

**INTRODUCTION TO PLANT BIOLOGY (BIOL 130)  
SPRING 2018**

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**Office hours:** T, R from 13:00 to 15:00

**Lectures:** M/T/R 4:00-4:50 in SCI A121

**Laboratories:** All sections meet in TNR 157  
Section 1: M/W 11:00 to 12:50  
Section 2: M/W 13:00 to 14:50  
Section 3: T/R 10:00 to 12:00

**Textbook:** Biology of Plants by P. H. Raven, R. F. Evert and S. E. Eichhorn, 8<sup>th</sup> Edition (required, rental from bookstore).

**Lab Manual:** Essentials of Botany (required, purchase from bookstore).

**Course goal:** To introduce basic principles of structure, growth, reproduction, function, evolution and adaptation of plants and a broad survey of diversity that includes bacteria, fungi, heterotrophic protists, algae and plants. The course will have an emphasis on sustainability, the relationship between plants and people and current environmental issues.

**Outcomes:** At the end of this semester, you should be able to:

1. Explain the biological principles that govern the cellular basis of life, including energy flow, inheritance, reproduction and evolution.
2. Explain the relationship between form and function in plant cells, tissues and organs.
3. Differentiate among the major groups of plants, fungi, protists and bacteria with an understanding of their evolutionary and ecological relationships, and relevance to humans.
4. Think analytically and apply the scientific method to answer science-based questions of interest.

**Attendance:** To succeed in this course you should attend lectures and laboratories. Exams/quizzes are based only on material covered in class/laboratory. There is no substitute for taking your own notes, listening closely and asking questions. Important announcements will happen during lecture/lab time. Makeup lecture exams are given only in the case of excused absence. Valid reasons are

**documented** health or family emergencies, or UWSP sponsored events. Sleeping late is not a valid reason! Please inform me **before** the scheduled exam time.

**Conduct:** **An environment of respect is expected in the classroom.** Comments about class material are encouraged but disruptive behavior will not be tolerated. Be considerate to your classmates and step outside the classroom if you want to have a conversation. Please **turn off or mute your phone. No phone conversations or texting are allowed during meeting times. Plagiarism on any assignment will not be tolerated.**

**Grading:** Grades will be posted on D2L. Check them any time at: <http://www.uwsp.edu/d2l/Pages/default.aspx>  
There is no correction factor but the points needed for the highest grade in the class to be a perfect score will be added to everybody's score.

**Exams:** There will be 3 non-comprehensive lecture exams and a comprehensive final exam. All exams are multiple choice. **Students with a 93% final grade average at the end of the course (92.4% will not do!) will be exonerated from the final exam and will get an A. Study hard from the beginning!**

**Quizzes:** There will be 6 laboratory quizzes as scheduled. The quiz with the lowest grade will be dropped. **There will not be makeup quizzes.** Each quiz will evaluate the material from the previous four laboratories. The quizzes cover only laboratory contents and are mainly multiple choice. Some of them will be group activities or take-home assignments. To help you study for the quizzes, there is a bank of lab. images at: <http://www4.uwsp.edu/biology/courses/botlab/default.htm>

**Open labs:** There are open labs from 6 to 8 p.m. on Mondays and Thursdays in rooms CNR 153 and CNR 157. Feel free to come at those times to review the material covered during lab.

**Plant ID test:** There will be two plant identification tests with the goal to familiarize you with common plants from Central Wisconsin. Prepare by becoming familiar with the plant images and common names found at: <http://www4.uwsp.edu/biology/courses/plantID/index.htm>.

**Test I: *Marchantia polymorpha* (Common liverwort) - *Crataegus* spp. (Hawthorn).**

**Test II: *Rhamnus cathartica*, *Frangula alnus* (Buckthorns) - *Lonicera* spp. (Honeysuckle).**

**Extra credit project:** This is an optional assignment. Combine anything learned in this course with a hobby or personal interest to produce a project (experiment, paper, sculpture, painting, photographic album, story, poem, song, etc.). Project guidelines are posted on D2L. Content, originality, presentation are factors that will influence your grade. You can earn up to 40 bonus points towards your final grade.

<b>Points:</b>	Lecture exams (1-3 = 100 points each)	300 points
	Final exam	150 points
	Laboratory quizzes/assignments	250 points
	Common plant ID exam I and II (50 points each)	<u>100 points</u>
	Total	800 points

**Scale:** Your grade is based on a total of 800 points. The grading scale for the course is:

800 – 744	(93%)	A
743 – 720	(90%)	A-
719 – 696	(87%)	B+
695 – 664	(83%)	B
663 – 640	(80%)	B-
639 – 600	(75%)	C+
599 – 560	(70%)	C
559 – 520	(65%)	C-
519 – 496	(62%)	D+
495 – 440	(55%)	D
< 440		F

## TENTATIVE LECTURE SCHEDULE

DATE	TOPIC	BOOK CHAPTER
01/22	Syllabus, general information	
01/23	Introduction	1
01/25	Introduction to the cell	(2)*, 3
01/29	The plant cell	(2)*, 3
01/30	The plant cell	(2)*, 3
02/01	Cell cycle, mitosis	(2)*, 3
02/05	Primary growth, meristems, plant cells and tissues	3, 23
02/06	Primary tissues of the plant	23
02/08	Primary tissues of the plant	23
02/12	The shoot, stems primary and secondary growth	25, 26
02/13	Secondary growth in stems, wood	26
02/15	Wood	26
02/19	The root, structure and development	24
02/20	The shoot, primary structure and development (leaves)	25
02/22	<b>Lecture exam I</b>	
02/26	Movement of water/solutes in plants, soil, plant nutrition	29, 30
02/27	Movement of water/solutes in plants, soil, plant nutrition	29, 30
03/01	The flow of energy, respiration	(5)*, 6
03/05	The flow of energy, respiration	(5)*, 6
03/06	Respiration	(5)*, 6
03/08	Photosynthesis, light and life	7
03/12	Photosynthesis, light and life	7
03/13	Photosynthesis, light and life	7
03/15	Regulating Growth and Development, external factors	27, 28
03/19	DNA, Genetics and heredity	8, 9
03/20	DNA, Genetics and heredity	8, 9
03/22	DNA, Genetics and heredity, gene expression	8, 9, 10
03/26-30	<b>Spring Break</b>	
04/02	<b>Lecture exam II</b>	
04/03	Systematics, Prokaryotes, Cyanobacteria	12, 13
04/05	Prokaryotes, Cyanobacteria	12, 13
04/09	Fungi: zygote, sac, club and imperfect fungi.	14
04/10	Fungi: zygote, sac, club and imperfect fungi.	14
04/12	Protists: slime molds, egg fungi, etc.	15
04/16	Protists: algae.	15
04/17	Algae	15
04/19	Algae, Lichens	15
04/23	Introduction to plants	16
04/24	Bryophytes	16
04/26	Seedless vascular plants	17
04/30	Seedless vascular plants	17

05/01	Gymnosperms	18
05/03	Gymnosperms	18
05/04	<b>Deadline for extra credit projects</b>	
05/07	Angiosperms	19, 20
05/08	Angiosperms	19, 20
05/10	<b>Lecture exam III</b>	
05/15	<b>Final exam in SCI A 121 from 5 to 7 pm.</b>	

\* Chapters for background information.

### LABORATORY SCHEDULE

DATE		TOPIC
SEC 1, 2	SEC 3	
01/29	01/30	Introduction to the microscope
01/31	02/01	Microscopic measurements
02/05	02/06	The plant cell
02/07	02/08	Mitosis and reproduction
02/12	02/13	<b>Quiz #1.</b> Meristems, cell types, herbaceous stems
02/14	02/15	Woody stems and wood anatomy
02/19	02/20	Modified stems, root anatomy, modified roots
02/21	02/22	Leaf anatomy, modified leaves
02/26	02/27	<b>Quiz #2.</b> Plant water relations
02/28	03/01	Enzymes and digestion, respiration
03/05	03/06	Light and photosynthesis
03/07	03/08	<b>Common plant ID exam part I.</b> Plant growth setup
03/12	03/13	Gas exchange and photosynthesis
03/14	03/15	<b>Quiz #3.</b> Control of plant growth
03/19	03/20	Molecular plant genetics
03/21	03/22	Plant genetics, propagation and breeding
03/26	03/30	<b>Spring Break</b>
04/02	04/03	Bacteria
04/04	04/05	<b>Quiz # 4.</b> Chytrids, zygote fungi, sac fungi
04/09	04/10	Club fungi, deuteromycetes, fungi like organisms
04/11	04/12	<b>Common plant ID exam part II.</b> Lab TBA
04/16	04/17	Cyanobacteria, algal diversity
04/18	04/19	Green algae, lichens
04/23	04/24	<b>Quiz #5.</b> Bryophytes
04/25	04/26	Fern allies and ferns
04/30	05/01	Gymnosperms
05/02	05/03	Angiosperms and the flower
05/07	05/08	Seeds, seed germination, fruits
05/09	05/10	<b>Quiz # 6.</b> Lab TBA

