The University of Jordan

Faculty: Pharmacy
Program: Pharm D

Department: Department of Biopharmaceutics & Clinical Pharmacy

Academic Year/ Semester: First semester 2014/2015

Pharmacology Practical (1203364)

<table>
<thead>
<tr>
<th>Credit hours</th>
<th>1 credit hours</th>
<th>Level</th>
<th>3\textsuperscript{rd} year</th>
<th>Co- /Pre- requisite</th>
<th>Pharmacology I (1203363)</th>
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<tbody>
<tr>
<td>Coordinator</td>
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</table>
| Lecturer     | - Dr. Oriana Awwad  
- Dr. Amani Nserat | Office number | - 325  
- 008 | Office phone | - 23362  
- |
| E-mail       | - o.awwad@ju.edu.jo  
- Amany4_6@yahoo.com | Place | - 3\textsuperscript{rd} floor  
- Extension -1 |                     |                          |
| Course website | http://www2.ju.edu.jo/sites/Academic/o.awwad/default.aspx | | | | |

Office hours

<table>
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<tr>
<th>Day/Time</th>
<th>Sunday</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
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<tr>
<td>Dr. Oriana</td>
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<td>Dr. Amani</td>
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Course Description: The course will reinforce the knowledge of pharmacological mechanisms gained in the lecture course. Students will learn how the action of drugs can be investigated in \textit{in vitro} animal preparations as well as \textit{in vivo}. The course will also improve the students' ability to analyze and present their experimental data.

Learning Objectives:
Upon completion of the course, the students will be prepared to:

- Handle laboratory animals and administer drugs to them
- Perform intradermal, subcutaneous & intramuscular injections in humans
- Interpret heart sounds & lung volumes
- Conduct simple experiments \textit{in vivo} and on \textit{in vitro} preparations and present their findings in a written account, which includes details of the background of the experiment (Introduction, Methods, Results and Discussion).
Intended Learning Outcomes (ILOs):
Successful completion of the course should lead to the following outcomes:

A. Knowledge and Understanding: Student is expected to:
A.1- Explain the basic principles of experimental pharmacology
A.2- Understand the safe animal handling techniques
A.3- Understand the safe animal injection techniques
A.4- Knowledge of the experimental conditions needed to carry on any experiments (physiological solutions, temperature etc.)

B. Intellectual Analytical and Cognitive Skills: Student is expected to:
B.1- Apply key scientific principles underpinning the experimental models
B.2- Recognize the different heart sounds and be aware about the lung volume significance
B.3- Prepare different organ in vitro experiments

C. Subject-Specific Skills: Student is expected to be able to:
C.1- Set-up a particular tissue preparations (e.g. guinea-pig ileum, isolated heart)
C.2- Use the transducers and chart recorders to measure tension or length changes in smooth muscle preparations
C.3- An ability to perform dilutions of stock drug solutions and calculate appropriate volumes of injections or volumes added to organ baths to achieve the desired final concentrations.

D. Transferable Key Skills: Students is expected to:
D.1- Know how to obtain subjects specific information through the visit of libraries to answer questions presented in the class.
D.2- Recognize different resources of pharmacology (books, professional sites and scientific journals) and know how to evaluate the big quantity of information available
D.3- Take responsibility for own work and to exercise substantial autonomy and initiative in a learning environment

Course contents:

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to experimental pharmacology, handling of laboratory animals &amp; drug administration</td>
</tr>
<tr>
<td>2</td>
<td>Safe injection techniques in humans</td>
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<tr>
<td>4</td>
<td>Eid Al-Adha Holiday (approx.)</td>
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<tr>
<td>3</td>
<td>Heart sounds and Lung volumes</td>
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<tr>
<td>5</td>
<td>Simulated anterior tibialis-sciatic nerve</td>
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<td>6</td>
<td>Rat blood pressure</td>
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<tr>
<td>7</td>
<td>Midterm Exam (tentative)</td>
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<td>8</td>
<td>Stimulated vascular rings</td>
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Learning Methodology:

Each laboratory session consists in a teaching part through the explanation of one topic concepts and then the application of this information by the students through simulation with the aid of a software downloaded on the lab’s computers. Short experiments will be showed to the students in some sessions during the semester.

Evaluation:

1. Mid-term Exam 30%
2. Assignments & Quiz 30%
3. Final Exam 40%

Main Reference/s:

- Basic & Clinical & Pharmacology, 13\textsuperscript{th} Ed. 2015 by Katzung (ISBN: 978-0071825054)
- Pharmacology: Examination & Board review, 10\textsuperscript{th} Ed. 2013 by Katzung & Trevor (ISBN: 978-0071789233)
- The Pharmacological Basis of Therapeutics, 12\textsuperscript{th} Ed. 2011 by Goodman & Gilman's (ISBN: 978-0071624428)
- Lippincott's Illustrated Reviews: Pharmacology, 6\textsuperscript{th} Ed., 2015 (ISBN: 978-1451191776)

Important Regulations:

- Attendance:
  - Attendance of the laboratory is expected and mandatory.
  - Students must adhere to the laboratory rules, including the wearing of laboratory coats.
• Students who are more than 5-10 minutes late, or who leave early from the lab. will be counted as absent.
• Students are allowed maximum of 15% of scheduled class hours per term. Any single absence beyond that will be reported to the dean and student will be subjected to the rules and regulations of University of Jordan including course dismissal

❖ **Cheating policy:** The participation, or the commitment of cheating will lead to applying ALL the following penalties:
- Failing the subject he/she cheated at
- Failing the other subjects taken in the same course
- Not allowed to register for the next semester (the summer semester is not considered as a semester)

❖ **Makeup exams:** Makeup exams should not be given unless there is a valid excuse: student’s hospitalization or death of a first degree family member. Arrangements to take an exam at a time different than the one scheduled MUST be made prior to the scheduled exam time.