بكالوريوس الصيدلة (فارم د – Pharm D)

Course Specification

Academic year: 2020/2021

Course name: Pharmaceutical Analytical Chemistry-1	**اسم المقرر :** كيمياء تحليلية صيدلية-1
Academic Level: First Level	**المستوى الأكاديمي :** المستوى الاول
Scientific department: Pharmaceutical Analytical Chemistry	**القسم العلمي :** الكيمياء التحليلية الصيدلية
Head of Department: Prof. Dr. Nahed El-Enany	**رئيس القسم :** ا.د. ناهد العنانى
Course Coordinator: Prof. Dr. Manal Eid	**منسق المقرر :** ا.د. منال عيد

Course Specification
2020- 2021
Pharm D Program
Faculty of Pharmacy
Mansoura University

University	Mansoura
Faculty	Pharmacy
Department offering the course	Pharmaceutical Analytical Chemistry
Department supervising the course	----------
Program on which the course is given	Bachelor in Pharmacy (Pharm D)
Academic Level	First level
Date of course specification approval	23 / 11 / 2020

1- Basic Information : Course data :

Course Title	Pharmaceutical Analytical Chemistry 1
Course Code	PA 111
Prerequisite	Registration
Teaching Hours: Lecture	2 hours
Practical:	2 hours
Total Credit Hours	3 Credit hours

2- Course Aims:

1- Demonstrate the basic concepts of physical chemistry regarding some topics such as the rate of reaction, kinetics of chemical reactions, and photochemical reactions.

2- Recognize the basic principle of inorganic chemistry including chemical equilibrium, types of reactions, solubility product constant, conversion factor, electrolytes, acid-base reactions, and metathesis reactions.

3- Course Learning Outcomes

Upon completing the course, the student will be able to dominate the following key elements

DOMAIN 1- FUNDAMENTAL KNOWLEDGE

1.1.1	Recognize in-depth and breadth the principles of basic and pharmaceutical sciences.
1.1.3	Combine the principles of fundamental sciences to handle, and identify raw materials and finished pharmaceutical products.

DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE

2.2.1	Detect the impurities of pharmaceutical materials and identify them.
2.2.3	Apply proper equipment to assess raw materials and pharmaceutical products.
2.2.4	Implement calculations to assess the chemical kinetics of pharmaceutical compounds and calculate the expiry date of such compounds for assessing their stability.
2.3.1	Apply proper handling and disposal of chemical compounds.
2.3.2	Choose best practices and adhere to high ethical and safety standards for management of chemical compounds.

DOMAIN 3: PHARMACEUTICAL CARE

3.2.6	Promote safe handling of hazardous products to minimize personal exposure and reduce environmental contamination.
3.2.8	Perform relevant laboratory tests to assess impurities in pharmaceuticals.

DOMAIN 4: PERSONAL PRACTICE

4.1.2	Present novel knowledge in the pharmaceutical field.
4.2.2	Apply artificial technology whenever possible to present relevant information.
4.3.2	Build the ability to learn independently.

4- Course Contents

Week No.	Topics	Hours
1	Basic Principles of Inorganic Chemistry	2
2, 3	The Mole Concept (Stoichiometry & Conversion factors & Problems on mole concept).	4
4	General Concepts of Chemical Equilibrium (Law of mass action and Le Chatelier Principle)	2
5	Equilibrium constants (Ka, Kw, Kf and Ksp) and problems on Ksp and pH calculations.	2
6	Reactions between Ions (Neutralization, Precipitation, Complexation and Redox Reactions).	2
7	**Mid-term**	-
8-10	Chemical Kinetics.	6
11-13	Photochemistry.	4

Week No.	Practical topics	hours
1	Anions: Analysis of Carbonate Group.	2
2	Anions: Sulphur Group.	2
3	Anions: Halide, Cyanogen and Nitrogen Groups.	2
4	Anions: Halide, Cyanogen and Nitrogen Groups.	2
5	Cations: General Introduction and Classification of Cations.	2
6	**Mid-term practical exam**	-
7	Cations: Analysis of Group I and II Cations.	2
8	Cations: Analysis of Group II and III Cations.	2
9	Cations: Analysis of Group IV and V Cations.	2
10	Cations: Analysis of Group V and VI Cations.	2
11	Revision	2
12	**Final practical exam**	-

5- Teaching and Learning Methods:

5.1	**Lectures using Power point (PPT) presentations.**
5.2	**Lectures using whiteboard**
5.3	**Practical Training / Laboratory**

6- Student Assessment:

a- Assessment Methods:

1-Written exam	**To assess understanding, intellectual, professional skills**
2-Practical exam	**To assess professional and practical skills**
3-Oral	**To assess Knowledge, understanding, intellectual skills, Personal skills**

b- Assessment schedule

Assessment 1	**Mid-term**	**7th week**
Assessment 2	**Practical**	**6th&12th week**
Assessment 3	**Written**	**15th week**
Assessment 4	**Oral**	**15th week**

c- Weighing of assessments

1	Mid-term examination	15%
	Practical examination & Semester work	25%
2	Final-term examination	50%
3	Oral examination	10%
Total		100%

7- Facilities required for teaching and learning

-Class room	Data show, Computers, and Internet.
- Laboratory facilities	Equipment and glassware.

8- Matrix of knowledge and skills of the course

No.	Course contents	Study Week	Outcomes Domains / K elements											
			Domain: 1		Domain: 2					Domain 3		Domain: 4		
1.	Basic Principles of Inorganic Chemistry	1	1.1.1	1.1.3				2.3.1	2.3.2	3.2.6			4.2.2	
2.	The Mole Concept	2, 3	1.1.1										4.2.2	4.3.2
3.	General Concepts of Chemical Equilibrium	4	1.1.1										4.2.2	
4.	Equilibrium constants and problems on Ksp and pH calculations	5	1.1.1										4.2.2	4.3.2
5.	Reactions between Ions	6	1.1.1	1.1.3	2.2.1	2.2.3	2.3.1			3.2.6	3.2.8		4.2.2	4.3.2
6.	Chemical Kinetics	8-10	1.1.1				2.2.4						4.2.2	
7.	Photochemistry	11-13	1.1.1									4.1.2	4.2.2	4.3.2

9- List of References

No	Reference	Type
1.	Pharmaceutical Analytical Chemistry 1	Course notes
2.	Raymond Chang, Editor, "Physical Chemistry for the Biosciences" Sausalito, California (2005).	Book

3.	Essentials of Physical Chemistry, Arun Bahl,B.S. Bahl,G.D. Tuli, New Delhi 110055, India (2014)	Book
4.	Fundamentals of Analytical Chemistry , Douglas A.; Skoog; Donald M.; West, F.James Holler; Stanely, R.Crouch, Belmont, CA, USA 9th ed. (2014).	Book
5.	Quantitative Chemical Analysis, Daniel C. Harris, 6th ed., W.H. Freeman and Company, New York (2003).	Book
6.	Vogel,s Textbook of Quanitative chemical Analysis, J. Mendham, M.A, MSc, C. Chem, M. RSC, 6th ed., India (2004).	Book
7.	Pharmaceutical Analytical Chemistry, Quantitative Analysis, Amer, M.M. Faculty of Pharmacy, Cairo University.	Book

Course Coordinator	**Prof. Dr. Manal Eid**
Head of Department	**Prof. Dr. Nahed El-Enany**

Date: 23 / 11 / 2020