

٣- توصيف مقررات

مجلسية الصيغة



Quality Assurance Unit
Pharm. Organic Chem. Department



كلية الصيدلة - جامعة أسيوط



Assiut University
Faculty of Pharmacy

Course Specification

Advanced Pharmaceutical Organic Chemistry (Ph. D students)

Programme(s) on which the course is given: Pharmaceutical Sciences, Postgraduate

Major or Minor element of programme: Major

Department offering the course: Pharmaceutical Organic Chemistry

Faculty: Faculty of pharmacy

Academic year / Level: 2009-2010

Date of specification approval: 12-6-2010

A-Basic Information

Title: Advanced Pharmaceutical Organic Chemistry Code:

Credit Hours: Lecture: 20 hours

Tutorial: 0 hours Practicals: 0 hours Total: 20 hours

B-Professional Information

1- Overall Aims of Course

- Deeper understanding of different aspects of organic chemistry including reactivity, reaction mechanisms, functional group transformations, optimization of reaction conditions and recent advances in these fields.
- Broad overview of carbon-carbon bond forming reactions, total synthesis and recent techniques in separation and purification of organic compounds.
- Make students able to design appropriate synthetic plans for total synthesis of natural products.

2- Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- Students will obtain a clear understanding of methods which are used in drug synthesis, think systematically in solving problems and make decisions in subjects involving chemical reactions.
- Select appropriate chemical reactions that could be used for total synthesis of organic pharmaceutical molecules.
- Understand the chemistry of chiral molecules, reagents and protecting groups manipulation. Gain the ability to deal with total synthesis of new chiral molecules and natural products.

b-Intellectual Skills

- Analyze and evaluate the chemical information from different resources then integrate and apply it for drug synthesis .

b2- Deal with research problems depending on the recent information.

c- Professional and practical Skills

c1- Design an appropriate synthetic pathways for total synthesis of pharmaceutical organic compounds and natural products.

c2- Analysis, separation and confirmation of optical purity organic compounds.

c3- Correlation of the chemical structure and optical purity of organic compounds and their biological activities

d- General and Transferable Skills

d1 –Manipulate chemical in formation

d2- Use chemical information for solving given problems in design of new drugs.

d3- Present of the research results to the scientific community, in form of reports, website,etc

3- Contents

Topic	No. of hours	Lecture	Tutorial / Practical
-Asymmetric synthesis of organic molecules -Total synthesis of organic compounds -Protecting group manipulations. -Organic reagents in organic synthesis.		20	
total		20	

4- Teaching and Learning Methods

4.1 Lectures

5- Student Assessment Methods

5.1 Written examination to assess theoretical know ledges.

Assessment Schedule

Assessment 1 Written final exam.

Weighting of Assessments

Final-Term Examination 100%

6- List of References

6.1- Essential Books (Text Books): Asymmetric synthesis, Comprehensive Organic Synthesis, Protecting groups.

6.2- Online chemical resources and internet chemical and pharmaceutical web sites.

6.3-Recommended Books: Jerry March, Advanced Organic Chemistry.

6.4- Periodicals, Journal of organic chemistry and Tetrahedron letter

7- Facilities Required for Teaching and Learning; all the necessary equipments are available

Course Coordinator: Dr. Hajjaj Hassan Mohamed

Head of Department: Dr. Mostafa A. Hussein

University of Assiut
Faculty of Pharmacy
Department: Pharm. Org. Chem.

Course Title : Advanced Pharmaceutical
Organic Chemistry
Course Code.

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

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Piratical Skills	General and Transferable Skills
- Asymmetric synthesis of organic molecules	1 st	a1, a2, a3	b1, b2	c1, c2,c3	d1, d2, d3
-Total synthesis of organic compounds	2 nd	a1, a2, a3	b1, b2	c1, c2	d1, d2
-Protecting group manipulations.	3 th	a1, a2, a3	b1, b2	c1, c2	
-Organic reagents in organic synthesis	4 th - 5 th	a1, a2, a3	b1, b2	c1, c2	d1, d2

Course Coordinator: Dr. Hajjaj Hassan Mohamed
Head of Department: Dr. Mostafa A. Hussein
Date: 16/10/2010



Quality Assurance Unit
Pharm. Organic Chem. Department



Assiut University
Faculty of Pharmacy

Course Specification

Recent Trends in Studying Structure-Activity Relationship

(Ph. D students)

Programme(s) on which the course is given: Pharmaceutical Sciences, Postgraduate

Major or Minor element of programme: Major

Department offering the course: Pharmaceutical Organic Chemistry

Faculty: Faculty of pharmacy

Academic year / Level: 2009-2010

Date of specification approval: 12-6-2010

A-Basic Information

Title: Recent trends in studying structure-activity relationship Code:

Credit Hours: Lecture: 20 hours

Tutorial: 0 hours Practicals: 0 hours Total: 20 hours

B-Professional Information

1- Overall Aims of Course

- 1a. To provide students with deeper knowledge and practical examples of some of the many methods and techniques that can be used in drug design
- 1b. The sense of structural modifications for optimization of drug stability, bioavailability and duration of action, and for drug targeting.
- 1c. Students will also develop a clear understanding of the importance of SAR studies and their impact on drug design/invention.

2- Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- a1- To provide students with concepts of drug design and what physicochemical properties of a molecules are important in therapeutic action
- a2- To provide students with deeper knowledge of theoretical and empirical methods which are used in drug design
- a3- To introduce students to basic concepts of computer aided-drug design, homology modeling and docking studies

b-Intellectual Skills

Improve the ability to combine data from different methods and techniques to overcome certain problems in therapeutic agents.

c- Professional and practical Skills

Application of the gained knowledge for structural modification to the practical part of the study.

d- General and Transferable Skills

Present of the research results to the scientific community, in form of reports, research paper,etc

3- Contents

Topic	No. of hours	Lecture	Tutorial / Practical
-SAR -QSAR -Lead optimization and computer-aided drug design -Combinatorial chemistry and microwave chemistry - Model examples		20	
total		20	

4- Teaching and Learning Methods

4.1 Lectures

5- Student Assessment Methods

5.1 Written examination to assess theoretical know ledges.

Assessment Schedule

Assessment 1 Written final exam.

Weighting of Assessments

Final-Term Examination 100%

6- List of References

- 6.1- Essential books (Text Books): Principles of medicinal chemistry, drug design, computer-aided drug design and computational medicinal chemistry
- 6.2- Online chemical resources and internet medicinal chemistry and pharmaceutical web sites.
- 6.3-Recommended Books: Burger's in medicinal chemistry
- 6.4- Periodicals, Journal of medicinal chemistry and bioorganic medicinal chemistryorganic chemistry and Tetrahedron letter

7- Facilities Required for Teaching and Learning; all the necessary equipments are available

Course Coordinator: Dr. Hajjaj Hassan Mohamed

Head of Department: Dr. Mostafa A. Hussein

University of Assiut

Course Title : Recent Trends in Studying
Structure-Activity Relationship

Faculty of Pharmacy

Course Code.

Department: Pharm. Org. Chem.

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

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Piratical Skills	General and Transferable Skills
-SAR -QSAR	1 st	a1, a2	b1	c1	d1
-Lead optimization and computer-aided drug design	2 nd	a1, a2, a3	b1	c1	d1
-Combinatorial chemistry and microwave chemistry	3 th	a1, a2	b1	c1	d1
- Model examples	4 th - 5 th	a1, a2, a3	b1	c1	d1

Course Coordinator: Dr. Hajjaj Hassan Mohamed

Head of Department: Dr. Mostafa A. Hussein

Date: 16/10/2010



Quality Assurance Unit
Pharm. Organic Chem. Department



Assiut University
Faculty of Pharmacy

Course Specification

Nuclear Magnetic Resonance Techniques

(Ph. D students)

Programme(s) on which the course is given: Pharmaceutical Sciences, Postgraduate

Major or Minor element of programme: Major

Department offering the course: Pharmaceutical Organic Chemistry

Faculty: Faculty of pharmacy

Academic year / Level: 2009-2010

Date of specification approval: 12-6-2010

A-Basic Information

Title: Nuclear magnetic resonance techniques

Code:

Credit Hours: Lecture: 20 hours

Tutorial: 0 hours

Practicals: 0 hours

Total: 20 hours

B-Professional Information

1- Overall Aims of Course

- The acquisition of efficient skills to identify the structure of organic molecules through NMR techniques.
- To prepare student with a sound understanding of the fundamental principles of dynamic NMR and its application for studying the structure-affinity relationship and drug design

2- Intended Learning Outcomes of Course (ILOs)

a- Knowledge and Understanding:

- Think systematically in solving problems and make decisions in subjects of structure elucidation.
- Obtain the basis of the current applications of NMR in drug design.

b-Intellectual Skills

- Improve the ability to combine data from different NMR techniques to elucidate the structure of quite complicated compounds.

c- Professional and practical Skills

- Application of the gained knowledge for structural elucidation of model compounds including pharmaceutical organic compounds and natural products.

d- General and Transferable Skills

d1- Present of the research results to the scientific community, in form of reports, research paper,etc

3- Contents

Topic	No. of hours	Lecture	Tutorial / Practical
- ^1H NMR, ^{13}C NMR and 2D techniques.		20	
- Dynamic NMR spectroscopy			
Total		20	

4- Teaching and Learning Methods

4.1 Lectures

5- Student Assessment Methods

5.1 Written examination to assess theoretical know ledges.

Assessment Schedule

Assessment 1 Written final exam.

Weighting of Assessments

Final-Term Examination 100%

6- List of References

- 6.1- Essential books (Text Books): Structure elucidation by NMR, ^{13}C NMR spectroscopy and organic structure determination using 2D NMR.
- 6.2- Online chemical resources and internet chemical and pharmaceutical web sites.
- 6.3-Recommended Books: A. M. Silverstein, G. C. Morrill. Spectroscopic identification of organic compounds, John wiely, 2007
Jerry March, Advanced Organic Chemistry.
- 6.4- Periodicals, Journal of organic chemistry and Tetrahedron letter

7- Facilities Required for Teaching and Learning; all the necessary equipments are available

Course Coordinator: Dr. Hajjaj Hassan Mohamed

Head of Department: Dr. Mostafa A. Hussein

Date: 16/10/2010

University of Assiut
Faculty of Pharmacy
Department: Pharm. Org. Chem.

Course Title : Nuclear Magnetic Resonance
Techniques
Course Code.

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

Topic	Week	Knowledge and Understanding	Intellectual Skills	Professional and Piratical Skills	General and Transferable Skills
- ^1H NMR, ^{13}C NMR and 2D tehniques	1 st	a1	b1	c1	d1
- Dynamic NMR spectroscopy	2 nd	a2	b1	c1	d1

Course Coordinator: Dr. Hajjaj Hassan Mohamed
Head of Department: Dr. Mostafa A. Hussein