Sohag University

Faculty of Pharmacy

Department of Pharmaceutical Chemistry.

Course Specifications

[Pharmaceutical Organic Chemistry 3]

1- Basic Information

Code: ***PC*-**213	**Title:** Pharmaceutical Organic Chemistry 3	**Level: 2nd year, 1st semester**
Credit hours:	**Lectures: 2/w**	**Practical: 1/w** **Total: 3/w**

2- Aims of Course	1- To expand the chemical knowledge by studying the concept of aromaticity and the chemical behavior of different classes of aromatic compounds and their possible application for development of drugs. 2- To improve student's skills, necessary knowledge related to pharmaceutical chemistry, and their interest in, and enthusiasm for chemistry, including developing an interest in further study and careers in chemistry. 3- To develop essential knowledge and understanding of different areas of chemistry and how they relate to each other.

3- Intended Learning Outcomes of Course (ILOs)	
a- Knowledge and Understanding**:**	a1- To define the concept of aromaticity and the chemistry of different classes of aromatic compound and their application. a2- To gain the appropriate knowledge concerning chemistry, reaction mechanisms, synthesis of medicinal agents and their application. To define problems and suggest solutions
b- Intellectual Skills:	b1- Design synthetic plans for biologically active compounds. b2- Select and justify appropriate methods of identification and purification of synthetic compounds.
c- Professional and practical Skills:	c1- Proper handling of chemicals in the laboratory and be aware of the rules of good laboratory practice (GLP). c2- Synthesis of model drugs.
d- General and Transferable Skills**:**	d1- To apply information technology skills; including word processing, database use, archiving data and information retrieval on different area of chemistry through online computer searches and internet communication. d2- To work effectively in a team and to give seminar to small group of students. d3- To manage time effectively. d4- Improve critical thinking; problem solving and decision making abilities.

4- Course Contents

Topic	No. of hours	lectures	Tutorial/ Practical
Introduction	2	1	
1- concept of Aromaticity Laboratory safety and glassware	3	1.5	
2- Aromatic electrophilic substitution reactions Laboratory techniques	3	1.5	
4- **Aromatic nucleophilic substitution reactions** Recrystalization	2	1	
4- Classes and derivatives of aromatic compounds Melting point determination	3	1.5	
5- Phenols Synthesis of aspirin	3	1.5	
6- Aromatic amines Synthesis of acetanilide	3	1.5	
7- Aromatic alcohols and carbonyl compounds Synthesis of *p*-bromoacetanilide	3	1.5	
8- Polynuclear aromatic Compounds a- Biphenyl chemistry Synthesis of *p*-nitroacetanilide	2	1	
b- Naphthalene chemistry Synthesis of iodoform	2	1	
c. Anthracene and phenanthrene chemistry	2	1	
Total	**28**	**14**	

N.B. each class containing selected examples of drugs in market and their uses

5- Teaching and Learning Methods

4.1-Lectures

4.2- Practical training (Laboratory)

4.3- Tutorials and class activity

4.4- Discussion and net research

6- Teaching and Learning Methods for disables

- Extra office hours
- Tutorials

7- Students assessment

a- Student Assessment methods

6.1- Final written exam to assess ILOs: a,b

6.2- Oral exam to assess ILOs: a,b and d

6.3- Practical exam to assess ILOs: a,b,c and d

6.4- Mid-Term exam to follow up and to assess ILOs: a,b

b- Students Assessment Schedule

No.	Assessment	week
1.	Mid-Term Exam	8^{th} week
2.	Practical Exam	14^{th} week
3.	Oral Exam	At the end of semester
4.	Final written Exam	At the end of semester

c- Weighting of assessment

No.	Exam.	Mark	%
1.	Mid-Term Exam	15	10%
2.	Practical Exam	30	20%
3.	Oral Exam	15	10%
4.	Final written Exam	90	60%
	Total	150	100%

8- List of references

a- Course Notes

Notes on the Chemistry of Mono- and polycyclic Aromatic Hydrocarbons Vol. 1

b- Essential Books (Text Books)

1- T.W.Graham Solomons, Organic chemistry, 9 th ed., John Wiley and Sons, INC, New York,2008.

2- Furniss, Hanna Ford, Smith, Tutchell, Vogel's textbook of Practical Organic Chemistry, 5 th ed, Longman Group UK Ltd, England, 1989.

c- Recommended Books

Jerry March, Advanced Organic Chemistry, Reactions, Mechanisms, and structures, 4 th ed. John Wiley and Sons, New York, 1992.

d- Periodicals, Web Sites, …. etc

- Journal organic chemistry - Tetrahedron -online chemical resources