

Lecture: Monday and Wednesday 10:00-10:50 in room HECO 107
Laboratory: Friday 10:00-11:50 in room PS110 & HECO 107 (when announced)

INSTRUCTOR

Dr. Adam K. Ryburn
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COURSE OBJECTIVES

This course examines the discipline of plant biology, more often referred to as botany, and relates it to other disciplines, including ecology, conservation, agriculture, and other areas of human society. The course introduces the student to the vocabulary and principles of plant biology. It covers the broad areas of plant taxonomy, anatomy, morphology, physiology, diversity, ecology, and economic importance. Success in this course will depend upon each student's accumulation, appreciation, and application of botanical knowledge.

The objective is to:

1. Provide an introduction to basic biology. Botany is one of the biological sciences and we will try to introduce as many general principles of biology as possible as we concentrate on plant biology.
2. Provide an understanding and appreciation of plants. As animals, it is difficult for us to relate to plants, but plants are highly evolved organisms just as well adapted to their life styles as animals are.
3. Encourage careful observation, curiosity and thinking about plants.
4. Provide applications to everyday lives. A number of activities and/or professions profit from a basic understanding of plant biology, including: plant care in the home and garden, the professions of forestry and agriculture, primary and secondary education, and making intelligent and ecologically sound choices as consumers and taxpaying voters.

TEXT & REQUIRED MATERIALS

Nabors, Murray W. 2004. *Introduction to Botany*. Pearson Benjamin Cummings Publishing. San Francisco, CA. ISBN: 0805344160.

Ryburn, Adam K. 2004. *Plant Biology*. Kendall/Hunt Publishing Company, Dubuque IA. ISBN: 0757512666

Three-ring notebook (1 ½") to hold standard 8.5" x 11" paper.

Package of 3x5 note cards.

Optional Materials

VanDeGraaff, Kent M., Samuel R. Rushforth, and John L. Crawley. 2004. *A Photographic Atlas for the Botany Laboratory, Fourth Edition*. Morton Publishing, Sydney, Australia. ISBN: 9780895826145

ATTENDENCE

Punctual attendance is essential to success in this course because of the integrated nature of the lectures and labs and the quizzes and exams. It is assumed that excessive absence will result ultimately in inferior academic achievement by the student, thus the following College's Academic Policies & Standards pertaining to attendance will be observed. Students must attend one of the first two lectures as well as the first laboratory or the student's place will be declared "vacant". Students missing 25% or more of class, any time from the second week of class up until the last day to withdraw from the course (March 21) will be removed from the course by Dr. Ryburn and receive a WI (withdrawn involuntarily). Attendance will be monitored by in-class participation.

If you are not in class, you are not learning! Missed lectures, labs, homework assignments, examinations, and quizzes cannot be made up unless justification for being absent from class is provided and accepted beforehand. Arrive to class on time and do not leave class early. Complete assigned readings prior to their discussion in lecture and lab. The material presented in the course can be difficult, but will be easier to understand if you read the book first.

CONDUCT IN LECTURES: Since all students are entitled to an environment that is conducive to learning, you are expected to keep disruptions to a minimum. You should be in class and ready to begin on time. If you do come in late, be as quiet as possible. All devices that generate sound, including pagers, telephones, electronic games, radios, tape and CD players **MUST** be turned off before you enter the classroom. Disruption of class, whether by latecomers, noisy devices, or inconsiderate behavior (e.g. talking), will **NOT** be tolerated. Repeated violations by individuals may result in penalties, including being dropped from the class.

EXAMS, QUIZZES, CLASS ASSIGNMENTS, & GRADING

EXAMS: Four exams will be given on the following dates. Each covers all the material presented in lecture, lab, and assigned readings **since the last exam**. Each exam will be worth 100 points.

Wednesday	13 February
Friday	14 March
Friday	18 April
Thursday	8 May (Final) 8:00-10:30am

LECTURE QUIZZES AND ASSIGNMENTS: Quizzes and in-class and take-home assignments will be given periodically in the lecture throughout the semester. These short exercises will cover your knowledge on current topics from lecture and laboratory. . It will be each student's responsibility to bring to class and use 3" x 5" note cards for the quizzes. Lecture exercises will total 100 points.

Exercises may or may not be announced ahead of time.

Exam and quiz questions are designed to assess whether one has learned all of the factual material presented; whether one understands it; whether one has learned all of the principles that provide a conceptual framework for it; and finally whether one can use these principles and facts to generate new thoughts and answers to problems in plant biology.

Exams and quizzes alike will include a mix of questions in various formats: multiple choice, identification, short answer, fill-in-the-blank, labeling of drawings or diagrams, and essay. Identifications represent short answers—generally written as sentence fragments or phrases—that include specific factual information as who, what, when, where, why, how, and the scientific

significance of the item. Each exam and quiz will be evaluated in terms of spelling, grammar, clarity of expression, and creativity, as well as technical expertise.

POLICY ON MISSED EXAMS: If you are unable to take an exam you must contact Dr. Ryburn prior to the exam or within 24 hours of the date of the exam and provide a valid, documented excuse (doctor's note, arrest report, etc.) as to why you cannot take the exam in order to schedule a make-up. Failure to notify us within 24 hours will result in a grade of zero for that exam. This policy will be strictly enforced.

LAB ASSIGNMENTS: Each week students are required to complete and submit a laboratory exercise from the laboratory manual or handout from the instructors. Although completion of some exercises will require collaborative efforts, you are required to prepare your own assignments. Those not prepared according to the instructions given or submitted late will not be accepted. Unless indicated otherwise, completed assignments are due at the beginning of the following lab. Each assignment is worth 10 points. The lowest lab score will be dropped at the end of the semester. (90 points total)

LABORATORY QUIZZES: Ten laboratory quizzes worth 10 points each will be given throughout the semester. Quizzes will cover material presented during the previous week's exercise. The lowest laboratory quiz score will be dropped at the end of the semester. (90 points total)

You are required to bring your textbook (*Introduction to Botany* by Nabors) and your laboratory notebook to each laboratory period, unless instructed otherwise.

CLASS POINTS

Lecture

Exercises	100 points
Exams	400 points

Laboratory

Assignments	90 points
Quizzes	90 points

Total	680 points
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Grade Levels (conversion of points into letter grade):

Grade	Percentage
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
E	<60

No extra credit will be given for papers, readings, reports, etc. for the purpose of grade improvement.

ACADEMIC HONESTY

The college's codes of academic honesty and conduct will be rigorously observed. In addition to the college criteria, the instructor makes the following provisos: any incident of academic dishonesty or academic misconduct, including cheating on exams, quizzes, homework, etc., when confirmed will result in a failing grade for the particular assignment and possible failure of the course. It is the responsibility of each individual to insure that other individuals do not see his or her homework, report, exam, or quiz answers, etc., and that other individuals do not plagiarize or otherwise misuse his or her work. Passive cooperation is unacceptable; it will be considered academic dishonesty.

INTERNET RESOURCES

More information related to this course can be found at anytime by accessing the Angel site for this course (<http://angel.oneonta.edu>). Here you will find an updated schedule of upcoming events in class, copies of handouts and homework assignments, answer keys to quizzes, exams, and homework assignments, and be able to check the current status of your grade in the course. To log in you will need to use your user ID and password. If any problems arise while trying to use or access the site, contact Dr. Ryburn.

It is also highly encouraged that students attempt to utilize the online tutorials, illustrations, and quiz exercises provided by the publishers of the textbook. These materials can be found at the following website:

<http://www.botanyplace.com>

Other illustrations, diagrams, images, and supporting text can be found by referencing the topic at a number of internet search engines. For finding and viewing images, the best recourses are those of www.google.com and www.yahoo.com under the search images areas.

SUNY LEARNING OUTCOME

Students are encouraged to developed a knowledge base to support lifelong interest and learning in botany/biology and should be able to: (1) identify and describe the structural components of a plant cell and their functions; (2) explain the processes of photosynthesis and respiration, (3) describe the structure, function, growth and development of flowering plants; (4) know and understand the terminology used in botanical studies; (5) know and understand the anatomical, reproductive, and physiological phenomena common to all plants; (6) know and understand the biological phenomena unique to plants and particular plant groups.

The instructor reserve the right to modify the requirements of the course, the format of the examinations, and the scheduling of activities as necessary to enhance the learning process.

PLANT BIOLOGY – BIOL 101
TENTATIVE SCHEDULE OF LECTURE & LABORATORY ACTIVITIES

DATE	TOPIC	READINGS	
January	16	Course introduction.	
	18	The World of Plants.	Chapter 1
	21	Plants as living systems.	Chapter 1
	23	Cell Structure & Cell Cycle	Chapter 2
	*25	Lab: Vegetative Phytography	Appendix A
	28	Cell types & tissues.	Chapter 3
February	30	Cell types & tissues. Plant Structure.	Chapter 3
	*1	Lab: Microscope Use. Plant Cells and Tissues. Apical Meristems.	
	4	Primary growth. Roots and Stems.	Chapter 4
	6	Leaf morphology and anatomy.	Chapter 4
	*8	Lab: Roots, Stems, and Leaf Anatomy and Morphology.	Handout
	11	Catch Up / Exam 1 Review	
	13	Exam 1	
	15	Lab: Secondary Tissues & Anatomy of Woody Stems	
	19	Winter Break (No Class)	
	21	Winter Break (No Class)	
	23	Winter Break (No Class)	
	25	Plant Metabolism	Chapter 7
	27	Plant Water relations.	Chapter 10
	*29	Introduction to Photosynthesis (video)	
	March	3	Photosynthesis - light reactions.
5		Photosynthesis - dark reactions. Respiration	Chapter 8, 9
*7		Lab: Hormonal Control of Growth	
10		Plant Responses to Hormones and Environmental Stimuli	Chapter 11
12		Catch Up / Exam 2 Review.	
14		Exam 2	
17		Plant Classification. Life Cycles.	Chapter 16
19		Life Cycles. Plant Diversity and the Plant Kingdom	

	*21	Lab: The Bryophytes.	
	24	Spring Break (No Class)	
	26	Spring Break (No Class)	
	28	Spring Break (No Class)	
April	31	Bryophytes. Seedless Vascular Plants.	Chapter 20, 21
	2	Ferns and Fern Allies	Chapter 21
	*4	Lab: Ferns and Fern Allies	
	7	Seed Plants. Gymnosperms.	Chapter 22
	9	Gymnosperms.	Chapter 22
	*11	Lab: The Gymnosperms	
	14	Gymnosperms	Chapter 22
	16	Catch Up / Exam 3 Review	
	18	Exam 3	
	21	The Angiosperms	Chapter 23
23	Sporogenesis and Gametogenesis	Chapter 23	
*25	Lab: Floral Phytography and Inflorescence Phytography.		
	28	Pollination and Fertilization	Chapter 23
	30	Fruits and Seeds.	Chapter 23
May	*2	Lab: Fruit Phytography.	
	5	Course Wrap-up. Final Exam Review	
	8	Final Exam (8:00-10:30am)	

* Quiz