

**INTRODUCTORY BOTANY (BIOS 109)  
FALL 2008**

**COURSE INFORMATION AND SYLLABUS**

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**Instructor:** Dr. Sabrina Russo  
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**Office hours:** By appointment

**Course website:** Blackboard

**Lectures:** MWF 09:30-10:20 am in 128 Manter Hall

**Required textbook (on reserve at Love Library):**

Nabors, Murray W. 2004. Introduction to botany. San Francisco, CA, Pearson/Benjamin Cummings.

**Additional required readings are from the following books, posted as PDFs on Blackboard (under *Tools->UNL Libraries Electronic Reserves or Readings*):**

Gurevitch, Jessica, Sheiner, Sam H., Fox, Gordon A. 2006. The Ecology of Plants. Sunderland, MA, Sinauer Associates, Inc.

Mauseth, James D. 1998. Botany: An Introduction to Plant Biology. Sudbury, MA, Jones & Bartlett Publishers.

Raven, Peter H., Evert, Ray Franklin, and Eichhorn, Susan E. 2005. Biology of plants. New York, NY, Worth Publishers.

**Goals of this course:**

- (1) To introduce you to the study of plants, including their ecology, anatomy & morphology, growth & development, and genetics & evolution.
- (2) To gain experience with important laboratory and greenhouse skills used in the study of plants
- (3) To demonstrate the importance of plants to all aspects of our lives and to the functioning of the Earth.
- (4) To gain practice in library research and scientific writing.
- (5) To perfect important skills, such as how to communicate effectively, work together in teams, and argue convincingly.

## **E**xpectations:

I expect that you will attend all course meetings, complete all assignments, take all exams, do all required reading listed in the *Syllabus*, attend all laboratory meetings, and ask me questions during or after lecture. During class, I expect you to be paying attention to the lecture. If there is any disruptive activity, including *any* use of cell phones, I will ask you to stop or leave the class. You are expected to abide by the Student Code of Conduct (<http://stuafs.unl.edu/ja/code/three.shtml>).

As University of Nebraska students, you can pride yourselves on a reputation for integrity. Therefore, I will provide you with several opportunities to demonstrate your progress in the course and, in return, I expect that you will each maintain a high standard for honesty, genuine effort, and pride in your own work.

<b>G</b> rading:	Exams (5):	40%
	Debate Assignments:	20%
	Pop Quizzes:	15%
	Laboratory:	25%

**E**xams: There will be no comprehensive final exam. There will be five exams, each covering one of the five areas highlighted in the *Syllabus*. Four exams will be held in-class on the dates noted in the *Syllabus*. The fifth exam will be given at the designated final exam time (10:00am - 12:00noon, Thursday Dec 18, 2008). Exams will be graded on a 100-point scale. They will consist of short- and long-answer questions. Practice exam questions will be handed out before each exam.

**D**ebates: In place of a final exam, you are required to participate in a *Debate* on one of the six issues below. Debates will be conducted in class towards the end of the course, at dates to be announced. On the day of a debate, I will introduce the debate issue in a short 10-15 minute lecture, and the rest of the class period will be spent on the debate between the two groups of students. Rules and procedures for debates will be explained in a separate handout. Issues discussed in debates will be covered on the fifth exam. Groups of four to six students will be assigned by me to a debating team. Two debating teams will debate one issue, with one team arguing for and one team arguing against the issue. Issues will be assigned by lottery to groups, and whether a team argues for or against an issue will be assigned by random draw.

Within one week after debates are assigned, each group will be required to meet with me to discuss the issue of their debate. Students are expected to work together with fellow group members to conduct library research out of class in order to discuss and develop their debating points as a group. Each group is then required to write up a *Contract* describing each group member's responsibilities/contributions to the group effort to prepare for the debate - it is expected that different members will do different tasks, but each person should contribute equally to the effort. Each member

must sign this *Contract* and keep a copy for themselves. Each group will also be required to turn in to me in class on the day of their debate a written assignment outlining their debating points. In your *Debating Points Written Outline*, you must reference scientific literature in order to back-up your debating points. You may NOT use websites or lecture material as references in your *Debating Points Written Outline*: all references must be published books or journal articles. After the debate, each student is expected to write *Contract Evaluation*, which will consist of one paragraph (maximum 400 words) evaluating whether their contribution to the group debating effort matched what was outlined in their *Contract*.

Each student's debate will be graded on a 100-point scale. The *Debating Points Written Outline* (30 points), *Contract* (10 points), and *Contract Evaluation* (10 points), will be worth a total of 50 of the 100 points, and the presentation during the debate will be worth 50 points. Each student in a group is required to contribute equally to the oral arguments made in class on the day of the debate. Students may use (but are not required to use) power point, overhead sheets, or the blackboard to present materials in support of their debating points, but these must be original materials that they produced (for example, not Xerox-copied from a book or downloaded from the internet).

There will be six debates on the following issues:

- Biofuels: reliable renewable energy or ecological hazard?
- Global climate change: fact or fancy?
- Genetically modified crops: boon or boondoggle?
- Organic vs. conventional farming - which is better?
- Invasive species and biological control: waste of money or important for conservation?
- Tropical deforestation: conservation tragedy or socio-economic benefit?

**Pop Quizzes:** There will be 8 pop-quizzes in class. Quizzes will have different formats, but will be similar to short-answer questions (3-5 questions each). Each quiz will be graded on a 10-point scale. Each student's three worst quiz grades will not be counted in his/her final grade (a total of 50 points).

**Other important information:**

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

**Other useful resources (books are on reserve at Love Library):**

Esau, Katherine. 1965. Plant anatomy. New York, NY, Wiley.

Murphy, Denis J. 2007. People, plants, and genes : the story of crops and humanity. Oxford, NY, Oxford University Press.

Wickens, G. E., 2001. Economic botany: principles and practices. Boston, MA, Kluwer Academic.

## Syllabus (Schedule and readings may change slightly) - see file on BB for updated version

	Date	Day	Topic	Readings**
Ecology	25 Aug	M	Plants, people, & the scientific method	Nabors-1 ( <i>not</i> 11-15), -26 (549-552) Raven-21
	27 Aug	W	Overview of biodiversity	Nabors-1 (11-15)
	29 Aug	F	Plant population biology	Nabors-25 (523-531) Mauseth-26 (751-758)
	1 Sept	M	Labor Day Holiday	
	3 Sept	W	Plant communities	Nabors-25 (531-540) Raven-31
	5 Sept	F	Biomes: Environment, energy, & production	Gurevitch-14 Nabors-24
	8 Sept	M	Global change & plants	Nabors-26 (552-569) Gurevitch-21
	10 Sept	W	FIRST EXAM	
Energy	12 Sept	F	Plant cells, tissues, & organs	Nabors-2 & -3
	15 Sept	M	Light, leaf structure, & energy capture	Nabors-4 (87-98)
	17 Sept	W	Photosynthesis - Light reactions	Nabors-8 (175-185)
	19 Sept	F	Photosynthesis - Carbon fixation	Nabors-8 (185-194)
	22 Sept	M	Light & plant architecture	Gurevitch-2
	24 Sept	W	SECOND EXAM	
Resource Acquisition & Use	26 Sept	F	Plant nutrition and soils	Raven-29
	29 Sept	M	Structure of stems & roots I	Nabors-4 (70-87)
	1 Oct	W	Structure of stems & roots II	Nabors-5
	3 Oct	F	Photosynthate transport in phloem	Nabors-10
	6 Oct	M	Transport of mineral nutrients & water	Nabors-10
	8 Oct	W	Respiration - Anaerobic	Nabors-9
	10 Oct	F	Respiration - Aerobic	Nabors-9
	13 Oct	M	THIRD EXAM	
Life Cycle & Growth	15 Oct	W	Seeds, germination, meristems, & mitosis	Nabors-2 (43-44) Nabors-3 (61-69) Nabors-6 (135-136)
	17 Oct	F	Plant responses to the environment	Nabors-11
	20 Oct	M	FALL BREAK	
	22 Oct	W	Plant growth & development	Nabors-11
	24 Oct	F	Reproduction, meiosis, alternation of generations	Nabors-6
	27 Oct	M	Flowers & flowering	Raven-19
	29 Oct	W	Pollination, fertilization, fruits, seed dispersal	Raven-20 ( <i>not</i> pg. 471-472)
	31 Oct	F	Life cycles, life history strategies	Raven-2 ( <i>not</i> pg. 22-26) Raven-20 (471-472) Gurevitch-8
	3 Nov	M	Genetics	Nabors-12 & -13
	5 Nov	W	Plant biotechnology	Nabors-15
7 Nov	F	Evolution & speciation	Nabors-14	
	10 Nov	M	FOURTH EXAM	
Diversity & Special Topics	12 Nov	W	Diversity, classification, & phylogeny of plants	Nabors-16 & -18
	14 Nov	F	Bryophytes to ferns	Nabors-20 & -21
	17 Nov	M	Gymnosperms	Nabors-22
	19 Nov	W	Angiosperms 1 (Guest lecture)	Nabors-23
	21 Nov	F	Angiosperms 2	
	24 Nov	M	Debate 1	
	1 Dec	M	Debate 2	
	3 Dec	W	Debate 3	
	5 Dec	F	Debate 4	
	8 Dec	M	Debate 5	
	10 Dec	W	Debate 6	
	12 Dec	F	Wrap-up	

\*\* Readings are indicated by the first author of the text book, a dash, then the chapter number, with specific page numbers in parentheses. Readings in books other than Nabors will be posted as PDFs on Blackboard.

## How to get an A in BIOS 109

### DURING LECTURE:

- Attend every lecture.
- Pick up the Lecture Companion for every lecture, distributed in class.
- Take notes in the spaces provided around the figures in the Lecture Companion.
- Bring additional note paper if you like to write a lot of words when you take notes and don't find enough space in the Lecture Companion.
- Raise your hand and ask questions during lecture if a point is not clear to you (in which case it's probably not clear to other students, either).

### AFTER LECTURE:

- Sit down with the Lecture Companion and your text book and readings. Go over the lecture, filling in gaps in your notes by consulting the text book readings for details you missed during lecture.
- Look over all of the *Questions* and *Terms* at the end of each lecture and try to answer all of the questions and identify all of the terms by consulting your notes and the textbook readings.
- If you still cannot make sense of something covered in lecture, stop Dr. Russo after lecture or arrange to meet with her to clarify anything that is unclear to you.

### BEFORE EXAMS:

- Read your lecture notes for every lecture covered by the exam, consulting the text book readings as needed to understand concepts and clarify the details.
- Go over each and every *Question* and *Term* at the end of each lecture covered by the exam, making sure you can answer the questions and define the terms WITHOUT consulting your notes or the text book readings.
- Study with other students who are also taking the course.
- Do every practice exam question. If you get a practice question wrong, use your text book readings and lecture notes to figure out why you got it wrong and understand the correct answer. Ask Dr. Russo if you still cannot understand the correct answer.
- Get a good night's sleep and breakfast before the exam.