



UNIVERSITY
of
GREENWICH

FACULTY OF PHARMACY
OCTOBER UNIVERSITY FOR MODERN SCIENCES & ARTS
STUDENT HANDBOOK
2019



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Purpose of Student Handbook

This handbook is provided as a service to the Faculty of Pharmacy, MSA University student body and contains information regarding student life and services at the Faculty and the University. This handbook is a guideline only and not a contract. Specific policies and procedures may be changed at any time without prior notice.

The Student Handbook contains information regarding student rights and responsibilities, including academic integrity, a definition of plagiarism, and a clear description of the nature, extent, and availability of all student services and activities.

The Student Handbook also includes information concerning relevant policies. This covers admission, academic progress, grading, assessment, supervision, examinations, academic advising, careers, student discipline, academic offences, grievances, appeals, student activities, students' rights and responsibilities, student records, privacy and confidentiality.

Faculty of Pharmacy Dean's Welcome

Welcome to Faculty of Pharmacy at MSA University, where we are committed to graduate well-educated pharmacists who are able to fulfill their professional duties competently in response to the needs of the industry and the local job market. Since the establishment of Faculty of Pharmacy in 2004, we can boast of its reputation of excellence and significant role in the development of our Egyptian society. Our students are granted the opportunity to explore new areas of study and go beyond the restrictions of current knowledge to make new innovations. We achieve this mission through our expertise faculty members who provide our students with their efforts and time to personalize their experiences, in addition to our facilities ranging from fully equipped laboratories and lecture halls to our e-libraries and e-learning system.

Actually, I am honored to be a member of this learning environment that is expanding our scopes and changing our lives.

With warm regards,

Prof. Dr. Hanan El Leithy

**Professor of Pharmaceutics and Industrial Pharmacy, Dean of Faculty of Pharmacy,
MSA University**

MSA Overview

MSA University has been established as the natural outcome of nearly half a century of experience in the field of education on both the local and international levels. While MSA University values its tradition, which goes back to nearly half a century, it has an eye on every new trend, with an attitude not only to react to change but also to lead it.

Over an area of 50 feddans in the 6th October City, MSA campus has been built on only 17% of the total area. Highest technological standards in every aspect of the educational process have been followed, aiming at maximum comfort and flexibility for a student body from over 30 nationalities.

The neo-classical look of the campus with its state-of-the-art facilities strongly contributes to its unique standing as an institution of educational excellence. The very careful consideration of spacious and highly advanced labs equipped according to the worldwide specifications and standards, the e-libraries, the highly equipped classrooms and lecture halls, the buildings of students' facilities, the Roman amphitheater, and the spacious green areas, enhance the atmosphere of comfort and discipline and inspire an overall feeling of integrity and loyalty to this great accomplishment.

Building [H], also called 'the Research Centre', helps to enhance the learning process and enrich the knowledge of both students and staff members. The building includes 11 students' labs (3 Pharmaceutics labs, 2 Pharmacology labs, 2 Pharmacognosy labs, 2 Physiology labs, 2 Biochemistry labs), in addition to 3 research labs, 7 dental clinics, a dental operations room, dental radiology rooms, a sterilization room, 134 dental chairs, and 31 computer labs.

Building [G] includes 24 lecture halls, 24 auditoriums, 45 staff rooms, 4 computer labs, an opera house, and a cafeteria. This building is where faculty and teaching assistants offices are located.

Building [E], includes 10 students' labs (3 Analytical Chemistry labs, 3 Organic chemistry and Pharmaceutical Chemistry labs, 3 Microbiology labs and 1 Anatomy lab), a research lab, in addition to 8 computer labs. It also includes an animal house that hosts small experimental animals.

MSA University is best known for its academic excellence both in the Middle East and internationally, with stronger than ever quality courses and teaching staff.

MSA was a pioneer in Egypt to validate its programmes with British Universities in 2002. It is the first university granting its graduates a dual-origin Pharm-D degree; namely a British degree from Bedfordshire or Greenwich University, and another Egyptian degree, which is accredited by the Egyptian Supreme Council of Universities. MSA University graduates enjoy the privilege of attaining scholarships and have the chance to pursue their M.Sc. and Ph.D. studies in the United Kingdom.

Faculty of Pharmacy at MSA

The Faculty of Pharmacy seeks to offer a pharm-D programme that is recognized and respected in Egypt, Middle East, and internationally since its approval from the Supreme Council of Universities in 2004. The Faculty of Pharmacy's vision aspires to attain national accreditation, regional, and international recognition. Faculty of Pharmacy, through its dedicated professional administration, faculty and staff members, gears its graduates with up-to-date knowledge and hands on the latest trends and skills in various fields of pharmacy. A multitude of hardware and software technologies are available for pharmacy students; these technologies enhance their learning environment. Distinct from other pharmacy colleges in Egypt, the Faculty of Pharmacy, MSA University, challenges its students with a pharmacy- related graduation project as an essential part of the requirements for the fulfillment of their pharm-D degree.

Pharmacy education has witnessed phenomenal evolution during the past 50 years. The pharmacy profession, which once had been termed "the art of compounding", has undergone major changes due to the expansion of knowledge and mass production. Nowadays, pharmacists do not work solely but have to share actively with health care team towards offering optimum services to the patient.

Therefore, the pharmacy program in the Faculty of Pharmacy, MSA University, is revamped in such a way to offer its students a number of courses in the curriculum that emphasize written and oral communication skills, ethical and social responsibilities, cultural competence, health literacy, pharmacy practice and other competencies. All what a pharmacy graduate needs to work as an efficient member of an inter-professional team are woven throughout the curriculum in didactic and realistic course work.

Holders of a pharm-D may opt for enrolling in graduate studies in a variety of programs such as industrial pharmacy, clinical pharmacy, pharmacology, pharmaceutical chemistry, and pharmacognosy which complement the professional and scientific objectives of this program.

Vision:

The Faculty of Pharmacy of October University for Modern Sciences and Arts is a pioneer in tutelage, scientific research, and community service at the local and regional levels, and holds an advanced position among its counterparts in international Pharmacy subject ranking.

Mission:

The Faculty of Pharmacy of October University for Modern Sciences and Arts is nationally accredited, has British partnership, and is committed to producing graduates who are able to compete in national and international job markets and entrepreneurship, and to be an effective member of the medical team providing best medical care, while heeding professional ethics, through an outstanding academic programme and proficient academic staff. The faculty is devoted also to provide effective community services, and exceptional applied scientific research.

Strategic Goals:

- A competitive pharmaceutical programme that aims to attract eminent national and international students.
- Academic and applied research in the field of drug development.
- Upsurge of the community participation.
- Sustainability and development.

Values:

- Leadership spirit
- Student-centeredness
- Credibility
- Equity and non-discrimination
- Accountability
- Commitment to Quality
- Institutional Loyalty
- Team work
- Community Orientation

Partnership with University of Greenwich

The School of Science at the University of Greenwich has had a partnership with the Faculty of Pharmacy, October University for Modern Sciences and Arts since 2004. Over the years, significant developments regarding the quality provision and the enhancement of the curriculum through engagement with the University of Greenwich and MSA staff (Masters and Ph.D. scholarships in Greenwich University, annual conferences, staff development sessions) have resulted in the Faculty of Pharmacy at MSA offering its students a British-validated pharmacy program that comprises up-to-date courses covering a wide spectrum of pharmaceutical and biotechnological sciences. Courses and credit hours lies within the framework of the rules and regulations of the Egyptian Supreme Council of Universities as well as of our British partner, University of Greenwich. MSA/UoG collaboration is continuously monitored by an external examiner governed under the Umbrella of the British quality assurance and audit organization.

The partnership first started, when all MSA University programmes were based in the first and original campus in the Dokki area of Cairo. MSA constructed a new campus at 6thOctober City that was opened officially in June 2005. All of the Dokki-located students were transferred to the new campus on a year-by-year basis until all undergraduate students were finally based at the new campus.

Programme Management

The pharm-D degree is a named programme, within the University framework. The quality and content of the curriculum is the responsibility of the programme leader. The programme leader reports to the Faculty Dean. Individual courses within the programme have a designated course coordinator responsible for the day-to-day delivery.

Faculty Dean

Dean is responsible for the educational and administrative affairs of the Faculty and representing it on the University Board. The Dean is responsible for the implementation of University Board decisions at Faculty level, the supervision of curriculum development, and the development of the Faculty. The Dean collects and evaluates instructors and students' feedback and through the Faculty Board agrees any actions necessary to address issues arising from feedback. The Dean is responsible for ensuring that students receive appropriate support and guidance to assure that they are able to meet the learning outcomes of their programme.

Vice Dean for Educational and Student Affairs:

- Supervise the preparation of schedules.
- Study the needs for hiring full-time and part-time academic staff members.
- Study the needs for educational and scientific instruments and equipment.
- Care of student activities.
- Overseeing the implementation of the committees he/she is responsible for.

Vice Dean for Research and Graduate Studies:

- Overseeing the implementation of the faculty scientific research plan.
- Work to attract scientific research projects having community applications.
- Propose and organize conferences.
- Preparation of the regulatory rules for graduate studies.
- Follow-up Central Library, regarding the faculty and its various departments.
- Overseeing the implementation of the committees he/she is responsible for.

Vice Dean for Community Service and Environmental Development:

- Prepare and develop community service plan.
- Overseeing the implementation of community services.
- Overseeing the implementation of the committees he/she is responsible for.

Head of Department

- Supervise the teaching and research activities of the department.
- Oversee the scientific and administrative affairs in the department under the policy formulated by the Faculty Board in accordance with the provisions of the laws, regulations, and decisions applicable.
- Propose the distribution of lectures, tutorials, and other university responsibilities in-between the department staff members; presented and discussed at regular meetings of the department.
- Prepare proposals mandate for hiring full-time and/or part-time teaching staff for the department to be submitted to the department meetings followed by the Faculty Board.
- Follow up implementation of the decisions and the policies of the department and the faculty.
- Supervise the technicians and assistants in the department labs.
- Represent the department in the periodical meetings of the 'Board of Study' and results

accreditation council 'Assessment Program Board'.

- Represent the department in the meetings of the Faculty Council.
- Participate in the Faculty specialized committees altogether.
- Give lectures for his/her subject(s).
- Follow-up of department teaching staff, monitor and evaluate department teaching and lecturer assistants.
- Supervise the theoretical, practical, and oral examinations of the department subjects.
- Supervise the distribution of master's and doctoral dissertations on the staff members of the department.
- Follow-up the implementation of the research and community plans in the department.
- Do other similar work tasks as assigned to him/her.

Programme Leader

The programme leader plays a key role in maintaining the quality and standard of the educational process. The current programme leader has been nominated on the fall semester of 2014, and has the following responsibilities:

- Ensure that the programme is delivered in accordance with the approved learning and teaching strategies.
- Prepare a programme handbook.
- Prepare the annual monitoring reports and the critical appraisal.
- Ensure that the assessment takes place in accordance with the approved assessment strategy and that the external examiners receive assessment information.
- Lead the process of re-validation whenever required and monitor the requirements of any external reference points.
- Lead the process of programme review and update and to report to the dean on the operation of the programme.
- Attend University and Faculty assessment boards and the board of study.

Link Tutor

Link Tutor is responsible for ensuring the maintenance of the standards and delivery of the collaborative Programme, and for effective liaison with the key administrators in each Institution. Both Greenwich University Link Tutor and MSA Link Tutor are allocated to the programme of study. They are responsible to Greenwich University for ensuring the maintenance of standards; delivery of the

programme and effective liaison between the Greenwich University and MSA. The responsibilities are as included in 'Guidance in the Quality Assurance Handbook of Greenwich University'.

Course Coordinator

The course coordinator is responsible to the programme leader for:

- The organization and management of the course.
- The quality of the student experience.
- Current course contents, in collaboration with the teaching team.
- External examiners liaison.
- Advising the programme leader on programme resource issues.
- Library resource issues.
- Discussing the organization and content of the course with the teaching team.
- Engaged in the moderation and evaluation of the course.

Faculty Teaching Staff

The actual delivery and assessment of courses are important factors in determining the quality of the student experience and the standards of the University's degrees. Teaching staff have a key role in this aspect of the assurance of quality and standards for courses delivered. The teaching staff has the following responsibilities:

- Contribute to the preparation of the 'Programme Handbook'.
- Deliver and teach the course according to the course outline included in the Handbook.
- Ensure that the lectures and tutorials assigned in the schedule are delivered in the specified time all over the semester.
- Provide extra help to students whenever needed.
- Closely follow-up the performance of all students and providing support and advice whenever needed.
- Coordinate the delivery of the course to include innovative learning methods.
- Review the adequacy of the learning resources to support the course including teaching accommodation, laboratories and workshops, books, journals, software and equipment, and to advise the Programme Leader as appropriate.
- Inform the Programme Leader immediately of any issue that could have an impact on the student's learning experience.
- Take responsibility, at course level, for the implementation of the University policy on Student

Participation.

- Coordinate the preparation, monitoring, scheduling, and distribution to students of coursework assignments with accompanying assessment criteria, submission dates and return.
- Ensure the prompt return of coursework to students.
- Coordinate the preparation of examination papers for submission to the 'Control Unit' by the published deadline date, and their checking prior to being sent to the External Examiner.
- Attend the first 15 minutes of any examination component and indicate clearly where they may be contacted for the duration of the examination.
- Attend the meeting of the Programme Assessment Board and the Board of Study to confirm the accuracy and completeness of the student performance data presented to the Board.

Teaching Assistants

Teaching assistants have a key role in the teaching and learning process through their working with students in close relationship. They have the following responsibilities:

- Deliver and teach the practical course according to its outline stated in the Programme Handbook.
- Ensure that the practical sessions supply the students with the intended knowledge and skills.
- Inform the Programme Leader of any issue that may impact the students' learning experience.
- Provide an additional support to the students whenever needed.
- Closely follow up the performance of the students.
- Ensure that the practical sessions are delivered in their specified time all over the semester.
- Help in future planning to update the practical courses.
- Offer advice and guidance during the registration of courses.
- Offer academic, social and personal advice to the students.

National Accreditation and Audit Unit:

The role of the National Accreditation and Audit Unit is to:

- Follow up the academic activities including setting the academic reference standards, programme specifications, course specifications, programme report and course reports, in addition to ensuring that the learning outcomes accomplishes the Faculty vision which in turn achieves the University vision and strategic goals.
- Follow up the performance evaluation and quality assurance in the different Faculty academic and administrative departments.
- Supervise the implementations of teaching and learning strategies accredited by the Faculty.

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Programme Details and Specifications

1. Awarding Institution	2. Teaching Institution	3. Faculty/Department
October University for Modern Sciences and Arts	October University for Modern Sciences and Arts	Faculty of Pharmacy
4. Programme vision, mission and goals		
<p><u>Vision:</u> The faculty aspires to attain academic and research excellence, and to maintain wide-reaching recognition. It also strives to graduate pioneer pharmacists capable of competing in local, regional and international markets, and to participate in pharmacy professional development and community service.</p> <p><u>Mission:</u> Faculty of pharmacy, October University for Modern Sciences and Arts is committed to offering a state-of-the-art educational programme with British partnership to graduate a competent pharmacist capable of providing high quality services in the field of health care. Also, the Faculty is involved in scientific research and community service for the development of the environment.</p> <p><u>Strategic Goals:</u></p> <ul style="list-style-type: none"> A- A competitive pharmaceutical programme that aims to attract eminent national and international students. B- Academic and applied research in the field of drug development. C- Upsurge of the community participation. D- Sustainability and development. 		
5. Final award/Accreditation/External reference points		
<p>The University Council (at the request of the Faculty of Pharmacy assessment board) grants the Pharm D degree according to the credit hours' system.</p> <p>Accredited by:</p> <ul style="list-style-type: none"> • Egyptian Supreme Council of Universities (ESCU) regulations • Committee Sector for Pharmacy Education (CSPE) set up by the ESCU criteria • National Academic Reference Standards (NARS) set up by National Authority for Quality Assurance and Accreditation of Education (NAQAAE) • QAA subject benchmark statements • MSA University council • MSA Faculty of Pharmacy Quality Assurance Audit Unit. 		
6. Qualification for higher academic degrees		
<p>The Pharm D degree is the first degree in the field of pharmacy required to obtain a license to practice the profession in all available pharmacy fields, and qualify the graduate to register for the master's degree in any of the scientific departments in the Faculty.</p>		

7. Educational Programme

The duration of Pharmacy Programme is five years (five levels on ten semesters) according to the credit hours' system and an advanced field training year (excellence) (5 + 1), in addition to 100 hours' primary field training in different sites which takes place after the end of the third level and before the start of the excellence year.

Each level (academic year) is divided into two semesters (Fall and Spring) and each semester includes fifteen weeks. Some courses may be offered in a summer semester of six weeks of intensive study.

Credit hour is the unit of study measurement and is equivalent to a one theoretical contact hour weekly or a two hours- practical per week.

8. Registration

Academic advisers are available for students to offer guidance during and after registration of courses. Generally; students from first level are divided into small groups of at most 25 students. Each family is led by an academic advisor. S/he is always there for his/her students to offer academic, social and personal advice. Academic advisors' work is monitored by academic leaders. The whole system is established and followed up electronically.

The Registration Period for each semester is announced on MSA Academic Calendar almost two months prior to the academic year. Students must adhere to this period as late registration after the commencement of the semester will affect their academic progression and will also be counted as absence. Registration must be completed online, no manual schedules are allowed.

English and Math courses are automatically registered in the schedule and the student is not allowed to skip any of these courses.

A- Academic Load

During the Registration Period students are offered academic advising via their academic advisors. They are also provided with a detailed schedule prior to the start of each academic semester. If necessary, students can obtain a replacement copy from Dean office. Students are eligible to register the full load of the semester (17-19 credits) as long as he/she is not under probation.

CGPA	Permitted registration load
Less than 1.18	9 – 11 credit hours
1.19 – 1.60	12 – 13 credit hours
1.61 – 1.99	14 – 15 credit hours
2 and above	17-19 credit hours

During summer semester, students are allowed to register for a maximum of seven credit hours with courses which belong to different semesters. No courses can be registered with summer English courses as the English courses' load is spread over four days a week. If this is the student's last semester, he/she is exceptionally allowed to register for nine credit hours.

The Faculty Council may allow the student in the last two semesters to increase the academic load from the maximum limit but not exceeding three credit hours (The student can take this benefit only once). The Faculty Council may also allow the under probation students to increase the academic load during the summer semester by not more than 2 credit hours.

B- Add, drop, incomplete and repeating courses

After completion of the registration process, students may **add** to their approved hours one or more courses in any semester, provided that this is within the specified period according to the academic calendar announced for each semester, taking into consideration the minimum and maximum load of the semester.

Students may also **drop** one or more courses in any semester without being considered a student in this course if they apply for withdrawal within the specified periods according to the academic calendar announced for each semester. Those who withdraw after this specific period are considered to be failing this course.

If a student fails to attend the final exam due to any emergency or extenuating circumstance, and the University President approves the nonattendance, then an **incomplete (I)** grade will be agreed. Course work grades are transferred to students who are given an (I) grade. Subsequently, the students will be allowed to sit for the final exam of this course at the next opportunity.

Students may not **repeat** any course they have passed unless it is a requirement of an accreditation board or is crucial to the student's academic progression. Students who fail to maintain a minimum cumulative GPA of 2 will be under probation and will be allowed to repeat courses with a grade of F. The grade used in the final GPA is the final grade achieved by the student.

9. Programme regulations

A- Attendance and deprivation policy

Students must attend at least 75% of their lectures, labs and tutorials otherwise, the student will be deprived of attending the final exam and her/his grade will automatically be denoted as "F (1)". Late registering students are considered absent in their missed classes, and hold full responsibility of their late registration and are eligible to all deprivation rules. No students are exempted from deprivation. Rules apply to all registered students. Graduating students with approved conflicts from the registration admin must attend at least 50% in the conflict group only.

Official accepted excuses by the Faculty are limited to:

- Medical excuse from the University's clinic, or from an external clinic after approval from the University's clinic or from a national hospital in severe cases after approval from the University's clinic within a week after recovery.
- Death of a close relative, limited to a father, mother, brother or sister, given that a death certificate is provided. The excuse is limited to one week after the death.
- National, international, regional events, activities and competitions, and when the MSA University is represented. Only the day(s) of the event or activity will be considered.

The total excuses in the semester for any student will be accepted only for a maximum of 3 lectures or labs per subject. They will not be considered as attendance but will be deducted from percentage calculation. No excuses will be considered longer than a month in fall or spring or one week in a summer; this will only be considered in the acceptance of the course withdrawal, if the student failed to attend the specified percentage. Excuses will be only accepted within one week after the incident directly. A final deprivation list on the faculty board before entering the final exam. No excuses will be accepted by any means after the announcement of the deprivation list.

B- Probation Policy

Probation students are students who fail to achieve CGPA 2.0 (equivalent to C or $\geq 60\%$). Students are informed during their first levels on probation that they should exert utmost effort on raising their CGPA to at least 2.0 ($\geq 60\%$) to avoid being dismissed from the University and to be able to graduate. A student on probation for four consecutive semesters or a total of ten inconsecutive semesters the student will be dismissed from the faculty and will not be allowed to reregister in the same faculty again. The number of semesters on probation after which the student is dismissed from the University is determined by the ESCU.

C- Late Arrival Policy

Late arrivals disrupt the class and interrupt other student's concentration. Students are only allowed into the class during the first five minutes. Otherwise, they miss the class and are recorded as absent.

D- Late Submission Policy

Students are notified of the deadline for work submission for all pieces of their work at the start of the semester. Failure to meet the deadline results in the deduction of 10% of their mark for each working day.

E- Attendance and absence of examinations

Students must complete the final written examinations on the scheduled dates according to the academic calendar announced for each semester. Any student who is absent from the final written examination of any course will be considered as failing this course unless the student presents a compulsive excuse accepted by the Faculty Council.

10. Language of study

The programme is offered in English. However, some courses may be taught in Arabic on the recommendation of the relevant scientific department and approved by the Faculty and University Councils.

11. Primary field training and advanced field training (Excellence year)**Primary Field Training:**

The students must complete a period of primary field training with a total of 100 contact hours in the private and governmental pharmacies and hospital pharmacies approved by the Faculty Council and under the supervision of a faculty members. The training shall be conducted during the summer holidays for the years of study after the end of the third level. This training is conducted within the frame of a mechanism that was set by quality unit and there's course specs for the primary field training.

Advanced field training (Excellence year):

Students must complete the year of excellence (academic year in the sense of 9 months) after completion of the years of training in:

- Companies and factories of: human and veterinary medicines, companies and factories of: Medical supplies and devices, cosmetics, food supplements, herbs and medicinal plants, disinfectants and pesticides
- Organizations of: monitoring and following-up of local and international medicines.
- Pharmaceutical and medical research centres, bioavailability, clinical studies (CROs) Pharmaceutical marketing
- Hospitals and private and governmental pharmacies
- Those wishing to specialize in the academic field (teaching and research) could be trained in Faculties of pharmacy as well as research centres.

The training programme should include one course in clinical training.

12. Entry Requirements

MSA follows the regulations and requirements of the Egyptian Supreme Council of Universities and the Egyptian Admission Office for Students Recruitment, which are subject to changes on a yearly basis.

Prospective students have to pass the MSA English placement test before enrolment.

For transfer students (from either a different faculty or different University), an Equivalence Committee, comprising the heads of departments and the dean is responsible for reviewing and comparing transferable course descriptions, and deciding which courses are to be considered equivalent to cohort courses delivered in the Faculty, the committee's report is then raised to the University president and the admission office.

13. Teaching, learning and assessment

The overall teaching and learning strategies used to deliver this programme aim at supporting independence and self-learning. This is achieved by active discussions during lectures and tutorials, in addition to guided independent study. The teaching strategies also promote creative thinking as well as ingenious use of resources, this is realized through the use of assignments, pharmacy related activities and graduation research project. The final strategy is the promotion of teamwork and the spirit of collaboration; this is supported through the use of group activities, such as group assignments and research projects.

Assessment strategy

Variable methods of formative and summative assessments are applied regularly to measure the attainment of the programme ILOs.

The assessment measures the outcome of students' learning in terms of knowledge acquired, understanding developed, and skills gained. The assessment strategies encompass diagnostic assessment (to provide an indicator of the student's aptitude and preparedness for a programme of study and identifies possible learning problems), summative assessment (to provide a measure of achievement or failure made in respect of the student's performance in relation to the intended learning outcomes of the programme of study) and formative assessment (to provide students with feedback on progress and informs development. But it does not contribute to the overall assessment).

Summative assessments: are those applied for the courses according to the course level and are approved by the Egyptian Supreme Council of Universities.

Intended Learning Outcomes	Assessment Methods
a. Knowledge	Written exams (Quizzes, midterm and final exams) Assignments Research Projects
b. Cognitive Skills	Written exams (Quizzes, midterm and final exams) Assignments Continuous evaluation Research Projects Case studies Problem solving
c. Practical and Professional Skills	Practical Exams Assignments and research projects
d. General and Communication Skills	A variety of assessment methods are used to assess transferable key skills. These include problem solving assignments and peer-reviewed oral presentations.

Formative assessments: are those used regularly in lectures and labs to measure the ILOs conquered by the students by the end of each lecture. Different methods are applied including quizzes, online activities and direct Q&A technique. Evaluations from formative assessments are not considered in the formal summative methods.

The programme grading follows the following criteria:

Marks	Grade
≥ 90 %	A
85 - < 90 %	A ⁻
80 - < 85 %	B ⁺
75 - < 80 %	B
70 - < 75 %	B ⁻
65 - < 70 %	C ⁺
60 - < 65 %	C
< 60 %	F (Fail) I(Incomplete)

For English, Math and Computer courses the assessment follows the following criteria;

Marks	Grade
≥ 90 %	A
85 - < 90 %	A ⁻
80 - < 85 %	B ⁺
75 - < 80 %	B
70 - < 75 %	B ⁻
65 - < 70 %	C ⁺
60 - < 65 %	C
56 - < 60 %	C ⁻
53 - < 56 %	D ⁺
50 - < 53 %	D
< 50 %	F (Fail)

Grade appeals

Staff correct the answer sheets with coded numbers in the final examinations so that the identity of the student remains completely anonymous thus insuring that the assessment is truly objective reflecting the students' true academic standard. Each answer sheet is marked by two examiners.

Despite this accurate grading procedure, students are allowed to appeal against their final grade. Students need to fill a Grade Appeal available from the Faculty Registrar. The Faculty Registrar sends all grade appeals to the Examination Unit. The Examination Unit checks the students total grade of the student from the records available and also checks that there is no indication that the examiner has not missed any questions during the grading of the answer sheet. Any cases requiring the alteration of student's grade are reported by the Examination Unit to the Faculty Registrar who notifies the student.

Assessment Calendar

Formative assessments:	Week
Summative assessments:	
Mid-term written exam	Week 7-8
Final written exam	After week 14
Oral exam	After week 14
Quizzes	Weeks 4 and 12
Assignments	Due variable
Research project	Along the semester

The period of final assessment includes a deadline for submitting all work to be assessed as well as concluding all the examinations. At the end of each period of assessment, the MSA University Assessment Board meets to approve the results of all modules and award qualifications.

GPA calculation

Semester GPA

$$= \frac{\sum(\text{number of credit hours of each module in the current semester load} * \text{corresponding})}{\text{Semester total credits in the current semester load}^2}$$

The number of credits used to calculate the Cumulative GPA is the number of credits registered by the student up to this date.

Cumulative GPA for MSA degree is based on the total credits of all modules

Cummulative GPA

$$= \frac{\sum(\text{number of credit hours of each module registered up to this date} * \text{corresponding GP})}{\text{Total credits registered up to this date}}$$

Students cannot graduate with a cumulative GPA less than C which is 2.

Pharmacy Degree: National Univ. Grade	MSA Letter Grade	MSA GPA	UK Honors Level
Excellent	A, A-	≥ 3.67	1st Class
Very Good	B+, B	3.0 - 3.66	2.1 (2 nd upper Class)
Good	B-, C+	2.33 - 2.99	2.2 (2 nd lower Class)
Satisfactory	C	2.0 - 2.32	3rd Class

Taking into consideration the minimum grade requirements mentioned above, cumulative GPA for the equivalent Greenwich Award will be based on the total credits of 300 and 400 modules.

Student progression

The progression of Pharmacy students at MSA is based on pre-requisite system. The student cannot progress to the next course without having passed its pre-requisite course. Courses of the first semester have no pre-requisites except the English course ENG 101, that requires passing the MSA English placement exam.

Year progression is based on students' achieved credits which can be mapped into level progression as follows:

MSA Achieved Credits	MSA Year	University of Greenwich (UoG) Level
≤ 36	1	3
37- 74	2	4
75- 110	3	5
111- 147	4	6
148- 180	5	6

Graduation

Students shall automatically receive the award of MSA University and qualify for upon completion of the requisite number of credits with a CGPA equivalent to C or above at the end of the semester during which the total was achieved.

Graduation Ceremonies are usually held every year in September for Fall, Spring and Summer Semesters graduates.

14. Failure of courses

Student is considered to be failed :

- In the case of absence of the student without an excuse accepted by the Faculty Council for the performance of the final written examination.
- If the student receives less than 30% of the final written examination.
- Failure to achieve at least 60% of the total score of the course.
- If the student fails in any compulsory course in any semester, s/he must study the same course and test when he is offered again, but if s/he fails in an elective course, s/he can re-study or study another optional course to complete the graduation requirements, after the approval of the academic advisor and the approval of the Faculty Council.

15. Academic support

MSA University offers a variety of methods for student support and the learning resources to provide a unique, friendly, a supportive atmosphere for its students, to encourage interaction between students and aid in the learning process and the development of personal and intellectual skills. This is realized through a variety of services and facilities.

The maximum number of students accepted each year in the programme is set by ESCU.

Faculty of pharmacy, MSA University considers one of its main goals to provide a unique, friendly and pleasant atmosphere for the students. Staff members and students interact together constantly as members of one large family.

The Faculty Registrar and Student Affairs offers advice, help and support to the students, this includes:

- Advice on solving problems and the procedures to be followed.
- Enrolment and fees payment.
- Registration procedure.
- Advice on career placement and training opportunities.

- Disability support and guidance.
- Attendance excuses.
- Receive appeals and complaints.
- Counselling.
- Enrolment/Graduation Certificates.
- Providing advice on any issue that concerns students' welfare other than the above.

Subject Advice and Educational Guidance

The faculty of pharmacy's main mission is to provide a well-rounded unique learning environment for the students. Faculty of pharmacy has introduced many methods to provide academic advice and aid to all students through the following channels:

- **Academic Adviser**

Academic advisers are available for students to offer advice and guidance during and after registration of courses.

Generally; students from first level are divided into small families of at most 25. Each family is led by an academic advisor. S/he is always there for his/her students to offer academic, social and personal advice. Academic advisors' work is monitored by academic leaders. The whole system is established and followed up electronically.

Students under academic probation; failure to earn a minimum grade-point average of 2.0 will automatically place the student under academic probation during the fall or spring semester that follows. During this period, an action plan is set for them under the supervision of the probation committee, besides the assigned academic advisor in order to improve their cumulative GPA. A separate database is created to allow following up of the students. Students under academic probation receive individualized recommendations, professional guidance, and academic intervention to help them take the appropriate steps to enhance academic progress. A new follow up sheet is developed and distributed among the students under academic probation to follow up the students' lectures and laboratories attendance, besides ungraded quizzes to help them to get better marks. They are required to hold weekly meetings with their academic advisors until they clear probation.

Students who are at risk; once the student's cumulative GPA falls between 2-2.3, he/she is placed in an "at risk" zone, where the academic advisor counsels the student and assists him/her to establish a plan of study before falling under academic probation.

High achievers' students; the faculty continues to boost the number of high achiever students by organizing an event per semester, where the high achievers are recognized.

International Student Support: MSA runs 24 offices in various Countries. The offices are located in Saudi Arabia (3), Kuwait (4), Palestine (6), Jordan (10), Syria (1). MSA established testing centers in both Saudi Arabia and Jordan where the new comers are allowed to sit for the English Placement Exam to facilitate the admissions procedure of the international students. Moreover, MSA has always maintained a healthy and fruitful relationship with cultural attachés in Arab embassies.

We live in a global world, boundaries have vanished and cultures have mixed together. MSA has created open communication channels with Arab and Non-Arab Universities in order create a Model of United nation and Model of Arab League. In addition, The International Day Festival is a popular event held by MSA University.

- **Individual/Group Study**

aching assistants are available to offer extra help to students. They work with students either individually or in small groups according to their individual needs.

- **Information for students with Special Needs**

As an educational institution and employer, MSA recognizes the equal rights for all students. Thus, within this context, MSA supports any student with any form of physical disability who would require special

tutorial help in academic reading and writing. Students with physical disabilities are taken into consideration not only in respect to examination arrangements but also in attendance and in the marking of coursework and examination papers, provided that the student has reported it at an early stage. Disability that may require consideration and when necessary, MSA offers one to one deemed tutorial help.

MSA is committed to a continuous programme of upgrading its buildings in order to improve accessibility for the disabled by incorporating provisions for wheelchair users. The campus includes ramps, lifts, and toilets for special needs persons.

- **English Language and Learning Support**

MSA is an English Language medium instruction university. Students are required to sit for an English Language Placement Exam during admission. According to the exam result the student is placed in Intensive English courses that range from the upper intermediate (ENG 90), or Upper intermediate/Advanced (English 101).

Students who need additional help and who have finished all the University language requirements are urged to contact the English Support Unit in the Faculty of Languages to arrange for extra help or to attend the extra group sessions.

Graduating students are advised by their faculties to refer to the English Support Unit for guidance and support for writing their graduation documentation and referencing ethics.

Orientation day

For first year students, an orientation day is arranged to provide necessary information for first year students. Activities during that day include tour through the faculty campus, to inform the students about the different locations of the lecture halls, laboratories and staff rooms. In addition, the students are also introduced to the facilities provided by the University, such as the sport facilities, University physician ... etc. Furthermore, the students are also introduced to the protocols and facilities provided by both the MSA University and faculty of pharmacy for academic advice and appeal processes.

16. Discontinue of study

Students are considered to be discontinued of study if they do not enroll in a semester or withdraw from the class, either with or without excuse.

Students may discontinue two consecutive semesters or four non-consecutive semesters on the condition that they obtain the approval of the Faculty Council. In the event of a discontinuation for a longer period of time without an excuse accepted and approved by the Faculty Council then the regulations set by the Universities' Organization Laws will be executed.

17. Requirements for achieving Bachelor of Pharmacy (Pharm D) degree

To successfully complete the programme, the student is expected to complete a total of 180 credit hours, which are divided into 6 credit hours of University requirements (English Language courses), 9 credit hours of collateral requirements, which include Behavioral Sciences, Management Sciences and Research, and finally 165 credit hours (including 8 credits of elective courses) of core requirements which are courses that cover aspects like: Pharmaceutical Analytical Chemistry, Pharmaceutical Organic Chemistry, Medicinal Chemistry, Pharmacognosy, Clinical Pharmacy, Microbiology, Pharmaceutics, Biochemistry, and Pharmacology.

The contact hours of each course are dependent on its credits hours, for instance courses with 2 credit hours encompass 2 contact hours of lectures every week, while 3 credit hour courses encompass 4 contact hours every week (2 hours of lectures and 2 hours of laboratories/ tutorials).

18. Discipline system
Students enrolled in the programme are subject to the disciplinary system set forth in the Law on the Organization of Egyptian Universities and its Executive Regulations.
19. Departments Codes
Appendix (1)
20. Programme Curriculum and Courses Description
Appendix (2) and (3)
21. Courses Updates
A percentage of up to 20% of the course content may be updated on the proposal of the Council of the relevant scientific department and approved by the Faculty Council and approved by the University Council after giving the necessary justification.
22. Training Programme for the Year of Excellence
A detailed training programme for the final year (the year of excellence) is developed in the form of rotation courses in an appendix with a detailed training programme schedule.

Appendix (1)

Departments Codes

Departments	Codes	Supervise courses of
Analytical Chemistry	PHC	-----
Biochemistry	PHB	Research Methodology
Clinical Pharmacy	PHL	Entrepreneurship
Microbiology and Immunology	PHM	-----
Organic Chemistry	PHC	Mathematics
Pharmaceutics and Industrial Pharmacy	PHT	Professional Ethics and safety
Pharmacognosy	PHG	Information Technology
Pharmaceutical Chemistry	PHC	-----
Pharmacology and Toxicology	PHO	Anatomy and Histology/ Psychology / Physiology and Pathophysiology

Appendix (2): Programme Curriculum

Level one: 1st Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
CSP101n	Information Technology	None	2(1+1)	15	25	-	60	100	2
ENG 101n	English for Academic Purposes and Medical Terminology	ELAT exam	2(1+1)	15	25	-	60	100	2
PHC 121	Pharmaceutical Analytical Chemistry (1)	None	3(2+1)	20	40	-	90	150	2
PHC 111	Pharmaceutical Organic Chemistry (1)	None	3(2+1)	20	40	-	90	150	2
PHG 111	Medicinal Plants	None	3(2+1)	20	40	-	90	150	2
PHT 111	Pharmacy Orientation	None	1	10	-	-	40	50	1
MTH 102	Mathematics	None	1	10	-	-	40	50	1
PHO 111	Anatomy and Histology	None	3(2+1)	20	40	-	90	150	2
Total			18						

Level one: 2nd Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
ENG 102 n	English Language for Study Skills	ENG 101 n	2(1+1)	15	25	-	60	100	2
PHT 121	Physical Pharmacy	None	3(2+1)	20	40	-	90	150	2
PHC 112	Pharmaceutical Organic Chemistry (2)	Pharmaceutical Organic Chemistry	3(2+1)	20	40	-	90	150	2
PHG 112	Pharmacognosy	Medicinal Plants	3(2+1)	20	40	-	90	150	2
PHC 122	Pharmaceutical Analytical Chemistry (2)	Pharmaceutical Analytical Chemistry (1)	3(2+1)	20	40	-	90	150	2
BS 102	Psychology	None	1	10	-	-	40	50	1
PHB 111	Fundamentals of Cell Biology	None	2(1+1)	15	25	-	60	100	2
Total			17						

Level two: 3rd Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
ENG 201 n	English for Scientific Writing	English 102 n	2(1+1)	15	25	-	60	100	2
PHC 223	Pharmaceutical Analytical Chemistry (3)	Pharmaceutical Analytical Chemistry (2)	3(2+1)	20	40	-	90	150	2
PHM 211	General Microbiology and Microbial Genetics	None	2(1+1)	15	25	-	60	100	2
PHC 213	Pharmaceutical Organic Chemistry (3)	Pharmaceutical Organic Chemistry (2)	3(2+1)	20	40	15	75	150	2
PHT 231	Pharmaceutical Dosage Forms (1)	Physical Pharmacy	3(2+1)	20	40	-	90	150	2
PHO 221	Physiology and Pathophysiology	Anatomy and Histology	3(2+1)	20	40	-	90	150	2
PHB 221	Fundamentals of Molecular Genetics	Fundamentals of Cell Biology	3(2+1)	20	40	-	90	150	2
Total			19						

Level two: 4th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHG 221	Chemistry of Natural Products (1)	Pharmacognosy	3(2+1)	20	40	-	90	150	2
PHT 232	Pharmaceutical Dosage Forms (2)	Pharmaceutical Dosage Forms (1)	3(2+1)	20	40	-	90	150	2
PHO 231	Pathology and Introduction to Pharmacology	Anatomy and Histology Physiology and	3(2+1)	20	40	-	90	150	2
PHM 221	Immunology and Vaccinology	General Microbiology and Microbial Genetics	2(2+0)	25	-	-	75	100	2
PHB 231	Biochemistry (1)	Pharmaceutical Organic Chemistry (3) Physiology and Pathophysiology	3(2+1)	20	40	-	90	150	2
PHT 341	Pharmaceutical Legislations and Regulatory Affairs	None	1	10	-	-	40	50	1
RS 201	Professional Ethics and Safety	None	1	10	-	-	40	50	1
Total			16						

Level three: 5th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHG 322	Chemistry of Natural Products (2)	Chemistry of Natural Products (1)	3(2+1)	20	40	-	90	150	2
PHB 332	Biochemistry (2)	Biochemistry (1)	3(2+1)	20	40	-	90	150	2
PHC 321	Instrumental Analysis	Pharmaceutical Analytical Chemistry	3(2+1)	20	40	15	75	150	2
PHM 331	Medical Microbiology (1) Bacteriology and Mycology	Immunology and Vaccinology	3(2+1)	20	40	-	90	150	2
PHO 332	Pharmacology (1)	Pathology and Introduction to Pharmacology	3(2+1)	20	40	-	90	150	2
PHO 341	Biostatistics	Mathematics	1	10	-	-	40	50	1
PHT 333	Pharmaceutical Dosage Forms (3)	Pharmaceutical Dosage Forms (2)	3(2+1)	20	40	15	75	150	2
Total			19						

Level three: 6th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHG 331	Phytotherapy and Aromatherapy	Chemistry of Natural Products (2)	2(1+1)	15	25	-	60	100	2
PHT 334	Pharmaceutical Dosage Forms (4)	Pharmaceutical Dosage Forms (3)	3(2+1)	20	40	-	90	150	2
PHM 332	Medical Microbiology (2) Virology and Parasitology	Immunology and Vaccinology	3(2+1)	20	40	-	90	150	2
PHC 331	Medicinal Chemistry (1)	Pharmaceutical Organic Chemistry (3)	3(2+1)	20	40	-	90	150	2
PHO 333	Pharmacology (2)	Pharmacology (1)	3(2+1)	20	40	-	90	150	2
PHB 322	Cell and Pharmacogene Therapy	Fundamentals of Molecular Genetics	3(2+1)	20	40	-	90	150	2
Total			17						

Level four: 7th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHB 433	Clinical Biochemistry	Biochemistry (2)	3(2+1)	20	40	15	75	150	2
PHM 441	Pharmaceutical Microbiology	General Microbiology and Microbial Genetics	3(2+1)	20	40	15	75	150	2
PHO 434	Pharmacology (3)	Pharmacology (2)	3(2+1)	20	40	-	90	150	2
PHC 432	Medicinal Chemistry (2)	Medicinal Chemistry (1)	3(2+1)	20	40	-	90	150	2
PHT 451	Biopharmaceutics and Pharmacokinetics	Pharmaceutical Dosage Forms (4)	3(2+1)	20	40	-	90	150	2
PHM 451	Bioinformatics	Fundamentals of Molecular Genetics	2(1+1)	15	25	-	60	100	2
	Elective (1)	Course Prerequisite	2(1+1)	15	25	-	60	100	2
Total			19						

Level four: 8th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHO 441	First Aid and Toxicology	Pharmacology (3)	3(2+1)	20	40	15	75	150	2
PHL 411	Clinical Pharmacy	Biopharmaceutics and Pharmacokinetics/ Pharmacology (3)	3(2+1)	20	40	-	90	150	2
PHT 461	Pharmaceutical Technology (1)	Pharmaceutical Dosage	3(2+1)	20	40	-	90	150	2
PHM 452	Pharmaceutical Biotechnology	Bioinformatics	2(2+0)	25	-	-	75	100	2
	Elective (2)	Course Prerequisite	2(1+1)	15	25	-	60	100	2
PHL 421	Community Pharmacy Practice	Pharmacology (3)/ Pharmaceutical Dosage Forms (4)	3(2+1)	20	40	15	75	150	2
MS 403	Entrepreneurship	None	2(1+1)	15	25	-	60	100	2
RS 403	Research Methodology	Professional Ethics and Safety	1	10	-	-	40	50	1
Total			19						

Level five: 9th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHL 531	Therapeutics (1) and Drug information	Clinical Pharmacy	3(2+1)	20	40	-	90	150	2
PHL 541	Marketing and Pharmacoeconomics	Community Pharmacy Practice	3(2+1)	20	40	-	90	150	2
PHC 531	Drug Design	Medicinal Chemistry (2)	3(2+1)	20	40	15	75	150	2
	Elective (3)	Course Prerequisite	2(1+1)	15	25	-	60	100	2
PHT 562	Pharmaceutical Technology (2)	Pharmaceutical Technology (1)	2(2+0)	25	-	-	75	100	2
PHL 551	Clinical Pharmacokinetics	Biopharmaceutics and Pharmacokinetics	3(2+1)	20	40	-	90	150	2
PHM 561	Public Health	Medical Microbiology (1) and (2)	2(2+0)	25	-	-	75	100	2
Total			18						

Level five: 10th Semester

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHT 571	Advanced Drug Delivery Systems	Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	10	50	100	2
PHL 532	Therapeutics (2)	Therapeutics (1) and Drug Information	2(1+1)	15	25	-	60	100	2
PHO 535	Applied Pharmacology and Drug Interaction	Pharmacology (3)	3(2+1)	20	40	-	90	150	2
PHL 561	Pharmacovigilance and Pharmacoepidemiology	Pharmacology (3)	3(2+1)	20	40	-	90	150	2
PHC 521	Quality Control of Pharmaceuticals	Instrumental Analysis/ Pharmaceutical Microbiology/ Chemistry of Natural	3(2+1)	20	40	-	90	150	2
	Elective (4)	Course Prerequisite	2 (1+1)	15	25	-	60	100	
PHT 563	Good Manufacturing Practice	Pharmaceutical Technology (2)	1	10	-	-	40	50	1
PHL 522	Hospital Pharmacy	Pharmacology (3)/ Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	-	60	100	2
Total			18						

Elective courses

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHB 401	Clinical Nutrition	Clinical Biochemistry	2(1+1)	15	25	-	60	100	2
PHB 402	Proteomics	Clinical Biochemistry	2(1+1)	15	25	-	60	100	2
PHB 403	Bioanalysis	Biochemistry (2)	2(1+1)	15	25	-	60	100	2
PHB 501	Transcriptomics	Clinical Biochemistry	2 (1+1)	15	25	-	60	100	2
PHC 401	Environmental Analysis and Remediation	Pharmaceutical Analytical Chemistry (3)	2(1+1)	15	25	-	60	100	2
PHC 402	Food and Cosmetics Analysis	Instrumental Analysis	2(1+1)	15	25	-	60	100	2
PHC 501	Forensic Chemistry	Instrumental Analysis/ First Aid and Toxicology / Chemistry of Natural Products (2)	2(1+1)	15	25	-	60	100	2
PHC 403	Radiopharmaceutical Chemistry	Medicinal Chemistry (2)	2(1+1)	15	25	-	60	100	2

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/ tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHC 404	Advanced Organic Chemistry	Pharmaceutical Organic Chemistry (3)	2(1+1)	15	25	-	60	100	2
PHM 401	Diagnostic Microbiology	Pharmaceutical Microbiology	2(1+1)	15	25	-	60	100	2
PHM 402	Bioproducts	Pharmaceutical Biotechnology	2(1+1)	15	25	-	60	100	2
PHM 403	Bioremediation of Pharmaceutical Wastes	Pharmaceutical Biotechnology	2(1+1)	15	25	-	60	100	2
PHO 401	Drugs and Sports	Pharmacology(3)	2(1+1)	15	25	-	60	100	2
PHO 402	Drug Abuse	Pharmacology(3)	2(1+1)	15	25	-	60	100	2
PHO 403	Stem Cells and Regenerative Medicine	Cell and Pharmacogene Therapy	2(1+1)	15	25	-	60	100	2

Course Code	Course Title	Prerequisite	Credit	Assessment					
				Periodicals	Practical/tutorial	Oral exam	Written exam	Total Marks	Final exam hours
PHL 401	Pharmacogenomics	Fundamentals Of Molecular Genetics	2(1+1)	15	25	-	60	100	2
PHG 401	Computational Phytochemistry	Chemistry of Natural Products (2)	2(1+1)	15	25	-	60	100	2
PHG 402	Marine Natural Products	Chemistry of Natural Products (2)	2(1+1)	15	25	-	60	100	2
PHT 401	Cosmetics	Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	-	60	100	2
PHT 402	Registration of Generic Products	Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	-	60	100	2
PHT 403	Computer-Aided Process Design	Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	-	60	100	2
PHT 404	Veterinary Pharmacy	Pharmaceutical Dosage Forms (4)	2(1+1)	15	25	-	60	100	2

Elective courses are offered to Junior and Senior students who have finished the corresponding prerequisite of each elective. The Faculty Assessment Board determines the elective courses offered each semester and the academic advisers offer help to students concerning choosing the elective. New courses might be added and other courses might be modified to cope with the vast rapid development in the different Pharmaceutical fields.

Appendix (3): Courses description

Level one:

Information Technology

Code: CSP 101n **Pre-requisites:** None **Supervision Department:** Pharmacognosy

Credit hours: 2

Contact hours: 3

Course Outline:

This course tends to provide students of all university's faculties with a brief introduction to the world of computers and the concept of information technology including: number systems and data representation, computer system components: hardware and software, storage and input/output systems, Operating systems and Utility Systems, software applications. Also it gives an overview about computer networks and internet: data communication, transmission modes, transmission media, computer networks, internet protocol, and internet services. It practices some computer applications in the laboratory such as Internet Access, word processing and power point. It gives students a practical experience on developing projects related to the specialty of each faculty.

English for Academic Purposes and Medical Terminology

Code: ENG 101n **Pre-requisites:** ELAT exam

Credit hours: 2

Contact hours: 3

Course Outline:

The aim of the course is to enable students to write a fully developed five-paragraph academic essay with different rhetorical modes while being able to edit their writing to improve their writing skills, It also includes introduction to medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes, medical terms pertaining to major body systems.

Pharmaceutical Analytical Chemistry (1)

Code: PHC 121 **Pre-requisites:** None **Department:** Analytical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at enabling the students to understand the chemical Kinetics, rate of reaction, molecularity, chemical equilibrium, activation energy and catalysis, photochemistry, absorbed energy and quantum yield. The course acquaints the students with the appropriate setting regarding general chemistry; types of chemical reactions, calculations of concentrations of substances, analysis of anions, analysis of cations together with analysis of mixture of anions and cations.

Pharmaceutical Organic Chemistry (1)

Code: PHC 111 **Pre-requisites:** None **Department:** Organic Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

The objectives of this course are to provide students with the basic knowledge in pharmaceutical organic chemistry, which will serve as fundamentals for other courses offered during subsequent semesters. This

course involves electronic structure of atom, alkanes [nomenclature, synthesis and reactions (free radical reactions)], and cycloalkanes, alkenes, alkadienes (conjugated and allenes) and alkynes. It also includes stereochemistry (Optical isomers, racemic modification, configurational isomers and conformational isomers), arenes, aromatic compounds, aromaticity and orientation and electrophilic aromatic substitution.

Medicinal Plants

Code: PHG 111

Pre-requisites: None

Department: Pharmacognosy

Credit hours: 3

Contact hours: 4

Course Outline:

The aim of the course is to provide students with knowledge necessary to identify and prepare a crude drug from the farm to the firm. In this course, the student will study: importance of natural products, preparation of natural products-derived drugs including collection, storage, preservation and adulteration. The course will introduce the students to the different classes of secondary metabolites. In addition, the course introduces students to some botanical drugs of leaves, flower, bark and wood origin together with possible herbal-drug interactions of selected examples of these drugs and to have an overview over their phytopharmaceuticals available on the market specially the Egyptian market.

Pharmacy Orientation

Code: PHT 111

Pre-requisites: None

Department: Pharmaceutics and

Industrial Pharmacy

Credit hours: 1

Contact hours: 1

Course Outline:

This course introduces students to different pharmacy career opportunities. It provides the students with knowledge on sources of medication, different dosage forms. It allows them to learn the history of pharmacy, the effective role of pharmacist among health care team. The course also provides students with in-depth knowledge of the pros and cons of different drug delivery systems and their methods of preparation.

Mathematics

Code: MTH 102

Pre-requisites:None

Supervision Department: Organic Chemistry

Credit hours: 1

Contact hours: 1

Course Outline:

The course includes: Functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, and hypothesis testing.

Anatomy and Histology

Code: PHO111 **Pre-requisites:** None

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to provide comprehensive knowledge about the basic structure of the human body and its clinical significance that provides a strong foundation for future studies. It deals with human morphology in a systematic approach that starts with the cellular level of organization followed by tissue, organ and system levels, starting with study of the basic tissues of the body and their developmental origin. This is followed by the build-up of organs which constitute the various body systems, starting with the study of musculo-skeletal, cardiovascular, respiratory, digestive, urinary, reproductive systems, the nervous and endocrine systems. It also aims to teach the students the basic histological structures of different cells and tissues of human body; preparing them for studying organs and systems, the correlation between function and structure of various tissues and to prepare students for studying Histopathology.

English Language for Study Skills

Code: ENG 102 n

Pre-requisites: ENG 101 n

Credit hours: 2

Contact hours: 3

Course Outline:

The main aim of this course is to develop the skills necessary to support academic reading and writing to enable students to engage in their chosen degree programme. It enables students to paraphrase, summarize and analyse and synthesize texts from a variety sources to incorporate in their writings, draw an outline and prepare a draft for an academic essay, analyse research findings and classify data and to use grammar effectively to produce appropriate academic writing.

Physical Pharmacy

Code: PHT 121
Industrial Pharmacy

Pre-requisites: None

Department: Pharmaceutics and

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to provide students with knowledge of physicochemical principles essential for the design and formulation of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, phase equilibrium, colligative properties, isotonicity, solubility, dissolution, partition coefficient, surface and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behaviour of dosage forms.

Pharmaceutical Organic Chemistry (2)

Code: PHC 112

Pre-requisites: Pharmaceutical Organic Chemistry (1)

Department: Organic Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to acquire basic knowledge and skills to understand, apply and synthesize different aliphatic and benzenoid organic compounds. This course involves different classes of organic compounds: Alkyl halides (nomenclature, preparation and chemical reactions (SN1, SN2, E1, E2), aryl halides, Alcohols, Phenols, ethers & epoxides, aldehydes, ketones, carboxylic acid & acid derivatives, sulphonic acids, polynuclear and nitrogenous compounds.

Pharmacognosy**Code:** PHG 112**Pre-requisites:** Medicinal Plants **Department:** Pharmacognosy**Credit hours:** 3**Contact hours:** 4**Course Outline:**

The student will have the knowledge and skills that enable them to differentiate between different organs (seeds, fruits, herbs, subterranean organs, and unorganized drugs in addition to drugs of marine and animal origin) through their monographs, including identify their active constituents and adulterants describe micro- and macro-morphological characteristics, benefits and precautions of their medicinal uses, side effects and contraindications.

Pharmaceutical Analytical Chemistry (2)**Code:** PHC 122**Pre-requisites:** Pharmaceutical Analytical Chemistry (1)**Department:** Analytical Chemistry**Credit hours:** 3**Contact hours:** 4**Course Outline:**

This course aims at introducing the students to the fundamental principles underlying the quantitative analytical chemistry and stoichiometric determinations. Students will be able to comprehend the basic titrimetric methods of chemical analysis covering the major types of reactions; acid-base, metal/ligand complexation, and finally precipitation. In addition, students will recognize the difference between aqueous and non-aqueous titrations and the different titration processes; direct and indirect titration, back – titration and their quantitative applications in pharmaceutical laboratories. This course will also prepare the students to the advanced analytical techniques.

Psychology**Code:** BS 102**Pre-requisites:** None**Supervision Department:** Pharmacology and Toxicology**Credit hours:** 1**Contact hours:** 1**Course Outline:**

This course ensures that students gained the basic knowledge and skills relevant to basic psychological science involving attention, learning and memory functions. It allows the student to demonstrate and explain general psychological and cognitive abilities and coping styles with stress with different defence mechanisms.

Fundamentals of Cell Biology**Code:** PHB 111**Pre-requisites:** None**Department:** Biochemistry**Credit hours:** 2**Contact hours:** 3**Course Outline:**

This course focuses on Eukaryotic cell biology and covers crucial topics such as membrane structure and composition, transport and trafficking; the cytoskeleton and intercellular communications. The breakdown of macromolecules and generation of energy; and the integration of cells into tissues are also included. It also covers important cellular processes such as cell cycle regulation, signal transduction, apoptosis (programmed cell death), and cancer cell biology. It targets enhancement of students'

understanding for the cellular behavior, the cell to cell communications, as well as the intracellular signaling. In addition, it briefly shows how do cells commit suicide, or in other words undergo apoptosis.

Level two:

English for Scientific Writing

Code: ENG 201n

Pre-requisites: ENG 102n

Credit hours: 2

Contact hours: 3

Course Outline:

In designing this course, the main priority was to provide students with the practical skills needed in writing an APA correctly documented academic research paper. It will take the students through the journey of developing and improving their ability to outline and write effectively a Literature Review paper in the relevant area. In addition, it will present the students with the academically and ethically accepted techniques of presenting other people's work by instilling the correct use of documentation to avoid plagiarism.

Pharmaceutical Analytical Chemistry (3)

Code: PHC 223

Pre-requisites: Pharmaceutical Analytical Chemistry (2)

Department: Analytical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at enabling the students to understand the underlying principles redox titrations, theory, oxidation potentials, redox indicators, selected oxidants and reductants, applications of redox titrations. The course will also cover different electrochemical methods for drug analysis, including potentiometry, conductometry and polarography. At the end of the course, students will be acquainted with applied pharmaceutical analysis such as water.

General Microbiology and Microbial Genetics

Code: PHM 211

Pre-requisites: None

Department: Microbiology and Immunology

Credit hours: 2

Contact hours: 3

Course Outline:

The course aims to provide the students with basic knowledge about various types of microorganisms with their structure, morphology and components of the microbial cell. In addition, describe the structure of nucleic acids, DNA and RNA, DNA replication, transcription and translation in formation of proteins, gene transfer and mutation.

Pharmaceutical Organic Chemistry (3)

Code: PHC 213

Pre-requisites: Pharmaceutical Organic Chemistry (2)

Department: Organic Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of the course are to give the students' comprehended knowledge and clear understanding about heterocyclic compounds, structures, nomenclature and their chemical reactions. The course also aimed at giving the student basic knowledge and skills about spectroscopy and the methods different spectroscopic tools, including infrared (IR), nuclear magnetic resonance (NMR) and mass spectrometry (MS) for the structural elucidation of organic compounds. Moreover, one of the objectives of this course is acquiring students' clear understanding of amino acid & peptides chemistry to help them with the incoming biochemistry courses.

Pharmaceutical Dosage Forms (1)

Code: PHT 231 **Pre-requisites:** Physical Pharmacy

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to study of the system of weights, measures, mathematical expertise and pharmaceutical calculations requisite to the compounding, dispensing, and utilization of drugs in pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions, emulsions and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered

Physiology and Pathophysiology

Code: PHO 221 **Pre-requisites:** Anatomy and Histology

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of the course are to explain the basic functions of the human body (nervous systems, neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal, reproductive, and renal systems, endocrine glands) to the students and help them to acquire skills in the performance and the interpretation of some basic tests.

Fundamentals of Molecular Genetics

Code: PHB 221 **Pre-requisites:** Fundamentals of Cell Biology **Department:** Biochemistry

Credit hours: 3

Contact hours: 4

Course Outline:

The course gives an introduction to molecular biology and genetics and methods used within these fields. It serves as a broad introduction to the structure and function of nucleic acids, basic processes that regulate expression of genetic information, biological processes that direct inheritance of genetic information, and the outcome of those processes. It also deals with studying nucleic acids replication, damage, repair, and control of gene expression. Weekly laboratory exercises are an essential component of this course and will be used to explore various molecular and biochemical techniques for isolating, replicating and analyzing nucleic acids and studying modes of inheritance. Studying protein structure and function – especially protein interactions with nucleic acids – and post-translational events is also an

essential part of this course.

Chemistry of Natural Products (1)

Code: PHG 221

Pre-requisites: Pharmacognosy

Department: Pharmacognosy

Credit hours: 3

Contact hours: 4

Course Outline:

The course aims to gain students the knowledge and skills that enable them to understand, describe and deal with the chemistry of carbohydrates and glycosides, resins, miscellaneous terpenoids, bitters, tannins and antioxidants of plant or animal origin, of plant or animal origin and different techniques used for their preparation, identification and determination. Also, the students will become aware of different chromatographic methods used for isolation and analysis of different plant constituents and their pharmacological actions and medicinal uses.

Pharmaceutical Dosage Forms (2)

Code: PHT 232

Pre-requisites: Pharmaceutical Dosage Forms (1)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The course covers the structure and function of skin, targets for skin applications, basic principles of diffusion through membranes and factors affecting percutaneous absorption. The course acquire students good experience in design, formulation, manufacture and evaluation of topical (creams, ointments, gels and pastes or transdermal dosage forms including techniques (physical and chemical) for enhancing skin penetration. The course also covers the importance of kinetics and its application in Pharmacy.

Pathology and Introduction to Pharmacology

Code: PHO 231

Pre-requisites: Physiology and Pathophysiology

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course is concerned with the understanding of the changes that occur in major disease changing the normal physiologic function to a pathologic condition. Moreover this understanding paves the way to give the students of the importance of pharmacologic interventions to treat patients and to change these pathologic conditions to normal physiology. The basic pharmacokinetics and dynamics of drugs are fully discussed.

Immunology and Vaccinology

Code: PHM 221

Pre-requisites: General Microbiology and Microbial Genetics

Department: Microbiology and Immunology

Credit hours: 2

Contact hours: 2

Course Outline:

This course aims at providing the students with basic knowledge of the human immune system and the underlying mechanisms of immune functions in health and disease conditions, such as infectious diseases and tumours, in addition to their consequences for immunization and immunological memory. The course discusses the basis of vaccinology, the science field aiming for the prevention and/or treatment of pathologies of infectious or non-infectious (allergy, cancer, others) origin.

Biochemistry (1)

Code: PHB 231

Pre-requisites: Pharmaceutical Organic Chemistry (3) / Physiology and Pathophysiology

Department: Biochemistry

Credit hours: 3

Contact hours: 4

Course Outline:

The aim of this course is to build the basic knowledge about different food classes inside the body, its different forms and how it can be transported within the body and across the cell membrane. The course also targets the understanding of enzymes, haemoglobin and biological oxidations and its associated clinical correlations.

Professional Ethics and Safety

Code: RS 201

Pre-requisites: None

Supervision

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 1

Contact hours: 1

Course Outline:

The course aims at increasing the awareness of the students to the importance of both ethical and biosafety aspects as a rapidly growing field. It allows them to understand, identify and solve problems in critical, creative and ethical manner, recognize the value of self and others in order to be a productive member of a diverse global society. It also aims at preparing students to embark on related post – graduate studies of interest which would provide better opportunities and advancement in the relevant areas of pharmacology ...etc.

Pharmaceutical Legislations and Regulatory Affairs

Code: PHT 341 **Pre-requisites:** None

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 1

Contact hours: 1

Course Outline:

This course aims at describing the relationship between pharmacists and patients, health professionals and society, discussing the laws and legislations governing the practice of pharmacy, discussing all kinds of violations and its penalties as well as discussion of drug diversion and abuse mentioning the schedule drugs and distinguishing drug registration rules.

Level three:**Chemistry of Natural Products (2)****Code:** PHG 322**Pre-requisites:** Chemistry of Natural Products (1)**Department:** Pharmacognosy**Credit hours:** 3**Contact hours:** 4**Course Outline:**

This course aims to enable students to demonstrate the knowledge and experience that enables them to understand describe and deal with the chemistry of alkaloids of plant, fungi or animal origin as well as techniques for their isolation, identification and determination in their respective sources. The course focuses on the structure activity relationships (SAR) of these natural products derived compounds and their pharmacophoric features. Also, it deals with volatile oils from plant and animal origin, as well as techniques for their isolation, identification and determination in their respective sources.

Biochemistry (2)**Code:** PHB 332**Pre-requisites:** Biochemistry (1)**Department:** Biochemistry**Credit hours:** 3**Contact hours:** 4**Course Outline:**

This course aims to enable students to understand the metabolic processes occurring in the human body, to provide the basic knowledge about the chemical constituents of biological fluids in health and disease and to increase awareness of the biochemical methodology in order to be aware with the clinical biochemistry techniques as diagnostic tools and to be able to interpret the results for appropriate diagnosis.

Instrumental Analysis**Code:** PHC 321**Pre-requisites:** Pharmaceutical Analytical Chemistry (3)**Department:** Analytical Chemistry**Credit hours:** 3**Contact hours:** 4**Course Outline:**

This course aims at enabling the students to understand the underlying principles of spectroscopic methods of analysis as well as the chromatographic methods. Also the course will allow the students to elucidate the importance of this advanced instrumental methods for chemical analysis in order that he/she understands that these tools are crucial for the investigation of any pharmaceutical product from the qualitative and quantitative aspects. Also, the course acquaints the students with the appropriate setting regarding basic components of instrumentation and applications of each method.

Medical Microbiology (1)**Code:** PHM 331**Pre-requisites:** Immunology and Vaccinology**Department:** Microbiology and Immunology**Credit hours:** 3**Contact hours:** 4**Course Outline:**

This course aims at illustrating the microbiological aspects of infectious diseases, their aetiology and clinical manifestation, routes of transmission, treatment and techniques in detection and identification of pathogenic microorganisms.

Pharmacology (1)

Code: PHO 332

Pre-requisites: Pathology and Introduction to Pharmacology

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to study the action of drugs on biological systems and main organs of the human body. The course focuses on the effect of drugs on normal or abnormal biochemical functions of the autonomic nervous system, neuromuscular, respiratory and digestive systems, as well as the autacoid group of drugs. The students will encompass basic drug composition and properties, synthesis molecular and cellular mechanisms of action, organ-systems mechanisms, signal transduction-cellular communication, besides medical applications, adverse effects and toxicity.

Biostatistics

Code: PHO 341

Pre-requisites: Mathematics

Department: Pharmacology and Toxicology

Credit hours: 1

Contact hours: 1

Course Outline:

This course provides basic concepts of biostatistics and data analysis. It includes introduction to descriptive and inferential statistics, interpretation of estimates, confidence intervals and significance tests, elementary concepts of probability and sampling; binomial and normal distribution, basic concepts of hypothesis testing, estimation and confidence intervals, t-test and chi-square test, linear regression theory and the analysis of variance.

Pharmaceutical Dosage Forms (3)

Code: PHT 333

Pre-requisites: Pharmaceutical Dosage Forms (2)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to develop deep understanding of the design, formulation and manufacture of different solid dosage forms (powder, granules, tablets, capsules and suppository). Additionally; the course provides the student with knowledge on various methods employed for evaluation of different solid dosage forms.

Phytotherapy and Aromatherapy

Code: PHG 331

Pre-requisites: Chemistry of Natural Products (2)

Department: Pharmacognosy

Credit hours: 2

Contact hours: 3

Course Outline:

Students Handbook 2019

This course will allow the students to know guidelines for prescribing herbal medicinal drugs on the basis of the pharmacological properties of these drugs including therapeutic uses, mechanism of action, dosage, adverse reactions, contraindications and drug interactions. The course also allows students to understand pharmacotherapeutic principles applied to the treatment of different diseases, pharmacovigilance and rational use of drugs. Also the student will understand the basis of complementary and alternative medicine with emphasis on herbal remedies, nutritional supplements, homeopathies, aromatherapy and their effect on maintaining optimum health and prevention of chronic diseases.

Pharmaceutical Dosage Forms (4)

Code: PHT 334

Pre-requisites: Pharmaceutical Dosage Forms (3)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The course is designed to provide the student with adequate knowledge on sterile dosage forms including parenteral, ophthalmic and aerosols. It also includes fundamental principles used in formulation, manifestation and evaluation of sterile dosage (parenteral, ophthalmic and aerosols), different excipients for products stability, sterilization methods as well as the quality control of the finished products will be studied. The student will be acquainted to fundamentals of radiopharmaceuticals and radioisotopes, application and methods for protection from radiation.

Medical Microbiology (2)

Code: PHM 332

Pre-requisites: Immunology and Vaccinology

Department: Microbiology and Immunology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at providing students with basic knowledge about various types of parasites and their mode of transmission, as well as the diseases they cause, to raise the awareness of important parasites especially those endemic in Egypt, laboratory diagnosis and treatment of each parasitic disease. It also includes demonstrating pathophysiological changes that occur as a result of cellular injury and to recognize correlation between the cellular and the system changes that occur in selected disease processes with common presenting clinical manifestations. Students will be able to recognize structural components of the viruses and how they influence pathogenesis of the diseases and how they are transmitted among individuals and populations.

Medicinal Chemistry (1)

Code: PHC 331

Pre-requisites: Pharmaceutical Organic Chemistry (3)

Department: Pharmaceutical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at introducing the students to the different classes of chemotherapeutic pharmaceutical compounds as well as antihistaminics and oral hypoglycemics. Students will learn how to outline the

structure activity relationship of different classes of pharmaceutical compounds. In a practical setting, students will also learn how to detect the purity of and analyze different dosage forms of drugs belonging to the studied classes of pharmaceuticals.

Pharmacology (2)

Code: PHO 333

Pre-requisites: Pharmacology (1)

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to study the action of drugs on biological systems and main organs of the human body. The course focuses on the effect of drugs on normal or abnormal biochemical functions of the central nervous system, kidney, cardiovascular and blood systems. The students will encompass basic drug composition and properties, molecular and cellular mechanisms of action, organ-systems mechanisms, signal transduction, cellular communication, besides clinical applications, adverse effects and toxicity.

Cell and Pharmacogene Therapy

Code: PHB 322

Pre-requisites: Fundamentals of Molecular Genetics

Department: Biochemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course covers the various strategies for molecular and cellular therapies for human diseases, including their advantages and challenges to their widespread applications. It provides an overview of advances on novel therapeutics and gives examples of disease conditions where these strategies have been translated to the clinic. It also highlights state of the art into current research aspects of molecular and cell therapies. Its general aim is to increase the understanding in the theoretical potential of cell and gene therapy as well as the limitations that still need to be dealt with before cell and gene therapy can be applied more broadly.

Level four:

Clinical Biochemistry

Code: PHB 433

Pre-requisites: Biochemistry (2)

Department: Biochemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at enabling the students to review and monitor the biochemical and pathological changes in disorders of (endocrine glands, renal function, hepatic function, gastric function, bone and mineral metabolism). Also, the course will allow the students to recognize the importance of clinical enzymology and myocardial infarction, tumor markers, acid-base balance and some recent biomarkers used in diagnosis. The course aims also to introduce the students to biochemistry of aging and

biochemistry of cancer. It acquaints the students with the appropriate setting regarding application of clinical biochemistry in diagnosis.

Pharmaceutical Microbiology

Code: PHM 441

Pre-requisites: General Microbiology and Microbial Genetics

Department: Microbiology and Immunology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at providing students with basic knowledge about the nature of micro-organisms, contamination sources and control in pharmaceutical industry and hospitals. It also aims at explaining the principles, properties and mode of action as well as conditions under which different agents of sterilization function, in addition to evaluating the efficiency of each sterilization process by different testing methods. The course also focus on explaining the mode of action of antimicrobial agents, their spectrum of activity and possible side effects, evaluating the potency of antibiotics, preservatives and disinfectants.

Pharmacology (3)

Code: PHO 434

Pre-requisites: Pharmacology (2)

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims to study the action of drugs on biological systems and main organs of the human body. The course focuses on the effect of drugs on normal or abnormal biochemical functions of the endocrine and immune systems. Also the drugs affecting inflammation, rheumatic diseases and gout are discussed. Moreover the different antimicrobials and anticancer drugs are explained. The students will encompasses basic drug composition and properties, molecular and cellular mechanisms of action, organ-systems mechanisms, signal transduction, cellular communication, besides clinical applications, adverse effects and toxicity.

Medicinal Chemistry (2)

Code: PHC 432

Pre-requisites: Medicinal Chemistry (1)

Department: Pharmaceutical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at acquainting the students the drugs acting on and thus modulating the biological activity of the CNS, ANS and CVS. Students will be also introduced to hormonal drugs, analgesics and local anesthetics. Students will learn how to identify a drug's category based on its structure especially the pharmacophoric part and point out how minor changes in the drug's structure affect the drugs activity. Students also will have hands-on the various methods for identifying a drug and investigating its purity applying quality control techniques.

Biopharmaceutics and Pharmacokinetics

Code: PHT 451 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The course aims at enabling the students to understand the pharmacokinetics concept to guide the formulation, dosage-regimen design and optimizing drug usage. It highlights the concept of ADME phenomena (absorption, distribution, metabolism and elimination) through different models of drug disposition. The course also explores the basic principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability. It covers the effect of the physicochemical properties of drugs and drug products on the bioavailability of these drugs. The ability to communicate effectively the physicochemical properties of the drug product and the relevant physiology leading to the optimization of drug delivery by any route of administration will be emphasized

Bioinformatics

Code: PHM 451 **Pre-requisites:** Fundamentals of Molecular Genetics

Department: Microbiology and Immunology

Credit hours: 2

Contact hours: 2

Course Outline:

This course is designed to give students both a theoretical background and a working knowledge of the techniques employed in bioinformatics. Emphasis will be placed on biological sequence (DNA, RNA, protein) analysis and its applications. It provides an introduction to the principles and practical approaches of bioinformatics as applied to genes and proteins. An integrated lecture/lab structure with hands-on exercises and small-scale projects emphasizes modern developments in genomics and proteomics. Major topics include: Genomic and biomolecular bioinformatic resources, Advances in sequencing technologies; Genome informatics, Structural informatics, and Transcriptomics. Tools, techniques and best practices that foster reproducible bioinformatics research will also be included.

First Aid and Toxicology

Code: PHO 441 **Pre-requisites:** Pharmacology (3) **Department:** Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at providing the pharmacologic and clinical knowledge about some commonly occurring toxicological problems affecting different body systems and their implications in health promotion. It also focuses on methods of detection, prevention and treatment. Also it enables the students to understand the methods of diagnosis and management of common injuries and emergency medical problems.

Clinical Pharmacy

Code: PHL 411 **Pre-requisites:** Biopharmaceutics and Pharmacokinetics/Pharmacology (3)

Department: Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of this course are to help the student recall, comprehend and relate management concepts,

functions and skills to pharmacy practice. Topics taught to the students will provide the facts and knowledge to make therapeutic decisions. Analytical skills, however, are attained through case studies and problem-oriented discussions. It is expected that the students will develop competence in developing the most patient-specific therapeutic plans by integration of the knowledge obtained in this course, other courses in biochemistry and information given in pharmacology.

Pharmaceutical Technology (1)

Code: PHT 461 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of the course are to provide students with an introduction to industrial pharmacy and to help them acquire experience in machinery, equipment and peripherals used in a drug manufacturing facility. It also familiarize students with some pharmaceutical operations used in pharmaceutical industry, such as heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization, and extraction. It helps them focus on the application of these unit operations in pharmaceutical industry with emphasis on the equipment and machines used during the production of different dosage forms.

Pharmaceutical Biotechnology

Code: PHM 452 **Pre-requisites:** Bioinformatics

Department: Microbiology and Immunology

Credit hours: 2

Contact hours: 2

Course Outline:

The course aims to provide students with fundamentals, scope and applications in biotechnology through studying fermentation technology, upstream, downstream and scaling up and down processes. It also includes the use of molecular techniques for production of recombinant products and other major biotechnological products, biotransformation, bioremediation, bioleaching, bio insecticides, bio surfactants and biopolymer production.

Community Pharmacy Practice

Code: PHL 421 **Pre-requisites:** Pharmacology (3)/Pharmaceutical Dosage Forms (4) **Department:**

Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The course aims to qualify the students to interact professionally with patients in community pharmacies to provide better medication use and improve therapeutic outcome. In addition, it focuses mainly on the therapeutics, treatment guidelines of OTC drugs and patient counselling.

Entrepreneurship

Code: MS 403 **Pre-requisites:** None **Supervising Department:** Clinical Pharmacy

Credit hours: 2

Contact hours: 2

Course Outline:

The aims of the course is to immerse students into the world of innovation as a systemic process of tackling relevant business of social problems using a practical hands-on approach to allow students to

have the necessary skills to identify, design, implement and scale an original and feasible technological innovations in the healthcare field.

Research Methodology

Code: RS 403

Pre-requisites: Professional Ethics and Safety

Department: Biochemistry

Credit hours: 1

Contact hours: 1

Course Outline:

The course aims to introduce the different types of research and research methodologies, elaborate the criteria for a good research, designing an experiment, analyse and present data appropriately and to Write and critique a scientific paper.

Level five:

Therapeutics (1) and Drug information

Code: PHL 531 **Pre-requisites:** Clinical Pharmacy

Department: Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of the course are to extend knowledge about therapeutics of different disease states, enable the student to collect data about patients and correlate patient history with the proper medication. It also aims to improve the drug monitoring ability of the student.

Marketing and Pharmacoeconomics

Code: PHL 541

Pre-requisites: Community Pharmacy Practice

Department: Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Pharmacoeconomics

The aims of the course are to shed the light on the science of health economics and introduce the students to the key principles and the different terminologies utilized, introduce the students to the different types of economic evaluation studies and highlight their importance in assessing different interventions and consequently aiding in the decision-making process and teach the students some modelling techniques. In addition, the course aims to familiarize the students with the definitions in health technology assessment and to discuss the components of healthcare financing and explain different methods of pricing.

Marketing

The objective of this course is to introduce students to the concepts, analyses, and activities that comprise marketing management, and to provide practice in assessing and solving marketing problems. The course is also a foundation for advanced electives in Marketing as well as other business/social disciplines. Topics include marketing strategy, customer behavior, segmentation, market research, product management, pricing, promotion, sales force management and competitive analysis.

Drug Design

Code: PHC 531

Pre-requisites: Medicinal Chemistry (2)

Department: Pharmaceutical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at introducing the students to the fundamental aspects and current methodologies involved in drug design as a starting step for drug discovery. The course will also focus on the role of molecular recognition in drug design, different strategies for lead discovery and optimization and the concept of drug latention and prodrugs. Furthermore, the course aims to introduce to the students to the molecular aspects affecting ADME properties, as well as drug toxicity.

Pharmaceutical Technology (2)

Code: PHT 562

Pre-requisites: Pharmaceutical Technology (1)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 2

Contact hours: 2

Course Outline:

This course aims at acquiring students with experience various unit operations in pharmaceutical industry with emphasis on size reduction, size separation, size analysis and size enlargement involved in the process development, scale-up and manufacturing of pharmaceutical drug products in industry (conventional / advanced nanotechnology based. The student will be able to design specific machinery flow charts in drug manufacturing operations. The container/closure systems, some of the packaging processing methods are covered. The vision about designing a quality product and its manufacturing process to consistently deliver the intended performance of the product to meet patient needs is discussed by applying Quality-by-Design principles.

Clinical Pharmacokinetics

Code: PHL 551

Pre-requisites: Biopharmaceutics and Pharmacokinetics

Department: Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The aim of this course is to provide basic principles of pharmacokinetics and their application to the clinical setting. It includes studying different pharmacokinetic models following single intravenous bolus (one and two compartments), single oral dose, IV infusion, and multiple dosing. Non-linear pharmacokinetics will be also demonstrated. It also aims to learn the students about the sources of variability in pharmacokinetics, dosage regimen and dosage adjustment in children, obese, elderly patients and chronic disease states. Therapeutic drug monitoring approach is also included in this course. In addition, it aims to learn the students about dosage individualization of some drugs having narrow therapeutic index especially in patients with compromised renal and hepatic function.

Public Health

Code: PHM 561

Pre-requisites: Medical Microbiology (2)

Department: Microbiology and Immunology

Credit hours: 2

Contact hours: 2

Course Outline:

This course aims at providing senior students with all scientific information required for health education and promotion directed to the community health and to introduce the student to the bases and principles of public health and epidemiology. Different diseases of international public health significance will be reviewed including communicable and non-communicable diseases, with a focus on epidemiologic research and methods used to describe and analyze disease determinants. The course also aims at exposing students to different interventions (prevention and control strategies) that are used to reduce the burden of different types of diseases and to improve mental, social, environmental, occupational, geriatric and family health. Proper use of sufficient and balanced food and nutrition, supplying safe drinking water, treating and disposing wastes and proper intervention during disasters will also be discussed.

Advanced Drug Delivery Systems

Code: PHT 571 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 2

Contact hours: 3

Course Outline:

This course aims at understanding the principles of modified drug delivery systems; different mechanisms applied in pharmacy to modify the drug release; applications of nanotechnology in drug delivery; the concept of drug targeting using drug carriers. The course introduces students to the latest advances in drug delivery systems; providing them with in-depth knowledge of the pros and cons of different drug delivery systems and their methods of preparation. The course covers the delivery of challenging drugs such as gene therapy. The course also highlights the importance of polymers in cosmetics (types, properties and synthesis of the polymers).

Therapeutics (2)

Code: PHL 532 **Pre-requisites:** Therapeutics (1) and Drug information

Department: Clinical Pharmacy

Credit hours: 2

Contact hours: 3

Course Outline:

The course is designed to integrate and apply the knowledge gained from studying pathophysiology, microbiology, pharmacology and other pharmaceutical sciences to formulate a rational and safe drug regimen for a particular patient. The course provides the student with an understanding of the rational drug and adjunctive therapy in the treatment of selected diseases. During this course the student will develop communication skills through presentation and discussion of clinical materials from case studies and current literature with their instructors.

Applied Pharmacology and Drug Interaction

Code: PHO 535 **Pre-requisites:** Pharmacology (3)

Department: Pharmacology and Toxicology

Credit hours: 3

Contact hours: 4

Course Outline:

This course focuses on the discussion of the important drug interactions, the methods to predict and to

manage if occur. The underlying mechanisms of interactions, kinetic (absorption, distribution, metabolism and excretion), dynamic (addition, potentiation, synergism and reversal) and the combination are discussed.

Pharmacovigilance and Pharmacoepidemiology

Code: PHL 561 **Pre-requisites:** Pharmacology (3)

Department: Clinical Pharmacy

Credit hours: 3

Contact hours: 4

Course Outline:

The aims of studying pharmacovigilance course are to equip students with a basic understanding of the concepts and practice of pharmacoepidemiology and pharmacovigilance, and to apply these skills to a currently unresolved drug safety issue and enhance patient care and patient safety in relation to the use of medicines via implementing a system for detection and avoidance of the adverse effects or any drug-related problems.

The aims of studying Pharmacoepidemiology are to shed the light on the basic principles of research; both interventional and observational, introduce the students to the science of Pharmacoepidemiology, explaining the different types of studies and terminologies used and discuss evidence-based medicine and the different methods for criticizing Pharmacoepidemiological studies.

Quality Control of Pharmaceuticals

Code: PHC 521 **Pre-requisites:** Instrumental Analysis/Pharmaceutical Microbiology/
Chemistry of Natural Products (2)

Department: Analytical Chemistry

Credit hours: 3

Contact hours: 4

Course Outline:

This course aims at introducing the students to the quality control and the different types of quality standards for laboratories. It allows the students to recognize the importance of quality control processes which contribute directly or indirectly to the safety, efficiency and acceptability of the pharmaceutical product. The course also raises the awareness to international and national standard organization requirements and acquaints the students with instrumental calibration, validation and manipulation. This will enable the students to design stability testing and stability indicating methods of analyzing raw materials and pharmaceutical products, in addition to, developing good manufacturing practice in drug industry.

Good Manufacturing Practice

Code: PHT 563 **Pre-requisites:** Pharmaceutical Technology (2)

Department: Pharmaceutics and Industrial Pharmacy

Credit hours: 1

Contact hours: 1

Course Outline:

This course involves the principles of the Current Good Manufacturing Practices (cGMP). It exposes students to all aspects of validation, calibration, inspection and No changes the requirements for manufacturing facilities. It also provides students with a review of the process engineering, technology transfer, personnel management, training and hygiene, premises and contamination control, documentation and auditing, process deviation with emphasis on risk management, complaint handling and product recall theory.

Hospital Pharmacy

Code: PHL 522

Pre-requisites: Clinical Pharmacy

Department: Clinical Pharmacy

Credit hours: 2

Contact hours: 3

Course Outline:

The course aims to qualify the students to interact professionally with patients in hospital pharmacies to provide better medication use and improve therapeutic outcome. It aims also to educate the students about their role as hospital pharmacists and introduce them to the different practices including both administrative and technical services such as preparation of intravenous mixtures, total parenteral nutrition, renal dialysis fluids as well as the safe handling and dispensing of biohazardous compounds.

Elective Courses description

Clinical Nutrition

Code: PHB 401 **Pre-requisites:** Clinical Biochemistry

Supervision Department: Biochemistry

Credit hours: 2

Contact hours: 3

Course Outline:

The aims of the course are to provide the student with understanding of the fundamentals of nutrition and how these fundamentals relate to the promotion and maintenance of optimal health. It helps students to emphasize the practical application of the current principles of nutrition and diet therapy in the prevention and management of different disease states.

Proteomics

Code: PHB 402 **Pre-requisites:** Clinical Biochemistry

Supervision Department: Biochemistry

Credit hours: 2

Contact hours: 3

Course Outline:

This course is designed to cover fundamentals as well as the new development in proteomics and mass spectrometry and put the knowledge into practice through scientific reasoning and hands-on laboratory sessions. The goal of the course is to develop a comprehensive understanding of proteomics principles and applications in Biomedical and Pharmaceutical research. Special attention will be given to new technologies and research frontiers.

Bioanalysis

Code: PHB 403 **Pre-requisites:** Biochemistry (2) **Supervision Department:** Biochemistry

Credit hours: 2

Contact hours: 3

Course Outline:

The aims of the course are to provide in-depth knowledge and understanding of techniques and methods at applications within bioanalysis. Introduce the students to the principles of modern bioanalytical techniques that are used to measure biomolecules and techniques that use biological processes for analyte detection. Provide a fundamental introduction to the tools adopted by life and health scientists in the evolving and exciting new age of 'omics', with the promise of personalized medicine and novel approaches to the screening, diagnosis, treatment, cure, and prevention of disease.

Transcriptomics

Code: PHB 501 **Pre-requisites:** Clinical Biochemistry **Supervision Department:** Biochemistry

Credit hours: 2

Contact hours: 3

Course Outline:

This course covers the fundamental concepts of transcriptomics, as well as its current analytical methods. It starts with introducing the concept of the transcriptome, as well as how microarrays or RNASeq can be used to trace expression signatures, measure transcriptional expression levels, and establish connections between genes based on their transcriptional activity in normal cells, differentiating cells and organs. Examples of the state of the transcriptome associated with major human diseases is also elaborated, such as inflammatory diseases, autoimmune diseases, metabolic diseases, genetic diseases, cancer and infections caused by pathogenic microorganisms. Special attention is also given to discussing the medical potential of transcriptomics from an analytical point of view providing a comprehensive view of transcriptomics in health and human disease.

Environmental Analysis and Remediation

Code: PHC 401 **Pre-requisites:** Pharmaceutical Analytical Chemistry (3)

Department: Analytical Chemistry

Credit hours: 2

Contact hours: 2

Course Outline:

This course aims at enabling the students to understand the underlying principles of assessment and remediation of contaminants, to address anthropogenic activities which may introduce physical and chemical contaminants into the surrounding air, water or land and to discuss principles of environmental sampling and the application of physical and chemical analytical methodologies to assess the concentration of contaminants in soil, water and sediments. They will be able to examine quality assurance and quality control practices as well as strategies for the management of environmental contaminants including pollution prevention and remediation. It also enables the students to explore remedial approaches including physical, chemical, thermal and biological technologies and to provide information about the recycling importance, steps, process and technologies. Additionally, the course aims at enabling the students to understand sustainability, importance and advances in Sustainable technology and development.

Food and Cosmetics Analysis

Code: PHC 402

Pre-requisites: Instrumental Analysis

Department: Analytical Chemistry

Credit hours: 2

Contact hours: 3

Course Outline:

This course introduces the students to food regulations, sampling and wide variety of different characteristics of foods, including their composition, structure and chemical properties. It will also allow the students to provide information about the classification of cosmetics, sampling and the cosmetics additives as coloring matter and heavy metals. Additionally, the course aims at enabling the students to understand the underlying principles of the analytical procedures and instrumentation commonly used to analyze different food components such as lipids, milk and carbohydrates as well as different cosmetic additives and select the appropriate method for their analysis.

Forensic Chemistry

Code: PHC 501

Pre-requisites: Instrumental Analysis/ First Aid and Toxicology / Chemistry of Natural Products (2)

Department: Analytical Chemistry/ Pharmacology/ Pharmacognosy

Credit hours: 2

Contact hours: 3

Course Outline:

The course includes an overview on forensic pharmacology, pharmacognosy and analytic chemistry. It describes the drugs, chemicals and plants including their natural products that constitute health hazards, or intended for criminal uses to produce, abortion, loss of mental control, hallucination, heart arrest. Also it includes the study of drug dependents, narcotics, analgesics psycho-energetics, euphoric and mycotoxin, contamination of food material with poisonous fungi. The course introduces methods of collection of forensic evidences, methods of recovery and preservation, way of chipping, and the chain of custody. It provides different list tissue extraction methods adopted in forensic practice and analytic procedures in use.

Radiopharmaceutical Chemistry

Code: PHC 403

Pre-requisites: Medicinal Chemistry (2)

Supervision Department: Pharmaceutical Chemistry

Credit hours: 2

Contact hours: 3

Course Outline:

This course aims at introducing the students to a basic background of nuclear pharmacy and nuclear medicine. Besides, the course aims at making the students familiar with basics of nuclear chemistry, fundamentals of operating a nuclear pharmacy, the most common clinical applications of nuclear medicine, personnel protection from radiation sources and production, quality control and GMP procedures involved in nuclear pharmacy practice.

Advanced Organic Chemistry

Code: PHC 404

Pre-requisites: Pharmaceutical Organic Chemistry (3)

Department: Organic Chemistry

Credit hours: 2

Contact hours: 3

Course Outline:

The aim of this course is to provide the candidate with the basic and advanced principles of organic reactions, spectral identification and structural characterization of organic compounds. The student should be able to apply knowledge and skills gained to solve practical problems such as product design. The graduate should be able to design a complete protocol for synthesizing, purification and characterization of any organic compound/pharmaceutical product.

Diagnostic Microbiology**Code:** PHM 401**Pre-requisites:** Pharmaceutical Microbiology**Credit hours:** 2**Contact hours:** 3**Course Outline:**

The aims of the course are to develop student's skills with theoretical and practical knowledge on diagnosing different infectious diseases using conventional microbiological, serological and molecular diagnostic methods together with studying the possible causative agents and laboratory diagnosis of different infectious diseases. They will be able to practice the skills of collecting, handling, culturing of different clinical specimens and safety measures to be considered in a diagnostic microbiology laboratory. The students will deal with interpretation and reporting the clinical results of the specimen investigation.

Bioproducts**Code:** PHM 402**Pre-requisites:** Pharmaceutical Biotechnology**Credit hours:** 2**Contact hours:** 3**Course Outline:**

This course aims to make the students appraise the environmental aspects of green energy, bioproducts and climate change. That will be via; illustrating the biomass types and characteristics for green energy application. Recognizing the biomass choice and supply. Categorizing different generations of biofuels. Distinguishing and relating the international biofuels standards. Exploring micro- and macro- algae for waste remediation and production of biofuels and other valuable bio-products. Producing different bioproducts from lignocellulosic wastes (such as reducing sugars, enzymes, biobutanol, acetone, acids, biodegradable polymers, compost, etc.). Managing biovalorization of waste biomass to valuable products (such as nanoparticles; biocides; etc.). Illustrating the importance of single-cell proteins and Probiotics.

Bioremediation of Pharmaceutical Wastes**Code:** PHM 403**Pre-requisites:** Pharmaceutical Biotechnology**Credit hours:** 2**Contact hours:** 3**Course Outline:**

The astonishing increase in the use of pharmaceuticals in the last period increased anxieties over their occurrence in the soils and wastewaters posing probable hazards and risks to the general public health and environment. Because of the limitations of chemical and physical remediation of recalcitrant xenobiotics, several bioremediation actions are currently investigated and proposed for removal of pharmaceutical contaminants from the environment. Several bacterial, fungal and plant species have shown promising bioremediation potential for such pharmaceuticals pollutants. Different anaerobic and aerobic techniques have been applied for pharmaceutical wastewater treatment. This course aims to impart knowledge on fundamental and aspects of current bioremediation technologies for pharmaceutical pollutants. Apply microorganisms, enzymes and plants for the remediation of

contaminated soil, ground- and surface- water with different xenobiotics. Apply biosorption technology for wastewater treatment. Apply biosurfactant for enhancement of biotreatment process. Apply composting as tool for pharmaceutical wastes treatment in soil.

Drugs and Sports

Code: PHO 401

Pre-requisites: Pharmacology (3)

Department: Pharmacology

Credit hours: 2

Contact hours: 3

Course Outline:

Nowadays, all the youth are highly concerned with their body shape and built and exercise constantly in gyms, a fact which persuades many of them to take these drugs and subject them to their deleterious side effects. Both the creation of these drugs and the methods used to detect them involve sophisticated science, with each side (the makers and the testers) constantly innovating to try and stay ahead of the game. In this course concerns about studying these drugs including; different types, mechanisms of action, methods of administration, side effects and toxicity. The methods of detection are going to be discussed in detail.

Drug Abuse

Code: PHO 402

Pre-requisites: Pharmacology (3)

Department: Pharmacology

Credit hours: 2

Contact hours: 3

Course Outline:

This course is considered with those drugs that are consumed because people choose to, and not because they are advised to by their doctor. Largely these drugs are taken because they are pleasurable (hedonic). The list of these drugs is long and it contains for example general anaesthetic, benzodiazepines, opioids, alcohol and some psychostimulants. The mechanism of dependence and their major side effects and toxicity will be discussed along with their adopted methods of prevention and treatment.

Stem Cells and Regenerative Medicine

Code: PHO 403

Pre-requisites: Cell and Pharmacogene Therapy

Department: Pharmacology

Credit hours: 2

Contact hours: 3

Course Outline:

Topics of this course deal with the collection, isolation, and characterization of stem cells from different sources and exhibition of their therapeutic applications. Additionally, since the true test of the potential of stem cells for regenerative medicine, is to determine the ability to repair damaged tissue in vivo. This course includes discussions on the results of both animal and human testing of stem cells.

Pharmacogenomics

Code: PHL 401

Pre-requisites: Fundamentals Of Molecular Genetics **Department:**

Clinical Pharmacy

Credit hours: 2

Contact hours: 3

Course Outline:

The course reviews the key genomic technologies and genetic basis of inter-subject variability in responses to drugs. The course provides students with an understanding of how genetic factors influence drug disposition, response, and adverse effects. Students will be guided through real world patient-pharmacist physician interactions concerning the genetic mechanisms/basis of polymorphisms in the pharmacokinetics and pharmacodynamics of representative therapeutic drugs are emphasized. The impact of epigenetics and environmental factors on the polymorphisms is also discussed. This course will open a new research area for students to enhance their knowledge and ability to apply genetic information to pharmacy practice and select the most appropriate therapeutic interventions.

Computational Phytochemistry

Code: PHG 401

Pre-requisites: Chemistry of Natural Products (2)

Supervision Department: Pharmacognosy

Credit hours: 2

Contact hours: 3

Course Outline:

The course aims at enabling the students to learn the basic analytical platforms (chromatography, Mass spectrometry, and NMR) currently used for metabolomics, use data interpretation with Multivariate Data Analysis and become familiar with data analysis using publicly available software and tools such as AMDIS and X-calibur. In addition, it enables the students to understand the goal of metabolomics and its applications to distinguish plant species using metabolic profiling and in quality control of herbs and herbal products. By the end of the course the students can contribute in designing a successful metabolomics study.

Marine Natural Products

Code: PHG 402

Pre-requisites: Chemistry of Natural Products (2)

Supervision Department: Pharmacognosy

Credit hours: 2

Contact hours: 3

Course Outline:

The student will have the knowledge and experience that enables her/him to understand, describe and deal with: the composition and bioactivity of sea water, the marine ecosystem and classification of major phyla of marine organisms; the importance of marine drugs as leads for novel pharmaceuticals; the chemistry, bioactivity and/ or toxicity of metabolites derived from marine organisms (specially algae, invertebrates and microorganisms); as well as, the techniques adopted for drug-development from marine resources.

Cosmetics

Code: PHT 401

Pre-requisites: Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics

Credit hours: 2

Contact hours: 3

Course Outline:

The aims of the course are to provide knowledge and understanding for basic structure and functions of skin and hair and their disorders, to demonstrate the role and sequence of basic makeup products and to give a detailed knowledge on formulation and manufacture of cosmetic preparations. It also aims to evaluate the cosmetic products by applying the pharmacopeia quality control tests in order to offer a better understanding and patient counseling about choice and limitations of cosmetics.

Registration of Generic Products

Code: PHT 402 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics

Credit hours: 2

Contact hours: 3

Course Outline:

The course introduces the students to guidelines for the registration of the generic products in Egyptian market. The course covers the development process of the pharmaceutical generic product in R&D stage. The pricing of the product, stability studies (accelerated and long term) and bioequivalence studies are considered in this course. The course also shed the light on other regulations governing the registration of generic products. The guidelines for the registration of biological products are also covered in this course.

Computer-Aided Process Design

Code: PHT 403 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics

Credit hours: 2

Contact hours: 3

Course Outline:

This course aims to study the use of several chemo/bio informatics tools and statistical computational methods, where the behavior of several drugs in model drug delivery systems could be studied and predicted, utilizing several informatics tools such as molecular dynamics, molecular docking, data mining and artificial neural networks. The course relates the docking results with the docking binding energies and predicts these energy values from the important physicochemical and electronic descriptors using an artificial intelligence technique such as artificial neural networks modeling, which both comprise the basis of this new approach. This course also gives a brief review on the CAPD and their application. It also focuses on the in-silico pharmacokinetics, pharmacodynamics and toxicity filters or predictions that play a major role in identifying the drug like molecules.

Veterinary Pharmacy

Code: PHT 404 **Pre-requisites:** Pharmaceutical Dosage Forms (4)

Department: Pharmaceutics

Credit hours: 2

Contact hours: 3

Course Outline:

This course aims at giving a detailed knowledge on the role of pharmacists in dispensing and compounding of prescribed medicines for animal use. It provides information on the therapeutic delivery, formulation and administration of veterinary medicine. It allow the pharmacist to take a significant place e in animal medicine market and communicate effectively with animal owners and veterinarians to: meet state mandated counselling requirements, to enhance medication compliance, solve drug administration problems, and to recommend appropriate drug therapy choices for the betterment of animal health.

Personal and Tutorial Support Arrangements

Information & Learning Resources Services

Learning resources and support are provided by MSA through different channels:

IT Unit Services

The unit offers IT Services to the entire University. It is also responsible for:

1. Maintaining the IT infrastructure in the University.
2. Providing hardware and software packages for the faculty requirements.
3. Maintaining equipment.
4. Equipping all computers with different operating system platforms, database management systems, programming languages, software development kits, and education software tools to provide suitable training for different fields of specialization.
5. Providing support to all instructors and students in using the audio-visual aids provided by the University.

Library Services

MSA library keeps books and periodicals ordered by University faculties. It also offers online educational and research recourses. In addition, video, cassette tapes, and CD ROMs are provided for all subjects. Two computer labs are annexed providing access to the internet. All students and staff have their username and password for accessing all online recourses on campus or from their homes.

Book Store

The bookstore is responsible for distributing textbooks to students at the commencement of each semester. The bookstore is connected to the University database to ensure the proper dissemination of textbooks among students.

Transportation Services

For all information regarding MSA transportation facilities, students are kindly requested to visit room B114, theoretical building.

Health, Safety & Welfare

Students have the same health and safety responsibilities as the employees at MSA and they must take reasonable care of their own health and safety and those of other people. Students' actions should not put them or other people at risk. Students must follow health and safety instructions/rules and report

any faults or shortcomings in health and safety arrangements to the University Security Office/Faculty student affairs office. All students without exception are expected to comply with all health and safety regulations operating within the University, in laboratories, workshops and other hazardous places, to acquaint themselves with these regulations. Failure to do so is a serious breach of University regulations.

MSA provides on campus clinic with qualified practitioners (physicians) who are available for the students throughout the week. The clinic is equipped with first aid kits and medication.

Arrangements and Opportunities for Students to Give Feedback

Boards of Study

The purpose of the Board of Study is to provide a forum for discussion between students and staff involved in all aspects of the programme.

The membership includes:

- Chair (Dean)
- Representative from UoG
- Director of Quality Assurance & Audit Unit
- Programme Leader, Faculty Link Tutor, all Module Leaders (or their representatives) wherever feasible.
- Student representatives (almost two for each year)
- Support services representatives (IT, Admission, HR, PR, Examination Unit, Library, etc.).
- Secretary to take the minutes

The student representatives are responsible for notifying the Board with the students concerns, suggestions, and complaints.

A meeting is held each semester normally in week six to eight as specified in the Quality Assurance Calendar. Dates of the Boards of Studies are published on MSA website and on MSA Academic Calendar, and Quality Assurance Calendar.

The agenda must include all major items but further items suggested by the student representatives and members of the committee may be added where appropriate.

The minutes should cover all agenda items and include a summary of the main points of discussion and an action/outcomes list. Any actions required include the timescale, the name of the person responsible, and when a report back to the Board is expected. They should also include progress on actions from the previous minutes.

Within five working days of the meeting, a Chairs' Action List will be published and circulated to all those with action points to deal with and to the Quality Assurance and Audit Unit Head. In addition, copies should be put on appropriate student notice boards.

Staff/Module Evaluation Survey

Students are required to complete the online evaluation (for Module/ instructor/teaching assistant). This is considered an anonymous channel for receiving student feedback. Reports of evaluation are sent to the Dean and the respective Head of Department/Programme Leader for action.

Head of Board of Trustees, President, Vice Presidents and Director of Quality Assurance also receive a copy. The process of the online evaluation usually commences after the midterm exams and is announced on the University Academic Calendar and on MSA website.

Open Door Policy

MSA University adopts an open door policy for receiving student feedback.

MSA Official Facebook Page

This is a new official channel for students' feedback. Students can login to <http://www.facebook.com/MSAUniversity.News> to share their feedback.

Complaints Procedure

This section includes all complaints about unfair academic measures taken by staff against students during the semester (for complaints about grades, refer to the Examination & Grading System). Students may also submit petitions to be exempted from certain rules or regulations such as assigned academic load or disqualification actions or module prerequisites.

The complaints procedure ensures that the student's opinion about any action taken against him/her is handled. Students submit their verbal/written complaints/petitions to the students' affairs office/programme leader. Students must submit their complaints within one month of the occurrence of the action otherwise MSA is under no obligation to consider this complaint. The processing of these complaints is the responsibility of the office of Students' Affairs/programme leader. The complaint is discussed with the concerned staff member(s). An immediate feedback is given to the student if the student feels that the matter has been treated justly or the action has been remedied then the complaint is filed. In the event that the student is not satisfied with how the complaint is handled, the

issue is escalated to the Faculty Dean. If the student is still unsatisfied, the issue can be presented to the University President for final decision.

Information related to the MSA/UoG Collaboration

Access to University of Greenwich electronic resources

As a part of the collaborative agreement between the Faculty of Pharmacy at MSA University and the University of Greenwich, since 2007/2008 and until now, MSA pharmacy students receive a banner ID and a login password to University of Greenwich port, which allows the students to get a full access to UoG resources including its e-library.

UK study abroad joint program

Faculty of Pharmacy of MSA developed a joint cooperation with Greenwich University as a distinguished academic partner in the field of drug delivery and formulation. Faculty of Pharmacy, MSA, was looking forward to offering its students an in depth overview of the newest strategies and achievements in the drug delivery field through this summer elective course 'Advanced Drug Delivery'. Joint cooperation was meant to strengthen the course's learning outcomes and expand the student's knowledge and skills. Selected students are offered three weeks of theoretical courses at the MSA campus followed by two weeks of practical work in UoG. Students participating in this course are able to link the theoretical part with the practical part and finally are capable of addressing various issues relevant to the development of therapeutic strategies employing drug delivery technologies.

For information concerning the deadline for application and the acceptance criteria, contact the course coordinator and Programme Leader.

General Policies

Payment of Fees Policy

Students should refer to MSA Academic Calendar for the dates of payment for each semester.

Advising and Registration Policy

The Advising and Registration Period for each semester is announced on MSA Academic Calendar almost two months prior to the academic year. Students *must adhere to this period* as delaying registration after the commencement of the semester will affect their academic progression and will also be counted as absence.

Students are eligible to register the full load of the semester as long as he/she is not under probation. Students must refer to the Faculty as for the respective permitted load.

After completing the Advising and Registration process successfully, students receive their bookstore receipt from the Faculty and are advised to visit MSA Book Store to receive their books.

Students are allowed to register for a maximum of seven credit hours during the Summer Semester. However, if this is the student's last semester, he/she is exceptionally allowed to register for nine credit hours.

Online Registration Procedure

To successfully register online, the student is requested to adhere to the following steps:

1. Login to msa.edu.eg.
2. Click on "**Student Login**"
3. Click on "**Register now**"
4. Enter your MSA username and password. In case you encounter any problem, contact MSA server team, ext:2131/2132.
5. Now you are introduced to "**Student Registration link**", where you can select your modules through a 'Drag and Drop' process.
6. After completing your schedule, click "**End Registration**".
7. At this point, kindly check with the Faculty regarding the logistics of approving your schedule. There are two scenarios:
 - a. either your schedule will appear in your academic advisors account for approval /modification, consequently, you will receive an email notification of his/her feedback
 - b. or you must visit the Faculty to approve/modify your schedule. This step is crucial, or else you will

not be considered registered.

8. Upon approval of your schedule, you can receive your book receipt from the Faculty.

9. Students are not allowed to register for graduation courses except in the regular semesters exclusively i.e. Fall and Spring semesters.

Misconduct Procedures

Academic Misconduct Procedures:

MSA University complies with the Rules and Regulations of the Ministry of Higher Education in Egypt as per decree 49 for the year 1972, as well as the Rules and Regulations of the Private Universities in Egypt as per decree 101 for the year 1992.

MSA students are expected to be honest in their academic endeavors. To falsify the results of one's research, to use the words or ideas of others as their own, to cheat in an examination, or to allow another to commit an act of academic dishonesty corrupts the basis of the academic process.

The act of plagiarism includes:

- Quoting another person's actual words, complete sentences or paragraphs, or entire piece of written work without acknowledgement of the source.
- Using another person's ideas, opinions, or theory even if it is completely paraphrased in one's own words, without acknowledgement of the source.
- Borrowing facts, statistics or other illustrative materials that are not clearly common knowledge without acknowledgement of the source.
- Copying another student's essay test answers.
- Copying, or allowing another student to copy, a computer file that contains another student's assignment, and submitting it, in part or in its entirety, as one's own.
- Working together on an assignment, sharing the computer files and programs involved, and then submitting individual copies of the assignment as one's own individual work.
- When in doubt about rules concerning plagiarism, students are urged to consult with the Faculty staff.

Procedure of Investigating Plagiarism and Academic Dishonesty During in-module Assessments:

This procedure applies only to in-module assessment (e.g. assignment or coursework) and can only be applied once per module. It covers the following offences:

- Plagiarism.
- Contract writing of assessment by third party.

- Fabrication of results or conclusion.
- Collusion.

Where the marker of the assessment suspects that the student's submitted work is plagiarized or one of the above offences has been committed, the marker shall interview the student to establish that an offence has been committed or to demonstrate the plagiarized work and the proportion of the plagiarized work. During this interview, the marker shall give the students the opportunity to present his or her case and mitigating circumstances, if any.

Depending on the severity of the plagiarism or the offence being committed, the marker may take one of the following actions:

1. In case of first offence, (not deliberate or intended, one which has arisen inadvertently through mistake or ignorance), student may receive one of the following penalties as determined by the Module Leader or Programme Leader.

1.1. Students are reminded of the seriousness of their act and is given a verbal warning.

1.2. Students are reminded of the seriousness of their act and are asked to sign a 'Plagiarism Warning Form' (a written warning).

1.3. Redo the same assessment or a new assessment within a set deadline. The new mark shall not exceed the mark awarded for the offended work, if any.

1.4. Redo the same assessment or a new assessment and the new mark shall not exceed the pass mark.

1.5. Exclude the plagiarized part of the assessment and mark the work accordingly.

1.6. Award a zero grade to the assessment under investigation.

2. In case of second offence, the issue is escalated to the Programme Leader/Dean. The penalty may reach failing the assignment grade/coursework of the module where the act has been attempted.

3. In case of repeated act, the issue is escalated to the Respective Dean who directly reports to the University President for final decision. The penalty in this case may reach failing the module where this offence was committed or more than one module.

4. In severe cases, the issue is escalated to the University President and the penalty may reach dismissal from the University for one semester or more based on the circumstances of the case.

Exam Conduct Regulations

- Students must have their MSA IDs available for inspection.
- Strict silence must be observed at all times in the examination room.

- The examination is deemed to be in progress from the time students enter the room until all the scripts have been collected. Students must not speak to or otherwise communicate with any other students throughout the examination.
- Students should avoid cheating during the examination or he/she will be subject to misconduct act.
- A student who causes a disturbance during the examination will be required to leave the room and may be subject to misconduct act.
- Students are advised not to bring personal belongings into the examination room.
- All briefcases, bags, books, pencil cases etc. must be placed to one side of the examination room as instructed by the proctor and not left beside the desks.
- Students are advised to avoid bringing any material related to the exam.
- It is also prohibited to borrow any tools inside the exam room. Every student must bring with him the needed tools for each exam. The University is not responsible for providing any tool during the exam.
- Students are not allowed to visit the toilet during the exam duration, except in medical cases approved from the floor supervisor.
- Students are not allowed to enter the exam hall before the proctors.
- Students are strictly prohibited to enter exam rooms with their mobile phones.
- All answers must be in English, unless otherwise instructed on the exam template.

Slang language should be avoided.

- It is forbidden to write in pencil in the answer sheet.
- It is strictly prohibited to enter the exam rooms with programmable calculators unless otherwise specified on the exam template.
- Every student is assigned to a specific room for each subject.
- Students have to check their rooms and seat numbers on the bulletin board before every exam.

Any violation to these rules will be documented by the proctor in the “*Exam Misconduct Form*” and reported to the Exam Floor Supervisor who should investigate the case and submit a report to the University for legal action.

Procedure of Investigating Academic Misconduct During Exams:

In the event of a student committing an act that is deemed by a staff member of the University to be an attempt to gain an unfair academic advantage during an exam, that staff member will refer the case to the Academic Offences Investigating Officer within the Legal Affairs Department. This procedure

covers cheating, collusion, and impersonation.

Each case is assigned to an investigating panel, which consists of:

- Investigating officer from the Legal Affairs Department,
- Member of the Examination Control Unit, and
- Member of the academic staff.

The panel would initially determine whether there is a prima-facie case for investigation. If yes, it will conduct a full investigation and prepare a report with its decision of whether the student has committed an academic offence and a description of the offence committed.

In arriving at its decision, the panel will invite the student(s) against whom the allegation is made to attend a hearing and may also invite the member(s) of staff who initially referred the case as well as other witnesses where applicable.

The panel will scrutinize evidence submitted with the initial referral and may request or collect further evidence. A summary of the panel deliberations will be included in the panel's report and any evidence will be attached or referred to as appropriate. The panel report is then submitted to the University Examination Offences Committee.

The student will be informed of the panel decision immediately after it has been reached. The student may appeal against the panel's decision to the University Examination Offences Committee within fifteen days of being informed of the decision.

The University President forms the University Examination Offences Committee, which consists of:

- The University President or a nominee
- The Director of the Examination Control Unit or a nominee,
- An Academic staff member, and
- Head of Legal Affairs Department or a nominee.

The University Examination Offences Committee meets at least twice per-semester (after the mid-term exam and after the end of semester exam) but before the semester assessment board.

The Committee receives all reports from investigating panels that were held within the semester. The Committee ensures that panels have concluded, where an offence has been committed, an appropriate penalty and similar offences across the University received similar penalties. It also ensures that cases have been investigated fairly and in compliance with the Supreme Council of Universities guidelines and regulations.

The committee produces a list of all students with confirmed penalties and submits it to the assessment board to note at its meeting every semester.

Dismissal from Class

Students dismissed from classes for insubordination or other disciplinary reasons are not to return to class until the faculty member concerned permits it and in some cases after being referred to the Dean's office.

General Conduct Regulations

MSA University expects its students to be mature, honest and responsible members on campus and in their larger community. Any behavior that infringes upon the rights, safety, property and privileges of another person or which impedes the educational process of MSA University is unacceptable.

MSA students are expected to show their outmost respect towards their fellow students, staff members and MSA University as a whole. Any improper conduct such as *physical violence*, fighting, bullying and harassment of others represent behavior that is not conducive to an educational environment, will not be tolerated. Immediate disciplinary action will be taken against violators ranging from social probation to dismissal.

All students must carry their University *ID cards* and provide it to University personnel upon entrance/request. MSA University continues to recognize that its responsibility is linked with the protection of its students, faculty staff and property.

Members of MSA community are expected to abide by *Egyptian Laws*, and are subject to them. If any student violates Egyptian law and/or acts in a way that damages the reputation of the institution, the violation may obligate the University to carry out appropriate disciplinary action, which may include expulsion from the University. Moreover, MSA reserves the right to review and address incidents that take place off campus in which MSA students are involved.

All students are obliged to switch their *mobile phones* during class time. Any student who violates this policy may be asked to leave the class immediately and will not be permitted to return until the next lecture. This will be counted as an inexcusable absence. All mobile phones must be switched off in the libraries and computer labs. Ringing phones and loud conversation on these premises disturb faculty and students trying to read or study.

Students are responsible for the behavior of their *guests* at all times and are held accountable should the guest cause disturbance or damages. Guests must attain a security clearance from security personnel prior to entering University premises. There should be a valid and acceptable reason for visiting the University. The University retains the right not to grant entrance clearance as it feels appropriate.

It is not allowed to be in the University campus with no justified purpose after the working hours

unless granted a written approval from the University.

University staff are allowed *parking space* inside the University premises.

Students are not permitted to park inside the University campus. Designated parking areas are allocated for students outside the University gates.

Dress code is expected to conform to the educational setting. For example, males are prohibited from wearing shorts and slippers. The University's public image should guide their selection of dress.

The University reserves the right to alter and amend regulations if they are found to be unsatisfactory for prevailing circumstances. Such amendments will be communicated and incorporated in the document at the University's earliest convenience.

Career Opportunities and Placement

MSA considers one of its main goals is to provide a unique, friendly and pleasant atmosphere for its students. Staff members and students interact together constantly as members of one large family.

MSA is keen to provide its students with competitive programmes that aim to prepare them to compete effectively in the job market. The Career Placement Center (CPC) is part of MSA HR department; it provides feedback on the skills required by the job market in a specific programme. The office also provides feedback on points of strengths of MSA graduates and comments on areas that require improvement. This continuous effort ensures the currency of our programme and its relevancy to the needs of both national and international employers.

The CPC provides a full range of HR activities that include recruitment, training, and internships. The CPC benefits MSA students and graduates by creating a link between them and the corporate world, providing them with a comprehensive knowledge of the market and giving them firsthand enhancing experience of what to expect in the practical life.

The CPC organizes periodical job fairs that aim to provide students with exceptional work opportunities. The office also contacts new employers to increase the number of companies joining the fair and to improve the standard of the portfolio of companies recruiting MSA graduates.

The Alumni Department was created for Alumni services and activities. It offers a range of benefits for MSA University graduates such as: Reunion, training sessions, employment opportunities, events, competitions, career advising, special discounts and rates.

Its slogan is 'Belong, Believe, Build' and that's because the department's main objective is to make graduates feel that they belong to the University even after graduation, to believe in themselves and their capabilities and to finally build on that by developing their skills and finding the career that best

suits them.

The Alumni Department enables graduates to build their personal and professional network, empower career transitions and reconnect with fellow alumni, (to contact the department: training@msa.eun.eg).

Students Activities

MSA MWHO

After starting as a debate activity we decided that we should play a role in public health. We invited the students from different disciplines from all over the University to join in this activity believing that health is a right for everyone. We were able to introduce the role of the WHO and discuss health topics such as mental disorders, the Ebola virus outbreak, drug counterfeit in our conferences and discussions, doing our best to align the topics of our discussions with that discussed on the WHO website and were honored by the presence of a representative from the WHO in our past conferences.

We then succeeded in arranging a campaign in one of the rural areas to increase the awareness about vaccination and its scheduled times. We also reached for schools and arranged for a junior conference and taught the children what is the WHO and its role in global health and introduced them to some of the global health issues.

We established a link with other Universities, both in Egypt (Ain Shams University, the 2nd biggest University in Egypt) and in Europe hoping that we can synchronize our efforts and topics and awareness campaigns to pay back for the chance of education that we were given.

MSA EPSF

EPSF-MSA is the Pharmaceutical association representing pharmacy students at MSA University, it was founded 2010. EPSF (Egyptian Pharmaceutical Student's Federation) is non-governmental, non-political and non-religious organization and is the leading national advocacy organization of pharmacy students in Egypt, promoting improved public health through provision of information, education, networking and a range of publication and professional activities. EPSF was founded in 1982 and it is a full member federation representing Egypt in IPSF (International Pharmaceutical Student's Federation) which was founded in 1949. Mainly, EPSF works on serving the community through awareness campaigns (blood donation campaign, Asthma campaign), in addition to serving Pharmacy students through giving them sessions and workshops that will improve their professional skills as pharmacists and soft skills. Also, EPSF offers pharmacy students a chance of participating in international competitions, such as (Evolve),

regarding the latest pharmacy careers that opens every year providing the winners professional trainings in the specialized fields. In addition, EPSF works on Student Exchange Program (EPSF-MSA had three travelers last year) and English clubs.