Botany: BIOL 250, Spring Semester 2013

Instructor: Dr. Brian R. Maricle
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Office Hours: Mon 1:30 - 2:30 pm, Thurs 12:00 - 1:00 pm, Fri 1:00 - 2:00 pm, or by appointment
Lecture Times: MWF 11:30 am - 12:20 pm, Albertson 335
Lab Time: Wednesday 2:30 - 5:20 pm, Albertson 248
Textbook: Evert, R.F. and Eichhorn, S.E. 2013. Raven Biology of Plants, 8th edition. W.H. Freeman and Company Publishers, New York. ISBN 978-1-4292-1961-7
Also: Kingsolver, B. 2007. *Animal, Vegetable, Miracle: A Year of Food Life*. Harper Collins, New York.

Catalog Description
Survey of the plant kingdom; morphological and anatomical aspects of nonvascular and vascular plants.

Course Description
Botany is the scientific study of plants. This very broad discipline can be broken into many areas, including plant physiology, plant morphology, plant anatomy, plant systematics, plant cell biology, plant genetics, plant molecular biology, plant ecology, or even paleobotany. We will spend much of our time investigating the unique features of plants and exploring the role of plants in our world. The importance of plants cannot be overestimated. Most aspects of our day-to-day lives rely on plants or plant products, including food, energy, structure, shade, paper, shelter, medicines, flavoring, decoration, and leisure. Unfortunately, many people think of plants simply as a "background" for everything else. However, once we begin to learn about the plants that make up this "background," it can really open our eyes and help us appreciate our world. With a more complete knowledge of plants, we can more fully appreciate their ecological roles, as well as their uses for people.

Course Objectives
- Gain an understanding of the importance of plants in our lives
- Learn the features that make plants different from other kingdoms of life
- Sample some of the fields of plant biology, including anatomy, physiology, ecology, systematics, and cell biology
- Survey some of the major groupings of plants and investigate unique features of each
- Develop critical thinking skills about topics relating to botany

Course Structure and Grading
Lectures are MWF 11:30 am to 12:20 pm in AH 335. Lecture is 3 credit hours. There will be four 100-point lecture exams, plus 50 points of comprehensive material with Exam 4. Additionally, there are four 25-point writing assignment, for a total of 550 points in lecture. Assignment of grades will be based on:

A = 90 - 100% = 495 - 550 points
B = 80 - 89.9% = 440 - 494 points
C = 70 - 79.9% = 385 - 439 points
D = 60 - 69.9% = 330 - 384 points
U = 0 - 59.9% = 0 - 329 points

No extra credit work will be available. Use your available time to prepare for the regular lab and lecture assignments. If an exam is missed due to an **unavoidable** conflict (illness, university-sponsored activity, weddings, funerals), and the instructor is notified **prior** to the exam, a make-up exam may be rescheduled.

A make-up exam will not be given unless arrangements are made prior to the regularly-scheduled exam. This includes absences related to sickness, school-sponsored events, or other excusable absences. Make-up exams are given at the discretion of the instructor and may be in a format different from regular exams.

A grade of "incomplete" will not be given except in extreme situations during or near finals week (e.g., hospitalization, death in family). If this applies to you, please contact the instructor to discuss the possibility of receiving an incomplete.

Late work is not accepted for any assignment in lecture or lab. Observe deadlines and take them seriously. If a class must be missed, it is the student's responsibility to get assigned work handed in **before** the due date.

Academic Dishonesty
Strict adherence to FHSU policies will be maintained. In this course, a confirmed case of academic dishonesty (cheating or plagiarism) will result in immediate expulsion from the course and a grade of "U." The particulars of the offense will also be immediately forwarded to the Provost, who will likely take further (more serious) action. Consult the University Catalog for full details (http://web.fhsu.edu/universitycatalog/gen/academichonesty2.asp).

Attendance
A strong correlation usually exists between lecture attendance and grades. It is your responsibility to make it to lectures and to learn the material associated with the course. Excused absences include school-sponsored events, verifiable illness, or death in the immediate family. It is the student's responsibility to contact the instructor regarding class absences for these events.

Your success in college is in your own hands. Upon entering college, many students struggle until they develop an effective individual learning strategy. Many resources are available to help (library, Kelly Center, internet resources, study groups, etc.), but each student will normally need to establish his/her own system to succeed. Students often must develop a new sense of independence to master college classes. Your instructors and TAs can present you with materials, answer questions, and coach you along the way, but only YOU can learn.

Other Policies
Talking during lecture or any other form of disruption is unacceptable. There are other students enrolled in the class who are trying to listen. Most of them have worked hard and paid a lot of money to be here. Please respect their right to listen.

Please set cell phone ringers for silent mode. Politely leave the room if you must make or receive a call.

Students suspected of being under the influence of alcohol or drugs will be removed from the class. These instances will be reported to the Student Affairs office; students are not allowed back into class until the necessary arrangements are made through Student Affairs. This policy is necessary to meet our legal obligation to provide an alcohol- and drug-free workplace.

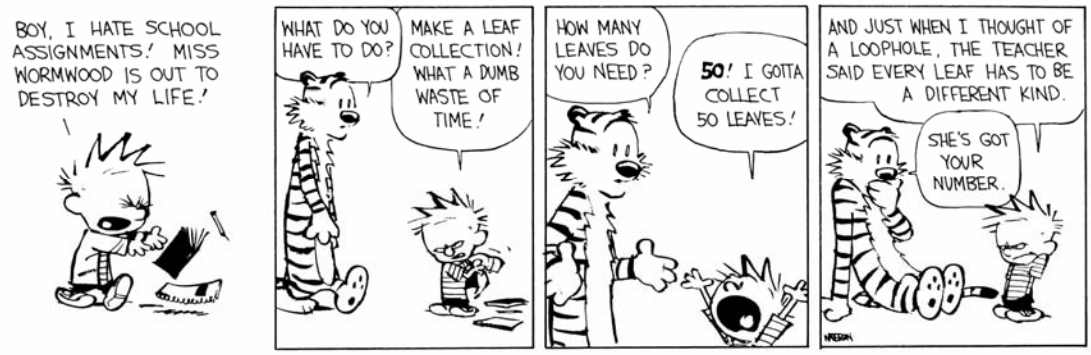
Harassment or discrimination of individuals on the basis of race, religion, age, nationality, marital status, veteran status, gender, sexual orientation, or physical or mental disabilities will not be tolerated. Students who witness such action or feel they are being subjected to harassment are asked to discuss the problem with the instructor or report it to the university's Director of Affirmative Action.

Please feel free to ask questions. The most effective learning environments are those that include a two-way exchange of ideas and concepts between instructor and students.

Students with Disabilities
If you have a disability that may have an impact on your ability to carry out assigned course work and if you wish to seek any accommodations for this course, contact Services for Students with Disabilities (SSD). SSD is in the Kelly Center, Picken Hall, Room 111, 785-628-4401. SSD will review your documentation and determine, with you, what academic accommodations are necessary and appropriate for you that can be accommodated in this course. All information and documentation of your disability is confidential and will not be released by SSD without your written permission.

Tentative Lecture Schedule: Spring 2013

Week	Dates	Lecture Topic (Textbook Chapters: Raven et al., 2013)
1	Jan 23-25	Course Overview and Introduction (1); Cells and Cell Cycle (3)
2	Jan 28-Feb 1	Plant Tissues (23); Seeds and Seedlings (22)
3	Feb 4-8	Seeds and Seedlings (22); Roots (24)
3	Feb 8	***Animal, Vegetable, Miracle* Essay 1 due**
4	Feb 11-13	Roots (24); Stems (25-26)
4	Feb 15	**EXAM 1**
5	Feb 18-22	Stems (25-26); Leaves (25)
6	Feb 25-Mar 1	Leaves (25); Flowers (19-20)
7	Mar 4-8	Flowers (19-20); Fruits (20)
7	Mar 8	***Animal, Vegetable, Miracle* Essay 2 due**
8	Mar 11-13	Photosynthesis (7)
8	Mar 15	**EXAM 2**
9	Mar 18-22	**NO CLASS: SPRING BREAK**
10	Mar 25-29	Water (4, 30); Classification (12)
11	Apr 1-5	Classification (12); Algae (15)
12	Apr 4-12	Bryophytes (16)
12	Apr 12	***Animal, Vegetable, Miracle* Essay 3 due**
13	Apr 15-17	Seedless Vascular Plants (17)
13	Apr 19	**EXAM 3**
14	Apr 22-26	Gymnosperms (18)
15	Apr 29-May 3	Angiosperms (19-20)
15	May 3	***Animal, Vegetable, Miracle* Essay 4 due**
16	May 6-10	Plant Biotechnology (10); Ecology (31-32)
17	May 13	**EXAM 4 AND COMPREHENSIVE FINAL:**
		Monday, 13 May, 11:30-1:10



Reading Assignment

You will read a book for additional assignments in this class. The book is:

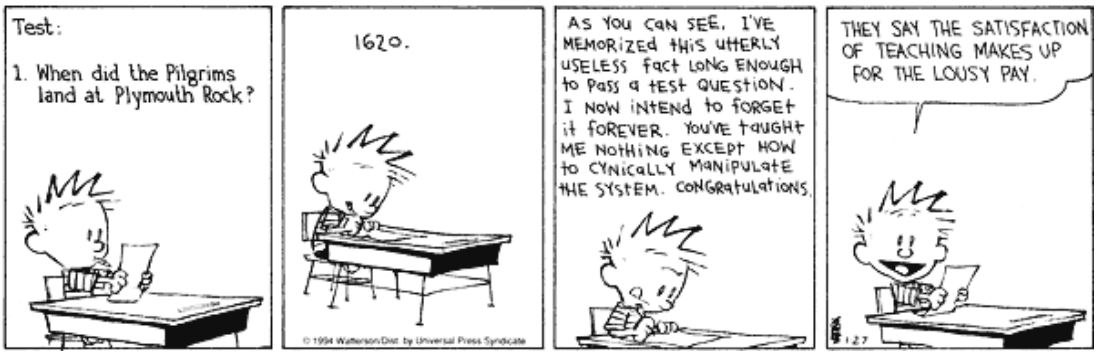
Kingsolver, B. 2007. *Animal, Vegetable, Miracle: A Year of Food Life*. Harper Collins, New York.

You will turn in four (4) essays about this book. Due dates for the four essays are:

Essay 1: Chapters 1-5 ..... Due February 8
Essay 2: Chapters 6-10 ..... Due March 8
Essay 3: Chapters 11-15 ..... Due April 12
Essay 4: Chapters 16-20 ..... Due May 3

Essays are due IN CLASS (**no email**) on each of the appointed days. Late work is not accepted, so make sure you get to class with essay in hand on the appointed due dates.

Each of the essays is worth 25 points. **In a maximum of one page**, describe the main points and demonstrate an understanding of these points. Frame these concepts within the greater realm of biology and botany. Grading of this assignment will be based on the quality of the content, and the quality of the writing. A well-written essay will be one that summarizes the main topics of the book, places the content within a broader biological content, and is free of spelling or grammatical errors. Make sure to write concisely to stay within the one-page limit.



Optional Assignment

You also have the option to read a book for an additional assignment in this class. Be advised this is not extra credit; this counts as another 50-point assignment **in addition to** the 550 points in lecture. Thus, completing this extra assignment would have the potential of raising your lecture grade. It would also have the potential to lower your grade if it is done poorly.

1.) To complete this assignment, first read **one** (1) of the following books:

Alexander, W. 2006. *The $64 Tomato*. Algonquin Books, Chapel Hill.

Beerling, D. 2007. *The Emerald Planet: How Plants Changed Earth's History*. Oxford University Press.

Hobhouse, H. 1985. *Seeds of Change: Five Plants that Transformed Mankind*. Harper & Row, New York. (Library: SB71.H63)

Hobhouse, H. 2003. *Seeds of Wealth: Four Plants that Made Men Rich*. Counterpoint, Berkeley.

Lanner, R. M. 1996. *Made for Each Other: A Symbiosis of Birds and Pines*. Oxford University Press, New York.

Pollan, M. 2002. *The Botany of Desire*. Random House, New York

Pollan, M. 2006. *The Omnivore's Dilemma: A Natural History of Four Meals*. Penguin Books, New York.

Preston, R. 2007. *The Wild Trees: A Story of Passion and Daring.* Random House Trade Paperbacks, New York.

Teal, J., and M. Teal 1969. *Life and Death of the Salt Marsh*. Ballantine Books, New York. (Library: QH541.5.S24 T4)

Vaillant, J. 2005. *The Golden Spruce: A True Story of Myth, Madness, and Greed*. W.W. Norton & Company, New York.

2.) 25 points of the assignment will be from a written summary, due one week before our individual meeting (i.e., some time between February 4 and April 29; see below). **In a maximum of one page**, summarize the book. Describe the main points and demonstrate an understanding of these points. Frame these concepts within the greater realm of biology and botany. Grading of this assignment will be based on the quality of the content, and the quality of the writing. A well-written essay will be one that summarizes the main topics of the book, places the content within a broader biological content, and is free of spelling or grammatical errors. Make sure to write concisely to stay within the one-page limit.

3.) 25 points of the assignment will come from an individual meeting between you and your course instructor, where we will discuss the book. You are to schedule a 30-minute meeting with your course instructor between the dates of February 11 and May 6. At this meeting, we will discuss parts of the book you liked or did not like. We can also go over parts where you have questions, or discuss points you did not understand. Be prepared to convince your instructor you read and understood the book. Grading of the discussion portion of this assignment will be based on the quality of the discussion, and the ability to demonstrate understanding of the material.

BIOL 250L, Botany Lab, 1 credit hour

Lab Time: Wednesdays 2:30 - 5:20 pm, Albertson 248

TA: Katelyn J. Lindsey
Office: AH 425
Office hours: Monday, Wednesday, and Friday 10:30 to 11:20 am, or by appointment
kjlindsey@mail.fhsu.edu

Lab Manual: Maricle, B.R. 2012. General Botany BIOL 250/250L, Laboratory Manual, 2012-2013. Available at **either** bookstore.

Lab Objectives

- To develop critical thinking skills about topics relating to botany
- To examine and explain types of work performed within the fields of botany
- To reinforce lecture materials by "hands on" participation
- To become skilled with laboratory skills and techniques
- To develop skills in scientific writing, data presentation, and data interpretation

Tentative Lab Schedule: Spring 2013 — **Points *due* on this date:**

Week	Date	Lab Exercise(s)	Quiz Points	Homework Pts
1	Jan 23	Plants and People (Campus Field Trip)	0	0
2	Jan 30	Plant Cells and Tissues	0	10
3	Feb 6	Seeds and Seedlings	25	10
4	Feb 13	Roots	25	10
5	Feb 20	Stems (1° and 2° Anatomy)	25	10
6	Feb 27	Leaves (Campus Field Trip)	25	10
7	Mar 6	Flowers	25	10
8	Mar 13	Fruits	25	10
9	Mar 20	**NO LAB: SPRING BREAK**	0	0
10	Mar 27	Photosynthesis	25	10
11	Apr 3	Osmosis and Plant Water Relations	25	50
12	Apr 10	Algae	25	10
13	Apr 17	Lichens and Bryophytes	25	10
14	Apr 24	Seedless Vascular Plants	25	10
15	May 1	Gymnosperms (Campus Field Trip)	25	10
16	May 8	Angiosperms	50	10
17	May 15	**FINALS WEEK: NO LAB**	0	10

Grading in lab:

The BIOL 250 lab is worth one credit hour. Your grade consists of 14 weekly quizzes (25 points each; your lowest two scores will be dropped = 300 total points for quizzes) as well as weekly homework assignments (190 total points for homework), for a total of 490 points for lab (note that lab points do not equal lecture points). You will be assigned weekly homework that will vary from one lab report, to shorter writing assignments, to diagrams and worksheets. Keeping up with the weekly assignments and UNDERSTANDING the homework will help you prepare for quizzes and exams.

Attendance in lab is mandatory. To benefit from any lab course in science, you must be present to acquire "hands-on" experience. **There are no excused absences from lab. Lab absences cannot be made up**, so please do not ask to do so. It takes a lot of time to organize materials and set things up for each week's lab. In addition, we often "use up" materials during the lab exercise. Thus, it is imperative that you make it to the lab each week during the scheduled meeting time, as quizzes cannot be made up. You might also wish to come in to the lab to study slides or other nonconsumable materials during times outside of lab. We will discuss the schedule for the room and available study times in lab.

Late work is not accepted for any assignment in lecture or lab. Observe deadlines, and take them seriously. If a lab or lecture must be missed, it is the student's responsibility to get assigned work handed in **before** the due date. Quizzes cannot be made up for missed labs.

Tips for Success in Lab:

Come to lab on time. The first order of business in lab each week will be a quiz. Quizzes will usually be in a practical format; quizzes will only be set up once. It is therefore in your best interest to come to lab on time, because **quizzes cannot be made up. This includes quizzes missed for illness, school-sponsored events, or any other conceivable reason.**

Come to lab prepared to work. You will save time if you know what you are doing, and you will be less likely to make "no-brainer" mistakes. Carefully read and understand the procedures for the exercise(s) before coming in that day. Be aware of what questions you are trying to answer by performing the experiments. This way, you will know what to look for, and you will be better prepared to write about it later.

Stay organized. Keep track of all lecture and lab notes, as well as data collected in lab, homework, etc. Whereas there are no formal requirements for keeping lab notebooks, a 3-ring binder is recommended. It allows easy additions and removal of material throughout the semester.

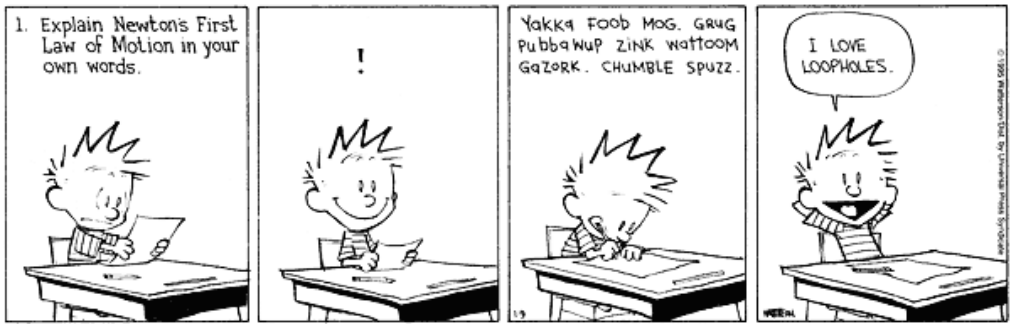
Ask questions. If you do not understand something, be sure to ask about it. The TA and instructor are here to help you. It is their intent to help you learn the material associated with this class. Therefore, if you have a question or concern, do not hesitate to ask about it in or out of the lab.

There should be no monotony
In studying your botany;
It helps to train
And spur the brain—
Unless you haven't gotany.

It teaches you, does botany,
To know the plants and spotany,
And learn just why
They live or die—
In case you plant or potany.

You learn, from reading Botany,
Of wooly plants and cottony
That grow on earth,
And what they're worth,
And why some spots have notany.

You sketch the plants in Botany,
You learn to chart and plotany
Like corn or oats—
You jot down notes,
If you know how to jotany.

Your time, if you'll allotany,
Will teach you how and what any
Old plant or tree
Can do or be—
And that's the use of Botany!

-- Berton Braley
Science News Letter
March 9, 1929