701) and Advanced Machine Learning (ML702) and additionally assumes familiarity with fundamental concepts in optimization, and math. The course covers advanced topics in statistical machine learning, unsupervised learning, high-dimensional statistics, and reinforcement learning. Students will be engaged through coursework, assignments, and projects.

ML706: Advanced Probabilistic and Statistical Inference (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | MTH701: Mathematical Foundations of Artificial Intelligence and ML703: Probabilistic and Statistical Inference |
| Core course for: | None |
| Elective Course for: | Ph.D. in Computer Vision; Ph.D. in Natural Language Processing Ms.C. in Machine Learning; Ph.D. in Machine Learning |

The study of probabilistic and statistical inference deals with the process of drawing useful conclusions about data populations or scientific truths from uncertain and noisy data. This course will cover some highly specialized topics related to statistical inference and their application to real-world problems. The main topics covered in this course are latent variable learning, kernel methods and approximate probabilistic inference strategies. This course will provide an in-depth treatment to various learning techniques (likelihood, Bayesian and max-margin) and numerous practical complexities (missing data, observed and unobserved confounding, biases) for performing inference.

ML707: Smart City Services and Applications (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective Course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive introduction to using AI/ML in smart city services and applications. The course will start by reviewing basic concepts. Students will learn how to apply AI/ML to develop, design and improve smart city services. They will be able to demonstrate an understanding of the smart city concept, applications, requirements and system design. They will develop capabilities of integrating emerging technologies in smart city components and be able to implement them. In addition, they will gain knowledge in applying security, data analytics, Internet of Things (IoT), communications and networking and work on case studies solutions for smart city infrastructures.

ML708: Trustworthy Artificial Intelligence (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides students with a comprehensive introduction to various trust-related issues in applications of artificial intelligence and machine learning. Students will learn about attacks against computer systems that use machine learning, as well as defense mechanisms to mitigate such attacks.

ML799: Machine Learning Ph.D. Research Thesis (36CR)

| | |
|-----------------------------|--------------------------------|
| Pre-requisites: | Coursework and master's degree |
| Core course for: | Ph.D. in Machine Learning |
| Elective course for: | None |

Ph.D. thesis research exposes students to cutting-edge and unsolved research problems, where they are required to propose new solutions and significantly contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of three to four years. Ph.D. thesis research helps train graduates to become leaders in their chosen area of research through partly supervised study, eventually transforming them into researchers who can work independently or interdependently to carry out cutting-edge research.

MTH701: Mathematical Foundations of Artificial Intelligence (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |
| Elective course for: | None |

This course provides a comprehensive mathematical foundation for the field of artificial intelligence. It builds upon fundamental concepts in linear algebra, probability theory, statistics, and calculus. Students will learn how these mathematical concepts can be used to solve problems frequently encountered in AI applications.

MTH702: Optimization (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a graduate-level introduction to the principles and methods of optimization, with thorough grounding in the mathematical formulation of the optimization problems. The course covers fundamentals of convex functions and sets, first order and second order optimization methods, problems with equality and/or inequality constraints, and other advanced problems.

NLP699: Natural Language Processing Master's Research Thesis (12CR)

| | |
|-----------------------------|--------------------------------------|
| Pre-requisites: | Coursework |
| Core course for: | M.Sc. in Natural Language Processing |
| Elective Course for: | None |

Master's thesis research exposes students to an unsolved research problem, where they are required to propose new solutions and contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of one year. Master's thesis research helps train graduates to pursue more advanced research in their Ph.D. degree. Further, it enables graduates to independently pursue an industrial project involving research component.

NLP701: Natural Language Processing (4CR)

| | |
|-----------------------------|--|
| Pre-requisites: | None |
| Core course for: | M.Sc. in Natural Language Processing; Ph.D. in Natural Language Processing |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; Ph.D. in Computer Vision; Ph.D. in Machine Learning |

This course provides a comprehensive introduction to natural language processing (NLP). It builds upon fundamental concepts in mathematics, specifically probability and statistics, linear algebra, and calculus, and assumes familiarity with programming.

NLP702: Advanced Natural Language Processing (4CR)

| | |
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| Pre-requisites: | None |
| Core course for: | M.Sc. in Natural Language Processing; Ph.D. in Natural Language Processing |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; Ph.D. in Computer Vision; Ph.D. in Machine Learning |

This course provides a comprehensive introduction to natural language processing (NLP). It builds upon fundamental concepts in NLP and assumes familiarization with mathematical concepts and programming.

NLP703: Speech Processing (4CR)

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| Pre-requisites: | None |
| Core course for: | None |
| Elective course for: | M.Sc. in Computer Vision; M.Sc. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing |

This course provides a comprehensive introduction to speech processing. It builds upon fundamental concepts in speech processing and assumes familiarization with mathematical and signal processing concepts.

NLP704: Deep Learning for Language Processing (4CR)

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| Pre-requisites: | NLP701: Natural Language Processing |
| Core course for: | None |
| Elective course for: | Ph.D. in Computer Vision; Ph.D. in Machine Learning; M.Sc. in Natural Language Processing; Ph.D. in Natural Language Processing |

This course focuses on recent advances in natural language processing (NLP) and on developing skills for performing research to advance the state-of-the-art in NLP. This course builds upon concepts from Natural Language Processing (NLP701) and assumes familiarity with fundamental concepts in word embedding, information extraction, and machine translation.

NLP705: Topics in Advanced Natural Language Processing (4CR)

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| Pre-requisites: | NLP701: Natural Language Processing |
| Core course for: | None |
| Elective course for: | Ph.D. in Computer Vision; Ph.D. in Machine Learning; Ph.D. in Natural Language Processing; M.Sc. in Natural Language Processing; |

This course focuses on recent advances in natural language processing (NLP) and on developing skills for performing research to advance the state-of-the-art in NLP. This course builds upon concepts from Natural Language Processing (course code: NLP701) and assumes familiarity with fundamental concepts in question answering, text summarization, and opinion mining.

NLP706: Advanced Speech Processing (4CR)

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| Pre-requisites: | NLP 703: Speech Processing |
| Core course for: | None |
| Elective course for: | Ph.D. in Computer Vision; Ph.D. in Machine Learning Ph.D. in Natural Language Processing; M.Sc. in Natural Language Processing; |

This course focuses on developing skills for performing research to advance the state-of-the-art in speech processing. This course builds upon concepts from Speech Processing (NLP703) and assumes familiarity with fundamental concepts in speech recognition, speech synthesis, and speaker identification.

NLP799: Natural Language Processing Ph.D. Research Thesis (36CR)

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| Pre-requisites: | Coursework and master's degree |
| Core Course for: | Ph.D. in Natural Language Processing |
| Elective Course for: | None |

Ph.D. thesis research exposes students to cutting-edge and unsolved research problems, where they are required to propose new solutions and significantly contribute towards the body of knowledge. Students pursue an independent research study, under the guidance of a supervisory panel, for a period of three to four years. Ph.D. thesis research helps train graduates to become leaders in their chosen area of research through partly supervised study, eventually transforming them into researchers who can work independently or interdependently to carry out cutting-edge research.



Appendix 2: Definitions

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| Academic integrity | Refers to ethical behavior and principles such as honesty, responsibility, respect and fairness that guides conduct in an academic setting. |
| Non-academic research | Is any type of non-peer reviewed research activity such as; outreach to the broader community, engagement with government agencies and industrial partners |
| Academic standing | Determined by regulations governing good standing, probation, and dismissal. |
| Academic year | The period of time beginning with the first day of classes of a fall semester and the final day of the spring semester. |
| Add and drop | A period of time at the beginning of each semester when students can adjust schedules by dropping or adding course/s. |
| Supervisor | Faculty member/administrator assigned to counsel students on academic or other matters. The student is called an “advisee”. |
| Master’s degree | Graduate degree in which a student completes six courses in the first year and thesis requirements in the second year which adds up to 24 months. |
| Doctor’s degree | Graduate degree in which a student completes six courses in the first year and thesis requirements in the following three years which adds up to 36 months. |
| Academic calendar | Annual listing of all official important dates and deadlines for the academic year. |
| Course | A unit of study that may utilize lecture, discussion, laboratory, research, recitation, seminar, workshop, studio, independent study, internship or other similar teaching formats to facilitate learning for a student. |
| Course load | Total credits for which a student is registered in a given semester or a faculty member is assigned to teach. |
| Credit | A credit represents one hour of time in class per week over a semester of 17 weeks. This implies that one academic credit equates to a -45hour commitment to learning over a semester. |
| Curriculum | A structured set of learning outcomes built in a specified set of courses. |

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| Full-time student | Any admitted student who is eligible for MBZUAI scholarship and should be registered on full course load each semester. |
| Dismissal | The involuntary separation of a student from MBZUAI for unacceptable conduct or unsatisfactory academic achievement. A student is academically dismissed when he/she fails to achieve academic good standing in two consecutive semesters. |
| MBZUAI - related research projects and activities | Research projects and activities undertaken by MBZUAI faculty and researchers that will be branded as part of the MBZUAI activities. The name of individual MBZUAI faculty members and/or researchers can but does not need to, be associated with the activity or project. |
| Educational records | Records directly related to the education and academic performance of a student that are maintained by the Registrar's Office. |
| Elective course | A course selected at a student's discretion after consultation with the academic Supervisor. |
| Good standing | Academic designation applied to a graduate student who has achieved a cumulative GPA of 3.0 or higher. |
| GPA | Grade point average of the grades earned in MBZUAI courses. |
| Grade points | The numerical value associated with each grade. |
| Academic probation | Status of any graduate student who has less than 3.0 cumulative GPA. |
| ID card | University student identification card providing and controlling access to University facilities and services. |
| Prerequisite | A course required to be completed prior to registration in an advanced course. |
| Academic probation | Status of any graduate student who has less than 3.0 cumulative GPA. |
| Registration | The process of enrolling students in classes. |

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| Reinstatement | The exceptional act of approving an academically dismissed student to resume studies following dismissal. Academically dismissed students who have been away longer than one semester may not apply for reinstatement. |
| Readmission | The act of admitting a student back into the MBZUAI through the admissions office after an interruption of studies. Academically dismissed students are not eligible for readmission. |
| Required courses | Courses necessary for the completion of a particular program. |
| Classes schedule | A list of courses offered during a semester that specifies the days, hours, and locations of classes and the names of the instructors. |
| Student schedule | A listing of courses a student is taking in a given semester that specifies the dates, hours, locations of classes and the names of the instructors. |
| Suspension | The involuntary separation of a student from the University for unacceptable conduct. Suspension extends from one semester to a maximum of one calendar year. |
| Syllabus | Descriptive outline and summary of topics to be covered in a course offered at MBZUAI, as per the standards of CAA. |
| Semester | Either of the two periods of instruction into which the academic year is divided. |
| Transcript | A student's historical academic record. |
| Transfer credit | Credit from course work completed at another institution that is accepted at MBZUAI and which may or may not be applicable toward a specific MBZUAI degree. |
| Tuition | Fees charged for courses each semester. |
| Visiting student | A student enrolled at another accredited institution who receives permission to register at MBZUAI for up to two semesters to earn credit to transfer back to his or her home institution. |
| Withdrawal | The act of officially leaving MBZUAI for reasons other than graduation. |

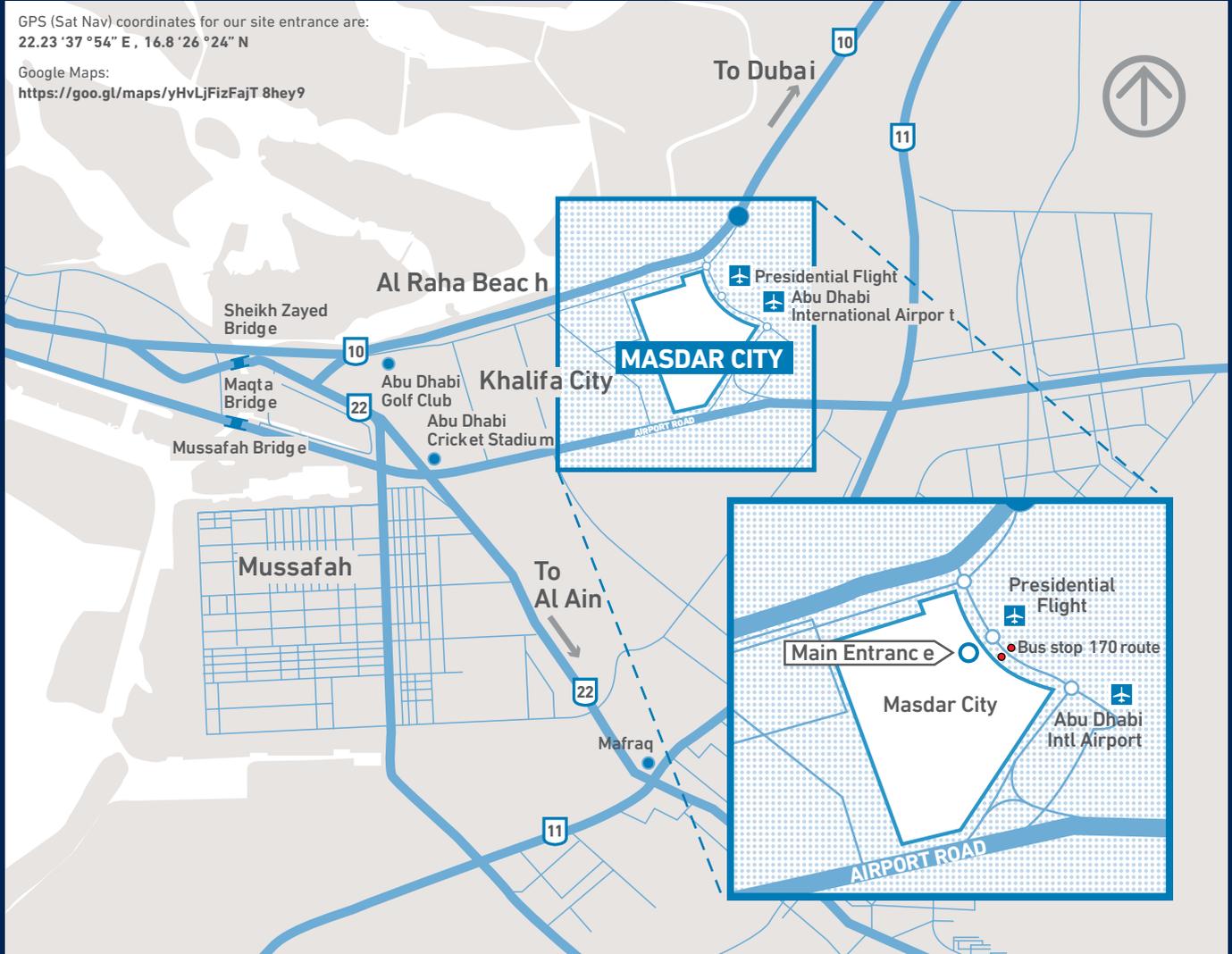
Appendix 3: Faculty

You may view the faculty directory at mbzuai.ac.ae/faculty-directory

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| Professor Eric Xing | President and Professor of Computer Science and Machine Learning |
| Professor Fakhreddine Karray | Provost and Professor of Machine Learning |
| Professor Michael Jordan | Laureate Professor and Honorary Program Director |
| Professor Sir Michael Brady | Adjunct Distinguished Professor |
| Professor Timothy Baldwin | Professor, Associate Provost for Academic and Student Affairs and Acting Department Chair of Natural Language Processing |
| Dr. Kun Zhang | Associate Professor of Machine Learning and Director of CIAI |
| Professor Le Song | Professor and Department Chair of Machine Learning |
| Professor Abdulmotaleb El Saddik | Professor and Acting Department Chair of Computer Vision |
| Professor Preslav Nakov | Professor and Acting Deputy Chair of Natural Language Processing |
| Professor Mohsen Guizani | Professor of Machine Learning |
| Dr. Fahad Khan | Associate Professor of Computer Vision |
| Dr. Salman Khan | Associate Professor of Computer Vision |
| Dr. Hao Li | Associate Professor of Computer Vision |
| Dr. Karthik Nandakumar | Associate Professor of Computer Vision |
| Dr. Martin Takac | Associate Professor of Machine Learning |
| Dr. Hanan Al Darmaki | Assistant Professor of Natural Language Processing |
| Dr. Rao Muhammad Anwer | Assistant Professor of Computer Vision |

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| Dr. Hisham Cholakkal | Assistant Professor of Computer Vision |
| Dr. Hang Dai | Assistant Professor of Computer Vision |
| Dr. Bin Gu | Assistant Professor of Machine Learning |
| Dr. Qirong Ho | Assistant Professor of Machine Learning |
| Dr. Samuel Hovarth | Assistant Professor of Machine Learning |
| Dr. Muhammad Haris Khan | Assistant Professor of Computer Vision |
| Dr. Shangsong Liang | Assistant Professor of Machine Learning |
| Dr. Huan Xiong | Assistant Professor of Machine Learning |
| Dr. Zhiqiang Xu | Assistant Professor of Machine Learning |
| Dr. Mohammad Yaqub | Assistant Professor of Computer Vision |
| Professor Najwa Aaraj | Adjunct Professor of Machine Learning |
| Professor Merouane Debbah | Adjunct Professor of Machine Learning |
| Professor Eric Moulines | Adjunct Professor of Machine Learning |
| Dr. Shahrukh Hashmi | Adjunct Associate Professor of Computer Vision |
| Dr. Shijian Lu | Adjunct Associate Professor of Computer Vision |
| Dr. Pengtao Xie | Adjunct Professor of Machine Learning |
| Dr. Yuanzhi Li | Affiliated Associate Professor of Computer Vision |
| Dr. Shady Shehata | Affiliated Associate Professor of Natural Language Processing |
| Dr. Min Xu | Affiliated Associate Professor of Computer Vision |

Where to find us



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