



Quality Assurance Unit



Assiut University

---

## Reference standard for Ph.D. of Pharmaceutical Science (Pharmaceutical Medicinal Chemistry)

### Introduction

Graduates conducting scientific research project for Ph.D. of Pharmaceutical Sciences (Pharmaceutical Medicinal Chemistry) must comply with the two main requirements:

1. Attendance and pass the examinations of the assigned courses of 60h at least, that can be extended to 80h according to the requirements of the project and basic background of the graduate.
2. The necessity of addition of new scientific heritage formulated in a form of thesis submitted under the regulation of the faculty.

Ph.D. students can also complement research in a foreign country in reliable and confident laboratories under mutual supervision of Egyptian and foreign supervisors.

### Professional Information

#### 1- Programme Aims

By the end of the Ph.D. programme, the graduate should be able to:

1. Master the basics and methods of the principles of Scientific research in Medicinal Chemistry projects
2. Maintain access to the recent researches in the field of drug design
3. Continue effort to the contribution of drug synthesis knowledge
4. Handle the problems of drug design and synthesis efficiently
5. Suggest plans to solve problems of new drug molecules synthesis.
6. Recognize the molecular interactions of drug molecules and their targets
7. Apply the scientific methods in the evaluation and comparison of results and formulate efficient generalizations
8. Interpret the results independently
9. Accept scientific criticism
10. Commit to scientific honesty

## **2- Intended Learning Outcomes (ILOs)**

### **a- Knowledge and Understanding:**

By the end of the Ph.D. programme, the students will be able to:

- a1- Explain modern theories in the field of medicinal chemistry and subjects related to the research project
- a2- Define basics of the scientific research methodologies, ethics and professional practice
- a3- Illustrate recent advances in medicinal chemistry research.
- a4- Define basics of good laboratory practice (GLP) in practical medicinal chemistry research.
- a5- Be aware of concepts and of laboratory safety and waste disposal.
- a6- Illustrate basics of different techniques and methods used in chemistry research

### **b- Intellectual Skills:**

By the end of the Ph.D. programme, the students will be able to:

- b1- Analyze available information to assess drug synthesis and elucidate its effects.
- b2- Integrate different kinds of knowledge to reach reasonable conclusions.
- b3- Design a systematic research plan to study a specified problem.
- b4- Suggest possible interventions to approach design and synthesis of drugs.
- b5- Evaluate the plan of the research course.
- b6- Analyze results statistically and make reasonable conclusions.
- b7- Quote from literatures to support decisions and conclusions.
- b8- Contribute to scientific heritage by publishing research in specialized journals.
- b9- Conduct a scientific dialogue and accept criticism.

### **c- Professional and Practical Skills:**

By the end of the Ph.D. programme, the students will be able to:

- c1- Master advanced techniques and equipments used in lead compounds discovery.
- c2- Perform practical research procedures according to the good laboratory practice basics.
- c3- Write and present research data and reports efficiently.
- c4- Test equipments, methods and software used in medicinal chemistry studies.
- c5- Document, classify and save results, reports, and articles.
- c6- Use suitable computer programmes in computer-aided drug design.

**d- General and Transferable Skills:**

By the end of the Ph.D. programme, the students will be able to:

- d1- Communicate efficiently with colleagues and coworkers.
- d2- Use information technology in the field of medicinal chemistry.
- d3- Work in a team and offer expertise and advice to others.
- d4- Improve his knowledge continuously through self-learning.
- d5- Participate in scientific seminars and conferences
- d6- Conduct a scientific dialogue and accept criticism.
- d7- Manage time efficiently

# Programme Specification

## A- Basic Information

1- Programme Title: Ph.D. of Pharmaceutical Sciences (Pharm. Med. Chem.)

2- Programme Type: Single  Doub  Multiple

3- Department (s):

I- Faculty of pharmacy Departments:

- a) Medicinal Chemistry (main Department for the program where the research project is carried out)
- b) Medicinal Chemistry (teaching elective courses)

II- Faculty of Medicine Departments

- a) Pharmacology Department (participating in teaching elective courses)
- b) Microbiology Department (participating in teaching elective courses)
- c) Medical Biochemistry (participating in teaching elective courses)

4- Coordinator: Dr. Hamdy M. Abdel-Rahman

5- External Evaluator(s): Professor Dr Ahmed Abdel-Aziz

6- Last date of programme specifications approval: 2010

## B- Professional Information

### 2- Programme Aims

By the end of the Ph.D. programme, the graduate should be able to:

1. Master the basics and methods of the principles of scientific research in Medicinal Chemistry projects
2. Maintain access to the new in the field of drug design
3. Continue effort to the contribution of drug synthesis knowledge
4. Handle the problems of drug design and synthesis
5. Design experiments to solve problems of new drug molecules synthesis.
6. Understand the pharmacological interactions of the molecules
7. Apply the scientific methods in the evaluation and comparison of results
8. Interpret the results independently
9. Accept scientific criticism
10. Commit to scientific honesty

## **2- Intended Learning Outcomes (ILOs)**

### **a- Knowledge and Understanding:**

By the end of the Ph.D. programme, the students will be able to:

- a1- Explain modern theories in the field of medicinal chemistry and subjects related to the research project
- a2- Define basics of the scientific research methodologies, ethics and professional practice
- a3- Illustrate recent advances in medicinal chemistry research.
- a4- Define basics of good laboratory practice (GLP) in practical medicinal chemistry research.
- a5- Be aware of concepts and of laboratory safety and waste disposal.
- a6- Illustrate basics of different techniques and methods used in chemistry research

### **b- Intellectual Skills:**

By the end of the Ph.D. programme, the students will be able to:

- b1- Analyze available information to assess drug synthesis and studying its effects.
- b2- Integrate different kinds of knowledge to reach reasonable conclusions.
- b3- Design a systematic research plan to study a specified problem.
- b4- Suggest possible interventions to approach design and synthesis of drugs.
- b5- Make decisions on the research course.
- b6- Analyze results statistically and make reasonable conclusions.
- b7- Quote from literatures to support decisions and conclusions.
- b8- Contribute to scientific heritage by publishing research in specialized journals.
- b9- Conduct a scientific dialogue and accept criticism.

### **c- Professional and Practical Skills:**

By the end of the Ph.D. programme, the students will be able to:

- c1- Master advanced techniques and equipments used in lead compounds discovery.
- c2- Perform practical research procedures according to the good laboratory practice basics.
- c3- Write and present research data and reports efficiently.
- c4- Test equipments, methods and software used in medicinal chemistry studies.
- c5- Document, classify and save results, reports, and articles.
- c6- Use computer programs in computer-aided drug design.

#### **d- General and Transferable Skills:**

By the end of the M.Sc. programme, the students will be able to:

- d1- Communicate efficiently with colleagues and coworkers.
- d2- Use information technology in the field of medicinal chemistry.
- d3- Work in a team and offer expertise and advice to others.
- d4- Improve his knowledge continuously through self-learning.
- d5- Participate in scientific seminars and conferences
- d6- Conduct a scientific dialogue and accept criticism.
- d7- Manage time efficiently

#### **3- Academic Standards**

3a- External References for Standards (Benchmarks)

Faculty of Pharmacy-Assiut University Post-graduate Academic Reference Standards were adopted.

3b- Comparison of Provision to External References

National Authority for Quality Assurance and Accreditation (NAQAA)

#### **4- Curriculum Structure and Contents**

4.a- Programme duration : 3-5 years

4.b- Programme structure

4.b.i- No. of hours per week: Lectures  Lab./Exercise  total

4.b.ii- No. of credit hours: Compulsory  Elective  Optid

4.b.iii- No. of credit hours of basic sciences courses: No.  %

4.b.iv- No. of credit hours of courses of social sciences and humanities: No.  %

4.b.v- No. of credit hours of specialized courses: No.  %

4.b.vi- No. of credit hours of other courses: No.  %

4.b.vii Practical/Field Training: 15/week

4.b.viii- Program Levels (in credit-hours system):

## 5- Programme Courses

Level/Year of Programme - Semester

### a. Compulsory

Code No.	Course Title	No. of Units	No. of hours /week			Programme ILOs Covered (By No.)
			Lect.	Lab.	Exer.	
1	New Trends in Medicinal Chemistry	2	2	-----	-----	a1, a3, b2, b3, b4, b6, c1, c6, d1, d2, d4, d7
2	Strategies for Drug Synthesis	2	2	-----	-----	a1, a3, a6, b1, b2, b3, b4, b6, c2, c4, c6, d2, d7
Total		4	4			

### b- Elective

Code No.	Course Title	No. of Units	No. of hours /week			Programme ILOs Covered (By No.)
			Lect.	Lab.	Exer.	
1	Chemical topics related to the thesis (E1)	1	1	-----	-----	a1, a3, a6, b1, b3, b4, b7, c1, c4, c6, d2, d4, d7
2	Biological topics related to the thesis (E1)	1	1	-----	-----	a1, a3, b1, b7, c4, c6, d4, d7
Total		2	2			

## 6- Programme Admission Requirements

1. Holding a M.Sc. degree in pharmaceutical sciences.
2. Submitting a registration form to the Department Board, then to the Faculty Board after department's approval.
3. Official approval of the student's work organization on a full-time enrollment in this programme (for those not working in research centers or universities)

## 4. 7- Regulations for Progression and Programme Completion

1. Student should pursue study for a semester in special courses (maximum of four) determined by the department after consulting the Supervisory Committee. The total number of hours of these courses should not be less than 60 hours and not more than 80 hours. The student should pass the exam before presenting the thesis and should receive not less than 60% of the total mark to pass. Failed students are granted on chance to re-enter the exam.
2. Student should conduct an innovative research- in a subject approved by the Faculty Board according to the suggestion of the department board and in accordance with the academic plan of the department- for at least 2 years from the date of the Faculty Board approval.

3. The research subject of the thesis should be relevant to the specialty of the student in a master's degree.
4. The student should present his data in 3 seminars at least, the first seminar is held before registration of the subject and last seminars is held after submitting the thesis in the final form and before the defense and final presentation
5. The student should have an article published or accepted for publication in a specialized scientific journal or scientific conference.
6. The student should pass an English language course or get a certificate of passing a course from a certified foreign language institute.

First Year/Level/

Pass compulsory courses

Second Year/Level/

Develop research plan

Third – fifth Year/Level/

Complete research work of the thesis

Hold seminars

Participate in conferences/ publish data

### **8- Methods for evaluation of the program students:**

Method	ILOs
Written exams	Knowledge and understanding and intellectual skills (a1, a2, b1, b3, b4, c3, c5, d4, d7)
Seminars	Intellectual, general and transferable skills (b1, b2, b4, c3, c5, d1, d2, d4, d6, d7)
Published scientific research	Intellectual, professional and practical skills ((b1, b2, b5, b8, b9, c3, c5, d2, d6)
Preparation, presentation and defense of the thesis	Intellectual, professional, practical, general and Transferable skills (b2, b3, b5, b7, b9, d1, d6, d7)



### 9-Evaluation of Programme Intended Learning Outcomes

Evaluator	Tool	Sample
1- Senior students	Periodic seminars	
2- Alumni	Questionnaire	
3- Stakeholders ( Employers)	-----	
4-External Evaluator(s) (External Examiner(s))	Defense of thesis	
5- Other	Paper and conference reviewers	

**Program Coordinator:** Dr. Hamdy M. Abdel-Rahman

**Head of Department:** Prof. Dr. Farghaly A. Omar

**Date:** 10/10/2010

# Course Specification

*Ph.D of Pharmaceutical Science (Pharm. Med. Chem.)  
New Trends in Medicinal Chemistry*

## 1-Basic Information

**Title:** New trends in medicinal chemistry

**Code:**

**Level:** Ph.D Pharm. Sci. (Pharm. Med. Chem.)

**Department:** Medicinal Chemistry

**Unit:** 2

**Lecture:** 2h/week **Tutorial:** ---- **Practical:** ---- **Total:** 2h/week

## 2- Aims of Course:

By the end of the Ph.D. program, the graduate should be able to:

11. Master the basics and methods of the principles of scientific research in Medicinal Chemistry projects
12. Maintain access to the new in the field of drug design
13. Deal with the problems of drug design and synthesis
14. Understand the pharmacological interactions of the molecules

## 3- Intended Learning Outcomes (ILOs) of the course

After studying the titled course the student must acquire the following skills.

### **a- Knowledge and Understanding:**

- a1-Explain modern theories in the field of medicinal chemistry and subjects related to the research project
- a3- Illustrate recent advances in medicinal chemistry research.

### **b- Intellectual Skills:**

- b2- Integrate different kinds of knowledge to reach reasonable conclusions.
- b3- Design a systematic research plan to study a specified problem.
- b4- Suggest possible interventions to approach design and synthesis of drugs.
- b6- Analyze results statistically and make reasonable conclusions.
- b7-Quote from literature to support decisions and conclusions

### **c- Professional and practical Skills:**

- c1- Master advanced techniques and equipments used in lead compounds discovery.
- c6- Use computer programs in computer-aided drug design.

#### **d- General and Transferable Skills:**

- d1- Communicate efficiently with colleagues and coworkers.
- d2- Use information technology in the field of medicinal chemistry.
- d4- Improve his knowledge continuously through self-learning.
- d7- Management time efficiently.

#### **4- Course Contents**

Topic	No. of hours	Lecture	Tutorial / Practical
Receptors, enzymes, ion channels mechanisms and functions	6	6	----
Peptidomimetic design	3	3	----
Lead optimizations	4	4	----
ADME properties	4	4	----
Nucleic Acids	3	3	

#### **5- Teaching and Learning Methods**

- 5.1- Lectures
- 5.2- Self learning

#### **6- Teaching and learning methods for disables**

.....  
.....  
.....

#### **7- Student Assessment**

##### **a- Student Assessment methods**

- 7.1- Written exam. to assess: a1,a3, b2,b3, b4, b6, b7, c1, c6, d1, d2, d4, d7

##### **b- Student Assessment Schedule**

No.	Assessment	week
1.	Written Exam.	16

##### **c- Weighting of Assessments**

No.	Exam.	Mark	%
1.	Mid-Term Examination	----	----
2.	Final-Term Examination	100	100
3.	Semester Work and Oral Examination	----	----
4.	Practical Examination	----	----
5.	<u>Other types of assessment</u>	----	----
	<u>Total</u>	100	100%

## **8- List of References**

**a-Course Notes:** Not applicable

**b- Essential Books (Text Books):**

- a) Graham Patrick "An Introduction to Medicinal Chemistry" 4<sup>th</sup> edition (2009) Oxford University press, Oxford, UK .
- b) M. E. Wolff Burger's Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition (2005), Wiley-interscience Publication, New York.

**c- Recommended Books:**

- "Annual Reports in Medicinal Chemistry" (series1-44) Elsevier publishing, Amsterdam, the Netherland.

**d- Periodicals and Web Sites:**

<http://www.Sciencedirect.com.html>

<http://eulc.edu.eg/eulc/libraries/start.aspx>

**Course Coordinator: Dr/ Hamdy M. Abdel-Rahman**

**Head of Department: Prof. Dr/ Farghaly A. Omar**

**Program Coordinator: Dr/ Hamdy M. Abdel-Rahman**

**Date: 12/10 /2010**

University	Assiut	Course Title	New Trends in medicinal Chemistry
Faculty	Pharmacy	Course Code.	.....
Department	Medicinal Chemistry		

---

**Matrix of the Intended Learning Outcomes (ILOs) of the Course**

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Practical Skills	General and Transferable Skills
Receptors, enzymes, ion channels mechanisms and functions	1- 3	a1, a3	b2, b3, b4, b6	c1, c6	d1, d2, d4, d7
Peptidomimetic design	4-5	a1, a3	b2, b3, b4, b6	c1, c6	d1, d2, d4, d7
Lead optimizations	5-7	a1, a3	b2, b3, b4, b6	c1, c6	d1, d2, d4, d7
ADME properties	7- 9	a1, a3	b2, b3, b4, b6	c1, c6	d1, d2, d4, d7
Nucleic Acids	9-10	a1, a3	b2, b3, b4, b6	c1, c6	d1, d2, d4, d7

**Course Coordinator : Dr / Hamdy M. Abdel-Rahman**

**Head of Department: Prof. Dr / Farghaly A. Omar**

**Date: 10/ 10 /2010**

# Course Specification

## *Ph.D. of Pharmaceutical Science (Pharm. Med .Chem.) Strategies for Drug Synthesis*

### **1-Basic Information**

**Title:** Strategies for Drug Synthesis

**Code:** -----

**Level :** Ph.D. Pharm. Sci. (Pharm. Med. Chem.)

**Department:** Medicinal Chemistry

**Unit:** 3 units

**Lecture:** 2hr/week

**Tutorial:** 1hr/week

**Practical:** ---- **Total:** 3hr/week

### **2- Aims of Course:**

By the end of the Ph.D. program, the graduate should be able to:

15. Master the basics and methods of the principles of scientific research in Medicinal Chemistry projects.
16. Maintain access to the new in the field of drug design.
17. Continue effort to the contribution of drug synthesis knowledge.
18. Handle the problems of drug design and synthesis.
19. Design experiments to solve problems of drug molecules synthesis.
20. Apply the scientific methods in the evaluation and comparison of results.
21. Interpret the results independently.

### **3- Intended Learning Outcomes (ILOs) of the course**

After studying the titled course the student must acquire the following skills.

#### **a- Knowledge and Understanding:**

- a1- Explain modern theories in the field of medicinal chemistry and subjects related to the research project.
- a3- Illustrate recent advances in medicinal chemistry research.
- a6- Illustrate basics of different techniques and methods used in chemistry research.

#### **b- Intellectual Skills:**

- b1- Analyze available information to assess drug synthesis and studying its effects.
- b2- Integrate different kinds of knowledge to reach reasonable conclusions.
- b3- Design a systematic research plan to study a specified problem.
- b4- Suggest possible interventions to approach design and synthesis of drugs.

**c- Professional and practical Skills:**

- c3- Write and present research data and reports efficiently.  
 c4- Test equipments, methods and software used in medicinal chemistry studies.  
 c6- Use computer programs in computer-aided drug design.

**d- General and Transferable Skills:**

- d2- Use information technology in the field of medicinal chemistry.  
 d7- Manage time efficiently

**4- Course Contents**

Topic	No. of hours	Lecture	Tutorial / Practical
Stereoselectivity	6	6	----
Disconnection approaches	8	8	----
Essay about new synthetic reactions	6	---	6

**5- Teaching and Learning Methods**

- 5.1- Lectures  
 5.2- Self learning

**6- Teaching and learning methods for disables**

.....  
 .....  
 .....

**7- Student Assessment****a- Student Assessment methods**

- 7.1-Written exam. to assess: a1,a3,a6, b1,b2,b3,b4, c3, c4, c6, d2,d7

**b- Student Assessment Schedule**

No.	Assessment	week
1.	Written Exam.	16 <sup>th</sup>

**c- Weighting of Assessments**

No.	Exam.	Mark	%
1.	Mid-Term Examination	----	-----
2.	Final-Term Examination	75	75
3.	Semester Work and Oral Examination	25	25
4.	Practical Examination	----	----
5.	<u>Other types of assessment</u>	----	----
	<u>Total</u>	100	100%

**8- List of References**

**a-Course Notes:** Not applicable

**b- Essential Books (Text Books):**

- c) The Art of Drug Synthesis Ed. D.S.Johnson and J.Jack Li, Wiley

- d) Integration of Pharmaceutical Discovery and Development Case History  
Editors R.T.Borchardt, R.M.Freidinger, T.K. Sawyer and P.L.Smith, Kluwer  
Acadm. Publishers, New York, London, Moscow 1998.
- e) Staurt Warren "Organic Synthesis The Disconnection Approach", 1985,  
John Wiley & Sons, New York, Toronto.

**c-Recommended Books:**

- 1) M. Nogradi, "Stereoselective synthesis" , 2<sup>nd</sup> edition, 1995, VCH, Weiheim
  - 2) Michael B. Smith "Organic Synthesis" 1994, international edition, McGraw-Hill, INC, New York, Montreal, San Francisco, Toronto, London
- .....

**d- Periodicals and Web Sites:**

<http://www.Sciencedirect.com.html>  
<http://eulc.edu.eg/eulc/libraries/start.aspx>

**Course Coordinator: Prof. Dr/ Nadia M. Mahfouz**

**Head of Department: Prof. Dr/ Farghaly A. Omar**

**Program Coordinator: Dr/ Hamdy M. Abdel-Rahman**

**Date: 17/10 /2010**



University	Assiut	Course Title	<i>Strategies for Drug Synthesis</i>
Faculty	Pharmacy	Course Code.	.....
Department	Medicinal Chemistry		

---

**Matrix of the Intended Learning Outcomes (ILOs) of the Course**

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Practical Skills	General and Transferable Skills
Stereoselectivity	1-3	a1,a3	b1	c4,c6	d2
Disconnection approaches	4-7	a1,a3	b1,b3,b4	c4,c6	d2
Essay about new synthetic reactions	8-10	a1,a3,a6	b1,b3,b4	c3,c4,c6	d2,d7

**Course Coordinator : Prof. Dr / Nadia M. Mahfouz**

**Head of Department: Prof. Dr / Farghaly A. Omar**

**Date: 17/ 10 /2010**

# Course Specification

*Ph.D. of Pharmaceutical Science (Pharm. Med. Chem.)  
Approaches for Synthesis of Enzyme Inhibitors (Elective, E1)*

## 1-Basic Information

**Title: Chemical Topics Related to Thesis      Code: -----**

**Level : Ph.D. Pharm. Sci. (Pharm. Med. Chem.)**

**Department: Medicinal Chemistry**

**Unit: 2**

**Lecture: 2hr/week    Tutorial: ----    Practical: ----    Total: 2hr/week**

## 2- Aims of Course:

The content of this course might be defined by the supervisors to support the core of Ph.D research project. The content includes synthetic approaches of a defined scaffold or lead structure related to Ph.D. subject, and identification of the synthesized ligands by different spectroscopic techniques.

## 3- Intended Learning Outcomes (ILOs) of the course

After studying the titled course the student must acquire the following skills.

### **a- Knowledge and Understanding:**

- a1-Explain modern theories in the field of medicinal chemistry and subjects related to the research project
- a3- Illustrate recent advances in medicinal chemistry research.
- a6- Illustrate basics of different techniques and methods used in chemistry research

### **b- Intellectual Skills:**

- b1- Analyze available information to assess drug synthesis and studying its effects.
- b3- Design a systematic research plan to study a specified problem.
- b4- Suggest possible interventions to approach design and drug synthesis
- b7- Quote from literatures to support decisions and conclusions.

### **c- Professional and practical Skills:**

- c1- Master advanced techniques and equipments used in lead compounds discovery.

c4- Test equipments, methods and software used in medicinal chemistry studies.

c6- Use computer programmes in computer-aided drug design.

**d- General and Transferable Skills:**

d2- Use information technology in the field of medicinal chemistry.

d4- Improve his knowledge continuously through self-learning.

d7- Manage time efficiently

**4- Course Contents**

Topic	No. of hours	Lecture	Tutorial / Practical
Chemical synthesis of enzyme inhibitors	8	8	----
Spectroscopic techniques	4	4	----

**5- Teaching and Learning Methods**

5.1- Lectures

5.2- Self learning

**6- Teaching and learning methods for disables**

.....  
.....  
.....

**7- Student Assessment**

**a- Student Assessment methods**

7.1-Written exam. to assess: a1,a3, a6,b1,b3,b4,b7,c1, c4, c6, d2, d4,d7

**b- Student Assessment Schedule**

No.	Assessment	week
1.	Written Exam.	16 <sup>th</sup>

**c- Weighting of Assessments**

No.	Exam.	Mark	%
1.	Mid-Term Examination	----	-----
2.	Final-Term Examination	50	100
3.	Semester Work and Oral Examination	----	----
4.	Practical Examination	----	----
5.	<u>Other types of assessment</u>	----	----
	<u>Total</u>	50	100%

## **8- List of References**

**a-Course Notes:** Not applicable

**b- Essential Books (Text Books):**

- a) Suggested by teaching Staff in the field of Medicinal Chemistry according to the research subject

**c-Recommended Books:**

.....

**d- Periodicals and Web Sites:**

<http://www.Sciencedirect.com.html>

<http://eulc.edu.eg/eulc/libraries/start.aspx>

**Course Coordinator: Prof. Dr/ Adel F. Youssef**

**Head of Department: Prof. Dr/ Farghaly A. Omar**

**Program Coordinator: Dr/ Hamdy M. Abdel-Rahman**

**Date: 17/10 /2010**

University	Assiut	Course Title	<i>Approaches for Synthesis of Enzyme Inhibitor</i>
Faculty	Pharmacy	Course Code.	.....
Department	Medicinal Chemistry		

---

Matrix of the Intended Learning Outcomes (ILOs) of the Course

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Practical Skills	General and Transferable Skills
Chemical synthesis of enzyme inhibitors	1-4	a1,a3	b3,b4,b7	c4,c6	d2,d4,d7
Spectroscopic techniques	5-6	a1,a3,a6	b1,b4,b7	c1,c4,c6	d4,d7

**Course Coordinator : Prof. Dr / Adel F. Youssef**

**Head of Department: Prof. Dr / Farghaly A. Omar**

**Date: 17/ 10 /2010**

# Course Specification

*Ph.D. of Pharmaceutical Science (Pharm. Med. Chem.)  
Enzymology (Elective, E2)*

## 1-Basic Information

**Title:** Enzymology

**Code:** -----

**Level :** Ph.D. Pharm. Sci. (Pharm. Med. Chem.)

**Department:** Medicinal Chemistry

**Unit:** 2

**Lecture:** 2hr/week **Tutorial:** ---- **Practical:** ---- **Total:** 2hr/week

## 2- Aims of Course:

The content of this course might be defined by the supervisors to support the core of Ph.D. research project. Contents can serve more than one specialization e.g pharmacological action of the moieties, bioassay of the target molecules, specific enzymatic roles and protein-protein interaction.

## 3- Intended Learning Outcomes (ILOs) of the course

After studying the titled course the student must acquire the following skills.

### **a- Knowledge and Understanding:**

- a1- Explain modern theories in the field of medicinal chemistry and subjects related to the research project
- a3- Illustrate recent advances in medicinal chemistry research.

### **b- Intellectual Skills:**

- b1- Analyze available information to assess drug synthesis and studying its effects.
- b7- Quote from literatures to support decisions and conclusions.

### **c- Professional and practical Skills:**

- c4- Test equipments, methods and software used in medicinal chemistry studies.
- c6- Use computer programmes in computer-aided drug design.

### **d- General and Transferable Skills:**

- d4- Improve his knowledge continuously through self-learning.

d7- Manage time efficiently

#### **4- Course Contents**

Topic	No. of hours	Lecture	Tutorial / Practical
Enzymes	4	4	-----
Bioassay of enzyme inhibition	4	4	----
Peptides and peptidomimetic drugs	4	4	----

#### **5- Teaching and Learning Methods**

5.1- Lectures

5.2- Self learning

#### **6- Teaching and learning methods for disables**

.....  
.....  
.....

#### **7- Student Assessment**

##### **a- Student Assessment methods**

7.1- Written exam. to assess: a1,a3, b1,b7, c4, c6, d4, d7

##### **b- Student Assessment Schedule**

No.	Assessment	Week
1.	Written Exam.	16 <sup>th</sup>

##### **c- Weighting of Assessments**

No.	Exam.	Mark	%
1.	Mid-Term Examination	----	-----
2.	Final-Term Examination	50	100
3.	Semester Work and Oral Examination	----	----
4.	Practical Examination	----	----
5.	<u>Other types of assessment</u>	----	----
	<u>Total</u>	50	100%

#### **8- List of References**

**a-Course Notes:** Not applicable

**b- Essential Books (Text Books):**

- a) Suggested by teaching Staff in the field of biology according to the research subject

**c-Recommended Books:**

.....

**d- Periodicals and Web Sites:**

<http://www.Sciencedirect.com.html>

<http://eulc.edu.eg/eulc/libraries/start.aspx>

**Course Coordinator: Prof. Dr/ Adel F. Youssef**

**Head of Department: Prof. Dr/ Farghaly A. Omar**

**Program Coordinator: Dr/ Hamdy M. Abdel-Rahman**

**Date: 17/10 /2010**



<b>University</b>	<b>Assiut</b>	<b>Course Title</b>	<b>Enzymology</b>
<b>Faculty</b>	<b>Pharmacy</b>	<b>Course Code.</b>	.....
<b>Department</b>	<b>Medicinal Chemistry</b>		

---

**Matrix of the Intended Learning Outcomes (ILOs) of the Course**

<b>Topic</b>	<b>Week</b>	<b>Knowledge and Understanding</b>	<b>Intellectual Skills</b>	<b>Professional and Practical Skills</b>	<b>General and Transferable Skills</b>
Enzymes	1-2	a1,a3	b1,b7	c4,c6	d4,d7
Bioassay of enzyme inhibition	3-4	a1,a3	b1,b7	c4,c6	d4,d7
Peptides and peptidomimetic drugs	5-6	a1,a3	b1,b7	c4,c6	d4,d7

**Course Coordinator : Prof. Dr / Adel F. Youssef**

**Head of Department: Prof. Dr / Farghaly A. Omar**

**Date: 17/ 10 /2010**