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FACULTY OF MEDICINE

<https://medicine.um.edu.my/undergraduate>

Bachelor of
**BIOMEDICAL
SCIENCE**

FACULTY OF MEDICINE
UNIVERSITI MALAYA

More Information



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WELCOME TO THE FACULTY OF MEDICINE, UNIVERSITI MALAYA



Salam Sejahtera and warm greetings to all the new undergraduate students. Welcome to the Faculty of Medicine, Universiti Malaya.

Congratulations on securing a place at one of Malaysia's premier institutions for health and biomedical sciences. You have earned your spot through dedication, determination, and the desire to make a meaningful impact in the world. We are honoured to welcome you into our family.

Each of you has chosen a unique and vital path in healthcare. Whether your future lies in the hospital, the clinic, the laboratory, or the community, your contribution will be essential to the health and well-being of society. At the heart of it all is one common goal, to serve humanity with knowledge, skill, and compassion.

Your journey ahead will be transformative. You will gain deep scientific knowledge, develop critical thinking skills, and cultivate the values that underpin ethical and compassionate decision making and care. You will be challenged to grow as a person, intellectually and professionally.

At Universiti Malaya, we believe in education that is holistic, integrative, and future-focused. You will be part of an authentic environment that encourages exposures to real-world problems, interprofessional learning, research enquiries and community engagement. You will explore the frontiers of knowledge, from molecular science and diagnostics to patient-centred care and population health. And while this journey will be rigorous, you will not walk it alone. You will be supported by dedicated educators, inspiring mentors, and a community of peers who will learn and grow alongside you.

There will be late nights, demanding assignments, and perhaps moments of uncertainty. But there will also be great joys in discovering your calling, as you touch lives and form friendships that last a lifetime. Lean into the challenges, trust the process, and remember why you chose to begin this journey in the first place.

Biomedical science students, your role in understanding disease, advancing diagnostics, and driving innovation is indispensable to the health system of the future. You will not just aid in diagnosis and treatment, but more importantly create precision intervention in prevention of diseases.

Medical students, you carry the responsibility and privilege of caring for others at their most vulnerable. While you will be trained to treat the ill, as future-ready clinicians, you will be exposed to new frontiers of medicine that prevent and protect the well.

Together, you form the backbone of a health ecosystem that must be collaborative, resilient, and ethical. And in all this, you must remember to protect the planet too and ensure its sustainability. So, wear your scrubs and white coats with pride, but also with humility and purpose. Be open, be kind, and be brave. The world needs more thinkers, healers, protectors and changemakers like you.

Once again, welcome to the Faculty of Medicine, Universiti Malaya. We are proud to have you with us, and we look forward to witnessing your journey unfold.

Thank you.

PROFESSOR DATO' DR. YANG FARIDAH ABDUL AZIZ
Dean

MESSAGE FROM THE DEPUTY DEAN (UNDERGRADUATE STUDIES)

On behalf of the Faculty of Medicine and all the academic staff, I extend a very warm welcome to each and every one of you. As a faculty, we would like your education in this institution to be a rewarding and an enriching experience.

This handbook has been prepared as a guide in your quest for success while studying in this faculty. Its content is by no means exhaustive but will be very useful for you especially in your first year.

Being a student in this faculty will take a good 4 - 5 years of your life depending on the programme you enrolled for. To obtain the degree, you must put in a lot of hard work powered by dedication, sacrifice, unwavering determination, perseverance, and commitment to ensure you will become not only a knowledgeable and skilful health care professional but also one who practices holistically. The education in this faculty does not stop upon graduation but merely acts as a steppingstone to a lifetime learning in your chosen field.

Medical education does not only revolve around science but also involves the art of practicing it. We want you to be curious about the programme. Everything that goes on in this institution is a learning opportunity. The skills that you will acquire include good communication skills between you and your colleagues, your patients and their families (when applicable), your teachers and with members of the community. You will find that your teachers, seniors and friends are mentors in your quest to become good and ethical health care professionals, thus providing you the best apprenticeship you could possibly have. The programme in the faculty is also about character building, and you will need to develop appropriate attitudes that contribute to the qualities necessary of your chosen profession.

We hope this guidebook can be fully utilized to your advantage in better understanding the programme and the people entrusted to run it. The Dean's Office along with all its support groups will try to make your journey a memorable and a fruitful one.

We would like to wish you every success in your programme and pray that the years that you will spend in this faculty will be among the best in your life. Again, I wish you a warm welcome and I look forward to meeting you during the course of your study with us.

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UNIVERSITI MALAYA EDUCATIONAL GOALS

Graduates of the Universiti Malaya will be able to:

- 1. Apply knowledge and skills with an innovative mindset towards sustainability and inclusivity.**
- 2. Utilize effective and advanced information management methods to make data-informed decisions and achieve goals in line with the relevant professional standards.**
- 3. Engage effectively with academia, public authorities, industries, and the community, in carrying out professional and social responsibilities.**
- 4. Internalize and demonstrate integrity, resilience, agility, and empathy in personal, professional, and global community engagement. Core values for students:**
 - **Integrity: Truthfulness, honesty**
 - **Resilience: Capacity to withstand**
 - **Agility: Adaptability**
 - **Empathy: Show of respect & understanding**



VISION

A global university impacting the world

MISSION

Pushing the boundaries of knowledge and nurturing aspiring leaders

CORE VALUES

Serving the Nation. Impacting the World



QUALITY POLICY

Universiti Malaya is committed to conduct teaching and learning, carry out research and provide quality services on a global level, generate and enhance knowledge through continuous improvement efforts for the benefit of all stakeholders, especially Universiti Malaya's students.

VISION

To become a Premier Medical Centre that is world renowned and to provide excellent Health Care, Education and Research Programmes delivered with efficiency, sensitivity and enthusiasm.

To be an excellent organization that supports the research needs of the Faculty of Medicine and to achieve world class organization.

MISSION

To be the premier Centre of Excellence in Medical Education.

OUR HISTORY



The Universiti Malaya was established on 8 October 1949 as a national institution to serve the higher educational needs of the Federation of Malaya and of Singapore. In 1960, the Government of the Federation of Malaya indicated that the Kuala Lumpur Division of the Universiti Malaya should become the national University in the Federation with effect from the beginning session 1962/63. Likewise, the Singapore Division should become the national University of Singapore. Steps to achieve the establishment of these two separate universities were finalized during the year 1961 and the Universiti Malaya was established on 1st January 1962. The student population at that time was about 330. Since then, the University has grown and developed rapidly. Today, the student population has grown to almost 30,000.

Establishment of the Faculty of Medicine, University of Malaya

Up to the 1950's, the Faculty of Medicine, University of Singapore, which was known previously as King Edward VII College of Medicine had been the only medical school in Malaya and Singapore. The output of doctors at that time was small: 60 per year. Many Malaysians had to go overseas to seek undergraduate medical education. It was not until 1960 that a determined effort was made to double the intake of students to 120 per year in Singapore. In 1960, a board of studies of the Universiti Malaya was appointed to study the feasibility of establishing a medical school with its own teaching hospital. The board recommended the early establishment of both.

To this end, the Government agreed and the Ministries of Education and of Health provided the necessary capital funds. In 1962, a Dean for the Faculty of Medicine was appointed.



FIRST BATCH- 1969

The first batch of medical students was admitted to the Faculty in 1964. A year earlier, these students, 40 of them, were placed in the Faculty of Science as pre-medical students. Construction of the faculty building began in July 1963, was completed in 10 months, so that the pioneer students were able to begin their course in May 1964. The building programme continued, and the second phase was ready in time for Year II teaching the following May. Throughout this period, planning, building, ordering and receiving of equipment, recruitment of staff, organization of the Faculty, and discussions on the curriculum continued unremittingly. Phase I of the Universiti Malaya Medical Centre consisting of the main block together with podium or “technical box” (operating theatres, radio-diagnostic, accident and emergency, polyclinic, pharmacy, central sterile supply, cafeteria, administration and medical records) was completed in December 1966, and the first wards were opened as of March 1967. Phase II of the Hospital consisting of Paediatric, Maternity and Rehabilitation Units was completed in December 1967, and became functional in March 1968. The total construction period for the Medical Centre consisting of the faculty departments, hospital (740 beds), Hostel for Clinical Students, Nurses Quarters with Nursing School and Central Animal House was three and a half years. Over the past three decades, the medical centre has expanded tremendously, and today it has 900 beds (the number will be increased to 1200 beds after renovation).

Philosophy of the Faculty of Medicine

The philosophy of the Faculty is to mould students to be competent, highly skilled and knowledgeable health professionals, who can work with others as a team, who are caring and concerned about their patients and society, and who can emerge as leaders in their community.

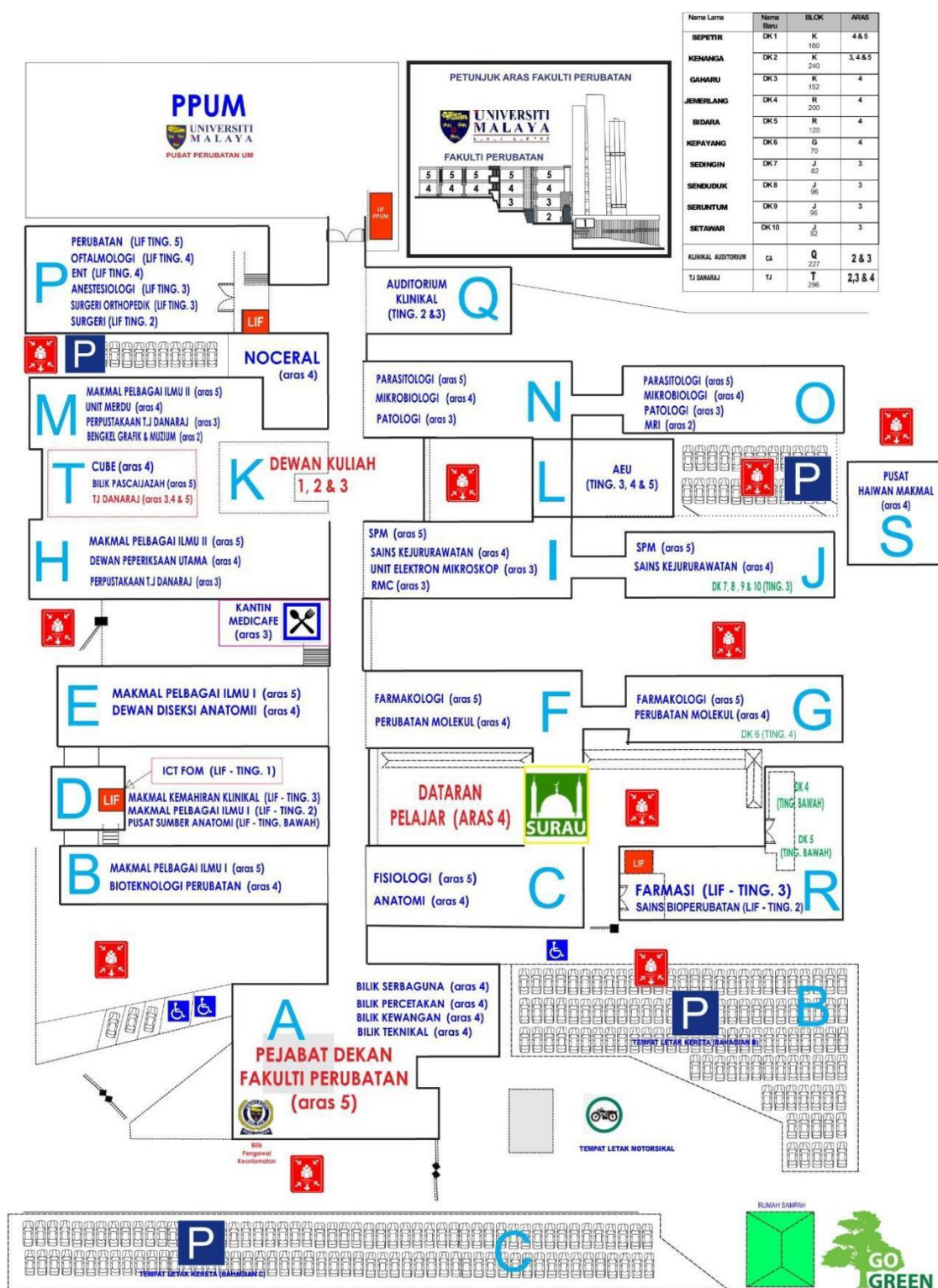
FACILITIES

- | | |
|---|--|
| 1 | TAN SRI DANARAJ MEDICAL LIBRARY |
| 2 | MULTIDISCIPLINARY LABORATORIES |
| 3 | CLINICAL SKILLS LABORATORY |
| 4 | COMPUTER LABORATORIES |
| 5 | MEDICAL ILLUSTRATION AND MULTIMEDIA DEVELOPMENT UNIT |
| 6 | ANATOMY RESOURCE CENTRE |
| 7 | TAN SRI DR. LIM WEE CHAI MEDICAL MUSEUM |

STUDENT SUPPORT

- | | |
|---|----------------------------------|
| 1 | SOCIETIES FOR STUDENTS |
| 2 | FOM'S COUNSELLING SERVICE |
| 3 | MENTOR-MENTEE & ACADEMIC ADVISOR |

FACULTY MAP

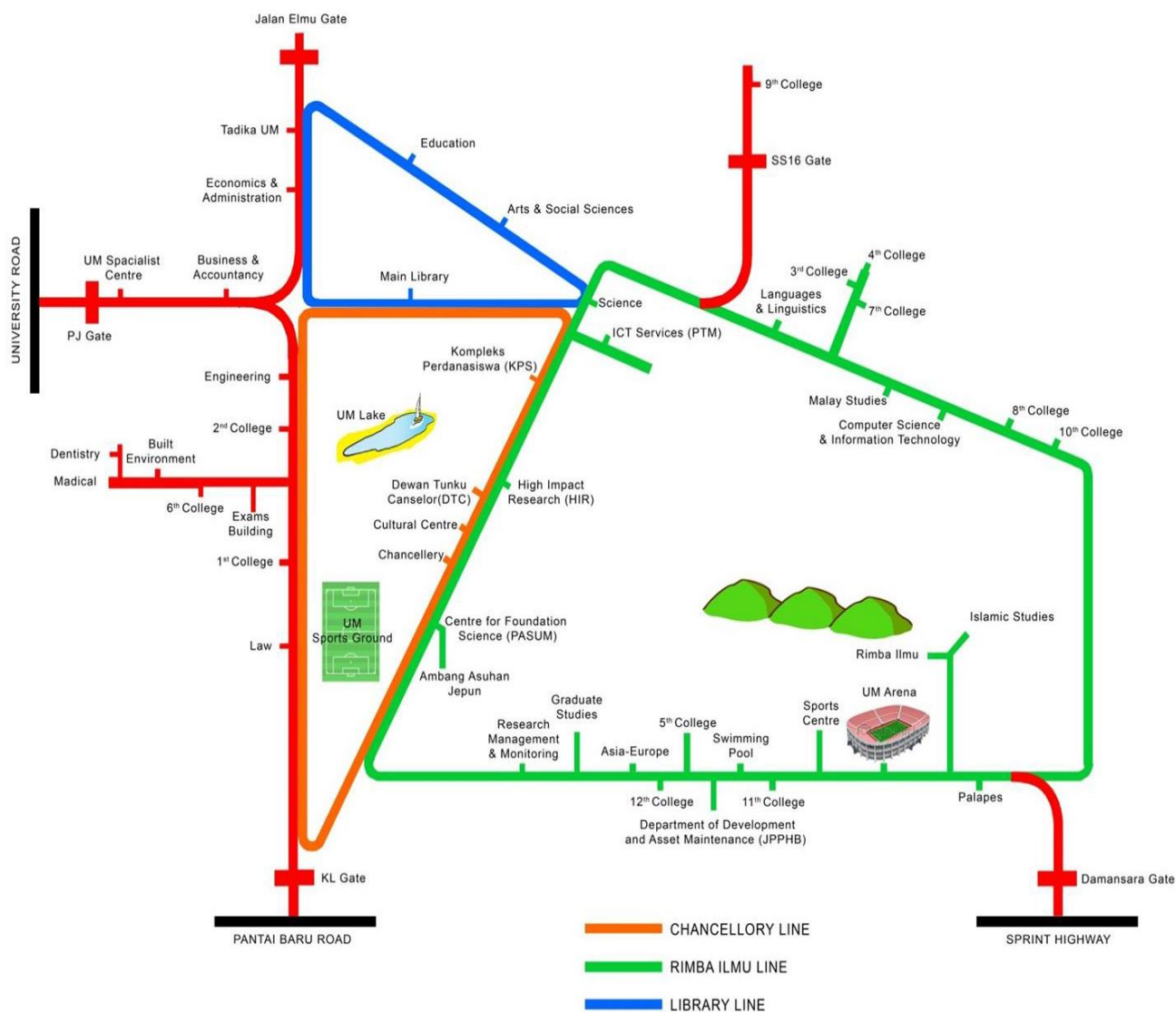


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UNIVERSITI MALAYA



UNIVERSITI
MALAYA
KUALA LUMPUR



STUDENT DRESS CODE

Students are required to observe the official Universiti Malaya dress code while on campus and within the Faculty.

For laboratory and practical sessions, students must comply with the following requirements, as shown in the photo below:

- Wear appropriate, modest, and professional attire.
- Closed-toe shoes are compulsory. Slippers, sandals, and open-toe footwear are not permitted.
- Wear the required personal protective equipment (PPE), where applicable.
- Long hair must be securely tied back.
- Avoid loose clothing, dangling accessories, or other items that may pose a safety risk.

Students who fail to comply with the prescribed dress code may not be permitted to participate in the laboratory or practical session.



ACADEMIC CALENDAR SESSION 2026/2027 (BACHELOR DEGREE LEVEL)					
SEMESTER I					
Orientation (<i>Week of Welcome</i>) - WOW	1	week	26.09.2026	-	04.10.2026
Lectures	8	weeks*	05.10.2026	-	29.11.2026
Mid Semester I Break	1	week	30.11.2026	-	06.12.2026
Lectures	6	weeks*	07.12.2026	-	17.01.2027
Revision Week	1	week*	18.01.2027	-	24.01.2027
Semester I Final Examination	2	weeks*	25.01.2027	-	04.02.2027
Semester I Break	3	weeks*	05.02.2027	-	28.02.2027
	22	weeks			
SEMESTER II					
Lectures	7	weeks*	01.03.2027	-	18.04.2027
Mid Semester II Break	1	week	19.04.2027	-	25.04.2027
Lectures	7	weeks*	26.04.2027	-	13.06.2027
UM iFest 2027	-	-	08.06.2027	-	11.06.2027
<i>(No teaching and learning (T&L) activities shall be conducted during this period. Participation is mandatory for all final-year students / students undertaking the Final Year Project (FYP).)</i>					
Revision Week	1	week	14.06.2027	-	20.06.2027
Semester II Final Examination	2	weeks	21.06.2027	-	04.07.2027
Semester II Break	3	weeks	05.07.2027	-	25.07.2027
	21	weeks			
SPECIAL SEMESTER					
Lectures	7	weeks*	19.07.2027	-	05.09.2027
Special Semester Final Examination	1	week	06.09.2027	-	12.09.2027
Special Semester Break	1	week*	13.09.2027	-	19.09.2027
	9	weeks			

Notes:

(1) The Module Registration and Examination Schedule can be referred to at <https://umsitsguide.um.edu.my>. All information is subject to change.

(*) The Academic Calendar has taken into account public and festive holidays and is subject to change.

BACHELOR OF BIOMEDICAL SCIENCE

Message from the Head of Department

On behalf of the Department of Biomedical Science, it is my great pleasure to warmly welcome you to the Bachelor of Biomedical Science programme family for the 2026/2027 academic session.

As you begin this exciting new chapter, you are stepping into a dynamic and impactful field that plays a vital role in understanding human health and disease, advancing laboratory diagnostics, and driving innovation in biomedical research and healthcare. While the journey ahead may present challenges, it will also open doors to discovery, growth, and achievements that can shape both your future and the lives of others.



The Bachelor of Biomedical Science is a four-year programme designed to equip you with a strong foundation in biomedical knowledge, laboratory competencies, research skills, and professional practice. Throughout your studies, you will be encouraged to think critically, collaborate effectively, communicate with confidence, and apply scientific knowledge with responsibility and purpose. Your success will be shaped not only by your academic abilities, but also by your curiosity, resilience, discipline, integrity, and passion for learning.

University life offers far more than lectures, practical classes, and examinations. I encourage you to fully embrace this experience; take initiative in your learning, engage in departmental and student activities, build meaningful connections, and make the most of every opportunity available to you. Be open to new ideas, learn from challenges, and grow through the diverse perspectives you encounter along the way.

As future biomedical science graduates, you will carry the responsibility of upholding the highest standards of professionalism, ethics, and scientific integrity. I am confident that your time in this programme will not only prepare you to become capable biomedical scientists, researchers, and healthcare professionals, but also compassionate individuals who can make a meaningful difference in society.

I wish you every success as you embark on this journey. May your years with us be inspiring, fulfilling, and transformative. I look forward to meeting you and witnessing your growth and accomplishments throughout your time in the Department of Biomedical Science.

DR. KEE BOON PIN

Head

Department of Biomedical Science

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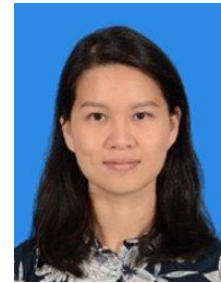
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INTRODUCTION

The Biomedical Science Programme provides knowledge and training in the field of medical science with emphasis on healthcare and research. Students enrol in the Programme for a minimum of 4 years. In the first year, students are introduced to the basics of medical sciences, whereby students will acquire their fundamental understanding of human body structure, functions and mechanisms. By their second year, students will come to appreciate the impact of disease and pathology as they proceed to gain expertise in specific biomedical disciplines such as Histopathology, Haematology, Chemical Pathology and Infectious Diseases. Students will uncover the principles underlying various analytical methods and investigatory procedures used in laboratory medicine and gain confidence and skill from practical sessions that consolidate theoretical instruction. An Industrial Training attachment in the third year will bolster the student's independence and provide exposure to real-world biomedical services. When students return to the faculty for their final year, they are ready to embark on what will be the most important milestone of their undergraduate years: carrying out research projects of their own design in their chosen area of interest.

The Biomedical Science graduate from Universiti Malaya is confident, skilled, ambitious and ready for life's journey. Career opportunities are wide-ranging and include employment in clinical laboratory service departments, teaching institutions and research centres in public as well as private sectors. The Biomedical Scientist can assume responsible positions in either (1) a healthcare team that is concerned with the care of patients and/or with basic and applied clinical research; or (2) a research team in allied medical disciplines, in food and pharmaceutical industries, in public health, and in biotechnology. In addition, post-graduate training is strongly encouraged, either within the country or abroad, all towards attaining the goal of heightening the quality of biomedical science and improving healthcare and welfare for all.

SELF-DIRECTED LEARNING

'In its broadest meaning, self-directed learning describes a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulation learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes'.

(Knowles, M. (1975). *Self-Directed Learning*. Chicago: Follet. p.18)

At the Faculty of Medicine, Universiti Malaya, we want students to drive their own learning. While this may appear easy to do on paper, learning to learn independently can be a challenge. Some of you may have the inherent characteristics of a self-directed learner. For others, you will have to train yourself to be a self-directed learner. While the faculty and lecturers are ready to guide you in your teaching and learning via an outcome-based curriculum, self-directed learning goes a step further by expecting students to display [Figure 1]:

Ownership of Learning

- Articulate learning gaps.
- Set learning goals.
- Identify learning tasks to achieve the goals.
- Extension of Own Learning
- Learn beyond the curriculum.
- Empowerment through self-learning
- Management and Monitoring of Own Learning
- Explore alternative methods of learning.
- Make sound decisions.
- Formulate questions and generate own inquiries.
- Plan and manage workload and time effectively and efficiently.
- Reflect on your learning.
- Use feedback to inform and improve yourself.
- Develop Skills of Self-Directed Learner
- Acquire positive habits.
- Develop healthy coping strategies.
- Ensure self-care.

(Source: The ICT Connection @ <https://ictconnection.edumail.sg>)

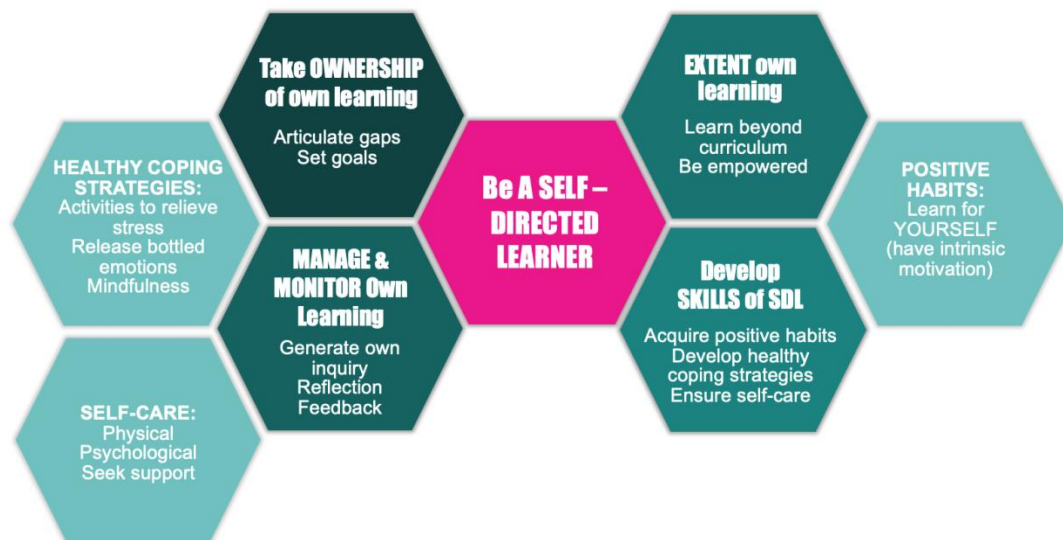


Figure 1: Training guide to become a Self-Directed Learner

POSITIVE HABITS of Self-Directed Learners:

Inquisitive · Question the Significance · Learn for yourself (have intrinsic motivation) · Build a Network of Learning Colleagues · Use library resources · Value progress over performance · Highly reflective · Value collaboration and teamwork · Responsible · Able to prioritise

HEALTHY COPING STRATEGIES of Self-Directed Learners:

Activities to relieve stress (Have a healthy hobby, keep sense of humour, exercise) · Release bottled emotions · Mindfulness (relaxing or calming techniques) · Adjust expectations (anticipate various outcomes)

ENSURING SELF-CARE of Self-Directed Learners:

Physical health · Psychological health · Seek support

PROGRAMME GOAL

The Programme is designed to produce graduates who are laboratory-focused and technically proficient. Graduates will be equipped to meet the growing demand for skilled professionals in Biomedical Science, an evolving and globally expanding discipline, while adhering to national regulatory and professional requirements.

PROGRAMME EDUCATIONAL OBJECTIVES (PEO)

- PEO1 Graduates demonstrate and apply knowledge and skills in health and biomedical science-related fields.
- PEO2 Graduates engage in life-long learning pursuits related to health and biomedical science.
- PEO3 Graduates contribute to the promotion of health practices for the wellbeing of society.

PROGRAMME LEARNING OUTCOMES (PLO)

At the end of the Bachelor of Biomedical Science Programme, the Biomedical Science graduates are able to:

PLO1	Acquire comprehensive knowledge in biomedical science.
PLO2	Demonstrate critical thinking and problem-solving skills in the application of biomedical science knowledge.
PLO3	Demonstrate competent biomedical laboratory skills in the relevant setting.
PLO4	Communicate effectively in writing and orally with accuracy and confidence to a wide range of audiences.
PLO5	Utilise digital resources and technology to support acquisition of appropriate information.
PLO6	Demonstrate collaborative attributes in ensuring accountability and responsibility to achieve common goals.
PLO7	Demonstrate independent learning and understanding of laboratory management principles.
PLO8	Demonstrate the ability to identify ethical issues and conform to ethical principles within the profession and society.

ACADEMIC PROGRAMME & COURSE STRUCTURE

The academic year consists of three semesters. Two are regular semesters and one is a special semester.

Each regular semester consists of:

1. Lectures – 14 weeks
2. Vacation (During Mid Semester) – 1 week
3. Examination – 3 weeks (including revision week)

The special semester consists of 8 weeks of lectures and examination.

Biomedical Science Programme spans 4 years comprising 8 regular semesters.

Students are entitled to a three-week semester break, scheduled within the two regular academic semesters.

Courses offered are broadly categorised under:

- I. University Courses
- II. Programme Courses (Core and Electives)

Students are required to register for and complete all prescribed courses in the programme. Courses are delivered through a combination of lectures, tutorials, discussions, practical sessions, self-directed learning, problem-based learning activities, and synchronous and asynchronous online learning via SPeCTRUM, Universiti Malaya's learning management platform.

Learning activities may be conducted at the Department of Biomedical Science, various departments in the Faculty of Medicine, and the University of Malaya Medical Centre (UMMC), as appropriate to the requirements of each course.

Note:

- Unless stated otherwise, the primary language of instruction is English.
- In the event of insufficient enrolment (fewer than 5 students), the faculty reserves the right to not offer the course.
- All information is correct up to time of publication.

APPLICATION FOR WITHDRAWAL FROM THE PROGRAMME OF STUDY

NO.	ITEM	ACTION
(1)	Student submits an official programme withdrawal application letter to the Dean through the Head of Department for approval.	Student
(2)	The Deputy Dean (Undergraduate) office processes the application and get the approval from Undergraduate Committee Meeting (JKID) and the Faculty Meeting.	Faculty
(3)	Faculty will issue a letter of approval to the student.	Faculty
(4)	Student must upload the letter of approval into the withdrawal section in the MAYA portal.	Student
(5)	Faculty endorse the student's application in the MAYA portal.	Faculty
(6)	Admissions and Registration Centre under the Academic Services Department (ASD) provides the final approval status via the MAYA portal.	Academic Services Department (ASD)
(7)	Faculty downloads the official Approval Letter from the MAYA portal and emails it to the student.	Faculty

IMPORTANT NOTES:

NO.	ITEM
(1)	Students who withdraw from the programme of study no later than the second week of study of a semester will not be charged a fee and the registration record for any course for the programme will be expunged.
(2)	Students who have been approved to withdraw from the programme of study after the second lecture week will: (a) pay the fees and other payments; and (b) be recorded Grade W2 for any courses registered in the semester where the student withdraws from the programme of study concerned.
(3)	The application for withdrawal from the approved study programme cannot be withdrawn by the student.

Details of withdrawal from the study programme are as follows:

Normal Semester	Special Semester	Fees Charged	Grade
Week 1 - 2	Week 1 - 2	No	Record Expunged
Week 3 - 14	-	Yes	Gred W2

Policy on Recording and Live Broadcasting

To protect the privacy of staff and peers, and to safeguard laboratory safety and intellectual property, students are strictly prohibited from sharing class recordings publicly or conducting live broadcasts (e.g., on TikTok, Instagram, or Twitch) during any academic session. You may not take any audio or video recordings of lectures, tutorials, or laboratory sessions without explicit, prior permission from the instructor. Even if permission is granted for personal study, those recordings must never be uploaded, distributed, or broadcast to the public. Unauthorised recording or distribution of academic activities is a serious offense and will result in disciplinary action.

PROGRAMME STRUCTURE

1. Malaysian Students:

Course Level	Course Name		Credits
University Courses	GIG1017	Philosophy and Current Challenges <i>Falsafah dan Cabaran Semasa (FCS)</i>	2
	GIG1019	National Aspirations and Nation-Building <i>Aspirasi Negara Bangsa (ANB)</i>	2
	GIG1003	Basic Entrepreneurship Enculturation <i>Asas Pembudayaan Keusahawanan (APK)</i>	2
	GIG1016	Integrity and Anti-Corruption <i>Kursus Integriti dan Anti-Rasuah (KIAR)</i>	2
	GLT10XX	English Communication/Foreign Languages [#] <i>Bahasa Inggeris Komunikasi/Bahasa Asing[#]</i>	4
	XX	Co-Curriculum Course <i>Kursus Ko-Kurikulum</i>	2
	GUL1001	Embrace@UMLEADER <i>Kursus Embrace@UMLEADER</i>	2
	GUL2009	Ignite@UMLEADER <i>Kursus Ignite@UMLEADER</i>	2
	GLT2000	Professional Malay Language for Career and Organisation <i>Bahasa Melayu Profesional untuk Kerjaya dan Organisasi</i>	**
	Total		18
Programme Courses Core Courses	Basic Module Including Basic Sciences <i>Modul Asas Termasuk Sains Asas</i>		24
	Professional Module <i>Modul Profesional</i>		76
	Industrial Training <i>Latihan Industri</i>		9
	Elective Courses <i>Kursus Elektif</i>		9
Total Credits			136

GLT Courses: Selection depends on the student's MUET/IELTS/TOFEL result.

* Biomedical Science Elective Courses: Select a minimum of 3 courses from the 8 courses offered.

** GLT2000 is a graduation requirement module for Malaysian citizen students, without credits.

PROGRAMME STRUCTURE

2. International Students:

Course Level	Course Name		Credits
University Courses	GIG1018	Citra Malaysia	2
	GLT1049	Malay Language for Communication	2
	GIG1003	Basic Entrepreneurship Enculturation	2
	GIG1016	Integrity and Anti-Corruption	2
	GLT10XX	English Communication/Foreign Languages#	4
	XX	Co-Curriculum Course	2
	GUL1001	Embrace@UMLEADER	2
	GUL2009	Ignite@UMLEADER	2
	Total		18
Programme Courses Core Courses	Basic Module Including Basic Sciences		24
	Professional Module		76
	Industrial Training		9
	Elective Courses*		9
Total Credits			136

GLT Courses: selection depends on the student's MUET/IELTS/TOFEL result.

* Biomedical Science Elective Courses: Select a minimum of 3 courses from the 8 courses offered.

LANGUAGE UNIVERSITY COURSES / KURSUS UNIVERSITI BAHASA

Semester Enrolment/ Path	Path 1 CEFR B1		Path 2 CEFR B2		Path 3* CEFR C1	
Semester 1 (if applicable) Placement test* - for students without recognised English qualifications upon entry	• CEFR A2 and B1 • MUET Band 2, 2.5, 3 & 3.5 • IELTS Band 4.0 – 5.0 • TOEFL Paper-Based Test (437 – 510) • TOEFL Computer-Based Test (123 – 180) • TOEFL Internet-Based Test (TBC) • TOEFL Essentials (Online) (Band 3 – 7.5) • PTE (Academic) – (10 – 41) • IGCSE/GCSE (English) (D, E, F, and G)		• CEFR B2 • MUET Band 4 & 4.5 • IELTS Band 5.5 – 6.0 • TOEFL Paper-Based Test (513 – 547) • TOEFL Computer-Based Test (183 – 210) • TOEFL Internet-Based Test (TBC) • TOEFL Essentials (Online) (Band 8 – 9.5) • PTE (Academic) – (42 – 57) • GCE A Level (English) (Minimum C) • IGCSE/GCSE (English) (C)		Note: *Path 3 students have the option to choose between an English Language course <u>or</u> a Foreign Language course (GLT-coded courses). • CEFR C1 and C2 • MUET Band 5, 5+ & 6 • IELTS Band 6.5 – 9.0 • TOEFL Paper-Based Test (550 – 677) • TOEFL Computer-Based Test (213 – 300) • TOEFL Internet-Based Test (TBC) • TOEFL Essentials (Online) (Band 10 – 12) • PTE (Academic) (58 – 90) • GCE A Level (English) (A and B) • IGCSE/GCSE (English) (A and B)	
Semester 2	<u>Arts Stream</u> GLT1050 Enhance Your English	<u>Science Stream</u> GLT1051 English for STEM I	<u>Arts Stream</u> GLT1054 Elevate Your English	<u>Science Stream</u> GLT1055 English for STEM II	<u>Arts Stream</u> GLT1058 Crafting Impactful Content / GLTxxxx Foreign Languages	<u>Science Stream</u> GLT1059 Technical Writing for STEM / GLTxxxx Foreign Languages
Semester 3	GLT1052 Speak with Confidence		GLT1056 Speak with Impact		GLT1060 Professional Oral Communication / GLTxxxx Foreign Languages	
Semester 4 (if applicable)	+ Programmes with 6-credit LUC GLT1053 Write It Right at Work		+ Programmes with 6-credit LUC GLT1057 Professional Writing for Work		+ Programmes with 6-credit LUC GLTxxxx Foreign Languages	

Note: *Placement Test applies where results are unavailable, including for students admitted via Kemasukan Khas (Athlete/SATU) and graduates of the Foundation Programme (China campus).

**SUMMARY OF LANGUAGE UNIVERSITY COURSE PACKAGE
EFFECTIVE FROM INTAKE 2026/2027**

Pathway	Stream	Y1S1 (if applicable)	Y1S2	Y2S1	Y2S2 (if applicable)
Path 1 CEFR B1	Arts	Placement test - required for students who do not possess a recognized English qualification upon entry	GLT1050	GLT1052	GLT1053
	Science		GLT1051	GLT1052	GLT1053
Path 2 CEFR B2	Arts		GLT1054	GLT1056	GLT1057
	Science		GLT1055	GLT1056	GLT1057
Path 3 CEFR C1	Arts		GLT1058 / GLT Foreign Languages	GLT1060 / GLT Foreign Languages	GLT Foreign Languages
	Science		GLT1059 / GLT Foreign Languages	GLT1060 / GLT Foreign Languages	GLT Foreign Languages

KEY FEATURES

- **Placement Mechanism** – Students are placed into Path 1, Path 2, or Path 3 based on recognised English qualifications; a **Placement Test** applies where results are unavailable, including for students admitted via **Kemasukan Khas (Athlete/SATU)** and **graduates of the Foundation Programme (China campus)**.
- **Course Commencement** – Courses commence in **Semester II (Y1S2)** with **stream-specific entry courses (Arts/Science)**.
- **Pathway Structure** – Subsequent courses follow a **standardised pathway structure** (no stream differentiation).
- **Pathway Design** – Path 1 and Path 2 are **packaged (structured)**, while Path 3 offers **flexible options**, including **Foreign Language** courses.
- **Graduate Outcome** – The structure supports progression towards a **minimum CEFR B2 proficiency upon graduation**.

COURSE STRUCTURE

Year 1

Semester I

Category	Course Code	Course Name	Credits
University Courses	GIG1003	Basic Entrepreneurship Enculturation	2
	GUL1001	Embrace@UMLEADER	2
Core Courses	MIC1007	Biochemistry	4
	MIC1008	Genetics and Developmental Biology	3
	MIC1009	Human Body Systems I	3
	MIC1010	Biomedical Science Techniques	3
	MIC1011	Biosafety and Biosecurity	3
Total Credits			20

Semester II

Category	Course Code	Course Name	Credits
University Courses	GIG1017	Philosophy and Current Challenges (M)	2
	GIG1018	Citra Malaysia (I)	2
	GLT10XX	English Communication/Foreign Languages	2
	XX	Co-Curriculum course	2
Core Courses	MIC1012	Medical Microbiology	3
	MIC1013	Human Body Systems II	3
	MIC1014	Immunology	3
	MIC1015	Histological Techniques for Biomedical Science	3
	MIC1016	Parasitology and Entomology	3
Total Credits			21

(M): Malaysian Students. (I): International Students.

Year 2

Semester I

Category	Course Code	Course Name	Credits
University Courses	GIG1019	National Aspirations and Nation-Building (M)	2
	GLT1049	Malay Language for Communication (I)	2
	GLT10XX	English Communication/Foreign Languages	2
	GUL2009	Ignite@UMLEADER	2
Core Courses	MIC2001	Genomics and Gene Expression	3
	MIC2004	Principles in Pharmacology and Toxicology	3
	MIC2017	Haematology	3
	MIC2018	Phlebotomy	3
	MIC2027	Human Pathology	4
Total Credits			22

(M): Malaysian Students. (I): International Students.

Semester II

Category	Course Code	Course Name	Credits
University Course	GIG1016	Integrity and Anti-Corruption course (KIAR)	2
Core Courses	MIC2019	Molecular Biology Techniques	3
	MIC2020	Epidemiology and Clinical Research	3
	MIC2021	Biomedical Ethics	3
	MIC2022	Cancer Biology	3
	MIC2023	Blood Transfusion Technology	3
	MIC2028	Artificial Intelligence for Biomedical Science	2
Elective Courses*	MIC2013	Laboratory Animal Science	3
	MIC2024	Principles of Biomedical Imaging	3
	MIC2025	Bioinformatics for Biomedical Science	3
	MIC2026	Diagnostic Parasitology and Entomology	3
Total Credits			22

*Biomedical Science Elective Courses: Select 1 course from the 4 courses offered in this semester.

Year 3

Semester I

Category	Course Code	Course Name	Credits
Core Courses	MIC3008	Chemical Pathology	4
	MIC3013	Research Skills for Biomedical Science	3
	MIC3014	Advanced Medical Microbiology	3
	MIC3015	Laboratory Management	3
	MIC3016	Anatomic Pathology	3
Elective Courses*	MIC3017	Neuroscience	3
	MIC3018	Recombinant DNA Technology	3
	MIC3019	Applied Pharmacology and Therapeutics	3
	MIC3020	Advanced Parasitology and Entomology	3
Total Credits			19

*Biomedical Science Elective Courses: Select 1 course from the 4 courses offered in this semester.

Semester II

Category	Course Code	Course Name	Credits
Core Course	MIC3021	Industrial Training	9
Total Credits			9

Year 4

Semester I

Category	Course Code	Course Name	Credits
Core Courses	MIC4001	Research Design in Biomedical Science	6
	MIC4012	Critical Discourse Analysis and Case Studies	4
Elective Courses*	MIC20XX / MIC30XX		3
Total Credits			13

*Biomedical Science Elective Courses: Select 1 course from the 4 courses offered in this semester.

Semester II

Category	Course Code	Course Name	Credits
Core Courses	MIC4005	Research in Biomedical Science	6
	MIC4013	Advances in Biomedical Science	4
Total Credits			10

COURSE INFORMATION

YEAR 1 SEMESTER I (2026/2027)

MIC1007: Biochemistry (Core: 4 credits)

Learning Outcomes

1. Identify characteristics and reactions of biomolecules.
2. Describe the roles of the main tissues and organs in homeostasis as well as metabolic regulation and integration.
3. Perform laboratory experiments to identify biomolecules.

Course Synopsis

This course introduces and illustrates the structure, function and importance of various macromolecules such as nucleic acid, carbohydrate, lipid and protein as well as their derivatives. This course will also introduce basic bioenergetics and illustrate the metabolism of various molecules such as carbohydrate, lipid, protein and nucleic acid. This will be followed by discussions on energy yielding processes, integration of metabolism as well as regulation of hormones and second messengers. Basic concepts on acid, base and buffer, simple calculations and several analytical techniques will also be introduced.

Primary reference

1. Berg, J. M., Tymoczko, J. L., Gatto, G. J., Jr., & Hines, J. (2023). *Biochemistry* (10th ed.). W. H. Freeman/Macmillan Learning.

Additional references

1. Nelson, D. L., & Cox, M. M. (2025). *Lehninger Principles of Biochemistry* (9th ed.). W. H. Freeman/Macmillan Learning.
2. Rodwell, V. W., Bender, D. A., Botham, K. M., Kennelly, P. J., & McGuinness, O. P. (2025). *Harper's Illustrated Biochemistry* (33rd ed.). McGraw Hill.
3. Voet, D., Voet, J. G., & Pratt, C. W. (2024). *Fundamentals of biochemistry: Life at the molecular level* (6th ed.). John Wiley & Sons.
4. Harris, D. C. (2020). *Quantitative Chemical Analysis* (10th ed.). W. H. Freeman.
5. Online resources

Course Coordinator

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03-79674903

Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC1008: Genetics and Developmental Biology (Core: 3 credits)

Learning Outcomes

1. State the principles of genetics and evolution in heredity and development.
2. Relate aspects of genetics and developmental biology in life.

Course Synopsis

This course is designed to extend student knowledge and understanding on the principles of genetics and the mechanisms of genetic diversity, including aspects of heredity, developmental biology, as well as theories on the origins of life, evolution and speciation.

Primary reference

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Additional references

1. Snustad, D. P. and Simmons, M. J. (2015). Principles of Genetics (7th edition). Wiley.
2. Turnpenny, P.D., Ellard, S., Cleaver, R. (2021). Emery's Elements of Medical Genetics and Genomics (16th edition). Elsevier.
3. Greer, R. (2018). Principles of Evolutionary Genetics. Syrawood Publishing House.

Course Coordinator

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03-79674901

Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC1009: Human Body Systems I (Core: 3 credits)

Learning Outcomes

1. Describe the organization, structures and functions of different types of cells, skeletal, muscular, nervous, cardiovascular and respiratory systems.
2. Describe the regulatory mechanisms of the skeletal, muscular, nervous, cardiovascular and respiratory systems.
3. Relate knowledge in the human body structure and functions.

Course Synopsis

This course is an introduction to the cells, tissues and organisation of the human organs from an integrative perspective. Students learn the structures and functions of the cells, tissues, skeletal, nervous, cardiovascular and respiratory systems, and muscle function from the level of the cell to the level of the organism. Students will also learn the mechanisms for maintaining homeostasis within the human body.

Primary reference

1. Costanzo, L. S. Physiology (*Latest Edition)".

Additional references

1. Tortora, G. J. & Derrickson, B. H. *Principles of Anatomy and Physiology*, *Latest Edition. New Jersey: John Wiley & Sons, Inc
2. Barbara Young. *Wheater's Functional Histology: A Text and Colour Atlas* (Latest edition) Marieb, E. N. Human Anatomy & Physiology. *Latest Edition. California: Pearson/ Benjamin Cummings.
3. Victor P Eroschenko. diFiore's *Atlas of Histology with Functional Correlations* (Latest edition)
4. Netter, F.H. *Atlas of Human Anatomy*. *Latest edition. London: Elsevier Health Sciences.
5. Dee Unglaub Silverthorn et. al. *Human Physiology: an integrated approach*. *Latest edition. Pearson Education Inc.

Course Coordinator

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Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC1010: Biomedical Science Techniques (Core: 3 credits)

Learning Outcomes

1. Describe the principles of biomedical science techniques.
2. Perform biomedical science techniques.
3. Explain biomedical science techniques.

Course Synopsis

This course covers a wide range of current important techniques in biomedical science. Students will learn the principles that underlie the techniques used in both service and research laboratories.

Primary reference

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Additional reference

1. Ahmed, N., Glencross, H., & Wang, Q. (2022). *Biomedical Science Practice: Experimental & professional skills* (3rd ed.). Oxford University Press.

Course Coordinator

Associate Professor Dr. Anwar Norazit

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03-79676604

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC1011: Biosafety and Biosecurity (Core: 3 credits)

Learning Outcomes

1. Identify biohazards and biorisks in laboratories handling infectious agents.
2. Describe biosafety and biosecurity controls in laboratories handling infectious agents.
3. Explain the biosafety and biosecurity controls to manage biorisks in laboratories handling infectious agents.

Course Synopsis

The course introduces the students to biohazards and biorisks in laboratories handling infectious agents. The course provides an overview of the biosafety and biosecurity controls available to manage biorisks in laboratories handling infectious agents.

Primary references

1. World Health Organization (2020). *Laboratory Biosafety Manual* (4th edition).
2. National Institutes of Health (2010). *Biosafety in Microbiological and Biomedical Laboratories* (6th edition)
3. Ministry of Health Malaysia (2015). *Malaysia Laboratory Biosafety and Biosecurity Policy and Guidelines* (1st edition)
4. e-learning Resources (uploaded onto SPeCTRUM)

Additional reference

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Course Coordinator

Professor Dr. Cindy Teh Shuan Ju

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03-7967 6674

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC1012: Medical Microbiology (Core: 3 credits)

Learning Outcomes

1. Describe microorganisms, their role in causing diseases, and laboratory tests.
2. Identify pathogenic microorganisms using specific laboratory techniques.

Course Synopsis

This course introduces the applications of microbiology in the laboratory diagnosis of pathogenic micro-organisms: bacteria, fungi and viruses. Emphasis is given on the important key features of micro-organisms, growth characteristics, virulent factors and laboratory identification.

Primary reference

1. Riedel, S., Morse, S. A., Mietzner, T. A., & Hobden, J. A. (2026). *Jawetz, Melnick & Adelberg's Medical Microbiology* (29th ed.). McGraw-Hill Medical.

Additional reference

1. Tortora, G. J., Funke, B. R., & Case, C. L. (2023). *Microbiology: An Introduction* (14th ed.). Pearson Education.

Course Coordinator

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Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC1013: Human Body Systems II (Core: 3 credits)

Learning Outcomes

1. Describe the structure and functions of endocrine, gastrointestinal, renal, reproductive, sensory and motor systems.
2. Explain the regulatory mechanisms of the endocrine, gastrointestinal, renal, reproductive, sensory and motor systems.
3. Relate knowledge in the human body structure and functions.

Course Synopsis

Students will learn about the structure and function of the endocrine, gastrointestinal, renal, reproductive, sensory and motor systems. Students will also learn the mechanisms for maintaining homeostasis within the human body.

Primary reference

1. Costanzo, L. S. Physiology (*Latest Edition)".

Additional references

1. Tortora, G. J. & Derrickson, B. H. *Principles of Anatomy and Physiology*, *Latest Edition. New Jersey: John Wiley & Sons, Inc.
2. Barbara Young. *Wheater's Functional Histology: A Text and Colour Atlas* (Latest edition) Marieb, E. N. Human Anatomy & Physiology. *Latest Edition. California: Pearson/Benjamin Cummings.
3. Victor P Eroschenko. diFiore's *Atlas of Histology with Functional Correlations* (Latest edition).
4. Netter, F.H. *Atlas of Human Anatomy*. *Latest edition. London: Elsevier Health Sciences.
5. Dee Unglaub Silverthorn et al. *Human Physiology: an integrated approach*. *Latest edition. Pearson Education Inc.

Course Coordinator

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03-79676654

Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC1014: Immunology (Core: 3 credits)

Learning Outcomes

1. Describe basic principle of immunology
2. Differentiate the various types of cells, organs and immune responses.

Course Synopsis

The course provides an introduction to the human immune system and the basic principles in immunology. Topics covered include the structure and functions of the immune system, the innate and acquired immune responses, cells and organs of the immune system.

Primary reference

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Additional references

1. Flajnik, M. F. (2023). *Paul's Fundamental Immunology* (8th Edition). Wolters Kluwer/ Lippincott Williams & Wilkins.
2. Abbas, A. K., Lichtman, A.H & Pillai, S. (2023). *Basic Immunology: Functions and Disorders of the Immune System* (7th Edition). Saunders Elsevier.
3. Delves, P.J., Martin, S.J., Burton, D.R, & Roitt I.M. (2017). *Roitt's Essential Immunology*. (13th Edition). Wiley Blackwell. (tiada latest edition)

Course Coordinator

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03-79674902

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC1015: Histological Techniques for Biomedical Science (Core: 3 credits)

Learning Outcomes

1. Describe the theory and practice behind various specialized histological practices.
2. Perform practical training in histological techniques.
3. Demonstrate the ability to work within a team to prepare microscope slides.

Course Synopsis

This course introduces the basic principles underlying the processes involved in the preparation of histological sections and staining of tissue sections to demonstrate the normal histology of epithelial and connective tissues. Students are given elementary practical instructions on the processing of tissue specimens and preparation of stained histological sections.

Primary references

1. Layton, C., Bancroft, J. D., Suvana, S. K. (2019). *Bancroft's Theory and Practice of Histological Techniques*. United Kingdom: Elsevier.
2. Orchard, G. and Nation, B. (2018) *Histopathology*. Oxford: Oxford University Press.
3. Pawlina, W., Ross, M. H. (2020). *Histology: A Text and Atlas: with Correlated Cell and Molecular Biology*. United Kingdom: Wolters Kluwer Health.

Additional reference

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Course Coordinator

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03-79676654

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC1016: Parasitology and Entomology (Core: 3 credits)

Learning Outcomes

1. Identify the basic concept of parasitology and pathogenesis of parasitic diseases.
2. Classify the main groups of human endoparasites and ectoparasites, as well as arthropods and their significance as vectors.
3. Describe the morphology, life cycle, transmission methods and the control of selected parasites.

Course Synopsis

This course introduces the terminology and classification of protozoology, helminthology, arthropods, and poisonous and venomous animals.

Primary references

1. Paniker CKJ, Ghosh S. *Textbook of Medical Parasitology* (9th Edition). Jaypee Brothers Medical Publishers Pvt Limited; 2020.
2. Garcia LS. *Diagnostic Medical Parasitology* (6th Edition). ASM Press, Washington DC; 2016.
3. Mehlhorn H. *Human Parasites: Diagnosis, Treatment, Prevention* (2nd Edition). Springer; 2023.
4. Mahmud R, Lim YA, Amir A. *Medical Parasitology: A Textbook*. Springer; 2018.
5. Service M. *Medical Entomology for Students* (5th Edition). Cambridge University Press; 2012.
6. Mullen G, Durden L. *Medical and Veterinary Entomology* (3rd Edition). Academic Press; 2019.

Additional reference

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Course Coordinator

Dr. Wahib Mohammed Mohsen Atroosh/ Lecturers from Department of Parasitology
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03-7967 4753

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2001: Genomics and Gene Expression (Core: 3 credits)

Learning Outcomes

1. Describe the organization and features of the human genome
2. Explain the mechanisms of gene expression regulation
3. Analyse genomics services from various aspects including economics
4. Identify ethical issues regarding application of genomic technology

Course Synopsis

Students will learn about the structure of the human genome in detail, including the organization of genes and non-coding regions. Types of variation and their effect on cellular function will be discussed. Control of gene expression will be covered to give the students an understanding of how the cell maintains its function and responds to changes. They will also appraise the genomic services available locally and internationally. Current ethical issues regarding the use of genomics technology will also be discussed.

Primary reference

1. Alberts, B. (2022). *Molecular Biology of the Cell*. Garland Science. 7th edition. WW Norton and company publishers.

Additional references

1. Brown, TA. (2023). *Genomes*. 5th edition. CRC Press
2. Strachan T, Lucassen, A (2022). *Genetics and Genomics in Medicine* 2nd Edition. CRC Press

Course Coordinator

Associate Professor Dr. Azlina Ahmad Annuar

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03-79674948

Course Assessment

Course will be assessed by Continuous assessment (60%) and a Final Exam (40%).

MIC2027: Human Pathology (Core: 4 credits)

Learning Outcomes

1. Describe basic concepts and theories in the field of pathology.
2. Demonstrate skills in detecting pathological changes/ morphology with a microscope.
3. Use digital resources and technology effectively to acquire or deliver correct pathological information.

Course Synopsis

This course introduces the basic principles and systemic pathological processes such as cellular responses to injury, inflammation, healing and repair, disorders of body fluids, homeostasis and blood flow, disorders of growth, neoplasia, disorders of the immune system, organ system pathology, relevant structural changes associated with respective pathological conditions.

Primary reference

1. Kumar, V., Abbas, A. K., Aster, J. C., & Deyrup, A. T. (Eds.). (2023). *Robbins & Kumar basic pathology* (11th ed.). Elsevier.

Additional reference

1. Kumar, V., Abbas, A. K., Aster, J. C., & Perkins, J. A. (2021) *Robbins and Cotran Pathologic Basis of Disease* (10th ed.). Elsevier.

Course Coordinator

Dr. Tan Soon Hao

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03-79676654

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%)

MIC2004: Principles in Pharmacology and Toxicology (Core: 3 credits)

Learning Outcomes

1. Describe the concepts of pharmacokinetics and pharmacodynamics, principles of toxicology, and principles of anticancer and antimicrobial agents.
2. Interpret the effects of drugs on the autonomic nervous system; their mechanisms of action; adverse effects and therapeutic uses.
3. Interpret concepts and research techniques in pharmacokinetics, pharmacodynamics and toxicology.

Course Synopsis

This course focuses on the general principles of pharmacokinetics & pharmacodynamics, pharmacological basis for the use of drugs (parasympathomimetic, sympathomimetic and neuromuscular systems), factors affecting drug response, general principles of toxicology, various clinical manifestations to different toxic compounds, general mechanisms of toxicity, the toxic actions of metals and non-metals, evaluation of toxicity and principles of anticancer and antimicrobial agents.

Primary references

1. Ritter, Flower, Henderson, Loke, MacEwan, Robinson & Fullerton. (2023). *Rang & Dale's Pharmacology* (10th edition). Elsevier.
2. Todd W. Vanderah (2024), *Katzung's Basic & Clinical Pharmacology* (16th edition). McGraw Hill Education.
3. Whalen, K. (2022). *Lippincott Illustrated Reviews: Pharmacology* (8th edition). Wolters Kluwer.
4. Klaassen, C. D. (2018). *Casarete & Doull's Toxicology: The Basic Science of Poisons* (9th Edition). McGraw Hill Professional.
5. Brunton, L. L. & Knollmann, B. C. (2023). *Goodman & Gilman's The Pharmacological Basis of Therapeutics* (14th ed.). McGraw Hill.

Additional references

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Course Coordinator

Associate Professor Dr. Shamsul Bin Mohd Zain

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03-79676685

Course Assessment

Course will be assessed by Continuous Assessment (50%) and Final Exam (50%).

MIC2017: Haematology (Core: 3 credits)

Learning Outcomes

1. Describe the formation and functions of blood cells as well abnormalities and pathologies that could arise.
2. Identify differences between physiologically normal and pathological blood cells.
3. Recognize different types of laboratory tests involved in haematology and transfusion medicine.

Course Synopsis

This course introduces students to the science of blood, in terms of types and appearances of blood cells, the formation of blood cells, abnormalities that may arise, and the differences between normal physiological blood morphology and functions and pathological situations.

Primary references

1. Hoffbrand, V., & Moss, P. (2019). Hoffbrand's Essential Haematology (8th Edition). Wiley-Blackwell.
2. Bain, B., Bates, I., Laffan, M. A. (2016). Dacie and Lewis Practical Haematology (12th Edition). Elsevier.

Additional reference

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Course Coordinator

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03-79674902

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2018: Phlebotomy (Core: 3 credits)

Learning Outcomes

1. Identify the correct sites, equipment, procedures and techniques for collection and handling of blood or other body fluid specimens.
2. Perform appropriate methods for collection and handling of blood or other body fluid specimens.
3. Apply appropriate and ethical methods to troubleshoot problems during clinical specimen collection and handling.

Course Synopsis

The student will be introduced to basic theories and practice of phlebotomy. The student will learn anatomy and physiology which is appropriate to draw blood specimens, and the requirements and procedures involved with specimen collection including other bodily fluids. The student will also appreciate the need for professionalism and communication when interacting with patients and donors.

Primary references

1. McCall, R. E. (2024). Phlebotomy Essentials, Enhanced Edition (8th Edition). Jones & Bartlett Learning.
2. Strasinger, S. K. & Di Lorenzo M. S. (2020). Urinalysis and Body Fluids (7th edition). F.A. Davis Company.

Additional references

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Course Coordinator

Associate Professor Dr. Suzita Mohd Noor

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03-79674901

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC2019: Molecular Biology Techniques (Core: 3 credits)

Learning Outcomes

1. Discuss the basic concepts of molecular biology and molecular techniques.
2. Identify suitable tools to perform molecular experiments.
3. Demonstrate team spirit in carrying out the task given.

Course Synopsis

This course addresses developments that have led to the 'New Genetics'. Focus will be placed on terminology, tools and techniques that are essential in the study and creation of recombinant molecules with emphasis on biomedical applications. Components linked to occupational safety and health will also be covered. Practical and basic techniques ranging from plasmid preparations to PCR will be covered.

Primary reference

1. Brown, T. A. (2025). Gene Cloning and DNA Analysis: An Introduction (9th ed.). Wiley.

Additional reference

1. Das, B., & Das, S. (2025). A Practical Approach to Molecular Cloning. Bentham Science.

Course Coordinator

Professor Dr. Chua Kek Heng

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03-79676607

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2020: Epidemiology and Clinical Research (Core: 3 credits)

Learning Outcomes

1. Define basic concepts of epidemiology and clinical research.
2. Apply the concepts of epidemiology and clinical research in biomedical science.
3. Determine suitable information related to epidemiology and clinical research for dissemination to the community.

Course Synopsis

This course will cover introduction to fundamental concepts of epidemiology and clinical investigation. Students will also learn various study designs for epidemiology and the applications of each design. The topics include introduction to epidemiology, measurements in epidemiology, study design in epidemiology, chronic non-communicable disease, communicable disease, surveillance, clinical epidemiology, environmental and occupational epidemiology, health policy in epidemiology, and clinical investigation such as clinical trial.

Primary reference

1. Celentano, D. D., Szklo, M., & Farag, Y. (2024). *Gordis epidemiology* (7th ed.). Elsevier.

Additional references

1. Buka, S. L., & Goedel, W. C. (2026). *Friis & Seller's epidemiology for public health practice* (7th ed.). Jones & Bartlett Learning.
2. Aschengrau, A. (2026). *Aschengrau & Seage's essentials of epidemiology in public health* (5th ed.). Jones & Bartlett Learning.
3. Webb, P., Bain, C., & Page, A. (2024). *Essential epidemiology: An introduction for students and health professionals* (5th ed.). Cambridge University Press.

Course Coordinator

Dr. Kee Boon Pin

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03-79676601

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2021: Biomedical Ethics (Core: 3 credits)

Learning Outcomes

1. Describe core ethical principles from a biomedical science perspective.
2. Explain ethical issues relating to biomedical science.

Course Synopsis

Students will learn about ethical principles related to many aspects of biomedical science and research. They will have the opportunity to give their opinions about the subject matters.

Primary reference

1. Beauchamp, T. L., & Childress, J. F. (2025). *Principles of biomedical ethics* (9th ed.). Oxford University Press.

Additional references

1. Morrison, E. E., & Furlong, B. (2024). *Health care ethics: Critical issues for the 21st century* (7th ed.). Jones & Bartlett Learning.
2. Bryant, J. A., & de Vries, R. (2023). *Introduction to bioethics* (3rd ed.). Wiley-Blackwell.
3. Macrina, F. L. (2023). *Scientific integrity: Text and cases in responsible conduct of research* (5th ed.). ASM Press.
4. National Science Council. (2020). *The Malaysian code of responsible conduct in research* (2nd ed.). Academy of Sciences Malaysia.
5. Wiles, R. (2021). *What are qualitative research ethics?* (2nd ed.). Bloomsbury Academic.
6. Committee on Publication Ethics. (n.d.). *COPE Core Practices and Guidelines*. <https://publicationethics.org/>
7. Online resources

Course Coordinator

Dr. Bavani Arumugam
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03-79674903

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC2022: Cancer Biology (Core: 3 credits)

Learning Outcomes

1. Apply biological and molecular aspects of cancer in the topics discussed.
2. Report practical results involving techniques used in cancer study.
3. Use digital resources and technology effectively to acquire information required for presentation /assignment.

Course Synopsis

The course provides an in-depth understanding of the molecular basis of cancer initiation and progression, the different types and classification of various cancers and also the roles played by tumour suppressors and oncogenes. Various genetic and cellular changes leading to tumourigenesis will be discussed as well as the techniques commonly used in cancer research.

Primary reference:

1. Weinberg, R.A. (2023). *The Biology of Cancer* (3rd Edition). W. W. Norton & Company.

Additional references:

1. Koltai, T., & Fliegel, L. (2026). *An Illustrated Guide to Cancer Biology* (1st Edition). Academic Press.
2. Hesketh, R. (2023). *Introduction to Cancer Biology* (2nd Edition). Cambridge University Press.

Course Coordinator

Dr. Chai Hwa Chia

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Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2023: Blood Transfusion Technology (Core: 3 credits)

Learning Outcomes

1. Illustrate the basic principles of immunohaematology and blood transfusion.
2. Justify the importance of safe pre-transfusion techniques to ensure the reliability of blood products and blood transfusions.
3. Demonstrate the basic techniques applicable in blood transfusion technology.

Course Synopsis

This course provides students with the fundamental concepts and principles pertaining to blood transfusion technology. The practical component of this course focuses on routine techniques used in blood transfusion laboratories.

Primary Reference

1. Howard, P. R. (2025). Basic & Applied Concepts of Blood Banking and Transfusion Practices (6th Edition). Elsevier Mosby.

Additional References

1. Shaz, B.H., Hillyer, C. D., Roshal, M. & Abrams, C. S. (2024). Transfusion Medicine and Hemostasis: Clinical and Laboratory Aspects (4th Edition). Elsevier.
2. Harmening, D. M. (2019). Modern Blood Banking & Transfusion Practices (7th Edition). F.A. Davis Company

Course Coordinator

Dr. Kamariah Ibrahim

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03-79676649

Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC2028: Artificial Intelligence for Biomedical Science (Core: 3 credits)

Learning Outcomes

1. Analyse the application of AI techniques in addressing biomedical and healthcare challenges in diagnostics, treatment, research, and public health.
2. Evaluate ethical, professional, governance, and data privacy issues related to the responsible use of AI in biomedical science and healthcare.

Course Synopsis

This course introduces the fundamental concepts, principles, techniques, and applications of artificial intelligence in biomedical science and healthcare. Students will be exposed to key areas such as machine learning, deep learning, generative AI, natural language processing, computer vision, biomedical data analysis, clinical diagnostics, treatment support, medical research, drug discovery, public health, ethics, governance, and data privacy. Emphasis will be given to the responsible and professional use of AI in biomedical and healthcare settings.

Teaching and learning will be conducted through a blended learning approach, combining FutureLearn online modules, lectures, and tutorials. The online modules support self-directed learning, while lectures and tutorials provide opportunities for clarification, discussion, and application of concepts to biomedical science contexts.

Assessment will include theory assessment to assess foundational knowledge, an assignment to analyse AI applications in biomedical or healthcare settings, and a reflective portfolio to evaluate students' learning experience, ethical awareness, and responsible use of AI.

Primary Reference

1. Simon, G. J., & Aliferis, C. (Eds.). (2024). Artificial Intelligence and Machine Learning in Health Care and Medical Sciences: Best Practices and Pitfalls. Springer Nature.

Additional References

1. Cascini, F. (2025). Secondary Use of Electronic Health Data: Public Health Perspectives, Use Cases and Challenges. Springer Nature.
2. Solaiman, B., & Cohen, I. G. (Eds.). (2024). Research Handbook on Health, AI and the Law. Edward Elgar Publishing.

Course Coordinator

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03-79676601

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC2013: Laboratory Animal Science (Elective: 3 credits)

Learning Outcomes

1. Describe the basics in animal biology and the methods for the care and use of laboratory animals.
2. Demonstrate basic and ethical knowledge in the care and handling of commonly used laboratory animals.

Course Synopsis

This course is designed to provide facts and instil principles essential to the humane use and care of animals that will in turn ensure the quality of biomedical research. Students will be taught basic animal biology and husbandry, as well as animal handling techniques during experimental procedures. The students' responsibilities towards the welfare of the animals used and the ethical concerns of biomedical research will be emphasised.

Primary Reference

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Additional References

1. Hau, J. & Schapiro, S. J. (2021). *Handbook of Laboratory Animal Science, Volume I Essential Principles and Practices* (4th Edition). CRC Press.
2. NRC (2011). *Guide for the Care and Use of Laboratory Animals* (8th Edition). The National Academies Press.

Course Coordinator

Associate Professor Dr. Suzita Mohd Noor

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03-79674901

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC2024: Principles of Biomedical Imaging (Elective: 3 credits)

Learning Outcomes

1. Describe the principles of imaging equipment utilized for biomedical science research.
2. Differentiate imaging equipment for different biological levels: organs, tissues, cells, and molecules.

Course Synopsis

This course covers a wide range of current important techniques in biomedical science. Students will learn the principles that underlie the techniques used in both service and research laboratories.

Primary Reference

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Additional References

1. Murphy, D.B. & Davidson M. (2012). *Fundamentals of light microscopy and electronic imaging*. (2nd Edition). John Wiley & Sons.
2. Mikla, V.I. and Mikla, V.V. (2013). *Medical imaging technology*. Elsevier.

Course Coordinator

Associate Professor Dr. Anwar Norazit

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Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC2025: Bioinformatics for Biomedical Science (Elective: 3 credits)

Learning Outcomes

1. Demonstrate suitable bioinformatics tools to generate meaningful types of data.
2. Apply basic principles of bioinformatics that are relevant to biomedical science.

Course Synopsis

This course will expose students to the basic application of the internet to biomedical sciences; organisation and uses of scientific databases; use of computational methods in genomics and transcriptomics; basic homology modelling; analysis and presentation of biomedical data; and communication of biomedical data using information technology.

Primary reference

1. Ramsden, J. (2023). Bioinformatics: An Introduction. Springer Science & Business Media.

Additional references

1. Baxevanis A.D, Bader G.D (Editor), Wishart D.S. (Editor). (2020). Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins (4th Edition). John Wiley & Sons.
2. Pevsner, J. (2015). Bioinformatics and functional genomics. (3rd Edition). John Wiley & Sons.

Course Coordinator

Dr. Kamariah Ibrahim

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Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC2026: Diagnostic Parasitology and Entomology (Elective: 3 credits)

Learning Outcomes

1. Describe the basic method of diagnosis of parasites in clinical specimens.
2. Identify the parasites and insects under microscope using the respective key identifying characteristics.
3. Explain the basic concept of diagnostic parasitology and entomology.

Course Synopsis

The course covers various basic aspects of diagnostic techniques of protozoa and helminths. Faecal examination includes direct smear, concentration techniques, egg count, faecal culture and staining methods. Blood examination includes staining and serological diagnosis. This course also covers basic aspects for diagnostic entomology including identification of mosquitoes and insects of medical importance, entomological field and laboratory techniques.

Primary reference

1. Garcia, L.S. (2021). *Practical Guide to Diagnostic Parasitology* (3rd Edition). ASM Press.

Additional references

1. Mehlhorn, H. (2023). *Human Parasites: Diagnosis, Treatment, Prevention* (2nd Edition). Springer.
2. Gunn, A., & Pitt, S.J. (2022). *Parasitology: An Integrated Approach* (2nd Edition). Wiley.

Course Coordinator

Associate Professor Dr. Cheong Fei Wen

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03-7967 6618

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC3008: Chemical Pathology (Core: 4 credits)

Learning Outcomes

1. Determine the biochemical and molecular bases of main metabolic disorders.
2. Appraise analytical parameters associated with normal metabolism and diagnostic use in disease.
3. Study the main analytical techniques in a chemical pathology context.

Course Synopsis

This course introduces the basic principles of chemical pathology. Emphasis is given to automation and computerisation, selection of laboratory methods and equipment, and method validation, all of which are central in the daily operation of a chemical pathology laboratory. The course also explores in-depth the biochemical and molecular aspects of major metabolic diseases including nutrition, acid-base balance disorders, diseases of the thyroid, pituitary, adrenal, ovarian, testicular and kidney hormones, the use of cancer, bone and heart markers, and abnormalities in metabolism of proteins, lipids and carbohydrates. Emphasis is given on the appropriate laboratory assessment for the clinical diagnosis of these diseases.

Primary reference

1. Rifai, N., Chiu, R.W.K., Young, I., & Wittwer, C.T. (2023). *Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics* (9th Edition). Elsevier.

Additional references

1. Ahmed, N. (2025). *Clinical Biochemistry* (3rd Edition). Oxford University Press.
2. Bishop, M. L., Fody, E. P., Van Siclen, C., Mistler, J. M., & Moy, M. (Eds.). (2023). *Clinical Chemistry: Principles, Techniques, and Correlations* (9th Edition). Jones & Bartlett Learning.

Course Coordinator

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03-79676611

Course Assessment

Course will be assessed by Continuous Assessment (70%) and a Final Exam (30%).

MIC3013: Research Skills for Biomedical Science (Core: 3 credits)

Learning Outcomes

1. Write a comprehensive manuscript with appropriate referencing.
2. Use basic biostatistics techniques to generate results.
3. Present their research based on a suggested format.

Course Synopsis

The student will be introduced to the world of biomedical science research and the various tools available to analyse and present the data obtained in a systematic and professional manner. The student will learn the use of reference, document, and presentation software in biomedical science research.

Primary reference

1. Ahmed N, Glencross H, and Wang Q. (2022). *Biomedical Science Practice*. (3rd Edition). Oxford University Press.

Additional reference

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Course Coordinator

Associate Professor Dr. Anwar Norazit

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03-79676604

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC3014: Advanced Medical Microbiology (Core: 3 credits)

Learning Outcomes

1. Explain important pathogens and laboratory tests for diagnosis of infectious diseases.
2. Relate diseases, causative microorganisms, pathogenesis and body response to microbial infections in the operation and management of a diagnostic laboratory.
3. Analyze the laboratory results for the investigation of microbial infection.

Course synopsis

This course emphasises important pathogens that cause human diseases. Emphasis is given on the important key features of pathogens, pathogenesis, laboratory identification, treatment and prevention measures.

Primary Reference

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Additional References

1. Ryan, K. J. & Ray, C. G. (2003). Sherris Medical Microbiology. *An Introduction to Infectious Diseases*. (4th Edition). McGraw Hill Professional.
2. Knipe, D. M. & Howley, P. M. (2023). *Fields Virology*. (7th Edition). Lippincott Williams & Wilkins.
3. Carroll, K. C., Butel, J., & Morse, S. (2024). Jawetz, Melnick, & Adelberg's *Medical Microbiology*. (29th edition). New York: Lange Medical Books/McGraw-Hill.

Course Coordinator

Associate Professor Dr. Wong Won Fen

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03-79676660

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC3015: Laboratory Management (Core: 3 credits)

Learning Outcomes

1. Identify principles of management in biomedical laboratories
2. Determine the quality management required in biomedical laboratories.
3. Study quality assurance procedures performed in a biomedical laboratory.

Course Synopsis

This course describes the stages of quality control, quality assurance, quality system and quality management. Examples of total quality framework include quality planning, quality laboratory processes, quality control, quality assurance and quality improvement.

Primary references

1. Garcia, L.S. (2014). *Clinical Laboratory Management*. ASM Press.
2. Turgeon, M.L. (2018). Linne & Ringsrud's *Clinical Laboratory Science* (8th Edition). Elsevier.
3. Parson, K.N. (2012). *Laboratory Quality/Management* (3rd Edition). Xlibris Corporation.

Additional reference

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Course Coordinator

Dr. Nur'Ain Salehen
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03-79674902

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC3016: Anatomic Pathology (Core: 3 credits)

Learning Outcomes

1. Apply principles of techniques employed in anatomic pathology and cytopathology.
2. Perform consistent staining of slides for diagnosis.

Course Synopsis

Students will be taught the scientific basis of standard staining techniques and the common artifacts and problems encountered due to inappropriate handling and staining of pathology and cytology specimens.

Practical sessions provide hands-on experience as well as allow the study of the effects of improper tissues staining.

Primary reference

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Additional references

1. Suvarna KS, Layton C. (2018). Bancroft's Theory and Practice of Histological Techniques & Their Diagnostic Application (8th Edition). Churchill Livingstone.
2. Behdad Shambayati. (2018). Cytopathology (2nd Edition). Oxford University Press.

Course Coordinator

Associate Professor Dr. Ong Kien Chai

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Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC3017: Neuroscience (Elective: 3 credits)

Learning Outcomes

1. Explain the function of cells, networks and areas within nervous system
2. Relate the knowledge about neuronal mechanisms to brain function and neurological diseases
3. Present information about neuroscience accurately, effectively and creatively to a wide range of audience

Course Synopsis

This course offers the students the chance to learn about neuroscience from many different aspects including systems that control thoughts, behaviour, senses and movement. They will relate this knowledge to the mechanisms that occur in the cells and neuronal networks. Students will showcase their knowledge of neuroscience to members of the public through an exhibition or online activities.

Primary reference

1. Kandel, E., & et. al. (2021). *Principles of Neural Science* (6th Edition). McGraw Hill Professional.

Additional reference

1. Martin, AR. & et. al. (2021). *From Neuron to Brain* (6th Edition). Oxford University Press.

Course Coordinator

Associate Professor Dr. Azlina Ahmad Annuar

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03-79674948

Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

MIC3018: Recombinant DNA Technology (Elective: 3 credits)

Learning Outcomes

1. Perform experiments and procedures of recombinant DNA technology.
2. Apply molecular concepts of recombinant DNA technology.

Course Synopsis

This course allows students to gain skills in recombinant DNA techniques for various applications in biomedical science. It includes the techniques of isolating target genes, preparation of competent cells, gene cloning, transformation, SDS-PAGE, protein expression, western blotting, protein quantitation and chip-based analysis. Students will also learn the strategy and consideration for standard gene cloning and cloning expression experiments.

Primary reference

1. Brown, T. A. (2026). *Gene cloning and DNA analysis: An introduction* (9th ed.). Wiley-Blackwell.

Additional reference

1. Glick, B. R., & Patten, C. L. (2022). *Molecular biotechnology: Principles and applications of recombinant DNA* (6th ed.). ASM Press/Wiley.

Course Coordinator

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03-79676601

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC3019: Applied Pharmacology and Therapeutics (Elective: 3 credits)

Learning Outcomes

1. Interpret the mechanisms of action, pharmacokinetics, therapeutic uses and adverse effects of drugs.
2. Explain concepts and techniques in pharmacology research.
3. Describe concepts and techniques in pharmacology and toxicology from scholarly articles.

Course Synopsis

The course focuses on time course of drug effects, techniques in HPLC, LCMS, bioequivalence studies and pharmacogenomics, design & evaluation of clinical trials, the pharmacology of drugs acting on the gastrointestinal, respiratory, cardiovascular and central nervous systems and experiments on drugs with analgesic properties, drugs affecting respiratory system and general evaluation of toxicity of drugs /substances in animals.

Reference Texts

1. Ritter, Flower, Henderson, Loke, MacEwan, Robinson & Fullerton. (2023). Rang & Dale's Pharmacology (10th edition). Elsevier.
2. Todd W. Vanderah (2024), Katzung's Basic & Clinical Pharmacology (16th edition). McGraw Hill Education.
3. Brunton, L.L. & Knollmann, B. (2023) Goodman & Gilman's The Pharmacological Basis of Therapeutics. (14th edition). Mc-Graw-Hill Education.
4. Klaassen, C. D. (2018). Casarelle & Doull's Toxicology: The Basic Science of Poisons (9th Edition). McGraw Hill Professional.
5. Whalen, K. (2022). Lippincott Illustrated Reviews: Pharmacology (8th edition). Wolters Kluwer.

Course Coordinator

Dr. Muhammad Farid Nazer bin Muhammad Faruqu

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Course Assessment

Course will be assessed by Continuous Assessment (50%) and a Final Exam (50%).

MIC3020: Advanced Parasitology and Entomology (Elective: 3 credits)

Learning Outcomes

1. Apply basic principles in parasitology and entomology with regards to problems in parasitic infections and vector-borne infections.
2. Explain the information of translational research in parasitology and entomology including the latest research and diagnostic techniques.
3. Interpret experimental data of parasitic infections.

Course Synopsis

The course covers aspects of maintenance of protozoa and helminths in vivo and in vitro, molecular biology of parasitic infections, advanced techniques in parasitology and entomology, issue and challenges in parasitology and entomology, and interpretation of experimental data of parasitic infections.

Reference Texts

1. Paniker, CJ. (2013). Textbook of Medical Parasitology (7th Edition). Jaypee Brothers Medical Publishers (P) Ltd.
2. Kennedy, MW, Harnett, W. (2013). Parasitic Nematodes: Molecular Biology, Biochemistry and Immunology (2nd edition). CABI.
3. Walochnik, J, & Duchene, M. (2016). Molecular Parasitology: Protozoan Parasites and their Molecules. Springer.
4. Rollinson D, Stothard R. (2018). Advances in Parasitology. Elsevier Science Publishing Co Inc.
5. Service M. (2016). Medical Entomology for Students (5th Edition). Cambridge University Press.
6. Marquardt, W. (2004). Biology of Disease Vectors (2nd Edition). Academic Press.
7. Mullen, G, & Durden, L. (2018). Medical and Veterinary Entomology (3rd Edition). Academic Press.

Course Coordinator

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Course Assessment

Course will be assessed by Continuous Assessment (60%) and a Final Exam (40%).

YEAR 3 SEMESTER II (2028/2029)

MIC3021: Industrial Training (Core: 9 credits)

Learning Outcomes

1. Perform duties in the assigned biomedical science laboratory
2. Follow the biomedical science laboratory work rules effectively
3. Apply the safety and governmental regulations and standards in biomedical science laboratory practice.

Course Synopsis

The student will be assigned to a biomedical science laboratory for eighteen weeks. He/she will observe the workflow and duties in the laboratory and carry out laboratory tests as determined by the laboratory supervisor.

Reference Texts

Not Available

Course Coordinator

Associate Professor Dr. Ong Kien Chai

kcong@um.edu.my

03-79674799

Course Assessment

Course will be assessed by Continuous Assessment (100%) – supervisor evaluation and logbook report.

MIC4001: Research Design in Biomedical Science (Core: 6 credits)

Learning Outcomes

1. Perform laboratory training and experiments following the stipulated research design.
2. Propose a design for a research project based on relevant literature review on areas in biomedical sciences
3. Relate ethical principles to conducting research work

Course Synopsis

Present their research proposal as part of their final year research project.

Primary reference

1.O'Leary, Z. (2025). The Essential Guide to Doing Your Research Project. (5th edition). SAGE Publications Ltd.

Additional references

1. Robson, C. (2016). How to do a research project: A guide for undergraduate students. (2nd edition). Wiley-Blackwell.

Course Coordinator

Dr. Kamariah Ibrahim

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03-79676649

Course Assessment

Course will be assessed by Continuous Assessment (100%) – Proposal presentation, supervisor evaluation and logbook report.

MIC4012: Critical Discourse Analysis and Case Studies (Core: 4 credits)

Learning Outcomes

1. Explain the facts efficiently and confidently.
2. Appraise critically and use knowledge, facts and data to effectively and ethically solve problems.
3. Demonstrate the ability to work within a team to achieve a common goal.

Course Synopsis

Critical Discourse Analysis and Case Studies course is designed to help the students link their knowledge obtained from various disciplines and apply them to real-world scenarios. The students will obtain higher levels of cognition. Case studies will be discussed in groups under the guidance of a facilitator.

Reference Texts

Not Available

Course Coordinator

Dr. Hasmawati Yahaya

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03-79676670

Course Assessment

Course will be assessed by Continuous Assessment (100%).

MIC4005: Research in Biomedical Science (Core: 6 credits)

Learning Outcomes

1. Apply research methods in a scientific project.
2. Analyse results obtained from the research project to derive appropriate conclusions about the findings.
3. Relate ethical principles to conducting research work

Course Synopsis

Students are given the opportunity to conduct research independently in a project of their choice. The course trains the student to perform research and interpret the results of their own lab work.

Primary reference

1. Booth WC, Colomb GC, Williams JM, Bizup J, FitzGerald WT. (2024) *The Craft of Research* (5th Edition). University of Chicago Press.

Additional reference

1. Reed R, Weyers J, Holmes D, Jones A (2021). *Practical Skills in Biomolecular Sciences*. (5th Edition). Pearson.

Course Coordinator

Associate Professor Dr. Azlina Ahmad Annuar

azlina_aa@um.edu.my

03-79674948

Course Assessment

Course will be assessed by Continuous Assessment (100%) – oral presentation, supervisor evaluation and logbook report.

MIC4013 Advances in Biomedical Science (Core: 4 credits)

Learning Outcomes

1. Determine the latest areas of research in Biomedical Science.
2. Apply the scientific basis behind the topics discussed.
3. Deliver scientific information on the selected topics in writing or orally.
4. Determine the ethical issues behind the topics discussed.

Course Synopsis

This course aims to introduce students to the current issues in biomedical science, new technologies and areas of research, while focusing on areas of potential research in the future. It also allows the students to meet and share with a range of scientists and professionals who are involved in a wide range of biomedical science.

Reference Text

Scientific publications, newspaper articles, scientific magazines, online resources

Course Coordinator

Dr. Tan Kim Kee

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03-79676605

Course Assessment

Course will be assessed by Continuous Assessment (100%).

Editors:

Dr. Rozaida Poh Yuen Ying

Associate Professor Dr. Suzita Mohd Noor

Dr. Kamariah Ibrahim

Puan Siti Aisha Hassan

1. APPLICATION FOR WITHDRAWAL FROM THE PROGRAMME OF STUDY

NO.	ITEM	ACTION
(1)	Student submits an official programme withdrawal application letter to the Dean through the Head of Department for approval.	Student
(2)	The Deputy Dean (Undergraduate) office processes the application and get the approval from Undergraduate Committee Meeting (JKID) and the Faculty Meeting.	Faculty
(3)	Faculty will issue a letter of approval to the student.	Faculty
(4)	Student must upload the letter of approval into the withdrawal section in the MAYA portal.	Student
(5)	Faculty endorse the student's application in the MAYA portal.	Faculty
(6)	Admissions and Registration Centre under the Academic Services Department (ASD) provides the final approval status via the MAYA portal.	Academic Services Department (ASD)
(7)	Faculty downloads the official Approval Letter from the MAYA portal and emails it to the student.	Faculty

IMPORTANT NOTES:

NO.	ITEM
(1)	Students who withdraw from the programme of study no later than the second week of study of a semester will not be charged a fee and the registration record for any course for the programme will be expunged.
(2)	A student, who has been approved to withdraw from his programme of study after the second lecture week will: (a) pay the fees and other payments; and (b) be recorded Grade W2 for any courses registered in the semester where the student withdraws from the programme of study concerned.
(3)	The application for withdrawal from the approved study programme cannot be withdrawn by the student.

Details of withdrawal from the study programme are as follows:

Normal Semester	Special Semester	Fees Charged	Grade
Week 1 - 2	Week 1 - 2	No	Record Expunged
Week 3 - 14	-	Yes	Gred W2

2. APPLICATION FOR WITHDRAWAL FROM THE SEMESTER

NO.	ITEM	ACTION
(1)	Student submits an official semester withdrawal application letter to the Dean through the Head of Department for approval.	Student
(2)	The Deputy Dean (Undergraduate) office processes the application and get the approval from Undergraduate Committee Meeting (JKID) and the Faculty Meeting.	Faculty
(3)	Faculty will issue a letter of approval to the student.	Faculty
(4)	Student must upload the letter of approval into the withdrawal section in the MAYA portal.	Student
(5)	Faculty endorse the student's application in the MAYA portal.	Faculty
(6)	Admissions and Registration Centre under the Academic Services Department (ASD) provides the final approval status via the MAYA portal.	Academic Services Department (ASD)
(7)	Faculty downloads the official Approval Letter from the MAYA portal and emails it to the student.	Student

IMPORTANT NOTES:

NO.	ITEM
(1)	Withdrawal from a semester on any of the reasons stated below is not allowed : (a) Performance of the student is not satisfactory for any of the courses; (b) Insufficient preparation for the course concerned; or (c) Dissatisfaction towards any of the course.
(2)	Withdrawal from a semester is not allowed once the examination period for the semester concerned has commenced.

Details of withdrawal from a semester is stated below:

Category	Normal Semester	Special Semester	Fees	Duration of Study	Grade
Personal Reason	Week 1 – 2	Week 1 - 2	No	Included	*Records expunged.
	Week 3 – 7	-	Yes	Included	Gred W1
Mobility Programme Reason	Week 1 - 14	Week 1 - 7	No	Not Included	*Records expunged.
Medical Reason	Week 1 – 7	Week 1 - 2	No	Not Included	*Records expunged.
	Week 8 – 14	Week 3 - 7	Yes	Not Included	Gred W1

*Note: Records refer to course registration records