MEDICINAL PLANTS

(Course: 11:776:312 - Index: 06693)

SYLLABUS, FALL 2010

INSTRUCTORS: Professors: Jim Simon, Qing-Li Wu and Rodolfo Juliani

MEETING TIME: Tuesdays and Thursdays: 3rd period 12:35 pm - 1:55 pm

MEETING LOCATION: Foran Hall, Room 138A, unless noted.

OFFICE HOURS: Upon request (Easiest just prior to or after scheduled class)
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BOOKS OR READINGS: Readings to be assigned; no text required, but Highly recommended: (1) Tyler’s book on Herbs of Choice, Haworth Press; (2) Talbott and Hughes, The Health Professional’s Guide to Dietary Supplements, Lippincott Williams and Wilkins; and (3) Blumenthal, The ABC Clinical Guide to Herbs, Thieme. Copies of the lectures as well as supplemental readings are be posted onto the Rutgers Ecompanion (or online site; see: www.rutgersonline.net). Ecompanion is used for class communication and document sharing.

LECTURES and LABS: All lectures will be held in Foran Hall – 138A, except when noted. Lab demonstrations will be held in the New Use Agriculture labs on the 3rd floor of the new wing in Foran Hall (Rooms 394-396) and will focus on natural products extraction (hydrodistillation, solvent extraction, and quality control), assessment of dried botanicals; and quality assessment of essential oils. A greenhouse demonstration will introduce you to medicinal and aromatic plants (MAPs) and to some of the ongoing research that focuses on understanding the biology of MAPs, the genetic improvement of selected MAPs, and the discovery of new bioactive compounds in plants. A greenhouse tour will also provide the opportunity to see many of the plants discussed in the class lectures.

QUIZZES: There will be two quizzes that will cover the materials presented in the lectures, and from any supplemental readings and handouts. You are responsible for any/all materials presented in class and those posted on Ecompanion.
THE RESEARCH REPORTS: Also required are two research reports (10-15 typed pages; including illustrations and references). Each of your papers will be based either upon a specific MAP or a topic related to medicinal plants from their botany, horticulture, biology or relationship to human health and disease state. Students are expected to work independently to complete reports. Instructors will have a list of topics from you may choose. Alternatively, if you wish to select your own topic, you can but you need to get approval from the instructor first to ensure the topic is appropriate and not already being done by others. The due dates for each paper are shown in the syllabus below. A hard printed copy plus an electronic version of each paper is required. The electronic version may be uploaded onto Ecompanion course site or given in on a CD. Research papers will be graded on completeness and overall depth and quality of the paper. We expect that you will develop for each paper an in-depth scientific literature review of the topic; and/or support/argue popular articles on herbs and plant-derived medicines; read critically the literature, and provide in each paper a conclusion of your findings that relate directly to the stated objectives for each paper. You can use the internet to conduct the literature search and use as sources of information, but you must cite all internet sources appropriately, and your reference list must not rely solely on commercial or popular sources. Each paper must include traditional scientific journals and original scientific reference papers and/or reviews. A complete data-base search (in electronic form) must accompany the submission of the paper and this counts toward the grade of the paper. The data base search must list the data bases searches, the key words used and the time periods of the searches.

Alternatively, for those seeking another experience, in place of one of the two research papers, we can provide you with a short duration lab and/or greenhouse research projects to get some hands-on learning experience. For those students wishing this option, please stop and speak with Prof. Simon within the first two weeks of class. Students pursuing the lab and/or greenhouse option are still required to prepare and submit a final research report following the conclusions of their experiments.

GRADING: Grading is based upon the two quizzes plus two research papers. From a total of 100%; the quizzes will contribute 60% (with each quiz one contributing 30%) plus each of the two papers contributing 20%.

Grades will then be calculated using:
A = 90-100%; B+ = 85-89%; B= 80-84%; C+ = 75-79%; C= 70-74%; D = 60-69%; F = <60%. Extra credit assignments are an option, see the instructors.

Attendance/Participation: Attendance is required. Lack of attendance will result in a lowering of your grade. Active class participation and contribution to class discussion may, in special circumstances, increase your grade. Laptops are welcome for note taking, but no internet surfing is permitted during class. Cell phones must be turned off in class. If you cannot come to a class for medical or other reasons, you must notify the instructor prior to or immediately afterwards indicating the reason. The class is on an honor system—no doctor or parental notes are normally expected nor requested.
MEDICINAL PLANTS- Syllabus Revised

LECTURE TOPICS:
Thursday, September 02: Class Overview and Expectations (J. Simon)

Tuesday, September 07: Tabloid Herbals – Supermarket Medicines; and

Thursday, September 09: Botany of Medicinal & Aromatic Plants (MAPs) (J. Simon)

Tuesday, September 14: Plants as Ancient and Modern Medicines – Malaria and Quinine, Digitalis steroids and the Drug Plants–Cannabis, Tobacco, Cocoa, Opium Poppy (J. Simon)

Thursday, September 16: Traditional Teas and Herbal Teas (R. Juliani)

Tuesday, September 21: Chemistry of Alkaloids and Pharmaceutical Applications (Q.L. Wu)

Thursday, September 23: Chemistry of Polyphenols, Their Health Properties including Antioxidant Activity (Q.L. Wu)

Tuesday, September 28: Nutraceuticals, Dietary Supplements and Botanical Standardization (Q.L. Wu)

Wednesday, September 29: SPECIAL EVENING EVENT: “Taking Root: the Vision of Wangari Maathai”. Each semester, “An African Movie and Dialog” is held, co-sponsored by Undergraduate Education's Multicultural Engagement and as a collaboration with the International Programs initiative "Ecologies in the balance? Thinking through the Crises." This year, this class and our international research program (see: pfidnp.org) is proud to include this film and discussion as part of our class and in support of the Rutgers Center for African Studies and NUANPP. Special Featured Movie: “Taking Root” Location: Rutgers Cook College Campus Center Multipurpose Room Time: 7:30pm-9pm. Attendance is required, special credit also will be given to those submitting a short report on the movie and discussion. Students with evening classes, work or family obligations can watch this movie at another time (TBA).
Thursday, September 30: QUIZ

Tuesday, October 05: Bioprospecting: Searching for Plants that Cure Disease and Improve Human Health (J. Simon)

Thursday, October 07: Chemistry of Essential Oils (J. Simon) and (L10) From Ancient to Modern Methods of Distillation (J. Simon)

Tuesday, October 12: Demonstration on EO distillation and Aroma Sensing (NUANPP Labs: R. Juliani)

Thursday, October 14: Extraction and Processing Technologies for Natural Products (Q.L. Wu)

Tuesday, October 19: Medicinal and Pharmaceutical Fungi (Q.L Wu)

Thursday, October 21: African medicinals- part 1 (J. Simon)

Tuesday, October 26: African medicinals- part 2 (J. Simon)

Thursday, October 28: Medicinal Plants of India and Korea (J. Simon)

Tuesday, November 02: Medicinal and Aromatic Plants of South America (R. Juliani)

Thursday, November 04: Traditional Chinese Medicine (Q.L. Wu)

Tuesday, November 09: Aromatic plants and essential oil crops (J. Simon)

Thursday, November 11: PAPER NO. 1 DUE and American Medicinals (J. Simon)

Tuesday, November 16: The Legislative Environment for Medicinals and Botanicals in the USA (Q.L. Wu and J.E. Simon)

Thursday, November 18: Genetic Diversity, Biodiversity and Endangered Medicinal and Aromatic Plants (J. Simon)

Tuesday, November 23: Growing Medicinals and Herbs

Thursday, November 25: Thanksgiving Vacation- No Class
Tuesday, November 30:  Traditional Chinese Medicine and Enhancement of General “Well-Being”

Thursday, December 02:  **PAPER NO. 2, DUE** and; Extraction and isolation of natural products

Tuesday, December 07:  The Legislative Environment, the Status of Dietary Supplements and Phytomedicines in the USA and Europe

Thursday, December 09:  **QUIZ 2** (last day of class) and Classes End

*(Syllabus and the Instructor given the particular lecture and/or demonstration is subject to change)*