

Syllabus Biology 420: **Survey of the Plant Kingdom**
Spring Semester 2009: Tu/Th 9:30 - 10:45; Room CLS 005
Credit Hours: 3; Section 001; Schedule Code:
Instructor: Dr. Johannes Stratmann, Associate Professor Biological Sciences
Office 407 CLS

Course Description: 'Survey of the Plant Kingdom' is aimed at understanding the basic strategies for classifying organisms. Major groups of photosynthetic organisms including prokaryotes, protists and higher plants, as well as fungi, will be presented with an emphasis on life cycles, comparative morphology, development and evolution. In addition, the importance of plants for civilization, plant preservation and conservation will be covered.

Learning outcomes for students:

At the end of the course, students should

- know principles of taxonomy and systematics
- understand the evolution of fungi and photosynthetic organisms from cyanobacteria to flowering plants
- know the basic features that characterize and distinguish photosynthetic organisms and fungi
- understand the diversity of life cycles
- know the basic forms and functions of seed plants
- understand how plants interact with beneficial and harmful animals
- appreciate the complexity of plant secondary metabolism
- know some secondary metabolites with medicinal properties and how they function
- appreciate the diversity of photosynthetic organisms and fungi
- understand the importance of actively protecting biodiversity

Prerequisites: BIOL 301 (Ecology and Evolution)

Office Hours: by appointment; generally available M-F 10 a.m. - 6 p.m.; preferably after class;

Dr. Stratmann Tel.: 777-5730;

Dr. Stratmann e-mail: johstrat@biol.sc.edu

Blackboard:

Blackboard will be used to post grades, lecture notes, and announcements.

Please do not contact me via Blackboard, I will not check e-mail on Blackboard.

The relevant e-mail address is shown above.

Text: Biology of Plants; Raven, Evert and Eichhorn; 6th or 7th edition; available at the USC bookstores

The following class schedule refers to the 7th edition.

Lecture Notes will be provided after class on Blackboard.

#-Date	Topic	Reading
1 -Jan 12	Syllabus and Intro	Chap12, 219-226
2 -Jan 14	Phylogenetics; Cladistics; Molecular Systematics	Chap12, 226-227
3 -Jan 19	Phylogenetics; Cladistics; Molecular Systematics	Chap12, 226-227
4 -Jan 21	Major Groups of Organisms	Chap13, 227-235
5 -Jan 26	Monera	Chap13
6 -Jan 28	Endosymbiotic theory, Fungi Intro	Chap12, 229-231
7 -Feb 2	EXAM #1	
8 -Feb 4	Fungi: Basidiomycota, Ascomycota, Mycorrhizae	Chap14
9 -Feb 9	Lichens; Protista I: Slime Molds, Chryptophyta, Red Algae	Chap15, parts
10-Feb 11	Protista II: Dinophyta, Oomycota, Diatoms, Brown Algae	Chap15, parts
11-Feb 16	Protista III: Green Algae	Chap15, 327-340
12-Feb 18	Protista IV: Green Algae; water → land transition Bryophytes I; general <i>(Feb 22 = last day to drop class w/o getting WF)</i>	Chap16, 345-351
13-Feb 23	Bryophytes II: Liverworts, Hornworts	Chap16, 351-358
14-Feb 25	EXAM #2	
15-Mar 2	Bryophytes III: Mosses; Seedless Vascular Plants	Chap16, 358-367 Chap17, 368-380
16-Mar 4	Lycophyta, Pteridophyta I: Psilotophyta	Chap17, 380-388
-Mar 9	<i>Spring Break</i>	
-Mar 11	<i>Spring Break</i>	
17-Mar 16	Pteridophyta II: Pterophyta, Sphenophyta	Chap17, 389-407
18-Mar 18	Seed Plants: Gymnosperms I: Coniferophyta	Chap18, 408-427
19-Mar 23	Gymnosperms II: other phyla, anatomy	Chap20, 427-433
20-Mar 25	Angiosperms: general; Flower, Shoot	Chaps 19, 25
21-Mar 30	EXAM #3	
22-Apr 1	Angiosperms: Root; Life Cycle; Seeds; Fruit	Chaps 24, 19, 20
*23-Apr 6	Herbarium and Plant Conservation in South Carolina by guest speaker Dr. John Nelson	
*24-Apr 8	The Private Life of Plants (David Attenborough) Film	
25-Apr 13	Angiosperms: Development; Flower Evolution	Chaps 20, 22
26-Apr 15	Pollination	Chap20
27-Apr 20	Toxic Plants and Plant Defense, Medicinal Plants	Chap20
28-Apr 22	Plants and Civilization	Chap21
Apr 27	(Tuesday)	READING DAY
Apr 29	(Thursday, 9:00 a.m.)	FINAL EXAM

* Attendance is mandatory and questions about the guest lecture and the film will be subject of the final exam. Lecture notes will not be posted for Dr. Nelson's class and the film.

Exams: There will be four examinations including a non-cumulative final exam. The lowest grade from Exams 1, 2 or 3 will be dropped. There are **no make-up exams**, except for legitimate, documented emergencies. The dates of make-up exams will be determined on an individual basis. If you miss one of the three semester exams without above mentioned justification, you will receive a zero and this score will be dropped. **The final exam will not be dropped.** Exam questions (multiple choice, true/false etc.) are designed to test understanding of the concepts. Semester exams and the final exam will generally cover material presented during the immediately preceding class period.

Grades: Your final grade will be calculated in the following way:
Two of the three semester exams (Exam 1,2,3): 2/3 of final grade; 1/3 each
Final Exam: 1/3 of final grade
Extra credit for outstanding class participation/discussion is possible.

Grading scale:

A	90-100%	C	70-75%
B+	85-89%	D+	65-69%
B	80-84%	D	60-64%
C+	75-79%	F	below 60%

Attendance: Attendance: You are expected to attend class and read the respective chapters indicated above, prior to the lecture. Attendance will be taken. Four absences will be considered the basis for lowering your final grade by one full grade, regardless of how well you are doing in the course.