

Template 2

**Jordan University of Science and Technology**  
**Faculty/College of pharmacy**  
**Department of Medicinal Chemistry and Pharmacognosy**  
**2<sup>nd</sup> semester 2015/2016**  
**Course Specifications**

Title & Instructor	
<b>Course Title</b>	Pharmacognosy and Phytochemistry lab
<b>Course Number</b>	Phar 336
<b>Prerequisites</b>	Pharmacognosy and Phytochemistry Phar 334
<b>Course Website</b>	
<b>Instructor</b>	Rana M. Qasaymeh, , M.Sc. Medicinal chemistry and pharmacognosy
<b>Office Location</b>	D2 Level -2
<b>Office Phone</b>	26667
<b>Office Hours</b>	- Saturday & Monday: (10:15-12:15) - Wednesday (12:15-2:15)
<b>E-mail</b>	rana78@ just.edu.jo
<b>Teaching Assistant</b>	Pharmacist Najah Alsodi

<b>Course Aims and Objectives</b>	
<p>The course is designed to provide the student basic information about Practical pharmacognosy and phytochemistry, including quality control using microscopy to identify different medicinal plants part including: root, rhizome, fruit and seeds in comparison with monographic data provided by pharmacopeia.</p> <p>Also this practical course provide students with the required practical skills of natural product analysis including herbal sample preparation (drying and grinding), extraction, separation (chromatography; TLC), and characterization.</p> <p>The applications covered include some selected medicinal herbs and their extractions that are rich in various phytochemical groups such as: alkaloids, Flavonoids, Tannins, Saponion etc., particularly covered by the theoretical courses.</p>	
Objectives	Weights
1) Learn the basis for the identification of plant drugs and from this the detection of adulterated and poor quality (Quality Control of Plant Drugs) using the microscope	30%
2) To provide the students with the appropriate knowledge and skills of the methods of Extraction and separation of natural plant constituents	30%
3) Detection of the phytochemical groups by different chemical methods and TLC profiles supported by pharmacopeia (To identify the groups of plant secondary constituents)	30%
4) Appreciate the importance and the efficacy of the most of the herbal medicines & natural products. ( formulated preparation in medical use)	10%

<b>Course Description</b>
<p>Pharmacognosy laboratory involves microscopic, macroscopic and chemical tests used in the identification of crude drugs that are considered standards in pharmaceutical literature. Extraction, Isolation and Identification of the main constituents.</p>

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<b>Text Book &amp; References</b>	
Title (1)	Pharmacognosy by Trease& Evans.
Title (2)	Powdered Vegetable Plant Drugs
Title (3)	Herbal Medicines
Title (4)	Drugs of Natural Origin
Title (5)	British Pharmacopoeia 2009
References	<a href="http://www.drugs.com">www.drugs.com</a>

<b>Intended Student Learning Outcomes(ISLOs)</b> Upon successful completion of this course,		
<b>ISLOs</b>	<b>Related Objective(s)</b>	<b>Reference(s)</b>
Students will acquire basic skills in using the microscope to identify plant powder	1	All
Students will be able to Extract, isolate and identify the active substances of the medicinal plants.	2,3	All
Student will be able to Perform different laboratory procedures in the analysis of active constituents of natural sources.	2,3	All
Students will be able to handle properly chemicals in the laboratory and be aware of the rules of good laboratory practice.	1,2,3	All
Students will acquire good knowledge about the uses of different active constituents of medicinal plants	4	All

<b>Teaching &amp; Learning Methods</b>
<ol style="list-style-type: none"> <li><b>1.</b> Lab lectures and Lab notes are designed to achieve the course objectives.</li> <li><b>2.</b> You should read the assigned experiment before the lab and participate in the lab and do whatever it takes for you to grasp this material. Ask questions.</li> <li><b>3.</b> You are responsible for all material covered in the lab.</li> <li><b>4.</b> Make positive class contribution</li> <li><b>5.</b> Please communicate any concerns or issues I either in the lab, or in the office.</li> </ol>

<b>Assessment</b>		
Assessment Type	Expected Due Date	Weight
REPORTS & QUIZZES		30%
EVALUATION	Every week	10%
MID TERM EXAM	6 <sup>h</sup> – 7 <sup>th</sup> week	20%
Final Exam Practical and Theoretical	12 <sup>th</sup> – 13 <sup>th</sup> week	40%

<b>Useful Resources</b>
Textbook, References, Class notes

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<b>Course Content</b>		
Week	Topics	Lab number in handouts
1	Check-in and Orientation. Microscopically Identification of Rhizomes. (Ginger & Rhubarb)	Lab number 1
2	Microscopically Identification of different Fruits. (e.g.: Anise)	Lab number 2
3	Microscopically Identification of different Seeds. (e.g.: Black mustard, Cardamom and Linseed)	Lab number 3
4	Microscopically Identification of Roots. (e.g.: Liquorice ) Determination of Plant Unknown.	Lab number 4
5	Preparation of Plant Extract for Phytochemical Screening. Screening for Alkaloids.	Lab number 5
6	Screening for Flavonoids and Tannins. Screening for Anthraquinones and Saponins.	Lab number 6
7	Isolation of Caffeine from tea leaves.	Lab number 7
8	Clevenger apparatus ;Soxhlet extractor ;Rotary evaporator	Lab number 8
9	Carbohydrates: General tests & Specific tests	Lab number 9
10	Honey and Polysaccharides / Determination of Sugar Unknown.	Lab number 10
11	Chromatographic techniques: Column Chromatography C.C Thin Layer Chromatography TLC	Lab number 11
12	Final Practical Exam	Lab number 12

<b>Additional Notes</b>	
Exams	<ul style="list-style-type: none"> <li>All exams are closed book and notes. The final exam is comprehensive (covers all the material).</li> <li>The format for the exams is generally (but NOT always) as follows: Multiple-choice and short essay questions.</li> </ul>
Makeup Exams	<ul style="list-style-type: none"> <li>Makeup exam should not be given unless there is a valid excuse.</li> <li>Arrangements to take an exam at a time different than the one scheduled MUST be made prior to the scheduled exam time.</li> </ul>
Drop Date	<ul style="list-style-type: none"> <li>Last day to drop the course is before the twelve (12<sup>th</sup>) week of the current semester.</li> </ul>
Cheating	<p>The commitment of the acts of cheating and deceit such as copying during examinations, altering examinations for re-grade, plagiarism of homework assignments, and in any way representing the work of others as your own is dishonest and will not be tolerated. Standard JUST policy will be applied</p> <p>المادة 7 :إذا ضُبط الطالب أثناء الامتحان أو الاختبار متلبساً بالغش فتوقع عليه العقوبات التالية مجتمعة:  أ- اعتباره راسباً في ذلك الامتحان أو الاختبار.  ب- الغاء تسجيله في بقية المساقات المسجل لها في ذلك الفصل.  ج- فصله من الجامعة لمدة فصل دراسي واحد، و هو الفصل التالي للفصل الذي ضبط فيه.</p>
Attendance	<ul style="list-style-type: none"> <li>Excellent attendance is expected.</li> <li>JUST policy requires the faculty member to assign ZERO grades (35) if a student misses 10% of the classes that are not excused.</li> <li>If you miss class, it is your responsibility to find out about any announcements or assignments you may have missed.</li> </ul>
Workload	<ul style="list-style-type: none"> <li>Average work-load student should expect to spend is 2 hours/week</li> </ul>

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