MISR UNIVERSITY
for science and technology

جـامعـة مصـر
للعـلـوم والتكنولـوجيـا

كلية التكنولوجيا الحيوية

College of Biotechnology

Student Guide

www.must.edu.eg

College of Biotechnology
Misr University for Science and Technology

Student Guide

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Misr University for Science and Technology

The Presidential Decree Number 245 established Misr University for Science and Technology (MUST) in the year 1996 under the leadership of its founder, the late ***Professor Soad Kafafi***. The university was built using contemporary and advance architectural design available, which has put the university at the front of private Egyptian universities.

College of Biotechnology

The Presidential Decree Number 283 established the College of Biotechnology at Misr University for Science and Technology in the year 2006 under the leadership of ***Mr. Khalid Altoukhy***, Chancellor and President of the Board of Trustees.

University Academic Degree

The University of Science and Technology (MUST) is awarded a bachelor's degree in Biotechnology (B.Sc. in Biotechnology) according to minister decree No. 129 in 12/8/2009.

Graduate Studies

The University of Science and Technology (MUST) is awarded a master's degree in biotechnology (M.Sc. in Biotechnology) according to minister decree No. 776 in 16/3/2015 in two programs:

1. Medical and Pharmaceutical Biotechnology
2. Environmental and Agricultural Biotechnology.

Misr University for Science and Technology has won the first place at Medical Integrated Student Competition (MISR2019) which was held at the Faculty of Medicine, Ain Shams University on Thursday 14th February 2019. College of Biotechnology teams have got the second, seventh and eighth places.

Vision and Mission

1.1. Vision

At College of Biotechnology, we are seeking to be academically accredited and to be one of the leading institutions locally, regionally and internationally in the multidisciplinary biotechnology fields.

1.2. Mission

As part of Misr University for Science and Technology (MUST), the College of Biotechnology is committed to graduating a Biotechnology specialist according to the academic reference standards to meet the needs of local and regional labor market in the medical, pharmaceutical, agricultural and environmental sectors; conduct innovative scientific research; providing community services; and scientific consulting, within the values of improvisational.

College Strategic Goals

The college's strategic plan includes 8 strategic objectives:

1. Work to ensure quality assurance in the College to be qualified for academic accreditation.
2. Graduating a specialist who can compete locally and regionally.
3. Conducting applied scientific research to provide solutions to health, environmental and agricultural problems.
4. Launching a distinguished postgraduate program in the College.
5. Enhance the community participation and communication with graduates.
6. Developing the skills and capabilities of college members and leaders.
7. Continuous evaluation and hence development based on the opinions of the beneficiaries.
8. Enhancing the competitive position of the College.

College Administration

Prof. Dr. Hala F. Eissa

Dean

Prof. Dr. Hussein Sabit

Vice Dean for Postgraduate Studies

Prof. Dr. Ingy Badawy

Vice Dean for Community Service and Environmental Affairs

Dr. Mohammed M. Abdelhakim

Vice Dean for Students and Education Affairs
Director of the Quality Assurance Center

Dr. Shimaa Eid

Director of Quality Assurance Unit

Prof. Dr. Sameh Hasanein

Head of Bioinformatics and Functional Genomics Department

Dr. Nashaat Kamal

Head of Medical Biotechnology Department

Dr. Osama Said

Head of Agricultural Biotechnology Department

Dr. Tahsin Shoala

Head of Environmental Biotechnology Department

College Academic Departments

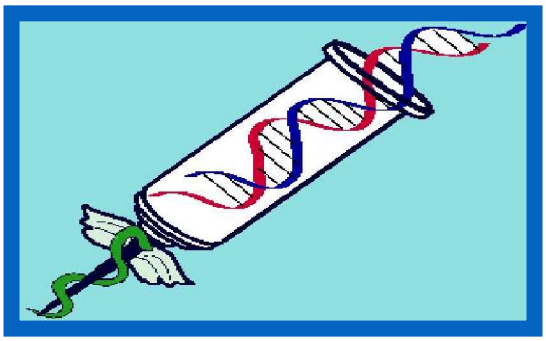
The college comprises the following academic departments

1. Department of Medical Biotechnology.
2. Department of Pharmaceutical and Industrial Biotechnology.
3. Department of Agricultural Biotechnology.
4. Department of Environmental Biotechnology.
5. Department of Bioinformatics and Genomics.

Introduction to Biotechnology Education

Biotechnology is the science of the 21st century to meet the global challenges in the fields of healthcare, food security, industrial development and environmental conservation.

1. Medical Biotechnology



Medical biotechnology is the newest area of medicine. Molecular medicine is becoming fundamental to almost every aspect of healthcare delivery, assess with diagnosis of disease, therapeutic choice, therapeutic outcome monitoring, prognosis, prediction of disease risk, directing preventive strategies, beginning-of-life decisions, patient and pathogen identification and clinical epidemiology. The applications of Medical Biotechnology extended almost all classes of animal and human diseases especially infectious diseases, such as viral, bacterial, parasitic infectious diseases, (H5N1, H1N1, HBV and HCV are examples of viral diseases). In the medical and pharmaceutical fields the students will be well prepared in molecular diagnosis, molecular treatment, gene therapy and stem cell research.

The College of Biotechnology aims to prepare qualified undergraduate and post-graduate students capable of working in the area of molecular diagnosis of diseases, molecular treatment and gene therapy and stem cell research. The college also aims to prepare specialized students capable of solving number of chronic problems like those relative to criminology and forensic medicine.

2. Pharmaceutical and Industrial Biotechnology

In the pharmaceutical and industrial biotechnology fields, student will be well qualified in biopharmaceutical, pharmacogenomics, drug design and personalized medicine. Here, both undergraduate and post-graduate students study how to engineer the genetic makeup of economically important microorganisms to render them more productive (qualitatively and quantitatively) in different industrial processes.

3. Agricultural Biotechnology

The focus of this discipline is the genetic manipulation of plants and animals using the tools of biotechnology for highly increased quality and quantity of yields.

Applications of plant genetic engineering (transgenic plants) are: propagation of plants for crop improvement, disease resistance, drought and salinity resistance, herbicide resistance, oil content, delayed fruit ripening, edible vaccines ……etc. Transgenic animals are providing many benefits. Transgenic livestocks are being developed to increase production (for examples: egg, meat, milk), provide healthier more robust animals, more nutritious and healthier food, and disease-resistant animals.

4. Environmental Biotechnology

Environmental biotechnology is being used to clean up contaminated environments, rising demands for biofuels is

expecting to be good news biotechnology. For the environmental biotechnology, students will be capable to manipulate the microbial genomes to be more efficient in industrial processing, environmental cleaning and combating environmental pollution. Moreover, biotechnological techniques are being used for biodiversity conservation.

5. Bioinformatics and Genomics

The merger of Biotechnology and Information Technology with goal of revealing new insights and principles in life sciences. Bioinformatics is the science of managing and analyzing biological data, especially genomic and proteomic research data such as sequence analysis. We can study tremendous details of biological process (such as diseases) using the tools of bioinformatics. We can evaluate the three-dimensional structure; the proteins and chemical messengers it interacts with and the cellular pathways it participates in. Furthermore, Bioinformatics and functional genomics offer hope to help understand biomedical research questions.

Biotechnology Education Program

A four-year biotechnology education program, offering a Bachelor Degree in Biotechnology (B.Sc. Biotechnology), is especially designed to:

1. Develop student with a strong foundation and skills that seek changing world of biotechnology.
2. Provide mix of basic, molecular genetics, genetic engineering, medical, health, management, social, behavioral and environmental sciences as biotechnology practice to support the role of biotechnologists in multidisciplinary teams.
3. Provide the understanding and practical skills behind the use of genomics, proteomics and genetic engineering applications. These applications include medical, pharmaceutical and healthcare; agricultural and food security; industrial and environmental applications.
4. Provide students with practical training and final year research project which link students directly to the fields and leading-edge research.
5. Promote knowledge of commercial biotechnology as well as communication, presentation and management skills.
6. Encourage lifelong-learning and evidence-based practices to meet the global changes and the new biotechnological development.
7. Develop and implement an efficient system for quality assurance and accreditation.
8. Biotechnology program must be regularly evaluated and the content of the curriculum must be revised and assessed to conform to the Academic Reference Standards (ARS) and ensure relevance to recent advances in biotechnology practices.

Career Opportunities

Career opportunities exist not only locally and nationally, but also internationally. The core competency of the graduates of the College of Biotechnology at MUST enable them to work on local, national and international fields of medical, pharmaceutical, industrial, agricultural and environmental biotechnology.

Biotechnologists in Egypt work at companies of biotechnology, biopharmaceutical industry and tissue culture, followed by hospitals as well as industrial, academic and research institutions. Biotechnologists are also involved in other professionals practices including forensic medicine and criminology services, biomedical and diagnostic laboratories, stem cell research centers, *in-vitro* fertilization and embryo transfer (IVF-ET) centers, veterinary medicine and military services. Furthermore, a large number of Egyptian biotechnologists may work abroad, mainly in Arab countries.

Program Admission Requirements

All applicants, irrespective of the type of secondary school certificate they hold should have:

- Completed a minimum of 12 years of regular schooling prior to admission to the university.
- Passed all subjects qualifying for admission into the various colleges as set forth by the Supreme Council of Egyptian Universities.
- The minimum acceptable score for admission into the various colleges is announced at the beginning of each academic year.
- All applicants should submit original certificates, diplomas, transcripts and documents.
- Holders of certificates or diplomas from other countries should have their certificates and diplomas authenticated by the educational authorities issuing them and the Egyptian embassies in these countries.
- Holders of American High School Diploma and secondary school certificates from Russia and East European countries have their diplomas and certificate authenticated by the Egyptian cultural attaché in each country.

Students and Education Affairs

1. The College Study System

1. Language of study: English.
2. The study in the College is based on the credit hours system that is offered in two semesters per year, namely the Fall semester and the Spring semester, each semester is composed of fifteen academic weeks.
3. Some courses may be offered in the Summer semester, the duration of which is not less than half of the duration of one semester, provided that the number of weekly hours is doubled.
4. Credit hours are a unit of study for determining the weight of the courses, equivalent to one theoretical study hour per week or a practical lesson of no less than two hours per week for fifteen weeks representing one semester and is taught over one semester.
5. The College's study plan requires the student to successfully complete 160 credit hours (bylaw 2012) or 144 credit hours (by law 2018), including Biotechnology sciences and other requirements mentioned in College's bylaws, in order to obtain a bachelor's degree in eight semesters. The degree is granted whenever the student fulfills the requirements for obtaining it.
6. The College study system allows the student to increase or decrease the study load in any semester, with a minimum of 12 hours and a maximum of 24 credit hours during one semester, after taking the opinion of the academic advisor and the approval of the College Dean.
7. The College Board may, after taking the opinion of the relevant Department Council and according to the nature of the curricula, decide to teach one or more courses in the hybrid education mode, so that the study in the course is 60% -70% face-to-face and 40% -30% in the distance education system, or in any other percentage, it must be submitted to the University's Education and Student Affairs Council for approval and submitted to the University Council for approval.

2. Modern electronic education methods

The College of Biotechnology applies modern methods of teaching with the recent and continuous development of educational technologies. Misr University for Science and Technology has provided a strong infrastructure and programs to support e-learning from international companies such as Banner, Moodle and Microsoft's software package. You can download a full copy of it through your university email. These methods are:

1. The interactive book

The interactive book allows the student to know his strengths and weaknesses, as well as allows communication between the faculty member and students. It also allows making online tests supported by an electronic correction system and displaying statistical results of the result.

2. Interactive e-learning

The College of Biotechnology was keen to keep pace with the event and activate e-learning in a fast and effective manner through the e-learning platform that was provided through the University's Educational Technology Center. smartlearning.must.edu.eg

3. Hybrid education

Hybrid education is a modern learning method that combines distance learning by means of modern communication and direct learning at the University.

To catch up with the development around you as a student, you need to be well-versed in this technology. Here are the steps for logging into e-learning platforms:

1. After your registration in the College is accepted and you have obtained the University ID number, you will get an email and a secret password on the University's website.
2. By using this e-mail, you register the courses in the course schedule on Banner website (https://bannerlinks.must.edu.eg) as shown in the video below. The members and the assisting staff will assist you in

the registration process in your first semester at the University.

3. After registering the courses, the same e-mail is used to log in to the e-learning platform (https://smartlearning.must.edu.eg), in which you will find a page for each of the courses that you have registered. On this page you will find the scientific content for each course, weekly lectures and periodic exercises divided into all semester weeks, and an electronic exam is held through it. You can receive also on this page any announcement from the course professor.
4. Download the Microsoft team program on your computer and cell phone and register your data with the same e-mail and on this program, you will find the icon "team" and when you open it you will find a special group for each course you have registered where the lecture is held live by the Course Director at the same time on your lectures schedule. During the lecture, you can ask questions and communicate effectively with your Professors.
5. Using the same e-mail you can download the original copy of Microsoft 365 for education from Microsoft website (Microsoft.com).

Link for Banner program

Link for the e-learning platform

3. Academic Advising

The college assigns for each group of students an academic advisor from the college members, who performs the tasks of sponsorship and scientific guidance and is responsible for the student in scientific, social, and psychological affairs and directs him/her in everything related to his University life. The academic advisor is concerned with the following:

1. Guiding the student in choosing the courses in which he will register for each semester.
2. Follow up the student's achievement in his/her studies by communicating and cooperating with his/her teachers and assisting him/her in overcoming any academic difficulties he/she might face.
3. Approval of the procedures that the student performs regarding registration, academic load, deletion and addition to courses, withdrawal from studies, etc., and verifying that all these operations are in the interest of the student.
4. Taking care of students placed under academic supervision, and those who are suspended from study, and identifying the academic difficulties they face, and helping them to overcome them, in order to straighten the course of their studies.
5. To contact the academic advisor or the Vice Dean for Education and Student Affairs, please go to the biotechnology help desk on the Microsoft team program and leave a message with your inquiry or problem.

4. Drop-and-Add Courses

During the first two weeks at the beginning of each semester, students are allowed to change their registration by adding and dropping courses after counseling their academic advisors on the web site – provided they do not exceed the maximum credits allowed. Check the university calendar for the drop-and-add schedule.

5. Course withdrawal

Students may withdraw a particular course (or courses) if they find (through quizzes and mid-term exam) that they will be unable to complete the course successfully. In such case, the student must file a "Withdrawal Form" after consulting the academic advisor and the course instructor. Courses withdrawn before deadline for course withdrawal will have a "W" in the grade report. These courses are not counted toward graduation and their credits are not used to compute the GPA.

Courses withdrawn after the deadline of course withdrawal automatically receive a failing grade "F" and their credit points are used to compute the GPA. No refund will be given for courses withdrawn.

6. Incomplete

If a student faces unanticipated circumstances that would prevent him/her from completing the requirements of a course – such as sudden illness – during the final, he/she may ask for an Incomplete (I) in this course.

- A petition has to be submitted to the college dean stating reasons for requesting "incomplete" and enlacing supporting evidence.
- Students who have done unsatisfactory work in quizzes and mid-term examination (less than 60%) are not eligible for incomplete.
- If after careful scrutiny the petition is accepted, "a request for an incomplete" has to be filled specifying the requirements the student has to fulfill to complete the final exam and the date suggested for meeting such requirement.
- After successful completion of the requirements, the instructor would fill in a Change of Grade form. If the requirements are not completed in due date or before the end of the following semester, an "incomplete" will automatically be changed to an "F".

- Students who have an “incomplete” in any course during a semester will lose the fee reduction scholarships in the following semester.

7. Repeating Courses

If a student fails in a required course, he has to repeat the same course, but if he fails in an elective course, he may repeat the course or take another elective course instead after consulting his academic advisor and the approval of the college dean. Students are allowed to repeat courses they have already taken with a passing grade of “D” or better for improving the grade and/or raising the CGPA.

8. Class attendance regulations

Students should attend all classes for which they are registered to obtain a maximum educational benefits. Absence or lateness does not excuse students from required course work. Students whose absence record exceeds 25% of course hours are not allowed to sit for the final exam and receive a failing grade “F” in that course.

9. Examinations and assessments

1. The final score for each course consists of the sum of the semester work scores and the final exam scores.
2. 60% of the total score is allocated for final exam, and 40% is allocated for the course work and the practical examination (if any).
3. In light of the University calendar determined by the University at the beginning of the academic year, the College Council may set the date for the practical and written exams for the semester work and the final exams, with the determination of the grades for each exam after taking the opinion of the specified Department Council.

4. The minimum percent to pass any offered course is 60%, and the student will not be successful in any course unless he/she obtains 30% in the written papers in the final examination.
5. The student's success in the course exams is estimated by one of the following grades: Excellent - Very Good - Good - Acceptable. As for failure, it is estimated as a "fail".
6. The student's success in the bachelor's degree is estimated by one of the following: Excellent - Very Good - Good. The general estimate of students in the bachelor's degree is calculated on the basis of the total number of degrees obtained in all academic years, and they are arranged according to this total at the level of the program.
7. The student is awarded with honors if his final grade is excellent or very good. In order for the student to obtain an honors degree, he/she must not have failed any examination given to him/her in any semester throughout the years of study.
8. The College Council may, after taking the opinion of the relevant Department Council and according to the nature of the academic courses, decide to hold the examination electronically in one or more courses. The examination may also be held in the whole course or part of it in a way that allows it to be corrected electronically, provided that this is presented to the Council of Education Affairs And students at the University for approval and submitted to the University Council for approval.

10. Exam Rules

1. It must be ensured that the exam schedule announced in the College is the last version and is titled Final Copy.

2. It is necessary to verify the dates and locations of the exams for the registered courses for each student from the exam schedule announced at the College.
3. Please be present and adhere to the examination times. No student will be allowed to enter after the exam start time, and no student will be allowed to leave the exam before passing at least half the allocated time of the exam.
4. Each student must bring the University ID, and he/she will not be allowed to enter without it. Lacking to adhere to such regulation, the student must obtain a copy from the Student Affairs Administration after paying the requested fees.
5. Female students who cover their face must be verified by one of the exam observers.
6. It is strictly forbidden for students to attend the exam having their mobile phones with them, even if it is switched off, according to Republican Decree No. 73 in the year 2017 amending some items in the Law No. 101 for the year 2015 regarding combating acts aiming to disrupt the exam process. Furthermore, having any documents whether related to the course or otherwise is also prohibited. Every student must leave all his belongings or bags - no matter how small - outside the exam benches, next to the door from the inside, to take them when he/she leaves, and when it is discovered that there is any document with any student or near him, which is related the course, this will be considered an attempt to cheat.
7. Please make sure to fill in all the data on the outer page of the answer sheet.
8. If the student is caught red-handed or attempted to cheat, the course in which he/she takes the exam will be canceled and

transferred to the College Disciplinary Board, which decides on the penalty that will be imposed on him/her.

9. As for the courses in which students might be allowed to use special tables, they must be completely free of any handwriting, and they will not be exchanged.
10. Every student has an obligation to bring the necessary tools for exams. It will not be permissible to exchange tools, especially the calculator, among students during the exam.
11. Regarding medical or social excuses, the necessary documents are submitted to the Dean of the College within 48 hours before or after the exam, to transfer them to the medical committee at the University Hospital for approval, then return to the College Dean for approval.

11. Grading System

Semester grades are reported by letter only. The scale of grades and grade points are as follows:

Grade	Written Grade	Points	Percentage
A*	Excellent	4.0	95 – 100
A	Excellent	4.0	90 - <95
A-	Excellent	3.6	85 - <90
B+	Very Good	3.3	80 - <85
B	Very Good	3.0	75 - <80
B-	Very Good	2.7	72 - <75
C+	Good	2.3	70 - <72
C	Good	2.0	65 - <70
C-	Pass	1.7	63 - <65
D+	Pass	1.3	62 - <63
D	Pass	1.0	60 - <62
F	Fail	Zero	<60

Graduating Grades

Grade	CGPA	Percentage
Excellent	3.6 – 4	85 - 100
Very Good	2.7 - <3.6	72 - <85
Good	2 - <2.7	65 - <72

- A, B, C: are passing grades
- C-. D+, D: are conditional pass grad

Grade Point Average GPA and CGPA

Grade Point Average (GPA) is computed each semester to show the students' academic standing. It is computed by multiplying each course credits by the grade points corresponding to the grade received, then adding all points earned and dividing the total number of credits in the semester. As the student progresses in his study, his transcript will show a grade point average for each semester as well as a cumulative grade point average CGPA of all courses taken in different semesters. Students should earn a successful grade in each course studied.

On graduation, a general CGPA is calculated by adding the grade points for all courses studied and dividing the grand total by the total number of credits required for graduation.

To be awarded the bachelor's degree, students must complete the required credit hours in courses which the grades are **D** or better and must earn a cumulative grade point average of **2.0** or better. These requirements must be completed within the period specified for each college.

Student Support System

The College of Biotechnology provides an integrated system of services and support to students through a central system at the University campus, which are represented in:

1. Financial care for students

The University provides financial support to students in multiple ways:

- A 10% discount for sibling students
- A discount of 15-25% for the children of employees
- A 10% discount for students for athletic excellence
- Full scholarships
- Paying tuition fees in installments

2. Psychological care for students

The University's Psychological Counseling Unit provides advice to students to overcome the problems they face on the scientific and academic levels, and social and behavioral guidance for all students to develop their attitudes and skill needs, develop their psychological health and their scientific and practical capabilities to reach the acceptable and approved quality level of education.

3. Health care

The University provides live support to students through making health insurance that covers all medical services and includes many hospitals, analysis laboratories, and pharmacies.

4. University housing

The University provides accommodation service for female students enrolled in the University's colleges.

It consists of 2 dormitories for female students, with a total of 202 beds.

In addition to 2 male student housing, with a total of 50 beds.

5. Sports and social activities

The College allows encourage you to participate in any of the activities available at the University that are compatible with your hobby or talent, and these activities are:

A. Sports activities

The facilities for practicing sports activities are:

A soccer field, a hexagonal football field, one multi-use court (handball, basketball, and volleyball) and a stand-alone squash court, in addition to a complex of open ground tennis courts that includes 4 equipped courts. The University seeks to increase these facilities in the future by increasing these playgrounds so that there will be 4 basketball courts, 4 handball courts, 4 volleyball courts, a multi-purpose indoor gymnasium, a swimming pool and an athletics track, as well as there is a future ambition to have a sports coach in each College in line with the policy of stimulating sports activities and encouraging the largest number of University students to doing different sports activities.

B. Social activities

The administration of student social activities represents the second part of the University's main student activities, including activities of acting, music, choir, singing, scouting, and chess. There is also the second part of social activities, represented in various cultural activities. Short tale competitions in coordination with the College of Languages and Translation (College of Arabic Language). The University also organizes exhibitions of artistic works for students of drawing, sculpture, plastic arts, and photography. The administration organizes a theatrical presentation for the acting team under the supervision of a specialized and academic trainer. The administration also organizes singing and choral concerts under the supervision of a specialized and academic trainer and organizes several Scouting camps under the supervision of a specialized and academic trainer.

This is in addition to organizing cultural courses in important and national events.

6. Library:

The University contains a library that includes many scientific references and distinct cultural content, and it includes a group of trained workers to provide students with needed assistance. The library contains a special section for books specialized in Biotechnology. It also contains access points to the Internet available via the student's e-mail, where students are encouraged to benefit from all the services provided by the library, which are:

A. Internal Viewing Service:

It is through the main hall, which provides the appropriate space, lighting, healthy environment, as well as the appropriate equipment of seats, reading tables and shelves for all disciplines of knowledge. In addition to its insulation against noise, it should be noted that the Central Library of the University receives researchers from outside the University and provides many services to them, including the photocopying and internal review service.

B. Borrowing Service:

It is one of the traditional services provided by the central library at the University in a manual and automatic manner, and allows researchers, employees, and students to borrow in accordance with the library's borrowing policy.

C. Photocopy Service:

The photocopy service is related to the borrow service as it represents an alternative to it for many items such as periodicals and reference books that are not allowed to be borrowed.

D. Guided tours:

The library holds guided tours at the beginning of each semester for the beneficiaries; With the aim of introducing and guiding the user community about library services and collections.

E. References and researchers' services:

This service consists in answering questions and inquiries directed by the beneficiary to obtain specific information, facts,

data or information on specific topics, through the assistance of the library's reference department.

F. Databases and electronic services:

- The Central Library is a member of the Egyptian Knowledge Bank, and databases are available to researchers from within the University through it. Misr University for Science and Technology has databases available for free. It also provides a special account for non-Egyptians to access the researcher's portal at the Egyptian Knowledge Bank.

https://www.ekb.eg/ar/home

- The library has a bibliographic database that includes all its contents such as books, references, periodicals, and scientific dissertations.
- The library's digital institutional repository is an online database for collecting, preserving, and publishing the intellectual production of researchers with the aim of free access to this production of scientific letters, theses, research works, periodical articles, and the work of seminars and conferences of the University.

http://dspace.must.edu.eg

- Ongoing Briefings: A screen at the entrance to the library displays what was recently received in the library and the latest available services and library news.
- The Central Library page on Facebook to display library news and inform them of what has been recently received by viewing books and receiving inquiries from beneficiaries.

https://www.facebook.com/MUSTCentralLibrary

- Document Delivery Services

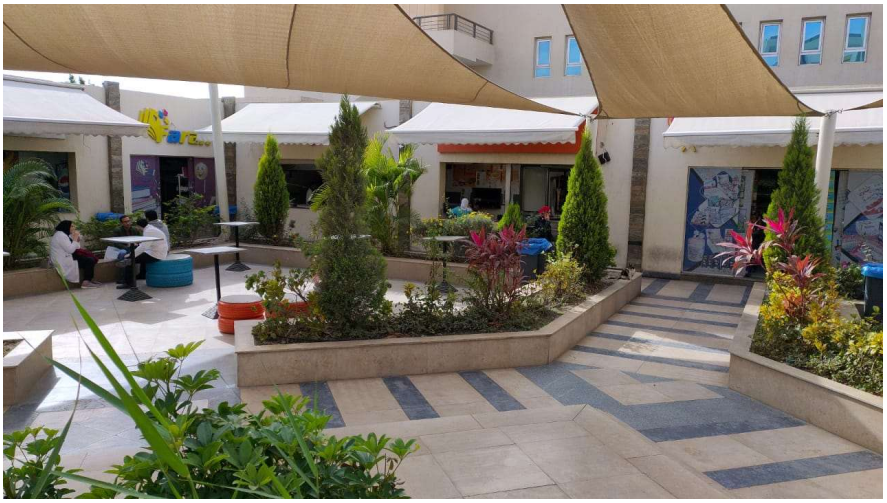
  This service allows you to obtain materials in electronic or printed format for those that are not in the central library's collections.

- Selective Dissemination of Information

  It is a service targeted to each beneficiary individually to meet his own needs without others, by matching the available containers with the interests of the beneficiaries that express their needs from the library.

7. Restaurants and cafeterias area:

The University has a dedicated area for restaurants and cafeterias for all University students.



PLAN OF STUDY

Overall Study Plan (bylaw 2012)

The student is required to complete successfully, according to bylaw 2012, a minimum of 160 Credit Hours for graduation distributed as follows:

University requirements:	21 Credit Hours
College requirements:	139 Credit Hours (115 Compulsory + 24 Elective)
Total	**160 Credit Hours**

Honoring the outstanding students

An Ideal Study Plan (bylaw 2012)

First Level

First Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisites
		Lecture	Practical	Total	
BIOT 101	Introduction to Biotechnology	2	-	2	-
BIOL 101	General Biology I	2	1	3	-
CHEM 101	General Chemistry	2	1	3	-
MATH 101	Basics in Mathematics	2	1	3	-
PHYS 101	General Physics	2	1	3	-
ENGL 101	English Language I	2	1	3	-
COMP 101	Computer	2	1	3	-
HUMN 102	Scientific Thinking	3	-	3	-
Total		**17**	**6**	**23**	

Second Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisites
		Lecture	Practical	Total	
BIOL 102	General Biology II	2	1	3	BIOL 101
GENE 102	Principals of Genetics	2	1	3	BIOL 101
MICR 102	General Microbiology	2	1	3	BIOL 101
OCHM 102	Organic Chemistry	2	1	3	CHEM 101
STAT 102	Biostatistics	2	1	3	MATH 101
ARAB 101	Arabic Language	2	1	3	
ENGL 102	English Language II	2	1	3	ENGL 101
	Elective Course (from lecvl 1&2)	3	-	3	
Total		**17**	**7**	**24**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Second Level

First Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
BPHY	201	Biophysics	2	1	3	PHYS 101 BIOL 102 MATH 101
MCGN	201	Microbial Genetics	2	1	3	MICRO 102 GENE 102
EVPG	201	Evolutionary and Population Genetics	2	1	3	GENE 102 STAT 102
CYGN	201	Cytogenetics	2	1	3	GENE 102 BIOL 102
BCHM	201	Biochemistry	2	1	3	CHEM 101 OCHM 102
ENGL	201	English Language III	2	1	3	ENGL 101 ENGL 102
HUMN	101	Behavioral Psychology	3	-	3	
		Elective Course	3	-	3	
Total			**18**	**6**	**24**	

Second Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
EXBC	202	Experimental Biochemistry	2	1	3	BCHM 201
BCGN	202	Biochemical Genetics	2	1	3	BCHM 201 GENE 102
BIOT	202	Concepts and Issues in Biotechnology	2	-	2	BIOT 101 GENE 102
CHPE	202	Chemistry of Proteins & Enzymes	2	1	3	BCHM 201
CBIL	202	Comparative Biology	2	-	2	BIOL 102
		Elective Course	3	-	3	
		Elective Course	3	-	3	
Total			**16**	**3**	**19**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Third Level

First Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
MLGN	301	Molecular Genetics I	2	1	3	BCGN 202
PLTC	301	Plant Tissue Culture	2	1	3	BIOL 102
BETH	301	Bioethics	2	1	3	GENE 102- MICR 102
BINF	301	Principals of Bioinformatics	2	1	3	MATH 101- STAT 102- BCGN 202
APMC	301	Applied Microbiology	2	1	3	MICR 102 – MCGN 201
		Elective Course	2	1	3	
Total			**12**	**6**	**18**	

Second Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
MLGN	302	Molecular GeneticsII	2	1	3	MLGN 301
CBIL	302	Cancer Biology	2	1	3	MLGN 301 CHPE 202
AMTC	302	Animal Micro-technique and Tissue Culture	2	1	3	BIOL 102
PRBT	302	Process Biotechnology	2	1	3	MCGN 201- APMC 301
BSAF	302	Bio-safety	2	-	2	MLGN 301- BIOT 101
		Elective Course	2	1	3	
Total			**12**	**5**	**17**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Fourth Level

First Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
GNEG	401	Genetic Engineering I	2	1	3	MLGN 302
MLDG	401	Molecular Diagnosis and Gene Therapy	2	1	3	MLGN 302
MLBS	401	Molecular Biology of Biotic and Abiotic Stresses	2	1	3	BIOT 101- MLGN 302
GANL	401	Genomic Analysis	2	1	3	BINF 301 - MLGN 302
RSBT	401	Research in Biotechnology I	-	3	3	BIOT 101- MLGN 302
		Elective Course	2	1	3	
Total			**10**	**8**	**18**	

Second Semester

Abbreviations & Course No.		Course Title	Credit Hours			Prerequisites
			Lecture	Practical	Total	
GNEG	402	Genetic Engineering II	2	1	3	GNEG 401
CMBT	402	Commercial Biotechnology	2	1	3	BIOT 101- PRBT 302
PANL	402	Proteomic Analysis	2	-	2	GANL 401
BTSM	402	Biotechnology Seminar	2	1	3	
RSBT	402	Research in Biotechnology II	-	3	3	BIOT 101- MLGN 302
		Elective Course	2	1	3	
Total			**10**	**7**	**17**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Elective Courses for First and Second Levels

Course Code	Course Title	Cr. Hrs
CBPH 203E	Cell Biology and Physiology	3
COPR 201E	Computer Programming I	3
COPR 202E	Computer Programming II	2
HMBL 204E	Human Biology	3
HPHY 101E	Human Physiology	2
PHCG 207E	Pharmacognosy	3

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Elective Courses for Third and Fourth Levels

Course Code	Course Title	Cr. Hrs
ABRD 305E	Animal Breeding	3
AGBT 406E	Agricultural Biotechnology	3
APTH 310E	Animal Pathology	3
BCBP 402E	Biocontrol & Biopesticides	3
BHGN 304E	Behavioral Genetics	2
BRBD 404E	Bioremediation and Biodegradation	3
HPTH 301E	Human Pathology	3
IMM 303E	Immunology	3
INPH 309E	Introduction to Pharmacology	3
INVF 403E	In-vitro Fertilization and Embryo Technology	3
MCBT 404E	Microbial Biotechnology	3
MDBT 405E	Medical Biotechnology	2
MGGR 409E	Management of Genetic Resources	2
MLEP 307E	Molecular Epidemiology	3
MLFM 411E	Molecular Forensic Medicine	3
NABT 311E	Nanobiotechnology	3
PHGN 410E	Pharmacogenomics	3
PBRD 304E	Plant Breeding	3
PIBT 410E	Pharmaceutical and Industrial Biotechnology	2
PPTH 302E	Plant Pathology	3
SCBT 312 E	Stem Cell Technology	3

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Overall Study Plan (bylaw 2018)

The student is required to complete successfully, according to bylaw 2018, a minimum of 144 Credit Hours for graduation distributed as follows:

University requirements:	15 Credit Hours
College requirements:	129 Credit Hours (105 Compulsory + 24 Elective)
Total	**144 Credit Hours**

Honoring the outstanding students

An Ideal Study Plan (bylaw 2018)

First Level

First Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
BIOT 101	Introduction to Biotechnology	2	-	2	-
MATH 101	Basics in Mathematics	2	-	2	-
BIOL 101	General Biology I	2	1	3	-
CHEM 101	General Chemistry	2	1	3	-
BPHYS 101	Biophysics	2	1	3	-
ENGL 101	English Language I	2	1	3	-
COMP 101	Introduction to Computer Applications	2	1	3	-
Total		**14**	**5**	**19**	

Second Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
BIOL 102	General Biology II	2	1	3	BIOL 101
GENE 102	Principals of Genetics	2	1	3	BIOL 101
MICR 102	General Microbiology	2	1	3	BIOL 101
OCHM 102	Organic Chemistry	2	1	3	CHEM 101
STAT 102	Biostatistics	2	-	2	MATH 101
ENGL 102	English Language II	2	1	3	ENGL 101
HUMN 102	Scientific Thinking	2	1	3	-
Total		**14**	**6**	**20**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Second Level

First Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
MLGN 201	Molecular Genetics I	2	1	3	OCHM 102 - GENE 102
MCGN 201	Microbial Genetics	2	1	3	MICR 102- GENE 102
BCHM 201	Biochemistry	2	1	3	OCHM 102
PLTC 201	Plant Tissue Culture	2	1	3	BIOL 101
HMBL 201	Human Biology (Structure and Function of Human Body)	2	1	3	BIOL 102
ENGL 201	English Language III	2	1	3	ENGL 102
Total		**12**	**6**	**18**	

Second Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
MLGN 202	Molecular Genetics II	2	1	3	BCHM 201 - MLGN 201
HPTH 202	Human Pathology	2	1	3	HMBL 201
CYGN 202	Cytogenetics	2	1	3	GENE 102
EXBC 202	Experimental Biochemistry	2	1	3	BCHM 201
ANTC 202	Animal Tissue Culture	2	1	3	BIOL 102
Elective Course		2	1	3	
Total		**12**	**6**	**18**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Third Level

First Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
GENG 301	Genetic Engineering I	2	1	3	MLGN 202
PRBT 301	Process in Biotechnology	2	1	3	MCGN 201 - MLGN 201
BINF 301	Principals of Bioinformatics	2	1	3	STAT 102 - MLGN 202
PRPH 301	Principles of Pharmacology	2	1	3	BCHM 201 - HPTH 202
Elective Course		2	1	3	
Elective Course		2	1	3	
Total		**12**	**6**	**18**	

Second Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
GENG 302	Genetic Engineering II	2	1	3	PLTC 201 - ANTC 202 - GENG 301
GANL 302	Genomic Analysis	2	1	3	BINF 301
CMBL 302	Cancer Molecular Biology	2	1	3	HMBL 201 - MLGN 202
BEBS 302	Bioethics and Biosafety	2	1	3	MLGN 202
Elective Course		2	1	3	
Elective Course		2	1	3	
Total		**12**	**6**	**18**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Fourth Level

First Semester

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
PANL 401	Proteomic Analysis	2	-	2	GANL 302
MLBS 401	Molecular Biology of Biotic and Abiotic Stresses	2	1	3	GENG 302
MLDG 401	Molecular Diagnosis of Human Diseases	2	1	3	MLGN 202 - HPTH 202
ENBT 401	Environmental Biotechnology	2	1	3	PRBT 301 - GENG 302
RSBT 401	Research in Biotechnology I	1	2	3	GENG 302
Elective Course		2	1	3	
Total		**11**	**6**	**17**	

Second Semester

Abbreviations & Course No.	Course title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
BTSM 402	Biotechnology Seminar	2	-	2	GENG 302
CMBT 402	Commercial Biotechnology	2	-	2	GENG 302
MLFM 402	Molecular Forensic Medicine	2	1	3	HMBL 201 - MLGN 202
RSBT 402	Research in Biotechnology II	-	3	3	RSBT 401
Elective Course		2	1	3	
Elective Course		2	1	3	
Total		**10**	**6**	**16**	

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Elective Courses for First and Second Levels

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
ARAB 101E	Arabic Language	2	1	3	-
BIOT 201E	Concepts and Issues in Biotechnology	2	-	2	BIOT 101
CBIL 202E	Comparative Biology	2	-	2	BIOL 102
CBPH 203E	Cell Biology and Physiology	2	1	3	BIOL 101 – BIOL 102
COPR 204E	Computer Programming I	2	1	3	COMP 101
COPR 205E	Computer Programming II	2	1	3	COPR 204E
ENMC 206E	Environmental Mutagens and Carcinogens	2	1	3	GENE 102
EVPG 207E	Evolution and Population Genetics	2	-	2	GENE 102
GNEM 208E	General Embryology	2	1	3	HMBL 201
GNHT 209E	General Histology	2	1	3	BIOL 102
HUMN 101E	Behavioral Psychology	2	1	3	-
HUPH 210E	Human Physiology	2	1	3	BIOL 102
PBRD 211E	Plant Breeding	2	1	3	GENE 102
PHYS 101E	General Physics	2	1	3	-
PPTH 212E	Plant Pathology	2	1	3	BIOL 101 – MICR 102

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Elective Courses for Third Level

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
ANBR 301E	Animal Breeding	2	1	3	GENE 102
APTH 302 E	Animal Pathology	2	1	3	BIOL 102
BGMD 303E	Biochemical Genetics of Metabolic Diseases	2	1	3	GENE 102 – BCHM 201
BHGN 304E	Behavioral Genetics	2	-	2	GENE 102 – HMBL 201
BMBF 305E	Biomass and Biofuel	2	1	3	MLGN 202
CHPE 306E	Chemistry of Proteins and Enzymes	2	1	3	BCHM 201
IMMN 307E	Immunology	2	1	3	BCHM 201
INVF 308E	*In vitro* Fertilization and Embryo Transfer	2	1	3	HMBL 201
MLEP 309E	Molecular Epidemiology	2	1	3	MLGN 202
NABT 310E	Nanobiotechnology	2	1	3	EXBC 202 - GENG 301
PHCG 311E	Pharmacognosy	2	1	3	PRPH 301
SCBT 312 E	Stem Cell Technology	2	1	3	ANTC 202 – MLGN 202

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

Elective Courses for Fourth Level

Abbreviations & Course No.	Course Title	Credit Hours*			Prerequisite
		Lecture	Practical	Total	
ANBT 401E	Animal Biotechnology	2	1	3	GENG 302
APMC 402E	Applied Microbiology	2	1	3	GENG 302
BFBP 403E	Biofertilizers and Biopesticides	2	1	3	GENG 302
BRBD 404E	Bioremediation and Biodegradation	2	1	3	GENG 302
GETH 405E	Gene Therapy	2	1	3	GENG 302
MABT 406E	Marine Biotechnology	2	1	3	GENG 302
MCBT 407E	Microbial Biotechnology	2	1	3	GENG 302
MDBT 408E	Medical Biotechnology	2	1	3	GENE 302
MGGR 409E	Management of Genetic Resources and Gene Bank	2	-	2	GENG 301
PHBT 410E	Pharmaceutical Biotechnology	2	1	3	PRPH 301 – GENG 302
PHGN 411E	Pharmacogenomics	2	1	3	PRPH 301 – GENG 302
PLBT 412E	Plant Biotechnology	2	1	3	GENG 302

*Each credit hour is equivalent to a weekly 1-hour lecture or a weekly 2-hours practical.

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