The University of Jordan

Faculty: Pharmacy
Department: Pharmaceutical Sciences
Program: Pharmacy and PharmD
Academic Year/ Semester: 2014-2015 second semester

Pharmaceutical Analytical Chemistry Practical (1201202)

<table>
<thead>
<tr>
<th>Credit hours</th>
<th>Level</th>
<th>2nd year</th>
<th>Pre-requisite</th>
<th>1201201</th>
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Coordinator/ Lecturer: Dr. Mohammad Khanfar
Office number: 327
Office phone: 23339

Course website: E-mail M_khanfar@ju.edu.jo
Place: College of Pharmacy – 3rd floor

Office hours
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<tr>
<th>Day/Time</th>
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<td>11-12</td>
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Learning Objectives
At the end of this course the student is expected to have acquired basic practical skills and knowledge regarding the importance of analysis in pharmaceutical industry, the proper use of pharmacopoeia, the principles of chemical equilibrium and its relation to pharmaceutical analysis and the concept of titremetric analytical methods and how to employ them in real life problems pertaining the following types of reactions:
Acid -base
Precipitation
Complexation
Oxidation –reduction
Intended Learning Outcomes (ILOs): Successful completion of the course should lead to the following outcomes:

A. Knowledge and Understanding: Student is expected to
A1- Mention the fundamentals of acid-base and precipitometric titrations as well as the gravimetric analysis and calculation of the basic statistical parameters, and explain the application of these principles in the analysis of drug substances.
A2- Mention the suitable method for analysis of certain substances depending on basic understanding of physico-chemical properties of the chemical compounds.

B. Intellectual Analytical and Cognitive Skills: Student is expected to
Assess and interpret the possible interactions or interferences of some chemical compounds with the selected method of analysis of certain compounds depending on the studied principles.

C. Subject-Specific Skills: Student is expected to
C1- Develop different analytical procedures for the evaluation of different drugs and for quality control of pharmaceutical preparations.
C2. Demonstrate knowledge and critical understanding of essential facts, concepts, principles and theories related to the subject areas identified under knowledge and understanding.
C3. Apply in practice setting the knowledge and understanding required to meet the needs of patients and other health care professional.
C4. Differentiate between different groups of drugs.

D. Transferable Key Skills: Students is expected to
D1- Apply the information technology skills, such as word processing and internet communication and online searches.
D2- Work effectively with the others as a team work in performing the report on the results of an analytical method.
D3- Manage the time in an analytical work effectively.

Course Contents

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<tr>
<td>Introduction (Saunders Golden Sunburst series)</td>
<td>Author: Donald west, F. James Holler, Douglas A. Skoog, 1997.</td>
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| Standardization methods                                                | Analytical chemistry: An introduction (Saunders Golden Sunburst series)  
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997. | 3    |
| Neutralization Capacity of antacid Tablets                             | Textbook of pharmaceutical analysis. Kenneth A. Conors, third Edn.    | 4    |
| Determination of ammonium chloride and Zinc oxide in raw materials     | Textbook of pharmaceutical analysis. Kenneth A. Conors, third Edn.    | 5    |
| Midterm Exam                                                           |                                                                       | 6    |
| Application of Non-aqueous titration                                  | Analytical chemistry: An introduction (Saunders Golden Sunburst series)  
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997. | 7    |
| Argentometric Titrations                                               | Analytical chemistry: An introduction (Saunders Golden Sunburst series)  
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997. | 8    |
| Compleximetric Titrations                                              |                                                                       | 9    |
| Oxidation-reduction titrations                                         | Analytical chemistry: An introduction (Saunders Golden Sunburst series)  
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997. | 10   |
Applications on Oxidation-reduction titrations

Analytical chemistry: An introduction (Saunders Golden Sunburst series)
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997.

Final Exam

Learning Methodology
1- Data show
3- Laboratory experiments
4- Group discussion problems
5- Tutorial discussions

Evaluation

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<tr>
<th>Evaluation</th>
<th>Point %</th>
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<tr>
<td>Reports</td>
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<td>Quizzes</td>
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<td>3-4 quizzes in the semester</td>
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<td>8-12/3/2015</td>
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<td>Final Exam</td>
<td>40</td>
<td>26-30/4/2015</td>
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Main Reference

Analytical chemistry: An introduction (Saunders Golden Sunburst series)
Author: Donald west, F. James Holler, Douglas A. Skoog, 1997.

References:
2) Analytical chemistry: An introduction (Saunders Golden Sunburst series)
   Author: Donald west, F. James Holler, Douglas A. Skoog , 1997.