

Philadelphia University

Faculty of Pharmacy

Undergraduate Handbook

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Content

Message from the Dean	4
I. Introduction.....	5
II. Mission Statement	5
III. Important Dates.....	5
1. Registration:	5
2. Timetable.....	5
IV. Scope and Input Resources.....	5
1. Aims and Objectives	5
Why Pharmacy?.....	5
Why Pharmacy at Philadelphia University?	6
2. Staff.....	6
A. Academic Staff	6
• Qualifications	6
• Specializations.....	6
B. Non-Academic Staff	6
3. Departmental Learning Resources	7
• Code of Practice for laboratories Usage.....	7
• Explanatory Notes	7
• Support for practical work.....	7
• Learning Resource Center	7
• Photocopying	8
• Printing.....	8
• Administrative Infrastructure.....	8
• Academic Infrastructure.....	8
• Lecture Support Facilities	8
• University Computer Centre	8
• Networking Facilities.....	8
• Type and Level of Access.....	8
• Library Infrastructure.....	8
• Bookshops.....	9
• Extracurricular Activities	9
V. Student Support and Guidance	9
1. Vice Dean Office, and Chairman	9
2. Academic Guidance	9
3. Students Affairs Deanship	10
4. Tutoring Arrangements.....	10
5. Student Progress.....	10
6. Interruption of Degree Program.....	11
7. Transfer between Faculties	11
8. Withdrawal from Modules	11
VI. Organization of Teaching	11
VII. Course Unit Choices.....	12
VIII. Assessment and Examinations	12
1. Criteria for Assessing Examination Work.....	12
2. Assessment Regulations.....	13
3. Role of Internal and External Examiners.....	13
4. Appeal Procedures	14

5. Unfair Practices	14
6. Department Guidelines on Plagiarism.....	14
IX. Teaching Quality Assurance Committee.....	15
X. Students Feedback and Representation	15
1. Staff Student Consultative Committees.....	15
2. Departmental and Deanship Meetings.....	15
3. Module Evaluation Questionnaires	15
XI. Communications	15
1. Official Notices.....	15
2. Electronic Mail.....	15
3. Obscene or Offensive Mail	15
4. Group Mailing.....	15
5. Miscellaneous Hints	16
XII. Curriculum Design, Content and Organization	16
1. Curriculum Design and Content.....	16
2. Curriculum Organization.....	16
3. Curriculum Characteristics	16
Innovation of Curriculum.....	17
XIII. Health and Safety in the University.....	17
1. Building	17
2. Emergency Evacuation.....	17
3. Fire Action	17
4. Operating the Fire Alarm.....	17
5. Use of Fire Appliances	17
6. Action when the Alarm Rings	17
7. Personal Difficulties.....	17
Appendix A: Outlines of Modules Descriptions.....	18
Appendix B: Study Plan of Faculty of Pharmacy.....	29

Message from the Dean

Welcome to the Faculty of Pharmacy at Philadelphia University. The Faculty of Pharmacy offers courses leading to the Bachelor degree of Pharmacy after successful compilation of 160 credit hours, and it is my distinct pleasure to introduce you to the Pharmacy Profession. Pharmacy is the health care profession responsible for dispensing medicines, educating patients about their medications and working with clinicians to promote the effective use of drugs. With the unprecedented advances in drug discovery, together with the exciting new interdisciplinary approaches to scientific discovery, it is sometimes difficult to predict the future of pharmacy in the 21st century. One thing is certain, however - there has never been a more dynamic and exciting time for Pharmacy.

Health care and educational systems are perhaps the best expressions of social organization. As you contemplate the practice of a profession, we ask that you remain cognizant of a collective human interdependence. Recognize that your progress depends upon a broader social context, that while you contribute to your own well being, you also contribute to a larger social environment. Your education, in addition to giving you intellectual satisfaction, can provide a solid economic future. Always hold on to your capacity for imagination and desire for inquiry. Exercise your capacity for critical thinking. Capture your own thoughts and feelings, and then use your educational experience to crystallize them.

The Faculty's goal is to provide comprehensive professional instruction, preparing graduates who display concern for human health and possess an emphasis on moral values and services. We strive to be among the very best in the country in our program within the Faculty. The driving force behind our faculty is our commitment to developing new programs and presenting educational opportunities that reflect Jordan's unique multiculturalism. Our diverse student body is embraced by our faculty, who not only serve as professors but also as mentors and friends. Our relatively small class sizes foster friendship and bonding of students who learn to work together as a team.

The website is designed to introduce you to our program mission, vision, educational philosophy, curriculum, faculty and staff, student services, and to events occurring within our Faculty. You will also find current information on admissions, accreditation and other relevant topics.

Finally, on behalf of the faculty, staff and students of the Philadelphia University Faculty of Pharmacy, welcome to the home page of the Faculty. When it comes to pharmacy, Philadelphia University Faculty of Pharmacy is the place to be.

Sincerely,
Dr. Adi I. Arida
Dean of Pharmacy

I. Introduction

This handbook contains important information for students undertaking B.Pharm Degree at Philadelphia University. This handbook is also available on the web site of Pharmacy at <http://www.philadelphia.edu.jo/pharmacy.asp>

This handbook interprets the regulations and your tutors can give the students more advices.

II. Mission Statement

The mission of the faculty of Pharmacy is derived from Philadelphia University's mission. Philadelphia University Faculty of Pharmacy prepares men and women in their professional disciplines with an emphasis on moral values and service in order to develop competent graduates who demonstrate concern for human health. This mission is fulfilled by a broad based, scientifically strong education in Pharmacy, which enables you both to enter all areas of your profession on graduation and to adapt to changes that may occur during your professional life. By the end of the programme you will be conversant with the wide range of topics relating to Pharmacy, be able to communicate effectively and be able to appreciate the professional and social role of the pharmacist. The faculty tries to foster a learning environment enhanced by faculty who encourage leadership, self-determination, self-respect, promotion of justice, and compassion in students. This is dependent on a sound scientific knowledge base, well developed expertise, critical thinking capabilities, moral reasoning, and communication skills. The School strives to instill these qualities in its students.

III. Important Dates

1. Registration:

Admission criteria are issued by the Higher Education Council, which governs all private universities; minimum of 80% in the high school score. University registration must be completed at the time specified in the introductory timetable. Returning students must also register in the times specified during introductory week.

2. Timetable

Lectures timetable is published separately from this book. Whilst every attempt is made to timetable reasonable combinations of course units (modules), various constraints make some combinations and outside options impossible. If you have a timetable problem, please consult your personal tutor in the first instance. However, following the academic consultation with your Faculty advisor will limit all these constrains, if at all.

IV. Scope and Input Resources

1. Aims and Objectives

Why Pharmacy?

- A satisfying and varied career
- Many different career paths with flexibility to change
- A competitive salary

- The chance to use a broad knowledge of science
- A choice of working environments and geographical locations
- The opportunity to meet people from all walks of life

The pharmacist is an expert in medicines. A pharmacist can be involved in any aspect of the preparation and use of medicines, from the discovery of their active ingredients to their use by patients. Pharmacists also monitor the effects of medicines, both for patient care and for research purposes. So a pharmacist has many career options, including community pharmacy, hospital pharmacy, industrial pharmacy, and academia.

The broad scientific base that a pharmacy degree offers also provides many other opportunities e.g. medical writing, journalism, food industry, cosmetic industry, consulting roles.....

Why Pharmacy at Philadelphia University?

Overall, your experience with us in Pharmacy will provide you with:

- Excellent teaching by academic staff regarded as of the highest calibre in both research and teaching.
- Unsurpassed professional and career prospects.
- Access to a vibrant social life in this exciting area.
- Access to the surrounding countryside.

Our undergraduate B.Sc. of Pharmacy degree is fully accredited by Jordan Pharmaceutical Association.

2. Staff

A. Academic Staff

• Qualifications

The academic staff members are divided into two categories: full-time and part-time. The number of full-time staff members is 20, while the number of part-time staff depends upon the number of students and the needs of the Department. The academic staff members, who are between 27 and 70 years of age, have relatively adequate experience ranging from 1 year to 35 years.

• Specializations

Full-time as well as part-time teaching staff members have various specialisations that can be divided into two categories (Pharmaceutical Sciences, and Clinical Sciences).

B. Non-Academic Staff

Besides the academic staff, the Department has 12 other full-time members who hold a B.Sc. degree in Pharmacy. This staff member has good working experience and some of them have been appointed from Philadelphia University graduates who hold bachelor degrees with Grade "Excellent" or "Very Good". All of the non-academic staff members are qualified as laboratory tutors and assist lecturers in the laboratory hours. In addition, some of them are responsible for maintenance of instruments in the laboratories.

3. Departmental Learning Resources

● Code of Practice for laboratories Usage

At registration, you will be required to assent to the following faculty code of behavior, which relates to the responsible use of laboratory equipments. Misuse of the facilities is regarded as serious disciplinary offences.

This code of practice is supplementary to University regulations concerning the use of equipment to which you are required to assent at Registration.

1. Every student is allocated one bench in every laboratory session.
2. You must not deliberately hinder or annoy other bench users.
3. You must not use machines belonging to the faculty for commercial purposes without the prior written permission of the Head of Department. You must not sell the results of any work you do using Departmental facilities without the prior written permission of the Head of Department.
4. You must not write or knowingly store, on machines belonging to the Department, software that, if executed, could hinder or annoy other users, except with the prior written permission of the Head of Department.
5. You must not make an unauthorized copy, in any form, of copyright software or data.
6. You must follow all rules, regulations and guidelines imposed by the Faculty of Pharmacy and the University in addition to the Department's Code of Practice.

● Explanatory Notes

The following notes indicate ways in which the Code of Practice applies to undergraduates for use of laboratories. It is not intended to be a complete list of possible abuses of the instruments. Each note refers to the corresponding paragraph above.

1. This will be interpreted very broadly. It includes
 - Tampering with another user's data.
 - Tampering with another user's procedure.
 - Setting up products which persist after you go out of lab. and annoy subsequent users of the instrument/equipments.
 - Writing of offensive messages.
 - Abuse of the e-mail system or the university web forum.
2. Clearly, the Head of Department would have to be convinced that any such use of the materials would not conflict with their primary purpose.
3. Note that this does not prevent your taking copies of your laboratory work home, or making copies of non-copyright material. If in doubt, please ask.
4. Personal information includes names, addresses, mailing lists, etc. You should contact the Data Protection Officer at the Faculty of IT, Mr. Tarek Hassan, if you need to store such information on computers.
5. You have agreed to abide by the University and Faculty rules when you registered.

Please direct queries concerning the code of practice to Department Chair.

● Support for practical work

The Faculty has excellent facilities and undergraduate students are allowed to use the facilities provided in the buildings of the Faculty of Pharmacy. Whenever the buildings are open between 8.00 a.m. and 4.00 p.m.

● Learning Resource Center

Photocopy facilities are available in the Bookshop in the floor 400 at the building of Pharmacy. Reference copies of textbooks are available for consultation. Copies of previous weeks' tutorial solutions are also available. The resource center holds

non-loan copies of undergraduate textbooks. Lending copies of textbooks are available in the University Library.

● **Photocopying**

Out of the library, photocopy may be done at different Bookshops, on an affordable cost.

● **Printing**

You can take printout (free of charge) in any lab of the Department. Each lab contains at least one printer for this purpose.

● **Administrative Infrastructure**

It is composed of five offices (Dean, Dean Secretary, Department's Chair, Department Secretary and Meeting Room).

● **Academic Infrastructure**

It is composed of

- 6 classrooms (5502, 5503, 5610, 5611, 5613, and 5614) plus some other classrooms shared with other faculties (21009) and one lecture.
- 15 laboratories.
- 1 Learning Resource Center that contains computers, textbooks and related reference books and journals.
- 9 staff offices where each staff member is supplied with a PC.
- 1 room for staff meeting

● **Lecture Support Facilities**

In the Faculty, there are 6 overhead projectors and 1 data show used to support modules and seminars presentations.

● **University Computer Centre**

This centre provides the Department with training and maintenance facilities.

● **Networking Facilities**

Ethernet: The PCs in each office/laboratory are connected to an Ethernet platform 10/100 Mbps.

Intranet: All computing facilities of the University are connected to a Gigabit Intranet backbone.

Internet: The University is connected to the Internet by 6 Mbps lines.

● **Type and Level of Access**

For communication, computing, or information searching, the faculty provides free access to networking facilities at any time for the staff and the students.

● **Library Infrastructure**

This structure includes the University Main Library, which it provides students and staff members with the required recent text and references books, journals, and CD ROMs. According to its collaboration and co-ordination program, it has relations with more than 120 universities and scientific organisations. It opens from 8.00 a.m. to 7.00 p.m.. It includes:

- **Conventional Library**, which contains books and journals. The books room contains more than 1000 different English titles in pharmacy, where more than 50% are edited in years 2004 - 2007.

The room of journals contains 10 computing journals that are useful for research and teaching.

- **Electronic Library**, which contains CD ROMs for the taught programming languages and module support tools. It is connected to approximately 500 universities electronic libraries via the World University Library that is endorsed by the United Nation University. The World University Library has four databases that contain more than 3300 periodicals available online. The online resources in the electronic library include sites that list more than 40000 online books and access to online libraries and encyclopaedias and other databases on the Internet.
- **Internet Access Service**, available in a room containing 10 PCs.

- **Bookshops**

Contain books, exercises with solutions, solutions to previous examinations and so on.

- **Extracurricular Activities**

The University provides some entertainment for the students to enrich their talents in their free time.

This includes

- **A Deanship of Student Affairs** that organizes the social, cultural, and sport activities for the students in the University. It has also an alumnae office that keeps track of the graduate's information and news.
- Several spaces for different sports.
- Several spaces for cultural activities.
- Several common rooms for meetings, snacks, and cafeterias.
- Three Internet cafes with PCs.
- One Students Club.

V. Student Support and Guidance

1. Vice Dean Office, and Chairman

The Vice Dean Office, and the Chairman offices is mainly for general students advisory services. It deals also with all routine undergraduate enquiries. Problems, which cannot be dealt with by the Vice Dean, will be referred to the Dean.

2. Academic Guidance

All new students should have academic (personal) advisors. The new students are grouped into 30-35 students groups and each group is assigned to an academic staff member who is their academic tutor. The students remain with the same advisor/tutor till their graduation. The tutor deals with all routine undergraduate inquiries, advises for academic registration at the beginning of each semester, and any other raised problems. However, problems, which cannot be dealt with by the tutor, will be referred to the head of the Department, the Dean of the Faculty, or to an appropriate member of academic staff. The academic guidance is available on specified dates in the terms, and any advisory service offered by the Vice Dean or the department chairman is available daily to all students in the relevant Department.

The advisory service offers advice on departmental and University matters and helps with anything that concerns you, whether in your studies, in the Department, in the University or in your life outside the university. Each of the staff in these offices is available with knowledge of the Department and University and who is willing to listen and help with whatever you bring. Note that

- All visits to the advisory service offices are strictly confidential.
- If you have difficulties with material on particular course units you should normally first approach your tutors. You may also consult your tutors on matters that are more general.

- If you have health problems, you are welcome to consult an advisor in the Department but may prefer to go directly to your doctor or to the University Clinic.

Feel free to make use of these services at any time on any matter.

3. Students Affair Deanship

Confidential, individual counseling on any matter affecting personal well-being or effectiveness is available at the Philadelphia University Students Affair Deanship. The Deanship sees well over a hundred students a year and gives expert advice on problems such as low motivation, personal decision making, relationships, and anxiety and family difficulties. People there, are willing to help in finding fresh ways of coping with the emotional and personal aspects of problems and seeks to do so in a collaborative, straightforward and empowering way with the individual concerned. Advice is available concerning referral to other services, helping others and dealing with common student problems such as exam anxiety.

The Deanship is open from 8.00 AM to 4.00 PM, from Sunday to Thursday throughout the year and appointments can be made by calling into the office of the Dean of Students affairs. All inquiries will be treated confidentially.

4. Tutoring Arrangements

Some of your course units will have tutorials, where you can discuss topics on a course unit and run through exercises. Usually, the lecturer of the course unit runs the tutorial. There will be an opportunity for you to ask questions on matters you do not understand.

As you have a personal tutor from the beginning of your University life, your tutor is here to help you in your way through University life. He/she will watch your progress and offer help and advice wherever necessary. If you get into difficulties, you should contact your personal tutor at the earliest possible opportunity. Do not let things slide until it is difficult to retrieve the situation, especially if you are getting behind with your work. Your personal tutor will also advise on your choice of course units, on departmental or University procedures and will provide references for jobs and other purposes.

Course lecturers are always available to discuss questions or problems with the course unit material. Each lecturer fixes at least five office hours on his timetable, which is fixed on his office door. You can call at these hours.. It is important that any matter that affects your ability to work is notified to the Department - through your personal tutor, through the Vice Dean or otherwise. The following are examples of matters that may affect your work: illness, personal or family difficulties (including illness in the family) or financial problems. In assessing your performance, the Department has a policy of trying to compensate for difficulties you have encountered whilst studying. We can only do this if we are notified of difficulties and have some idea of their extent.

5. Student Progress

Work and Attendance. The University regulations governing the Work and Attendance of students are given in the Student Guide. Full attendance is required at all lectures, laboratories, and any tutorials, which may be scheduled. Completed laboratory work should be handed in on time. Attendance at laboratories and at many lectures is monitored and attendance registers kept. Please note that the expectation is that students will be required to undertake approximately thirty six hours per week of study i.e. an average of two hours private study will be required for every scheduled hour of lectures, laboratories etc. and some students may require much more time than this.

Absence for holidays is not permitted in term-time. The experience of the Department confirms that lack of attendance leads to study problems and any

student with problems should consult his/her subject tutors or personal tutor. In addition, failure to attend can result ultimately in refusal by the University to allow a student to sit in the degree examinations. The duty of the lecturer is to keep continuous review of the work and attendance of the students with whom he is concerned. If the rate of student absences, in a course unit, is greater than 15% (or 20% for student representing the University in sportive or cultural activities) of the completely accredited hours and the student has no acceptable justification, then this student is excluded from that course unit. If the Dean of the faculty accepts the justifications of absence, then this student is mentioned as **withdrawn** without refunding the registration fees. A formal process is defined to tackle the problem of any student whose work and attendance appear unsatisfactory. Direct approaches by lecturer to solve the problem are as follows: He may choose to issue an "informal" warning, which has a precisely defined format and permits recovery of the situation. If this is unsatisfactory, a "formal" warning is issued. This is again of a precisely defined format. Failure to recover the situation at this stage leads to an exclusion from the course. A copy of this correspondence is held in a student's file.

6. Interruption of Degree Program

Any interruption (taking at most 4 semesters) of your degree program requires special permission from Faculty prior to the interruption. Regulations state that a B.Sc. degree is a continuous 5-year period of study. Permission will only be granted if satisfactory reasons are given. A written case with supporting evidence must be presented to Faculty. Reasons might include prolonged illness. Consult your tutor for advice.

7. Transfer between Faculties

- If you are contemplating any change of Faculty, consult your primary tutor as soon as possible.
- You can change your Faculty by filling a special form at the beginning of the semester. It is only required that the Tawjihi average imposed in the new faculty or department must be less than or equal to your Tawjihi average. A specialized committee will decide what courses will be retained from your actual Department.

8. Withdrawal from Modules

If you are contemplating withdrawing from a module, please discuss the situation with your personal tutor at the earliest opportunity.

- You can withdraw a module at most during the thirteenth week of the first or second term, and at most during the seventh week of the summer term.
- The minimal number of modules (which is 12) required in each term should be followed.

VI. Organization of Teaching

An individual course of lectures is known as a "**course unit**" or sometimes as a "**module**".

The curriculum contains modules that are from University Requirements (Univ. Reqts.), Faculty Requirements (Fac. Reqts.), and Department Requirements (Dept. Reqts.). Each module has 1 or 2 or 3 credit hours per week. However, some modules are supported by tutorials and some continuous assessment, such as seminars or laboratory work, usually amounting to 1 hour per week. When you register for course units, you should follow the academic guidance plan that the Department arranges for you. In fact, you can register on any module only if you have taken its prerequisite(s) with the exception that you can register on the module and its prerequisite only if you are in the graduation semester.

In each semester, you can register for at least 12 credit hours and at most 18 credit hours, except for the semester in which you are expected to graduate when

you can register as low as 1 hour, up to 21 hours. The complete five years academic guidance plan is listed in **Appendix A** of this Handbook. For more information about module numbering and outline module descriptions, see **Appendix B** of this Handbook.

In the **First Year**, you are encouraged to take 18 credit hours in each semester (first and second semesters, while the summer semester is kept for practical training in different pharmaceutical organizations). The third digit of each course unit code (see **Appendix B**) tells you the year in which the course is offered. During each 16 weeks semester, students will normally attend 5-6 modules.

Thus, each teaching week contains 15-18 hours or more of scheduled work. In addition, each scheduled hour typically requires two extra hours of unscheduled work (e.g. writing up lecture notes, preparing for a tutorial, finishing off a laboratory exercise etc.). The selection of a University elective module (one module) depends upon your choice. Some of the modules of the first year are from the University requirements, others from the Faculty requirements.

The **Practical Training**, which consists of realizing a supervised training in a pharmaceutical organization.

VII. Course Unit Choices

You may choose a course unit (module) if you have already taken all its prerequisite modules and your personal tutor must supervise this choice.

An initial choice is made before or at Departmental Registration. After that, changes can be made as follows:

- The deadline for changing modules in each semester is one week after lectures start (three days for summer semester). Normally, no changes of modules will be permitted after these dates except for the withdrawal.
- In the first instance, you should discuss any plan to change modules with your primary tutor. You must check that the new module you wish to take is a valid option for your degree program and find out if there are likely to be any timetable problems. If there are timetable clashes this will probably prevent you from changing module.

VIII. Assessment and Examinations

1. Criteria for Assessing Examination Work

First class (90 – 100 marks). First class answers demonstrate depth of knowledge or problem solving skills, which is beyond that expected from a careful and conscientious understanding of the lecture material. Answers will show that the student:

1. has a comprehensive knowledge of a topic (often beyond that covered directly in the program) with an absence of misunderstandings;
2. is able to apply critical analysis and evaluation;
3. can solve unfamiliar problems not drawn directly from lecture material and can adjust problem solving procedures as appropriate to the problem;
4. can set out reasoning and explanation in a logical, incisive and literate style.

Upper Second class (80 – 89 marks). Upper second class answers provide a clear impression of competence and show that the student:

1. has a good knowledge base and understanding of all the principal subject matter in the program;
2. can solve familiar problems with ease and can make progress towards the solution of unfamiliar problems;
3. can set out reasoning and explanation in a clear and coherent manner.

Lower Second class (70 – 79 marks). Lower second class answers will address a reasonable part of the question with reasonable competence but may

be partially incomplete or incorrect. The answer will provide evidence that the student:

1. has a satisfactory knowledge and understanding of the principal subject matter of the program but limited to lecture material and with some errors and omissions.
2. can solve familiar problems through application of standard procedures.
3. can set out reasoning and explanation which, whilst lacking in directness and clarity of presentation can nevertheless be followed and readily understood.

Third Class (60 – 69 marks). Third class answers will demonstrate some relevant knowledge but may fail to answer the question directly and/or contain significant omissions or incorrect material. Nevertheless, the answer will provide evidence that the student:

1. has some basic knowledge and a limited understanding of the key aspects of the lecture material;
2. can attempt to solve familiar problems albeit inefficiently and with limited success.

Pass (50 – 59 marks). Answers in this category represent the very minimum acceptable standard. Such answers will contain very little appropriate material, major omissions and will be poorly presented lacking in any coherent argument or understanding. However the answer will suggest that the student

1. has some familiarity with the general subject area;
2. whilst unable to solve problems can at least formulate a problem from information given in a sensible manner.

2. Assessment Regulations

In general, every module is assessed as follows: 50% is given for two 1-hour midterm exams, coursework and/or seminars, projects, or essays, and 50% for the final exam that may be a written exam only or a written exam plus final laboratory exam (if applicable), final small project, or seminar presentation. The 50% of the final exam is from the University regulations. The minimum pass mark is 50% for any module, whereas the minimum passing accumulated average in each semester is 60%. Students will be warned if they could not obtain average of at least 60%. In this case, students are encouraged to repeat studying those modules with low marks in order to increase their accumulated averages. However, students will be dismissed from the University if this average is not achieved in the third attempt.

For the practical training module, each student should submit a technical report of his/her training, and a team of academic staff members makes several observations on the trainers' work in their place of training. Then according to the observations and the report, they assess the students.

3. Role of Internal and External Examiners

For each module, the Department assigns a module coordinator and an internal reviewer who is one of the senior staff members. If many lecturers teach the same module concurrently, they should suggest exam questions (for the first, second and final exams) and run the same exam for all sections. The main coordinator of the module will collect these questions from lecturers and select some of them to be in the exam paper.

On the other hand, external examiners validate the standard of degree program. The external examiners are expected to look at the question papers, inspect a selection of scripts and project reports (particularly those on borderlines). They supply an assessment report to the Department.

4. Appeal Procedures

If you have good reason to question a mark you have been given (in midterm exams or in coursework), you should in the first instance approach the module lecturer. If the problem is not solved, you must submit it to your primary tutor. He will find the appropriate solution with administrative structures. Problems with final examinations are resolved by submitting complaints or appeals in writing (within three days of the announcement of examination results) to the Dean of the Faculty.

The examination committee will consider these cases and checks if there is any mistake in the summation of the marks and so on.

5. Unfair Practices

The University treats attempting to cheat in examinations severely. The penalty is usually more severe than a zero in the paper concerned. More than one student of this Department were dismissed from the University because of this. Plagiarism, or copying of course or lab work, is also a serious academic offense as explained in the University guidelines. In Faculty of Pharmacy at Philadelphia University these guidelines apply also to laboratory exercises.

6. Department Guidelines on Plagiarism

1. Coursework, laboratory exercises reports and essays submitted for assessment must be your own work, unless in the case of group projects a joint effort is expected and is indicated as such.

2. Unacknowledged direct copying from the work of another person, or the close paraphrasing of somebody else's work, is called plagiarism and is a serious offence, equated with cheating in examinations. This applies to copying both from other students' work and from published sources such as books, reports or journal articles.

3. Use of quotations or data from the work of others is entirely acceptable, and is often very valuable provided that the source of the quotation or data is given. Failure to provide a source or put quotation marks around material that is taken from elsewhere gives the appearance that the comments are ostensibly your own. When quoting word-for-word from the work of another person quotation marks or indenting (setting the quotation in from the margin) must be used and the source of the quoted material must be acknowledged.

4. Paraphrasing, when the original statement is still identifiable and has no acknowledgement, is plagiarism. A close paraphrase of another person's work must have an acknowledgement to the source. It is not acceptable for you to put together unacknowledged passages from the same or from different sources linking these together with a few words or sentences of your own and changing a few words from the original text: this is regarded as over-dependence on other sources, which is a form of plagiarism.

5. Direct quotations from an earlier piece of your own work, if not attributed, suggest that your work is original, when in fact it is not. The direct copying of one's own writings qualifies as plagiarism if the fact that the work has been or is to be presented elsewhere is not acknowledged.

6. Sources of quotations used should be listed in full in a bibliography at the end of your piece of work.

7. Plagiarism is a serious offence and will always result in imposition of a penalty. In deciding upon the penalty the Department will take into account factors such as the year of study, the extent and proportion of the work that has been plagiarized and the apparent intent of the student. The penalties that can be imposed range from a minimum of a zero mark for the work (without allowing resubmission) through caution to disciplinary measures (such as suspension or expulsion).

IX. Teaching Quality Assurance Committee

The Faculty Teaching Quality Assurance and Enhancement Committee is responsible for the quality of teaching in the Department, including the analysis of Course Evaluation Questionnaire responses.

X. Students Feedback and Representation

1. Staff Student Consultative Committees

Student representatives are elected onto the departmental staff student committees at the start of each term. All simultaneous sections of a module have a staff student committee. Each committee meets at least three times each semester and may discuss any matter of concern with the module. The staff members of each committee are the lecturers of the concerned sections.

2. Departmental and Deanship Meetings

The meetings, held by the head of Department and the Dean of the Faculty during term time, has mainly an advisory role, where students may raise their problems that need some concern from these authorized persons. These meetings are held separately for each year students.

3. Module Evaluation Questionnaires

The Department attaches great importance to the opinion of students on the quality of the teaching provided, and every student is asked to complete a Module Evaluation Questionnaire for each module. The questionnaires are anonymous.

XI. Communications

1. Official Notices

Official notices are posted on the notice boards at the Department and at the Faculty. Electronic mail is also used extensively for communication with the Department and University. Each lecturer provides the students with his/her e-mail at the beginning of the term. Most official information including copies of this handbook, the undergraduate syllabus and timetables are available on the University Web pages. This includes directories of staff and students for internal use, completed with photographs.

2. Electronic Mail

Electronic mail is used widely for administrative purposes within the Department. It is frequently useful for communicating between individuals and small groups (e.g. between a tutor and his/her tutorial group), and occasionally for broadcasting important messages to wider groups. It is important that you know how to use email. It will be covered in the introductory laboratory sessions. The code of practice for computer usage covers electronic mail, please note the points below.

3. Obscene or Offensive Mail

DO NOT SEND OBSCENE OR OFFENSIVE MAIL. If you receive mail, which you regard as offensive or obscene, you may wish to complain to a member of staff so that appropriate disciplinary action can be taken against the offender.

4. Group Mailing

You are strongly discouraged from sending email to groups of people. The newsgroups should be used for this purpose.

5. Miscellaneous Hints

- Be brief in your communications.
- Compose your message as if ALL of your recipients were physically present.
- Limit the distribution of messages to the people who are likely to be interested.
- Keep a copy of the mail you send out, for future reference. Learn to use folders to keep useful messages.
- Read all your incoming mail before replying to any of it. There may be other relevant messages for you to read.
- Be careful when replying to messages. You probably want your reply to go only to original message sender - not to the whole of the distribution list.
- When you reply to a message, it is frequently helpful to include some of the original message to help your recipients to remember and understand the context of the reply.

XII. Curriculum Design, Content and Organization

1. Curriculum Design and Content.

Students should complete 160 credit hours summarised as follows:

- University requirements, 24 credit hours (15.00 %)
- Faculty requirements, 33 credit hours (20.62 %)
- Faculty compulsories, 100 credit hours (62.50 %)
- Faculty Elective, 3 credit hours, (1.88 %)

2. Curriculum Organization.

The curriculum is organized as it is shown in the study plan in **Appendix B**.

3. Curriculum Characteristics

- **Objectives of the Main University-Requirement Modules.** These requirements are to broaden the student's base for different topics such as culture, languages, and computer skills.
- **Objectives of the Main Faculty-Requirement Modules.** These requirements are to consolidate mainly the student's background in Mathematics and some other common topics. They constitute the common knowledge required for all students in the Faculty of Pharmacy.
- **Objectives of the Main Computing Modules in the Curriculum.** The modules in the curriculum are organized into three types: **introductory, intermediate, and advanced** modules. The curriculum is designed according to the **Imperative First Strategy** for the introductory modules. This model also focuses on programming, but emphasizes the principles of object-oriented programming and Design from the second semester of the first year. The curriculum of Intermediate modules is designed according to the **Topics-based approach**, which is the most common approach for the intermediate modules.
- **Objectives of the Training and Graduation Project Modules.** The objectives of these modules are to allow students to gain practice in problem analysis, design, implementation, report writing, and presentation.
- **Elaboration on Content and Emphasis of Practical Components of Modules.** Most of the modules contain practical work that make students involved in using practical work. Thus, the practical part of modules accounts for at least 25% of the total number of hours. Many laboratory assignments are given during the semester through which the students can practice what they have learned from the theoretical part of the module, or develop their skills in the practical work.

Innovation of Curriculum.

The curriculum is constantly evolving to cope-up with new technologies and rapidly developing modules. The first curriculum was designed in 1991 and updated many times, and the latest will be applied in the year 2007-2008 (after being approved by the Deans' Council). This development is through regular internal monitoring and reviews, and to recent local developments in teaching and learning.

XIII. Health and Safety in the University

The University has a Health and Safety Committee, which comprises representatives of all services within the University. It is the responsibility of this committee to investigate complaints and potential hazards, to examine the cause of all accidents and to carry out periodic inspections of all areas of the Department. At registration, you will be required to assent to the departmental code of behavior, which relates to health and safety.

1. Building

The Faculty comprises three floors; 400, 500 , and 600. In accordance with University policy, smoking is prohibited throughout all buildings.

2. Emergency Evacuation

It is the responsibility of every individual to familiarize themselves with the Faculty's building and be aware of the fire exits.

- After evacuation of any building, please assemble well away from the building, and do not block any exits.
- Do not return to any building until authorized to do so.

3. Fire Action

Fire Action notices are located at, or adjacent to, fire alarm actuation points, and all staff and students should make them acquainted with this routine.

4. Operating the Fire Alarm

The manual fire alarm system can be activated by breaking the glass in the red contact boxes sited at strategic points throughout the premises.

5. Use of Fire Appliances

Fire appliances are sited at strategic points throughout the Faculty to deal with fires. Fires should only be tackled provided there is no personal danger and after the alarm has been set off.

6. Action when the Alarm Rings

On hearing the intermittent alarm, you should prepare yourself to leave the building. On hearing the continuous alarm, you should evacuate the building immediately by the nearest exit.

7. Personal Difficulties

Please inform the Faculty's counselors or your tutor of any difficulties with which the Faculty can be of assistance.

Appendix A: Outlines of Modules Descriptions

Module Name: Pharmaceutical Organic Chemistry I **Module Number:** 0540211

Aims (Module Purpose):

the student at this level will know the principle of inorganic compounds studied in general chemistry. This course will subject the students to the molecular orbital theory of organic compounds, saturated aliphatic cyclic and cyclic hydrocarbons. Principles of the IUPAC nomenclature of organic compounds. Unsaturated aliphatic hydrocarbons. Aliphatic halogen compounds. Isomerism and stereochemistry of organic compounds. Aliphatic alcohols and ethers. Aliphatic amines and other nitrogen compounds. Aliphatic acids and their derivatives. Aromaticity, main groups of carbocyclic aromatic compounds. Polycyclic aromatic compounds. Electron rich and electron deficient heteroaromatic compounds. The student will be able to study pharmaceutical biochemistry (I), because the student will know the organic functional groups and their preparations and reactions.

Module Name: Pharmaceutical Organic Chemistry II **Module Number:** 0540212

Aims (Module Purpose):

After completion of pharmaceutical organic chemistry (I) and its fundamentals, in particular the organic functional groups, this course will provide a comprehensive and sound understanding of the aromatic compounds and their preparations, reactions and IUPAC nomenclature, in this course the student will study the DNA and RNA structures.

This information will prepare the student in to study of pharmaceutical medicinal chemistry (I) where the student will begin the study of the drugs structure and preparations

Module Name: Pharmaceutical Analytical Chemistry (I) **Module Number:** 0540213

Aims (Module Purpose):

This course is devoted to the exploration of principles of qualitative and quantitative analysis, methods expressing of the concentrations, principles of volumetric analysis, acid-base Equilibria in aqueous and in nonaqueous solutions, acid-base titration and their applications in both solutions.

Module Name: Pharmaceutical Analytical Chemistry (II) **Module Number:** 540214

Aims (Module Purpose):

This course is devoted to the exploration of the volumetric methods; precipitation Equilibria, Reduction – oxidation Equilibria, Complex metric Equilibria – titration's and applications, also gravimetric methods.

Module Name: Pharmaceutical Ethics and Legislations **Module Number:** 0520401

Aims (Module Purpose):

This course This course is designed to provide the students with the general Pharmaceutical Jurisprudence and legislations applied at the Hashemite Kingdom of Jordan.

Module Name: Pharmaceutical Marketing and Management **Module Number:** (0520502)

Aims (Module Purpose):

This course is designed to implement the major concepts in management and marketing to the different fields of pharmacy practice. On one hand pharmacy students are oriented towards proper management of pharmaceutical services in a community pharmacy and in inpatients and outpatients departments in a hospital. On the other hand, they are instructed to adopt the adequate selling skills needed in the pharmaceutical markets.

Module Name: Physical Pharmacy **Module Number:** 0520215

Aims (Module Purpose):

Physical Pharmacy is a three hour course that aims at providing the student with a broad understanding of physicochemical principles that govern the behavior of drugs and dosage forms. The students will learn about the states of matter with emphasis on liquid and solid states, phase equilibria, properties of electrolyte and non-electrolyte solutions, buffers and their uses, diffusion, distribution and dissolution, kinetics, interfacial phenomena, dispersed systems with emphasis on properties of colloids, and rheology.

Module Name: Pharmacognosy **Module Number:** 0540301

Aims (Module Purpose):

Pharmacognosy course provides the basic information on taxonomy of the official naturally occurring crude drugs, the major official references, sources and identification techniques. Crude natural drugs production and processing, the effect of such procedures on the biological activity and quantity of active including cultivation, collection, drying, packing, transporting and storing are discussed. Medicinal uses and choice of extraction method of natural drugs are discussed. In

addition, the course discusses the quality control of herbal and other naturally occurring drugs, surgical dressings and methods employed to detect adulterants with more emphasis on chromatographic techniques. Student is introduced into the most commonly applied and recognised alternative and complementary therapies (CAM), their principles, efficacies and possible side effects which are necessary for modern pharmacy practice with emphasis on patient counselling and the use of different herbal products in the pharmacy and the choice of CAM.

Module Name: Pharmaceutics (I)

Module Number: 0520311

Aims (Module Purpose):

At this level, the student is familiar with the basics of pharmacy like solubility, dissolution, types of solution etc... which was taught in a prerequisite course (Physical pharmacy course). The student will now apply that knowledge to the pharmaceutical dosage forms regarding their physicochemical aspects, simple formulation, compounding, procedures and different dosage units. Detailed examples and applications are given at the end of each chapter.

The aim of this course is to provide the student with basic knowledge and understanding of the different pharmaceutical dosage forms. It relates the basic scientific background to pharmaceutical practice regarding the dosage form included. Part of the dosage forms will be given in this course and others will be taught in pharmaceutics (II) course.

Module Name: Pharmaceutics (II)
0520312

Module Number:

Aims (Module Purpose):

This course includes the dosage forms of drugs that were not covered in pharmaceutics I in addition to the creation and demonstration of individual dosage regimens designed by integrating patient presenting conditions and pharmacotherapeutic considerations. However, it depends on its basic prerequisite course (Pharmaceutics I) regarding formulation design, quality evaluation, bioavailability, and shelf-life of drugs in pharmaceutical dosage forms. Principles of drug delivery systems and dosage form design, formulation, storage, and utilization will be also discussed while the unit processes for those dosage forms will be discussed later in industrial pharmacy (I).

Module Name: Pharmaceutical Medicinal Chemistry (I) **Module Number:**
540311

Aims (Module Purpose):

The student must have all the information regarding the aromatic structures chemical names and nomenclature of organic compounds, enzymes function and proteins names and biosynthesis studied in pharmaceutical organic chemistry (II) and pharmaceutical biochemistry (I), the student will study the physical and chemical properties of drugs, synthesis, chemical names, classifications, mode of action, mechanism, and metabolism of drugs acting on the autonomic nervous system, antihistamines, and drugs acting on GIT, Diuretics, cardiovascular drugs. The student will be able to continue with the subjects in pharmaceutical medicinal

chemistry (II), where he will study different subjects based in the information's studied in pharmaceutical medicinal chemistry.

Module Name: Pharmaceutical Medicinal Chemistry (II) **Module Number:** 540312

Aims (Module Purpose):

The student must be able to know all the information's regarding autonomic nervous system, antihistamines, and drugs acting on GIT, Diuretics, cardiovascular drugs studied in pharmaceutical medicinal chemistry (I).

This course deals with the study of the physiochemical properties of drugs and their action. Metabolism of drugs. Synthesis, chemical name, classification, mode and mechanism of action of sedative-hypnotics, analgesic, neuroleptic and anxiolytic drugs, drugs used to treat neuromuscular disorders, sex hormones, anti-allergic agents, nonsteroidal anti-inflammatory drugs, drug affecting sugar metabolism, Vitamins and coenzymes, thyroidal and anti-thyroidal agents, chemotherapeutic agents and others. The structure action relationship will also be discussed wherever possible.

Module Name: Pharmaceutical Medicinal Chemistry (III) **Module Number:** 540411

Aims (Module Purpose):

The student at this level well know the major of drugs structures, names, mechanism of action and side effect studied in pharmaceutical medicinal chemistry (I) and (II), this course the student will study the metabolism of the drugs through phase I and phase II, factors affecting drug metabolism and drug-drug interactions

Module Name: Pharmacology I

Module Number: 0530371

Aims (Module Purpose):

This course is an essential topic for pharmacy students, which provide students with basic principles of the science of pharmacology.

It is college requirement allowed student to be familiar with pharmacology terminology. This module has a reflective, interactive and analytical contextual focus. However, it deals with drug receptor interaction concept, mode of action of drugs, factors modifying responses and adverse effects, dose response relationship, drug toxicity. In addition to drug absorption, distribution, protein binding, metabolism and excretion.

It also includes detailed information about drugs acting on the autonomic nervous systems and drugs acting on the CNS as well as the histaminaregic and serotenergic drugs. The module also covers drug abused.

Module Name: Pharmacology II

Module Number: 0530471

Aims (Module Purpose):

This module is a major requirement that is designed to provide the students with the unit processes taking place in pharmacology. At this level, the student has

been exposed to pharmacology 1, moreover; different basic pharmacological topics will be illustrated in this module. This module has a reflective, interactive and analytical contextual focus. However, it deals with study of the mechanism of action of drugs that acts on the endocrine systems, gastrointestinal system, and chemotherapeutic agents together with antibacterial, antiviral & antimycotic agents.

Module Name: Pharmacology (III)
0530473

Module Number:

Aims (Module Purpose):

The module is a major requirement that is designed to provide the students with the unit processes taking place in pharmacology. At this level, the student has been exposed to pharmacology (II), moreover; different basic pharmacological topics will be illustrated in this module regarding the above mentioned drugs. This module has a reflective, interactive and analytical contextual focus. However, it deals with mode of action, adverse effects, toxicity and drug interaction of the above mentioned drugs with other agents.

Module Name: Pharmaceutical Instrumental Analysis **Module Number:**
0540422

Aims (Module Purpose):

This course is devoted to the exploration of the instrumental methods of analysis used to check the purity of raw material and quality control of pharmaceutical preparations; chromatographic methods, spectroscopic methods; UV-Visible, IR, NMR, Mass, Atomic absorption, and Flame emission.

Module Name: Chemistry of Natural Products **Module Number:** 0540302
Aims (Module Purpose):

Based on the information acquired from the pre-requisite courses of pharmacognosy, pharmacology and instrumental analysis, phytochemistry course discusses the major pharmaceutically important secondary metabolites from natural sources (phenolics, steroids, terpenoids glycosides and alkaloids) of pharmaceutical interest. It provides the basic phytochemical knowledge about the natural source, classification, extraction, detection, isolation, pharmacological and toxicological effects. The course extends to the chemistry of natural pesticides as well as drugs of marine origin.

Module Name: Industrial Pharmacy (I) **Module Number:** 0520411

Aims (Module Purpose):

The module is a major requirement that is designed to provide the students with the unit processes taking place in industrial pharmacy. At this level, the student has been exposed to Pharmaceutics (II), moreover; different basic industrial topics will be illustrated in this module plus to different formulation techniques. This module has a reflective, interactive and analytical contextual focus. However, it deals with different problems in formulation and how to deal with such problems. Granulation and compression are two very important processes that are carried out extensively by most pharmaceutical companies. However, the

theory of granulation is little understood and the selection of a particular machine and granulation method is often done on the basis of tradition, rather than by using strict scientific or cost-benefit criteria. The basic techniques have changed dramatically in recent years and granulation for controlled release, extrusion, spheronisation, fluidisation techniques, spray drying, melt extrusion and roller compaction are new technologies that are increasingly being used in modern pharmaceutical production, which exhibit many advantages over previously available techniques. As with granulation, compression is also little understood and why some materials/formulations will compress well whilst others compact with difficulty, is slowly being elucidated. The module will examine current granulation theory and practice. Emphasis will be made as to how this theory and practice relates to current pharmaceutical development and production, with special reference to the machinery used. Initial validation issues will also be addressed, and comprehended later in Industrial Pharmacy (II).

Module Name: Industrial Pharmacy (II)

Module Number: 0520412

Aims (Module Purpose):

After completion of Industrial Pharmacy (I) and its fundamentals, this major requirement module which has a reflective, interactive and analytical contextual focus, will provide a comprehensive and sound understanding of the theory and practice of pharmaceutical technology and to appreciate the various processes; batch or continuous, that are available. The importance of the technology process in producing good quality products will be emphasized. The modern techniques of production will be covered. A pragmatic approach will be adopted throughout. The Course will examine current compression theory and practice in detail.

Module Name: Biopharmaceutics and Pharmacokinetics
Number: 0520419

Module

Aims (Module Purpose):

This course is devoted to the exploration and examination of the physical and physicochemical behavior of drugs, dosage forms, and drug delivery systems in physiological milieu and their implications for pharmaceutical care. Drug absorption processes, bioavailability, and bioequivalence will be highlighted. Pharmacokinetic and Pharmacodynamic concepts, including absorption kinetics, volume of distribution, and compartmental models, will be introduced to the student.

Module Name: Drug Design
0540511

Module Number:

Aims (Module Purpose):

The course is designed to provide the students with receptors structures and types, drug metabolism taking place in pharmaceutical medicinal chemistry (III) . At this level, the student has been exposed to drug design. This course deals with different type of drug design, random and rational drug design using the newest computer software's in this field , the student will study carefully the type

of receptors and the interaction between the new compounds and receptors, the synthesis methods and the biological screening of new synthesized compounds

Module Name: Clinical Biochemistry

Module Number: 0530551

Aims (Module Purpose):

This course discusses via case-study analyses the basic principles of quantitative analysis utilized in common clinical laboratory tests. An introduction to interpretation of abnormal clinical laboratory values is presented, and regulatory effects of various hormones are described.

This course will familiarize the student with the principles, limitations, and interpretation of certain clinical diagnostic procedures; and emphasize the biochemical mechanisms of specific disease states.

Module Name: Clinical Pharmacy and Therapeutic (I) **Module Number:** 0530571

Module Number:

Aims (Module Purpose):

This module will help the student to use and practice most of the knowledge that has been introduced to him through the past four years. Mainly the physiology and anatomy, microbiology, pharmacology, pharmacokinetic and pharmaceutical technology.

The student must take the final exam of Pharmacology to be able to link between the different drugs has been introduced to him in pharmacology and the detail indications (therapeutic dose, prophylactic dose, duration of therapy, major effect, side effect, drug interaction, and route of administration).

The course will give an introduction to clinical therapeutics, the meaning of patient case, case discussion, and details about the drug of choice, best dose, best route of administration and duration of therapy for certain disease according to the different cases as (patients different ages, pregnancy and lactation, sensitivity, idiosyncrasy, complicated therapy and others) for the different diseases which will be discussed during the course such as:

common chronic diseases/ asthma (Acute, chronic) / Diabetes Mellitus (type I, type II, gestational, most common complications) / hypertension (mild, moderate, severe, crisis, gestational) / Ischemic Heart Diseases (angina, MI) / Congestive heart failure, Dyslipidemia and other cardiovascular diseases / types of Peptic Ulcer (gastric, duodenal ulcer, stress ulcer, ZE syndrome) / inflammatory bowel diseases (chron's disease, ulcerative colitis) / constipation / diarrhoea and other GI diseases / Rheumatic disorder and some Neurological and psychological disorders.

Module Name: Clinical Pharmacy and Therapeutic (II) **Module Number:** 0530572

Module Number:

Aims (Module Purpose):

This module will be a continuation for what the students have studied in therapeutics (I), it will help the students to use and practice most of the knowledge that has been introduced to them in therapeutics (I).

The course will give the students more details and practice for clinical therapeutics, the students ability to analyze patient case will be improved, they will know more details about the best drug of choice, best dose, best route of administration and duration of therapy for certain disease according to the different cases as (patients different ages, pregnancy and lactation, sensitivity, idiosyncrasy, complicated therapy and others) for more diseases which will be discussed during the course, such as:

Infectious agents/ Respiratory tract infection/upper(common cold, tonsillitis, otitis media, sinusitis) / lower (pneumonia all types, SARS, pulmonary TB, COPD) / Urinary Tract Infection(upper, lower) acute and chronic renal failure / sexual transmitted diseases (gonorrhoea, syphilis, HIV, pelvic inflammatory diseases) / meningitis / sepsis / Skin disorders (Acne, psoriasis) / Obstetrics and gynaecology (menstrual cycle, oral contraceptives, infertility, PCO, Menopause, OP) and other Gynaecological disorders / Cancer (Breast cancer).

Module Name: Toxicology

Module Number: 0530573

Aims (Module Purpose):

The module is a major requirement that is designed to provide the students with the unit processes taking place in Toxicology. At this level, the student has been exposed to pharmacology, moreover; different basic toxicology topics will be illustrated in this module plus to different formulation techniques. This module has a reflective, interactive and analytical contextual focus. However, it deals with different problems in poisoning and how to deal with such problems. This module is also concerned with the chemical and physical properties of poisons, the Pharmacokinetics of toxic agents, the physiologic and behavioural effects of these poisons in humans, and the effective prevention and management of those effects.

Module Name: Anatomy and Histology

Module Number: 0511143

Aims (Module Purpose):

The course is designed to provide the students with extended knowledge about histological appearance of various types of tissues and information build on the previous biology course and enable the student to understand future courses as physiology and pathology. These include, the cells and organelles, epithelial tissues, muscular tissues, and nervous tissues, the skeleton, head and neck, upper limb, lower limb, chest, abdomen, spine and endocrine system.

Module Name: Physiology I
0511241

Module Number:

Aims (Module Purpose):

The course is designed to provide the students with knowledge about the normal functions and mechanism of various physiological systems basis on the anatomical and histological correlation, including: cell physiology and body fluids, membrane physiology, nerves and muscles, contractions of skeletal muscles, excitation contraction coupling, neuromuscular transmission, autonomic nervous system, blood cells and blood clotting, acid -base balance, acid base imbalance, respiratory system.

Module Name: Physiology (II)

Module Number: 0511242

Aims (Module Purpose):

The course is designed to provide the students with extended knowledge to have continuous information about various normal functional units of human systems including: special senses, central nervous system, digestive system, renal system, endocrines and cardiovascular system.

Module Name: Pharmaceutical Biochemistry I **Module Number:** 0530361

Aims (Module Purpose):

Biochemistry I, an introduction to the structure and function of biological molecules, is designed to study the molecules and macromolecules in living systems through an application of the principles of organic and physical chemistry as well as biology and genetics. This will include an examination of the structure of these molecules in detail in order to understand how their unique chemical and physical properties contribute to their biological function.

After an introduction to the basic concepts of biochemistry, the structure and function of proteins will be discussed. Special attention will be given to the methods and techniques of biochemistry and their application to proteins and nucleic acids. In order to illustrate these principles, a number of specific proteins will be discussed in detail.

The structures, specificities and mechanisms of action of selected enzymes will illustrate the enormous diversity of this group of catalytic molecules. The mechanism of action of a few enzymes will be studied in detail and general theories for the kinetic analysis of both single substrate and multi-substrate enzymes will be developed.

The structure and function of the nucleic acids will be discussed in some detail and the association of nucleic acids with proteins will introduce these important macromolecular interactions. Higher levels of organization of the genetic material will be introduced and the mechanism of DNA replication, repair, and recombination will be studied. A very brief introduction to transcription and RNA processing, translation and gene regulation will be presented.

Module Name: Pharmaceutical Biochemistry II **Module Number:** 0530362

Aims (Module Purpose):

This course will emphasize human biochemistry in both health and disease. The concepts are chosen to prepare the pharmacy student for learning in subsequent courses, and for understanding the medical literature. The generation of metabolic energy in higher organisms, with an emphasis on its regulation at the molecular, cellular and organ level. Chemical concepts and mechanisms of enzymatic catalysis are also emphasized. Included: selected topics in carbohydrate, lipid and nitrogen metabolisms; complex lipids and biological membranes; hormonal signal transduction..

Module Name: Pharmaceutical Microbiology (I) **Module Number:** 0530261

Aims (Module Purpose):

The course is designed to provide the students with knowledge about the microbial cell structure, the major groups of microorganisms, normal flora pathogen city, immunology, autoimmunity and clinical microbiology, which have been studied by students previously in pharmaceutical biochemistry.

Module Name: Pharmaceutical Microbiology (II) **Module Number:** 0530262

Aims (Module Purpose):

At this level the student has been known how to prevent pharmaceutical product from microbial contamination during the knowledge of the sterilization and disinfection, antimicrobial agents including types, uses, properties, mode of actions in addition to the bacterial resistance. Also the source covers pharmaceutical products, contamination, preserving, quality control, and production of therapeutically useful substances by recombinant DNA technologies, which have been studied by students previously pharmaceutical microbiology (I).

Module Name: Pathology

Module Number: 0511341

Aims (Module Purpose):

The course aims to introduce the student to the etiology of diseases and link them to the Pathophysiology concept. The student will understand and comprehend the causes, symptoms and clinical manifestations of diseases such as cell injury and adaptation, inflammation,

infections, genetic diseases, Immune diseases, Environmental diseases, hematology and circulatory disorders, which the students have been introduced to in the previous modules of anatomy and physiology .

Module Name: Pathophysiology

Module Number: 0511441

Aims (Module Purpose):

The aim of this course is to introduce the student to the basic mechanisms of diseases, organs affected by the diseases and their relation ship with normal physiological and pathological findings which have been studied by students previously (physiology and pathology), and their disorders.

The course will include: Renal system, Cardio vascular system, Respiratory system, GIT and Liver, Endocrinology, Diabetes, Malignant diseases and Pain.

Appendix B: Study Plan of Faculty of Pharmacy

First : University Requirements: 24 credit hours

A - University Compulsory (21 credit hours for Jordanians)

(15 credit hours for Non-Jordanians)

Course No.	Course Name	Credit hours	P.R ***
0111100	Military Science**	3	-----
0110101	Arabic Skills (1)	3	-----
0130101	English Skills (1)	3	0130099
0130102	English Skills (2)	3	0130101
0111133	Human Thought & Civilization (1)	3	
0710101	Computer Skills (1)	3	-----
0111101	National Education**	3	-----

B- University Electives (3 credit hours for Jordanians)

(9 credit hours for Non-Jordanians)

Course No.	Course Name	Credit hours	P.R
0110102	Skills of Arabic language (2)	3	0110101
0111111	Introduction to Sociology	3	-----
0111112	Introduction to Psychology	3	-----
0111113	Principles of Logic	3	-----
0111121	Current Issues	3	-----
0111142	Communication & Society	3	-----
0111135	Human Thought & Civilization (2)	3	-----
0111153	Science and Society	3	-----
0140103	Foreign Language (French 1)	3	-----
0140104	Foreign Language (Italian 1)	3	-----
0140106	Foreign Language (Hebrew 1)	3	-----
0210121	History of Science	3	-----
0240141	Principles of Nutrition	3	-----
0240151	Humans and the Environment	3	-----
0330101	Introduction to Administration	3	-----
0340101	Principles of Macro Economics	3	-----
0420150	Human Rights	3	-----
0530100	Principles of Therapeutics	3	-----
0620105	Automobile Essentials	3	-----

Second : Faculty Requirement : 33 credit hours

Course No.	Course Name	Credit hours	P.R
0212101	General Chemistry	3	-----
0240101	General Biology	3	-----
0211105	General Physics	3	-----
0210235	Biostatistics	2	-----
0710104	Computer Skills (2) for Scientific Colleges	3	0710101 *
0540211	Pharmaceutical Organic Chemistry (1)	3	0212101
0540216	Pharmaceutical Organic Chemistry (1) Practical	1	0540211 *
0540212	Pharmaceutical Organic Chemistry (2)	3	0540211
0540217	Pharmaceutical Organic Chemistry (2) Practical	1	0540212 *
0540213	Pharmaceutical Analytical chemistry (1)	3	0540211
0540218	Pharmaceutical Analytical chemistry (1) Practical	1	0540213 *
0540214	Pharmaceutical Analytical chemistry (2)	3	0540213
0540219	Pharmaceutical Analytical chemistry (2) Practical	1	0540214 *
0520401	Pharmaceutical Ethics and Legislations	2	-----
0520502	Pharmaceutical Marketing and Management	2	Fifth year level

Third: Major Requirements 103 credit hours

A- Compulsory Courses (70) credit hours

Course No.	Course Name	Credit hours	P.R
0520215	Physical Pharmacy	3	0540213
0520219	Physical Pharmacy Practical	1	0520215 *
0540301	Pharmacognosy	3	240101
0540306	Pharmacognosy Practical	1	0540301 *
0520311	Pharmaceutics (1)	2	0520215
0520316	Pharmaceutics Practical	1	0520311 *
0520312	Pharmaceutics (2)	2	0520311
0520317	Pharmaceutics (2) Practical	1	0520312 *
0540311	Pharmaceutical Medicinal Chemistry (1)	3	0530361 + 0540212
0540316	Pharmaceutical Medicinal Chemistry (1) Practical	1	0540311 *
0540312	Pharmaceutical Medicinal Chemistry (2)	3	0540311
0540317	Pharmaceutical Medicinal Chemistry (2) Practical	1	0540312 *
0540411	Pharmaceutical Medicinal Chemistry (3)	3	0540312

0530371	Pharmacology (1)	3	0530361 + 0511242
0530376	Pharmacology (1) Practical	1	0530371 *
0530471	Pharmacology (2)	3	0530371
0530476	Pharmacology (2) Practical	1	0530471 *
0530473	Pharmacology(3)	3	0530471
0540422	Pharmaceutical Instrumental Analysis	3	0540214
0540427	Pharmaceutical Instrumental Analysis Practical	1	0540422 *
0540302	Chemistry of Natural Products	3	0540422 + 0540301
0540307	Chemistry of Natural Products Practical	1	0540302 *
0520411	Industrial Pharmacy (1)	2	0520312
0520416	Industrial Pharmacy (1) Practical	1	0520411 *
0520412	Industrial Pharmacy (2)	2	0520411
0520417	Industrial Pharmacy (2) Practical	1	0520412 *
0520419	Biopharmaceutics and Pharmacokinetics	3	0530371
0520418	Biopharmaceutics and Pharmacokinetics Practical	1	0520419 *
0540511	Drug Design	2	0540411
0530551	Clinical Biochemistry	3	0530362
0530556	Clinical Biochemistry Practical	1	0530551 *
0530571	Clinical Pharmacy and Therapeutics (1)	2	0530473
0530576	Clinical Pharmacy and Therapeutics (1) Practical	1	0530571 *
0530572	Clinical Pharmacy and Therapeutics (2)	2	0530571
0530577	Clinical Pharmacy and Therapeutics (2) Practical	1	0530572 *
0530573	Toxicology	3	0530473
0500591	Pharmaceutical-Research workshop	1	Fifth year level

In addition to (1440) training hours in different pharmaceutical foundations, and passing the comprehensive exam at the expected last semester.

*: Concomitant

** : Elective Course for Non-Jordanians

***: Pre-Requisite