
PHA 5352 Herbal Medicines

Spring 2014 2 Semester Credit Hours

Course Purpose:

This course provides students with a basic understanding and knowledge of dietary supplements often used by patients to self-treat a health condition or to maintain a healthy body and mind. Herbal & dietary supplements account for a significant \$3.8 billion market in the US and pharmacists are best suited to counsel and provide advice to the patient. Herbal & dietary supplements, although sold over the counter, may present with beneficial effects, but patient counseling, proper dosing, and important drug interactions need to be considered which are the main areas addressed in this course.

Course Faculty and Office Hours

Course Coordinator:

Dr. Anthony Palmieri, Assistant Scholar, Department of Pharmaceutics, College of Pharmacy, University of Florida

Email: palmieri@cop.ufl.edu Office: MSB P4-31 Office hours: by appointment

Phone: (352) 273-7868

Course Instructor:

Dr. Oliver Grundmann, Clinical Assistant Professor, Department of Medicinal Chemistry, College of Pharmacy, University of Florida

Email: grundman@ufl.edu Office: Located off-campus

Phone: (352) 246-4994

Teaching assistants:

Di Zhao, Jason Deng, and Xuan Liu

Office Hours

There will be virtual office hours hosted via Adobe Connect on Mondays from 9-10 PM. Students are encouraged to attend the virtual office hours whenever they have questions. Aside from the virtual office hours, students can contact the instructor via the mail function within the eLearning website or via regular email.

Place and Time of Class Sessions

The class is offered entirely online using the eLearning system. Students will be provided with written and recorded content on a weekly basis. There are discussion board forums in which students are encouraged to actively engage with each other and with the course instructor and teaching assistants.

Pre-Requisite Knowledge and Skills

Basic Principles of Pharmacology, Physiological Basis of Disease, Pharmacological Basis of Therapeutics, Fundamentals of Medicinal Chemistry

Organic Chemistry (undergraduate level), physiology, pathophysiology

How This Course Relates to the Learning Outcomes You Will Achieve in the Pharm.D. Program:

This course prepares the Pharm.D. student to accomplish the following abilities and the related Student Learning Outcomes (SLOs) upon graduation:

1. Provide Patient-centered Care - specifically: Design, implement, monitor, evaluate, and adjust pharmacy care plans that are patient-specific; address health literacy, cultural diversity, and behavioral psychosocial issues; are evidence-based and accomplished in collaboration with other health professionals. (SLO 1.4)
2. Use pharmacy knowledge in the care of patients and resolution of practice problems. (SLO 6.1)

Course Objectives

Upon completion of this course, the student will:

- Describe the current regulation and legal status of herbal & dietary supplements in the US
- Understand the various chemical diverse constituents commonly present in dietary supplements
- Describe the intended clinical use of dietary supplements and their proposed mechanism of action, recommended dosage, potential side effects, common drug interactions, and contraindications
- Be knowledgeable about the most commonly used and sold dietary supplements in the US
- Apply evidence-based approaches to the counseling of patients who seek self-treatment with dietary supplements.
- Describe the history of herbal medicines and dietary supplements
- Distinguish between herbal and dietary supplements and know about common dosage forms used for dietary supplements
- Assess a product based on standardization of an extract, adequate labeling, and intended use

Course Structure & Outline

Course Structure.

Multiple self-directed learning activities are required (e.g. videos, readings, web-based learning) and at selected intervals students can attend virtual office hours for discussions; students complete a midterm and final case study as well as weekly quizzes online. All activities are completed individually and submitted online through the eLearning course website. Weekly participation via the discussion board is expected and contributes to the participation grade in the class.

Course Outline/Activities.

1. **Introduction, Regulatory status of herbal & dietary supplements, quality and standardization of supplements**
 - a. *Definitions of herbal & dietary supplements, routes of administration*
 - b. *Nomenclature and classification of botanical sources for herbal supplements*

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- c. Brief overview of chemical classes of natural products*
 - d. Drug extracts and extract standardization, quality control*
 - e. Preparations and formulations of dietary supplements*
 - f. Regulation of dietary supplements*
 - g. Evidence-based practice with herbal & dietary supplements*
 - h. Patient awareness & communication*
- 2. Dietary supplements used in depressive, anxiety, and sleeping disorders**
- a. Pathophysiology of depressive, anxiety, and sleep disorders*
 - b. Antidepressant herbal & dietary supplements*
 - i. St. John's wort*
 - ii. S-Adenosyl methionine (SAME)*
 - iii. 5-hydroxytryptophan (5-HTP)*
 - c. Anxiolytic herbal & dietary supplements*
 - i. Kava*
 - ii. Lavender*
 - iii. L-theanine*
 - d. Herbal & dietary supplements for sleep disorders*
 - i. Valerian*
 - ii. Passion flower*
 - iii. Hops*
 - iv. Melatonin*
 - e. Clinical summary & recommendations*
- 3. Dietary supplements used for neurodegenerative and cognitive disorders**
- a. Pathophysiology of memory-impairing disorders*
 - b. Herbal & dietary supplements for memory-impairing disorders*
 - i. Ginkgo*
 - ii. Hawthorn*
 - c. Clinical summary & recommendations*
- 4. Dietary supplements used for weight loss and digestive disorders**
- a. Anatomy and physiology of the autonomous nervous system*
 - b. Herbal & dietary supplements used for weight loss*
 - i. Caffeine & energy drinks*
 - c. Herbal & dietary supplements used for digestive disorders*
 - i. Milk thistle*
 - ii. Ginger*
 - iii. Peppermint*
 - iv. Licorice root*
 - v. Probiotics & prebiotics*
 - d. Clinical summary & recommendations*
- 5. Dietary supplements used for cardiovascular and metabolic disorders**
- a. Overview of the circulatory system*
 - b. Herbal & dietary supplements used for cardiovascular disorders*

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- i. Garlic
 - ii. Red Yeast rice
 - iii. Horse chestnut
 - iv. Cranberry
 - v. Grape seed
 - vi. Coenzyme Q10
 - c. *Herbal & dietary supplements used for metabolic disorders*
 - i. Cinnamon
 - ii. Bilberry
 - iii. Policosanol/Pycnogenol®
 - iv. Supplements used in sports nutrition
 - d. Clinical summary & recommendations
- 6. Dietary supplements used for women's and men's health issues**
- a. *Herbal supplements used for women's health issues*
 - i. *Etiology of premenstrual symptoms & menopause*
 - ii. *Herbal & dietary supplements used for women's health*
 - 1. Black cohosh
 - 2. Red clover
 - 3. Soy bean
 - 4. Chasteberry
 - 5. Evening Primrose oil
 - b. Herbal supplements used for men's health issues
 - i. *Overview of androgen and physiological effects*
 - ii. *Herbal & dietary supplements used in men's health issues*
 - 1. Saw palmetto
 - 2. Horny goat weed
 - 3. Other supplements used as sexual performance enhancers
 - c. Clinical summary & recommendations
- 7. Dietary supplements used for the immune system & inflammation**
- a. *Herbal & dietary supplements for the immune system*
 - i. Echinacea
 - ii. Aloe
 - iii. Ginseng
 - iv. Glucosamine/Chondroitin
 - b. Clinical summary & recommendations

For weekly topics to be covered please see appendix A.

Textbooks

This course does not have any required textbooks. Recommended and supplementary references, textbooks, and databases are:

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- The Complete German Commission E Monographs. Therapeutic Guide to Herbal Medicines, M. Blumenthal, American Botanical Council, Integrative Medicine Communications, Boston, MA (1998). Available through the Health Science Library in Gainesville and Jacksonville.
 - Rational Phytotherapy, V. Schulz, R. Haensel, M. Blumenthal & VE Tyler (2004), 5th edition, Springer, New York, NY. Available through the Health Science Library in Gainesville.
 - Natural Medicines Comprehensive Database monographs; <http://www.naturaldatabase.com>. Available through the Health Science Library Access Pharmacy online database in the “Drugs and Supplements” section.
 - Natural Standard Database; <http://www.naturalstandard.com/>. Available through the Health Science Library online database.
 - Medline Plus Herbs and Supplements. Available online at http://www.nlm.nih.gov/medlineplus/druginfo/herb_All.html
 - National Library of Medicine Dietary Supplements Labels database. Available online at <http://dietarysupplements.nlm.nih.gov/dietary/ingred.jsp>
 - Office of Dietary Supplements, National Institutes of Health (NIH). Available online at <http://ods.od.nih.gov/>
 - MicroMedex. Available through the Health Science Library online database.
 - National Center for Complementary & Alternative Medicine, National Institutes of Health (NIH). Available online at <http://nccam.nih.gov/>

Active Learning Requirements

- Active participation on the eLearning discussion board to exchange knowledge and engage with other students and the instructor
- Complete reading assignments as per the lesson notes and watch the short video clips that provide insights in core principles and concepts
- Complete the required case studies that directly translates knowledge learned in the class into the clinical practice setting

Feedback to Students

Students will be provided with automatic feedback after completing a quiz online. Whenever a student would like to discuss a quiz question she/he can contact the instructor through the eLearning system mail function – please do not post quiz-related questions to the discussion board.

Students will be provided with an answer key and individual feedback for the case studies they submitted. If students wish to discuss their grades received for the case studies they should contact the course instructor and copy the teaching assistant that graded their submission (if applicable) through the eLearning course website mail function.

Student Evaluation & Grading

Evaluation Methods

Students will be evaluated on a weekly basis throughout the duration of the course by online timed quizzes and contributions to the discussion board. There are also two case studies that students have to complete during the midterm (after 4 weeks) and the end (after 7 weeks) of the course.

Weekly timed multiple choice quizzes

Weekly online timed multiple choice quizzes consisting of 15 questions each have to be completed within the week the respective lesson has been released and before the next lesson is released to students. The quiz will be available on Thursday for a period of 8 hours from 2-10 PM. Students have to be able to access a computer and the eLearning course website for 30 minutes during that time period to complete the quiz. Each quiz is worth 30 points (each question is worth 2 points). The student has 30 minutes to complete the quiz. Quizzes account for 210 points (7 quizzes over the duration of 7 weeks).

Discussion board participation

Every week a discussion topic will be posted after the respective lesson has been released to students. Students should engage with each other in responding to the discussion topic by either posting an initial response or engaging with each other. Weekly participation on the discussion board is expected and will provide 5 points per week for a total of 35 points over the 7 week course. Students have to post during the week of the current lesson (i.e. starting on Monday upon the lesson release until Sunday of that week) to receive credit.

Midterm and final exam

There are two exams in the form of case studies that students have to answer in short essay answer form (each question about a quarter of a page). A case study is broken down into 5 questions that each student has to complete in their own words without collaborating with other students. Each question is worth 10 points for a total of 50 points per case study and 100 points for both case studies combined. Students have to come to campus to sit for the midterm and final case study exams. The date, time, and room will be announced at the beginning of the course on the eLearning course website.

The total points possible in this course are 345 points; 210 points for the quizzes, 35 points for the discussion board participation, and 100 points for the case studies.

Grading Scale

A	90% or Above
A-	88 - 89%
B+	85 - 87%
B	80 - 84%
B-	78 - 79%
C+	75 - 77%
C	70 - 74%

C-	68 - 69 %
D+	65 - 67%
D	60 - 64%
D-	58 - 59%
E	< 58

Class Attendance Policy

Students are expected to access the eLearning course website on a daily basis and actively engage and respond to the instructor and other students on the discussion board. It is the students' responsibility to stay informed and up-to-date on announcements and other information provided by the instructor. Due dates for quizzes and the case studies are posted to the course calendar as well as listed in the due date schedule PDF located under the lessons tab.

Quiz/Exam Policy

Students have to complete all quizzes and case study exams by themselves without the help from other students. Quizzes are timed to 30 minutes and have to be completed by students on an individual basis without the help of other students or references. Failure to complete quizzes within the allotted time may result in a grade of zero or appropriate grade for complete and submitted work. Once a quiz or case study has been started the student may not request a make-up quiz or case study unless there is a proven technical error or circumstance that prevents completion of the quiz or case study. Students are advised to complete the quizzes using a stable internet connection and without any distractions or disturbances that may draw their attention from completing the task. ***Students have to come to campus to attend the midterm and final case study exams. The day and room for the midterm and final exam will be announced at the beginning of the course on the eLearning course website.***

Exam Rules

1. Students must arrive and be seated promptly to be eligible to take the exam.
2. Students who arrive more than 10 minutes late to an exam are not eligible to take the exam and must contact the course coordinator and course instructor within 24 hours of the exam to arrange for a makeup exam that may offered, depending on the circumstances surrounding the tardiness.
3. No talking or other disruptive behavior during the distribution or taking of the exam.
4. Nonessential materials (e.g. books, coats, notes, purses etc.) are NOT allowed at the student's desk during the examination periods.
5. Other exam rules may be instituted during the progression of the course.
6. Once the exam commences, students may not leave the room without first turning in the exam.
7. Once the exam is turned in, the examination period for the student is considered complete and the student must leave the examination room. For example, if the student must use the restroom, the student must first turn in the exam and may not return afterward to continue with the exam.

Failure to follow exam rules may be considered as evidence of academic dishonesty.

Make-up Quiz/Exam Policy

Makeup exams for the midterm and final case studies are given only under special circumstances. If the student is unable to complete a case study, the course coordinator and course instructor must be notified before the exam is given. An excused absence is allowable when: 1) the student is hospitalized and/or has been advised by a licensed medical practitioner or hospital not to complete the case study, or 2) if there is a documented death of an immediate family member. All excused absences will be considered on an individual basis by the course coordinator. Depending on the decision, a make-up case study may be given, which will contain material from all previous course content. With the exception of highly extenuating circumstances, failure to follow the prescribed procedures or failure to complete the scheduled case study within the time provided will result in a grade of zero for that case study. A request for an “excused absence” does not guarantee acceptance. No precedence can be drawn from any courses in the College of Pharmacy or any other college within the University of Florida.

Policy on Old Quizzes and Assignments

Students will be provided with an example for an assessment (quiz) under the assessments tab as well as an example completed case study. The example case study should be used as a guide in terms of the writing expectations (word count, sentence structure, etc.) in response to each question that will be on the actual case study.

Assignment Deadlines

If a student is unable to meet a due date or deadline for a quiz or cannot attend a case study exam, they have to contact the instructor ahead of the deadline and provide an appropriate reason for requesting an extension (see above under “Make-up Quiz/Exam Policy”). Extensions are only granted if the student can provide proof that they were not able to meet a deadline. All deadlines posted to the eLearning course website are US Eastern time (Florida time).

General College of Pharmacy Course Policies

The College of Pharmacy has a website that lists course policies that are common to all courses. This website covers the following:

1. University Grading Policies
2. Academic Integrity Policy
3. How to request learning accommodations
4. Faculty and course evaluations
5. Student expectations in class
6. Discussion board policy
7. Email communications
8. Religious holidays
9. Counseling & student health
10. How to access services for student success
11. Faculty Lectures/Presentations Download Policy

Please see the following URL for this information:

<http://www.cop.ufl.edu/wp-content/uploads/dept/studaff/policies/General%20COP%20Course%20Policies.pdf>

Complaints

Should you have any complaints with your experience in this course please contact your course coordinator. If unresolved, contact the COP Senior Associate Dean-Professional Affairs. For unresolved issues, see:

<http://www.distancelearning.ufl.edu/student-complaints> to submit a complaint.

Other Course Information

See **appendix A** for weekly schedule of course topics

Appendix A. Schedule of Course Activities/Topics

Dates or Week	Instructor	Learning Activities/Topic
1	Dr. Grundmann	Introduction, Regulatory status of herbal & dietary supplements, quality and standardization of supplements
2	Dr. Grundmann	Dietary supplements used in depressive, anxiety, and sleeping disorders
3	Dr. Grundmann	Dietary supplements used for neurodegenerative and cognitive disorders
4	Dr. Grundmann/TAs	Dietary supplements used for weight loss and digestive disorders
		Midterm case study exam
5	Dr. Grundmann	Dietary supplements used for cardiovascular and metabolic disorders
6	Dr. Grundmann	Dietary supplements used for women's & men's health issues
7	Dr. Grundmann	Dietary supplements used for the immune system
8	TAs	Final case study exam