



Philadelphia University

Faculty of Science

Department of Biotechnology and Genetic Engineering

Undergraduate Program Handbook

(2009 - 2010)

Contents

| | |
|---|----|
| 1. General Information | 5 |
| 1.1 Mission Statement | 5 |
| 1.2 Key Academic Staff | 6 |
| 1.3 Registration | 6 |
| 1.4 Timetables | 6 |
| 1.5 Use of Notice Boards | 6 |
| 1.6 Health and Safety | 7 |
| 1.6.1 Buildings | 7 |
| 1.6.2 Emergency Evacuation | 7 |
| 1.6.3 Fire Action | 7 |
| 1.6.4 Operating the Fire Alarm | 8 |
| 1.6.5 Use of Fire Appliances | 8 |
| 1.6.6 First Aid | 8 |
| 1.6.7 Personal Difficulties | 8 |
| 2. Program Overview | |
| 2.1 Aims and Learning Outcomes of the Program | 8 |
| 2.1.1 Aims | 8 |
| 2.1.2 Learning Outcomes | 9 |
| 2.2 Overview of the Program Structure | 10 |
| 2.3 Course Organization | 11 |
| 2.3.1 Credit Rating b | 11 |
| 2.3.2 Course Availability | 14 |
| 2.4 Program Structure | 15 |
| 2.4.1 Course Choices | 15 |
| 2.4.2 Modifying Course Choices | 18 |

| | |
|---|----|
| 2.4.3 Program Characteristics | 18 |
| 3. Teaching, Learning and Assessment | 19 |
| 3.1 Work and Attendance | 19 |
| 3.2 Assessment | 20 |
| 3.2.1 Examinations | 20 |
| 3.2.2 Role of Internal and External Examiners | 20 |
| 3.2.3 Criteria for Assessing Examination Work | 21 |
| 3.2.4 Appeal Procedure | 22 |
| 3.2.5 Unfair Practices | 22 |
| 3.2.6 Department Guidelines on Plagiarism | 23 |
| 3.3 Assessment Regulations | 24 |
| 3.4 Supervise Work Experience | 24 |
| 4. Student Progression | 25 |
| 4.1 Progression | 25 |
| 4.2 Change, Interrupt, Withdraw, or Transfer from a | 26 |
| 4.2.1 Changing Your Choice of Courses | 26 |
| 4.2.2 Interruption of Degree Program | 26 |
| 4.2.3 Withdrawal from Courses | 26 |
| 4.2.4 Transfer between Departments | 27 |
| 5. STUDENT SUPPORT AND GUIDANCE | 27 |
| 5.1 Head of Department | 27 |
| 5.2 Academic Guidance | 27 |
| 5.3 Students Affair Deanship | 28 |
| 5.4 Advising Arrangements | 28 |

| | |
|--|----|
| 5.5 Student Presentation and Feedback | 29 |
| 5.5.1 Staff Student Liaison Committee | 29 |
| 5.5.2 Course Coordination Committee | 29 |
| 5.5.3 Departmental and Deanship Meetings | 30 |
| 5.5.4 Collecting and Analyzing Feedback | 30 |
| 6. Learning Resources within the University, Faculty and | 30 |
| 6.1 Learning Resource Centre at Philadelphia Univ. | 30 |
| 6.2 Teaching and learning facilities in the Faculty of Science | 31 |
| 6.3 Teaching and learning facilities in the Depart. Biotech | 31 |
| 6.4 Code of Practice for Computer Usage | 31 |
| 6.5 Other Resources and Facilities | 32 |
| 6.6 Communications | 35 |
| APPENDIX A - The Academic Guidance Plan | 36 |

This handbook contains important general information for students undertaking an undergraduate degree program in the Department of Biotechnology and Genetic Engineering (DBGE). It includes information about the program but not descriptions of individual courses. Details of the courses you may take are given in a separate University document called Undergraduate Course Catalogue. An electronic version can be consulted at <http://www.philadelphia.edu.jo/biotech/>

Your program is subject to the regulations contained in the Student's Guide issued by the University. The department's handbook interprets the regulations, and your advisers will give you further advice, if needed.

1. General Information

1.1 Mission Statement

The mission of the DBGE is derived from those of the Faculty of Science and the University. The DBGE is committed to providing relevant and well rounded education, which is well resourced and supported by high-quality research. Its mission is to provide the necessary training for students to secure good career opportunities locally and regionally based on solid grounding in theory and practice in some basic sciences and in other specialized ones. The DBGE aims to maintain an environment that promotes innovative thinking; values mutual respect and diversity; encourages and supports scholarship; instills ethical behavior; and engenders life-long learning. The strategies of the Department are set to meet the demands of a rapidly evolving world, and to meet the needs of a developing job market in Biotechnology.

1.3 Registration

New and returning students must ~~also~~ register at the times specified in the university calendar, which you may consult at the web page www.philadelphia.edu.jo/arabic/event.asp.

1.4 Timetable

Whilst every attempt is made to timetable reasonable combinations of courses, various constraints make some combinations and certain other options impossible. If you have a timetable problem, consult your academic adviser in the first instance.

1.5 Use of Notice Boards

Official notices are posted on the Department's notice board and on the Faculty general notice board on the first and second floors of the Faculty. Notices are often also posted on the University's and Department's web pages and sent by electronic mail (email) to

students at stdbio@philadelphia.edu.jo. Electronic mail is used extensively at Philadelphia University. Each instructor provides the students with his/her e-mail address at the beginning of the term. Most official information including copies of this handbook, the undergraduate course catalogue and timetables are available on the DBGE Web pages <http://www.philadelphia.edu.jo/biotech/> This site includes all sorts of useful information in addition to directories of staff, complete with photographs.

1.6 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 University. At registration you will be required to assent to the University code of conduct which relates to health and safety in the University buildings as well as the responsible use of Computer equipment as required by the DBGE.

1.6.1 Buildings

The DBGE uses two kinds of space: class rooms and teaching and research laboratories. These places are generally open between 08.00 and 19.30 (Sunday through Thursday). In accordance with University policy, smoking is prohibited indoors in all buildings.

1.6.2 Emergency Evacuation

It is the responsibility of every individual to familiarize themselves with the Faculty's buildings and to know where the fire exits are located (they are clearly marked).

- 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 permitted to do so.

1.6.3 Fire Action

Fire Action notices and important telephone numbers are located at all floors. On hearing the continuous alarm, all staff and students should evacuate the building immediately by the nearest exit.

1.6.4 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.

1.6.5 Use of Fire Extinguishers

Fire extinguishers are placed at strategic points throughout the building to deal with fires. Fires should be tackled only if there is no personal danger and after the alarm has been set off.

1.6.6 First Aid

In case of an accident, you can get first aid from the teaching and research laboratories located on the 9th floor in the Faculty of Science or health center located near the Faculty of Nursing.

1.6.7 Personal Difficulties

Please inform the head of Department of any difficulties with which the Department can be of assistance.

2. Program Overview

2.1 Aims and Learning Outcomes of the Program

The Department offers a B.Sc. in Biotechnology and Genetic Engineering. The program normally takes four years to complete. Being the first among several Biotechnology and Genetic Engineering programs in Jordan, the DBGE, with its excellent teaching staff, provides a very rich learning environment for undergraduates. The following are the aims and learning outcomes of this program.

2.1.1 Aims

The Biotechnology and Genetic Engineering program at Philadelphia University gives you the opportunity to:

- ~ develop your capacity to learn and participate in society as a competent professional;
- develop self-confidence and problem-solving abilities in order to have an edge in the job market;
- ~ develop awareness of the social, organizational, and professional context in which you will be working;
- ~ to contribute to and take active part in a variety of industrial, commercial, and academic activities;
- ~ master a range of skills related to Biotechnology and Genetic Engineering;
- ~ adapt to changing technology and have the ability to recognize technological and human trends;
- ~ meet the standards in the Biotechnology and Genetic Engineering industry and have experience in the use of general tools and technologies used in the design and implementation of new protocols;
- ~ engage in study opportunities, which are comparable to national, and international academic qualifications;

- ~ develop the spirit enquiry through suitable mechanisms such as departmental research;
- ~ develop transferable skills such as oral and written communication, teamwork and leadership, etc.

2.1.2 Learning Outcomes

The following learning outcomes describe what you should know and be able to do if you make full use of the opportunities for learning that we provide. In the individual course syllabi, these learning outcomes are made more specific to each course separately.

A. Knowledge and Understanding:

Introduce knowledge and Understanding the definition of Biotechnology by using the living organisms to produce goods and services for practical and industrial purposes.

B. Intellectual (thinking) skills - able to gain :

B1) skills necessary for self- managed and lifelong learning

B2) The opportunities to work productively with others in the laboratory.

B3) Practical skills advanced comprise ability to work with different Biological samples and the ability to obtain, record, observe and analyze information in the laboratory.

B4) Using experience in the Internet and other electronic sources as a source of information

C- Practical skills - able to :

C1) Plan and work a project in the areas of Biotechnology and Genetic Engineering.

C2) Prepare and deliver coherent and structured verbal and written technical reports.

C4) Interpersonal and Teamwork skills

2.2 Overview of the Program Structure

The system of study at Philadelphia University is the credit hours system. Each academic year consists of two obligatory semesters and an optional summer session. Any complete series of classes is called a course. Many courses have one or more prerequisite courses. The curriculum contains certain categories of courses: University Requirements, Faculty Requirements, Department Requirements, and Ancillary Requirements. Most courses are worth 3 credit hours, but some courses are worth 2, or even 1, credit hours. In general, the number of credit hours allocated to a course indicate the number of class hours per week in a 16-week semester.

In the DBGE you are required to successfully complete at least 44 courses (132 credit hours), summarized as follows:

- University Requirements (UR) = 27 credits (20.5 %)
- Faculty Requirements (FR) = 24 credits (18.8 %)
- Departmental Compulsories (DC) = 67 credits (50.7 %)
- Departmental Electives (DE) =3 credits (2.3 %)
- Ancillary Courses (AC)) = 11 credit (8.3 %)

These courses are given in the following sections. The information given here is extracted from the Program Specifications for the degree program. The specifications are published separately, and can be found on the Department's web page at <http://www.philadelphia.edu.jo/biotech/> The description of each course can be found in the Undergraduate Course Catalogue on the web pages at www.philadelphia.edu.jo/biotech/quality.htm

2.3 Course Organization

2.3.1 Credit Rating

In the credit hours system, there are no pass requirements from one year of study to another. However, the total number of your successfully completed credit hours is only used to classify you in the corresponding year of study as shown below:

| | |
|-------------|-------------------------|
| First Year | 30 credit hours or less |
| Second Year | 30 to 59 credit hours |
| Third Year | 60 to 89 credit hours |
| Forth Year | 90 to 132 credit hours |

When you select your courses, you should follow the academic guidance plan that the Department has arranged for you. In fact, you can enroll in any course if you have taken its prerequisite(s), but you can enroll in both the course and its prerequisite only if you are in the graduation semester or if you have taken the prerequisite and failed in it.

In each semester, you can take a minimum of 12 and at a maximum of 18 credit hours, except for the semester in which you are expected to graduate when you can register for 21 hours. The complete four years academic guidance plan is listed in Appendix A of this Handbook.

The Department covers the Biotechnology and Genetic Engineering program from the areas listed below:

0. General Biology
1. Microbiology
2. Plant Biotechnology
3. Cell Biology
4. Chemistry
5. Environmental Biotechnology
6. Bioinformatics/Biosensors
7. Animal biotechnology

8. Molecular Biology

9. Ancillary Courses

The taught courses in each area are shown in the Table (1), where each course is identified by a course number that consists of six digits according to the University's numbering scheme. For example, the number of the course "Introduction to Biotechnology" is 240281. The numbering scheme is described as follows:

2.3.2 Course Availability

The courses described here and in the Undergraduate Course Catalogue are the ones we expect to offer in the coming year. However, elective courses may be canceled if they are chosen by too few students or for other unavoidable reasons. The portfolio of course offerings is reviewed every year, and the availability of a particular course in the coming year does not mean that it will be available in the year after that.

2.4 Program Structure

The B.Sc. program in Biotechnology and Genetic Engineering offers the necessary training for students to secure good career opportunities locally and regionally. This is attainable by laying a solid foundation in theory and practice in the basic sciences, which include courses in Biology, Chemistry, Microbiology, Molecular Biology, Genetics, Animal and Plant Tissues and others. Additionally, graduates of this department are expected to possess the necessary skills and background that will enable them to pursue their education at the graduate level in any of these fields and will meet all the general aims of program listed in section 2.1.1.

2.4.1 Course Choices

You may choose a course if you have already taken all its prerequisites and if your adviser approves this choice. An initial choice is made before or at Departmental Registration. You can choose courses according to the level of the courses. The following is a study plan that can be used as a guide to finish all courses required for graduation in four years (8 semesters). In case you decide to take some courses during the optional summer session, your course load during regular semesters will be reduced.

First Year

In the first year, you are encouraged to take a total of 13 compulsory courses, 6 in the first and 7 in the second semester (17 and 18 credit hours respectively). During each 16-weeks semester, you will normally attend 6 classes. Thus, there will be 18 or more hours 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.).

Six of the 13 courses of the first year are University Requirements (UR), **three** Faculty Requirements (FR), three Ancillary Requirements (AR) and **one** a Department Requirement (DR) as shown below:

First Semester (17 credit hours)

| | | |
|--------|-----------------------------------|------|
| 130101 | English Language Skills 1 | (UR) |
| 240101 | General Biology 1 | (UR) |
| 212101 | General Chemistry 1 | (FR) |
| 212102 | General Chemistry Lab | (AR) |
| 240106 | General Biology Lab | (AR) |
| 710101 | Computer Skills 1 | (UR) |
| 111133 | Human Thought and Civilization | (UR) |

Second Semester (18 credit hours)

| | | |
|--------|---------------------------|------|
| 110101 | Arabic Language Skills 1 | (FR) |
| 130102 | English Language Skills 2 | (UR) |
| 210101 | Calculus 1 | (FR) |
| 240107 | General Biology 2 | (AR) |
| 212103 | General Chemistry 2 | (AR) |

- Second Year

In the second year students normally take 14 compulsory courses. Two of these are from the **UR**, one from the **FR**, **six** from the **AR**, and five from the **DR** as shown below:

First Semester (18 credits hours)

| | | | |
|--------|--------|--|----|
| | 210231 | Introduction to Probability & Statistics | FR |
| Second | 240216 | Microbiology | DR |
| | 240217 | Microbiology Lab | DR |
| | 240233 | Cell Biology | DR |
| | 212241 | Analytical Chemistry | AR |
| | 212242 | Analytical Chemistry Lab | AR |
| | 111101 | Civic Education | UR |
| | 240108 | General Biology 2 Lab | SR |

Semester (15 credit hours)

| | | | |
|--|--------|------------------|----|
| | 111100 | Military Science | UR |
| | 211105 | General Physics | AR |
| | 240231 | Genetics | DR |

| | | |
|--------|-------------------------------|----|
| 240232 | Genetics lab | DR |
| 240281 | Introduction to Biotechnology | AR |
| 212243 | Organic Chemistry | AR |

Third Year

In the third year, you should take eight courses in the first semester and seven courses in the second semester. Fourteen courses are compulsory DRs and one departmental elective, one UR and one FR.

The elective courses offered by the Department can help you to choose a particular path of interest to you, e.g. Animal Biotechnology, Plant Biotechnology, etc. Electives may be chosen in your junior and senior years.

First Semester (15 credit hours)

| | | |
|--------|--------------------|----|
| 240337 | Immunology | DR |
| 240338 | Immunology Lab | DR |
| 240234 | Human Genetics | DR |
| 240335 | Cytogenetics | DR |
| 240343 | Biochemistry 1 | DR |
| 240344 | Biochemistry 1 Lab | DR |

| | | | |
|------------------------------------|--------|-----------------------|----|
| Second Semester (16 credits hours) | 240386 | Molecular Biology | DR |
| | 240387 | Molecular Biology Lab | DR |

| | | |
|--------|-----------------------------|----|
| 240462 | Bioinformatics | DR |
| 240322 | Plant Biotechnology | DR |
| 240352 | Environmental Biotechnology | DR |
| 240471 | Animal Biotechnology | DR |
| 240472 | Animal Tissue Culture Lab | DR |

| | | |
|--------|------------------|----|
| 240336 | Cytogenetics Lab | DR |
|--------|------------------|----|

| | | |
|--|-----------------|----|
| | Elective course | DR |
|--|-----------------|----|

Fourth Year

In the fourth year you should take fourteen courses. In the first semester, you must select one departmental elective and six compulsory courses that are all from the DR. In the second semester, you must take one University elective course and six courses from the compulsory DR as shown below.

One of the compulsory courses is Practical Training, which consists of undertaking supervised training in an industrial organization, research or medical laboratories. You should take this course in the second semester.

First Semester (16 credit hours)

| | | | |
|---|--------|--------------------------------------|----|
| | 240417 | Microbial Biotechnology | DR |
| | 240484 | Applied Molecular Biology | DR |
| Second Semester (14 credits hours) | 240485 | Applied Molecular Biology lab | DR |
| | | Elective Course | DR |
| | 210122 | Fundamentals of Scientific Knowledge | DR |
| | 240323 | Plant Tissue culture lab | DR |
| | 240391 | Entrepreneurship | DR |
| | 240441 | Pharmaceutical Biotechnology | DR |
| | 240491 | Ethics in Biotechnology | DR |
| | 240499 | Graduation Project | DR |
| | 240490 | Quality control & Lab management | DR |

| | | |
|--------|---------------------|----|
| | Elective course | DR |
| | University elective | UR |
| 240494 | Field Training | DR |

2.4.2 Modifying Course Choices

After setting your plan and registering in your selected courses as described in section 2.4.1, you can make changes as follows:

In the first week of each semester (three days for the summer session), you can add courses or withdraw from them. Only withdrawal is allowed after those dates as explained below. In the first instance, you should discuss any contemplated changes with your academic adviser. The new course you wish to take should be a valid option for your degree program and should create no timetable problems.

2.4.2 Program Characteristics; the Practical Components

The practical part of courses accounts for at least 28% of the total number of credit hours. In addition, the student will also undertake practical field training and a graduation project. The practical courses add a new flavor to the coursework you have to go through before earning the degree. The students are placed in medical research and industry sectors for a total of 100 hours at the work place. The supervision is carried out through visits and departments supervisors

Graduation Project:

The Graduation Project is an important integrative course, which invites you to apply your knowledge and skill and to a specific field such as Molecular Biology, Microbiology, or Plant and Pharmaceutical industries. The project demands skills in

researching materials, oral and written communications and encourages you to tackle problems, which simulate research and industrial situations. The time allocated to the project is one to two semesters.

3. Teaching, Learning and Assessment

3.1 Workload and Attendance

The University regulations governing student workload and attendance are given in the Student Guide 2007/2008. Full attendance is required at all scheduled classes, lab sessions, and tutorials. Completed lab work should be handed in and attendance registers are kept. You are expected to do approximately thirty six hours of work per semester. i.e. an average of two hours of private study will be required for every scheduled hour of class and lab work. Some students may require much more time than this. Being a full-time student means that your attendance is mandatory and absence is not permitted in term-time. The previous experience of the Department confirms that lack of attendance leads to study problems. If you have problems, you should consult your adviser. In addition, failure to attend can result in barring you from sitting for the final examination. Each instructor keeps records of the work and attendance students in his/her classes. If a student's absences exceed 15% (or 20% for students representing the University in cultural activities or sports) without acceptable justification, he/she will forfeit the right to sit for the final examination of the course. If the absences are shown to be for reasons acceptable to the Dean of the Faculty, dismissal from the course will be marked as withdrawal, but without refunding the registration fees. A formal process is in place to tackle the problem of any student whose work and attendance appear unsatisfactory. The instructor may choose to issue an "informal" warning, which has a precisely defined format and permits rectifying the situation. If this is unsatisfactory, a "formal" warning is issued. This, again, follows a precisely

defined format. Failure to rectify the situation at this stage leads to dismissal from the course. A copy of this correspondence is kept in the student's file.

3.2 Assessment

3.2.1 Examinations

In each course, there are two one-hour mid-term exams and one two-hour final exam. For the mid-term exams, the instructor returns your corrected answer sheet, marked with some feedback for you to check, within one week. Answer sheets of final exams are kept in the department, and you can obtain your marks from the Admissions and Registration Office or directly from the University's web site, normally within the next 72 hours.

At the end of each semester, the schedule of classes for the next semester is announced by the Admissions and Registration Office to help you in choosing your courses for the next semester. The two mid-term exams are set by the Department, and the syllabus of each course specifies the dates. Your instructor will also inform you about these dates in the first class hour of the course.

The final version of your Graduation Project should be submitted to the Department in the fourteenth week of the semester. In the fifteenth week, a committee will assess your work and report the result to the Chairperson.

3.2.2 Role of Internal and External Examiners

For each course, the Department assigns a course coordinator and an internal examiner who is one of the senior staff members. If several instructors teach the same course 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 course will collect these questions and select some of them to be in the exam paper.

On the other hand, 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

3.2.3 Criteria for Assessing Examination Work

Grades of each course are given in percentage marks. The marks are classified as follows:

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:

- has comprehensive knowledge of a topic (often beyond that covered directly in the program) with an absence of misunderstandings;
- is able to apply critical analysis and evaluation;
- can solve unfamiliar problems not drawn directly from lecture material and can adjust problem solving procedures as appropriate to the problem;
- 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

- has a good knowledge base and understanding of all the principal subject matter in the program;

- can solve familiar problems with ease and can make progress towards the solution of unfamiliar problems;
- 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

- has satisfactory knowledge and understanding of the principal subject matter of the program but limited to lecture material and with some errors and omissions;
- can solve familiar problems through application of standard procedures;
- 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

- has some basic knowledge and a limited understanding of the key aspects of the lecture material;
- 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

- has some familiarity with the general subject area;
- whilst unable to solve problems, can at least formulate a problem from

information given in a sensible manner.

Fail (below 50)

3.2.4 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 course lecturer. If the problem is not solved, you must submit it to your adviser. He/she 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 Department. Such requests are forwarded to the Examination Committee of the Faculty. The Department and the examination committee will consider these cases and check if there is any mistake in the summation of the marks or if any answer has inadvertently been overlooked.

3.2.5 Unfair Practices

The University treats attempting to cheat in examinations severely. The penalty is usually more severe than a zero in the paper concerned. Plagiarism of any kind is also a serious academic offence as explained in the University guidelines. In Biotechnology and Genetic Engineering Department these guidelines apply also to laboratory exercises.

3.3 Assessment Regulations

Most courses have some continuous assessment, such as assignments, essays, tutorials, laboratory exercises, seminars, and examinations. Assignments and any coursework

must be submitted by the due dates and any submission after these dates will not be assessed. The proportions of coursework and examination are set out in the detailed syllabus for each course.

The examination and continuous assessment marks are combined to form a single mark out of 100 for each course. This mark is divided as follows: 50% of the total mark is given for the two one-hour midterm exams and other coursework, and 50% for the final exam. The final may be a written exam only or a written exam plus a combination of a final laboratory exam (if applicable), a final small project, or a seminar presentation. The 50% of the final exam is stipulated by the University regulations. The minimum pass mark is 50% for any course.

When you do not sit for the final exam without any excuse, your mark will be what you have collected during the term out of 50% if it is greater than 35 or raised up to 35 if it is less. Meanwhile, if you have a certified excuse approved by the instructor, the Department Head, and the Dean, then you will be given a mark of "incomplete." In this case you will be required to sit for a make-up exam normally held during the first two weeks of the semester that follows.

3.4 Supervised Work Experience

This section is concerned with the Practical Training to be undertaken in year 4. The Department and Faculty Councils approve the regulations for training. The Practical Training Committee in the Department liaises with research centers, the pharmaceutical industry, the ministries of health and agriculture, and local biotechnology centers and makes contacts with them to find opportunities for student training. Students register for the practical training course as a normal course but have to arrange their timetable to include at least two free days to get their training or arrange the training timetable between the regular semesters or in summer. They should complete 100 hours in the training company. Students placed in medical, research and industry domains are jointly

supervised by representatives of those domains and University staff. The supervision is carried out through visits and liaison.

For the practical training course there is no numerical mark but only a "pass" or "fail" result given according to the following rules. Students submit a technical report on their training, and a team of academic staff members makes several observations on the trainees' work in their place of training. They are then assessed on the strength of their performance and the report they present.

4. Student Progression

4.1 Progression

To earn the degree, you need to successfully complete 132 credit hours of University, Faculty, Department, and Ancillary requirements. The pass mark of any course is 50%. Your progress in the program is measured according to the number of credit hours that you have successfully completed. Your academic level (year) depends on the number of credit hours. Another vital thing is that your accumulative average should be at least 60% in each semester. Consequences of unsatisfactory progress may include:

- Failure to progress to the next level,
- Failure to graduate,
- Dismissal from the program.

If you fail in some courses, you cannot progress to the next level. However, this does not mean that you cannot take courses of the next level as long as you have taken their prerequisites.

Failing in a compulsory course means that you have to repeat it in the next semester. You can repeat it three times, but if you fail to pass the course for the third time and you

are in the graduation semester, you will be allowed to take an alternative to it. However, if you fail in an elective, you can either take it again in the next semester or take an alternative to it.

You have to make sure that your cumulative average does not get lower than 60%. If it does, you will be issued a warning. In this case, you are strongly advised to repeat the courses in which you scored low marks in order to increase your cumulative average. Note that, repeating courses may delay your graduation so you may graduate in more than four years. The maximum period you will be allowed to stay in the University is seven years. However, you will be dismissed from the program if the required average is not achieved in the third attempt.

Averages at Philadelphia University are rated as follows:

| | |
|-------------|-----------|
| 84% - 100% | Excellent |
| 76% - < 84% | Very good |
| 68% - < 76% | Good |
| 60% - < 68% | Fair |

4.2 Changing, Interrupting, Withdrawing, and Transferring

4.2.1 Changing Your Choice of Courses

See section 2.4.2. for details.

4.2.2 Interrupting the Degree Program

Any interruption of your degree program (lasting for a maximum period of two years,

continuous or discontinuous) requires special permission. Regulations state that a B.Sc. degree is a continuous 4-year period of study. Permission will only be granted if satisfactory reasons are given. A written case with supporting evidence must be presented to the Faculty. Reasons might include prolonged illness. Consult your academic adviser for advice.

4.2.3 Withdrawal from Courses

There is a late withdrawal from a course with losing its fees. If you are contemplating withdrawing from a course, please discuss the situation with your academic adviser at the earliest opportunity. You should follow the following University regulations in this context:

You can withdraw from a course provided that this is done no later than the thirteenth week of the regular semesters or the seventh week of the summer session and that the number of courses you are still taking is three or more.

4.2.4 Transferring to Another Department

If you wish to transfer to another faculty or department, consult your adviser as soon as possible. You can do so by filling a special form at the beginning of the semester. The only condition is that your Tawjihi average is acceptable to the new faculty or department. A special committee will decide which credits can be transferred to the new department.

5. Student Support and Guidance

5.1 The Chairperson

The Chairperson's office (Room 2906) deals with all routine undergraduate enquiries. Problems, which cannot be dealt with by the Chairperson will be referred to the Deputy Dean or an appropriate person in the Admissions and Registration Office.

5.2 Academic Guidance

Every student has an academic adviser. Students are grouped on the basis of their academic level, and each group is assigned to an academic staff member who will be their academic adviser for as long as they are enrolled in the Department. The adviser deals with all routine inquiries, advises for academic registration at the beginning of each semester, and tries to be of assistance on any other problems. However, problems which cannot be dealt with by the adviser, will be referred to the Head of the Department, the Dean of the Faculty, or to an appropriate person in the Admissions and Registration Office. Academic guidance is available on specified dates in the term.

The advisory service offers advice on academic and some non-academic. Note that:

- all advisory services are strictly confidential;
- if you have difficulties with material in particular courses, you should normally first approach your instructors.

If you have health problems, you are welcome to discuss the matter with your academic adviser, but it is better to go directly to the University Clinic.

5.3 Student Affairs Deanship

Confidential, individual counseling on any matter affecting personal well-being is available at the Philadelphia University Student Affairs Deanship. The Deanship serves well over a hundred students a year and gives expert advice on problems such as low motivation, personal decision making, relationships, 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 seek to do so in a collaborative, straightforward and

empowering way. Advice is also available concerning common student problems such as exam anxiety.

The Deanship is open from 8.00 a.m. to 4.00 p.m., Sunday through Thursday, all the year round, and appointments can be made by calling into the office of the Dean of Student Affairs. All inquiries will be treated confidentially.

5.4 Advising Arrangements

At the beginning of your studies, you will be assigned to an academic adviser who will help you on your way through the University program. He/she will watch your progress and offer help and advice whenever necessary. If you get into difficulties, you should contact your adviser or visit the Deputy Dean at the earliest possible opportunity. Do not let things slide until it is difficult to remedy the situation, especially if you are getting behind with your work. Your adviser will also advise on your choice of courses, on departmental or University procedures and will provide references for jobs and other purposes.

Course instructors are always available to discuss questions or problems with the course material. Each instructor fixes at least six office hours on his timetable, which is posted on his office door and available at the Department's web site. You can call at these hours. If, for any reason, your instructor cannot see you at these office hours, an appointment at another time can be arranged. It is important that any matter that affects your ability to work is notified to the Department - through your adviser, through the Deputy 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 help with any difficulties you may encounter whilst studying, but it can help only if notified and its assistance sought.

5.5 Student Representation and Feedback

5.5.1 Staff-Student Liaison Committee

In each academic year, the Department forms a staff-student liaison committee that consists of three staff members and student representatives elected from different levels. The committee meets at least twice each semester to discuss any matter that requires formal discussion.

Feedback from students on courses and teaching is important to enhance the overall quality of the program. The objectives of this committee are:

- to provide a forum discussing new ideas and for solving outstanding problems;
- to ensure proper representation of students' views within the department;
- to take students' opinions on academic matters as part of the Department's quality assurance and enhancement procedures;
- to provide an opportunity for students to learn about and contribute to the development of the quality of their degree program.

5.5.2 Course Coordination Committee

Sometimes the number of students enrolled in a course may be too large, so this number is divided into two or more sections which are taught by two or more instructors. Such courses need coordinators to coordinate between the different sections. For each section, a student representative is elected to be a member of the course coordination committee that includes also the instructor of each section. At the beginning of each semester, the Department issues a list of course coordinators. The course coordination committee meets at least twice per semester to coordinate matters related to the course. The main objectives of this committee are:

- to ensure that all classes have the same syllabus;
- to follow the same timetable in delivering the course material;
- to give uniform exams;
- to get feedback from students' representatives and use it to improve the quality of teaching; and
- to use feedback in course monitoring.

5.5.3 Meetings with the Dean and the Chairperson

The meetings held by the Dean of the Faculty and the Chairperson during term time have mainly an advisory role. Students may raise issues that need be brought to the attention of the Faculty. These meetings are held separately for each academic level of students.

5.5.4 Collecting and Analyzing Feedback

Both Faculty and Department attach great importance to the opinions of students on the quality of teaching provided. In the thirteenth week of each semester, every student is asked to complete a Course Evaluation Questionnaire for each course. The questionnaires are anonymous. Senior students are also given another questionnaire in which they can comment on their degree program as a whole.

The Departmental Quality Assurance and Enhancement Committee, which is responsible for the quality of teaching in the Department, analyzes these questionnaires and uses the results to monitor the teaching process and the program as a whole.

6. Learning Resources

6.1 Learning Resources and Training Facilities at Philadelphia University

- a. Electronic Library
- b. Computer Centre
- c. E-learning Phoenix Training Centre
- d. UNESCO Computer Training Program (ICDL)
- e. CISCO Computer Training Centre
- f. Microsoft Training Centre

The laboratories are equipped with the latest computer technology (Hardware and software) to meet the research needs of students.

6.2 Teaching and Training Facilities in the Faculty of Science

These Facilities include:

- a. PC laboratories
- b. LAN Laboratories
- c. Workstation Laboratories.
- d. UNIX Laboratories.
- e. Internet Laboratories

In addition, photocopying facilities are available at the Faculty of Science, Department of Biotechnology and Genetic Engineering, Tel. 2542, and copies of textbooks may be borrowed from the University Library.

6.3 Teaching and Training Facilities at DBGE

These facilities include:

- a. Molecular Biology and Genetic Laboratories
- b. Immunology and Animal Cell Culture Laboratory
- c. Plant Tissue Culture.
- d. Greenhouse
- e. Animal House
- f. Cold Room
- g. Dark Room
- h. Preparation Room
- i. Microbiology Laboratory
- j. Central Laboratory

6.4 Code of Conduct for Computer Usage

At registration, you will be required to assent to the following departmental code of conduct, which relates to the responsible use of computer equipment. Misuse of the facilities is regarded as a serious disciplinary offence. This code of conduct is supplementary to University regulations concerning the use of computing equipment to which you are required to assent at Registration.

1. A PC shall be allocated to each student in every laboratory session.
2. You shall not use other students' usernames or permit other students to use your username.
3. You shall not use computers or attempt to access information to which you have not been granted access.
4. You shall not deliberately hinder or disturb other computer users.
5. You shall not make an unauthorized copy, in any form, of copyright software or data.
6. You shall not store personal information, except in a manner permitted by the Data

Protection.

Explanatory Notes

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

1. Undergraduate students are not normally granted access to the computers in the network, or to other students' files. You should not attempt to use another student's account even if they have not set a password. Of course, it is still important to set a password for your own privacy and security.

2. This will be interpreted very broadly. It includes

- Tampering with another user's files.
- Tampering with another user's screen.
- Setting up processes which persist after you log out and annoy subsequent users of the machine.
- Disseminating offensive messages.
- Displaying or storing offensive images.
- Abusing the mail system.
- Occupying a machine to play games while other students need it to do their laboratory work.

3. Note carefully that this means you are not allowed to write or introduce a virus program even if it is never executed.

5. Note that this does not prevent your taking copies of your laboratory work home, or making copies of non-copyright material, but does prevent your taking random pieces of software away on a floppy. You should assume that all material is copyright unless it specifically states otherwise. If in doubt, ask.

6.5 Other Resources and Facilities

Photocopying

Photocopying may be done at different bookshops at an affordable cost outside of the library.

Printing

You can take printouts of files on your computer (free of charge). Each laboratory has at least two printers for this purpose.

Photocopies can be obtained at different bookshops outside the library at an affordable cost.

Administrative Space

It is composed of six offices occupied by the Dean, the Academic Adviser, the Dean's Secretary, the Chairperson, the Department's Secretary, and the Meeting Room.

- Academic Space

It is composed of :

- 3 Departmental classrooms and 5 classrooms shared with other departments in the Faculty.

- 7 Scientific laboratories equipped with state-of-the-art equipment and devices needed for teaching and research in different specialized fields.

-10 staff offices, each of which is supplied with a PC.

-1 room for staff meeting shared with other departments

in the Faculty of Science.

-1 Base Room.

- Lecture Support Facilities

The Department has 8 overhead projectors and 2 data shows used to support course and seminar presentations.

~ University Computer Centre

This centre provides the Department with training and maintenance facilities.

~ Networking Facilities

Ethernet: The PCs in each 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 4 Mbps lines.

~ Type and Level of Access

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

~ Library

The University's Main Library 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 organizations. It opens from 08 a.m. to 07 p.m. It includes:

- Conventional Library, which contains books and journals. There are more than 188 different English titles in Biotechnology and 609 titles in closely related fields such as Biology, of which more than 5% have been published in the last two years. Furthermore, there are 31 books in Arabic on biotechnology in addition to 298 related books . As for journals, the Library subscribes to 9 Biotechnology journals. Fourteen

reference books and Encyclopedia and thirty-two CDs are also available for research and teaching.

- Electronic Library. In addition to the 32 CD ROMs mentioned above, the Library has access to approximately 800 universities' electronic libraries via the World University Library that is endorsed by the United Nations University. The World University Library has six databases that contain more than 4674 periodicals available online. The online resources in the electronic library include sites that list more than 50000 online books and provides access to online libraries and encyclopedias and other databases on the Internet.

- Internet Access Service, available in a room containing 20 PCs.

- ~ Bookshops: contain books, exercises with solutions, solutions to previous examinations and so on.

- ~ Self Study Facilities

The self study facilities include the following:

- The University, Faculty and Department Learning Resource Centers, as mentioned above.

- The Electronic Library mentioned above.

- The Department Web/Intranet provides you with all relevant information such as:

- ~ Undergraduate Handbook (this handbook)

- ~ Program Specifications

- ~ Bulletin board for messages and general use. This provides you with a rich “one stop” learning environment.

- Distance learning has been implemented through agreement with Phoenix International and through a project financed by UNESCO.

- Disabled students' facilities. The University has appointed an equal opportunity officer

to help and assess the needs of any physically disabled student.

~ Training Facilities

- The University is an ICDL Accreditation Test Center (UNESCO International Computer Driving License).
- Incubator Lab.

This lab came as a result of feedback from students and staff. The main purpose of the lab is to encourage focusing on new ideas, industrial applications, etc., so that staff, students, and Industry can have a common forum and facility. Two projects were commenced in this context.

~ Careers Advisory Service

This service provides information on possible employment for students and graduates of the University.

~ Extracurricular Activities

The University provides ample opportunities for extracurricular activities that can enhance the students' talents in their free time. These include activities organized and supervised by the Deanship of Student Affairs, which holds frequent social, cultural, and sports events. The University has reserved ample space for such events. An active alumni office keeps track of all Philadelphia University graduates' careers. In addition, there are several common rooms for meetings, snacks and cafeterias. Internet cafes, each containing 10 PCs, are also available, and there is a student club.

6.6 Communications

-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 instructor and students) and occasionally for posting important messages to wider groups. It is important that you know how to use email.

~ 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.

~ Group Mailing

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

Appendix A

The Academic Guidance Plan

Biotechnology and Genetic Engineering Department

2009/2010

Dep. Of Biotechnology & Genetic Engineering

(2008-2009)

| Second semester | | | | First semester | | | | |
|-----------------|----|-------------------------------|------------|-----------------|----|--|------------|----------------------|
| Pre-req. | Cr | Course Name | Course No. | Pre-req. | Cr | Course Name | Course No. | Year |
| ---- | 3 | Arabic language skills 1 | 110101 | ---- | 3 | English language skills 1 | 130101 | 1 st year |
| 130101 | 3 | English language skills 2 | 130102 | ---- | 3 | General Biology 1 | 240101 | |
| ---- | 3 | Calculus 1 | 210101 | ---- | 3 | General Chemistry 1 | 212101 | |
| 240101 | 3 | General Biology 2 | 240107 | ---- | 1 | General Chemistry lab | 212102 | |
| 212101 | 3 | General Chemistry 2 | 212103 | ---- | 1 | General Biology lab | 240106 | |
| 710101 | 3 | Computer skills 2 | 710102 | ---- | 3 | Computer skills 1 | 710101 | |
| | | | | ---- | 3 | Civilization and human thoughts 1 | 111133 | |
| 18 Cr | | ▪ Total | | 17 Cr | | ▪ Total | | |
| ---- | 3 | Military Science | 111100 | ----- | 3 | Introduction to Probability & Statistics | 210231 | 2 nd year |
| ---- | 3 | General Physics | 211105 | 240107 | 3 | Microbiology | 240216 | |
| 240107 | 3 | Genetics | 240231 | 240216 or Con | 1 | Microbiology lab | 240217 | |
| 240232 or Con | 1 | Genetics lab | 240232 | 240107 | 3 | Cell Biology | 240233 | |
| 240107+130102 | 2 | Introduction to Biotechnology | 240281 | 212103 | 3 | Analytical Chemistry | 212241 | |
| 212103 | 3 | Organic Chemistry | 212243 | 212241 or Con | 1 | Analytical Chemistry lab | 212242 | |
| | | | | ---- | 3 | National Education | 111101 | |
| | | | | 240107 or Con | 1 | General Biology 2 lab | 240108 | |
| 15 Cr | | ▪ Total | | 18 Cr | | ▪ Total | | |
| 240231+240335 | 2 | Bioinformatics | 240462 | 240233 | 3 | Immunology | 240337 | 3 rd year |
| 240281 | 3 | Plant Biotechnology | 240322 | 240337 or Con | 1 | Immunology lab | 240338 | |
| 240216 | 3 | Environmental Biotechnology | 240352 | 240231 | 2 | Human Genetics | 240234 | |
| 240386 | 3 | Animal Biotechnology | 240471 | 240234 | 1 | Cytogenetics | 240335 | |
| 240471 or Con | 1 | Animal tissue culture lab | 240472 | 212243 + 240233 | 3 | Biochemistry 1 | 240343 | |
| 240335 or Con | 1 | Cytogenetics lab | 240336 | 240343 or Con | 1 | Biochemistry 1 lab | 240344 | |
| | 3 | Elective course | | 240233 | 3 | Molecular Biology | 240386 | |

| | | | | | | | | | |
|-----------------|---|----------------------------------|--------|------------------|---|--------------------------------------|--------|----------------------------|--------------|
| | | | | 240368 or Con | 1 | Molecular Biology lab | 240387 | | |
| 16 Cr | | ▪ Total | | 15 Cr | | | | | Total |
| 240343 | 3 | Pharmaceutical Biotechnology | 240441 | 240216 | 3 | Microbial Biotechnology | 240417 | 4th year | |
| 90 Credit Hours | 1 | Ethics in Biotechnology | 240491 | 240386 | 3 | Applied Molecular Biology | 240484 | | |
| 90 Credit Hours | 1 | Quality control & Lab management | 240490 | 240484 or Con | 1 | Applied Molecular Biology lab | 240485 | | |
| Dept. Approval | 3 | Research Project | 240499 | | 3 | Elective Course | | | |
| | 3 | Elective course | | --- | 3 | Fundamentals of Scientific Knowledge | 210122 | | |
| | 3 | University course | | 240322 or Con | 1 | Plant Tissue culture lab | 240323 | | |
| Dept. Approval | 3 | Field Training | 240494 | 60 Credit Hours | 2 | Entrepreneurship | 240391 | | |
| 14 Cr | | ▪ Total | | 16 Cr | | ▪ Total | | | |