

Dr. Adam K. Ryburn
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COURSE DESCRIPTION AND OBJECTIVES

This course examines the identification and classification of vascular plants emphasizing family characteristics. Major Pteridophyte, Gymnosperm, and Angiosperm families are studied in lecture and laboratory formats.

By the end of the course, successful students will be able to:

- utilize techniques to identify flowering plants using standard keys,
- recognize and select plant materials appropriate for identification,
- identify plants using the appropriate reference key,
- classify flowering plants using the basic taxonomy of flowering plants,
- demonstrate an understanding of terminology of plant parts, and
- sight identification of more than 30 flowering plant families.

TEXT & REQUIRED MATERIALS

Judd, W.S., Campbell, C.S., Kellogg, E.A., Stevens, P.F. 2007. *Plant Systematics: A Phylogenetic Approach*. 3rd Edition. Sinauer Associates, Sunderland, Mass. ISBN: 0878934073

Harris, J.G. and M.W. Harris. 2000. *Plant Identification Terminology An Illustrated Glossary, Second Edition*. Spring Lake Publishing, Spring Lake, Utah. ISBN: 0964022168

Ryburn, A.K. 2006. *Keys and Descriptions to the Vascular Plants Families of New York State*. Self published.

A 1.5-inch or 2-inch, 3-ring notebook holding 8.5 x 11 inch paper will be needed to hold informational handouts distributed in lecture and laboratory.

A packet of 100 -- 3" x 5" ruled note cards.

To avoid the purchase of the rather expensive reference books that will be needed by each student, several copies of supplementary texts have been checked-out of the library for the semester. These books will be kept in the herbarium; should they disappear, replacement costs will be borne equally by all enrolled students.

LECTURE & LABORATORY PROCEDURES

This 200-level course is offered in the liberal arts tradition. Thus each individual is expected to learn, to understand, and to be able to use a body of facts and concepts. Each person is also expected to correlate this knowledge with that of his or her own discipline and that encountered in other biology courses.

Each individual is assumed to have completed the course prerequisites, taken other biology courses, and have a working knowledge of major biological principles. If deficiencies exist, the individual is expected to review independently basic information as necessary.

In this course, the plants of North America, and in particular those of New York will be studied. This will involve: (1) learning the names and diagnostic characters of various plant taxa, and (2) identifying numerous plant families via taxonomic keys. Immediate recognition of taxa will be emphasized repeatedly! Laboratory activities may differ from those scheduled depending upon the weather, **but one should always be prepared each day for a quiz over previously presented material.**

Each individual is expected to have the self-discipline to memorize the scientific names, common names, and diagnostic characters of all taxa. Spelling counts! Memorization of additional biological and ecological information about each taxon is also required.

ATTENDANCE: 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 20) will be removed from the course by the 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.**

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, **cell phones**, electronic games, radios, CD players and MP3 players (iPods, etc.) **MUST** be turned off before class begins. 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. If any of these devices are found to be operating during any exam or quiz, this action will result in failure of the assignment.

EXAMS, QUIZZES, CLASS ASSIGNMENTS, & GRADING

EXAMS: Three exams, worth 100 points each, will be given during the regular semester. These exams are comprehensive, i.e., covering all material presented in lecture, lab, and assigned readings.

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. Quizzes: collective value of 150 points; given in the lecture, laboratory and on the field trips; covering terminology, taxon recognition, taxon information, and keying.

Quizzes and assignments 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 systematics.

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 provide notification within 24 hours will result in a grade of zero for that exam. This policy will be strictly enforced.

FIELD TRIPS: We will be taking a daylong field trip to soon to be determined botanically interesting area. We will be leaving from campus early that morning and returning later that evening. Transportation will be provided by the Biology Department. More details to will be discussed later.

On occasion we will be taking local field trips to botanically unique areas around Oneonta during the class period on Fridays. These field trips are an essential part of this course. They are opportunities to observe different plants and communities, and to examine the relationship between geography and vegetation. Each student is, therefore, required to go on each trip. Because the trips are not recreational excursions, MP3 players, cell phones, alcohol, illegal substances, guns, bows, fishing gear, and other recreational items are not allowed.

PLANT COLLECTION: Each individual will compile a plant collection comprising 5 plant specimens from at least 3 families. Collecting techniques will be described and demonstrated in class. At least one specimen (selected by Dr. Ryburn) is to be mounted on herbarium paper and contributed to the SUCO Herbarium. The collection is to be submitted on or before by May 11th. Collaborative effort is not acceptable; each individual is responsible for his or her own collection! Value of the collection and attendant field notes is 50 points. Further information will be provided at a later date.

CLASS POINTS

Quizzes and Assignments	periodically	150
Lecture Exam I	Friday, February 13	100
Lecture Exam II	Friday, March 20	100
Final Exam	Monday, May 11	100
Plant Collection	Monday, May 11	50
Total		500

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 university codes of academic honesty and conduct will be rigorously observed. In addition to the university 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 entire course. The required notification of the advisor and dean will be made. 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 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.

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.

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.

VASCULAR PLANTS SYSTEMATICS – BIOL 236
TENTATIVE SCHEDULE OF ACTIVITIES

DATES	TOPIC	READINGS
Week 1 (1/14-1/16)	Introduction Characters and Evolution of Land Plants. What is Systematics?	Chapter 1
Week 2 (1/19-1/23)	Nomenclature	Appendix 1
	Principles of Plant Systematics.	Chapter 2
	The “Nuts and Bolts” of Systematics	Handout
Week 3 (1/26-1/30)	The History of Systematics	Chapter 3
	Vegetative Phytography	Chapter 4 & Handout
Week 4 (2/2-2/6)	Floral and Inflorescence Phytography	Chapter 4 & Handout
	Pollination.....	Chapter 4
	Fruit Phytography	Chapter 4 & Handout
Week 5 (2/9-2/13)	The Evolution of Plant Diversity	Chapter 6
	Exam 1 (Friday, Feb 13)	
Week 6 (2/16-2/20)	An Overview of Green Plant Phylogeny	Chapter 7
	Lycophytes and Ferns and Their Allies	pgs. 187-206
	Fern Phytography and Keying.....	Handouts
Week 7 (2/23-2/27)	Winter Break (No Classes)	
Week 8 (3/2-3/6)	Gymnosperms.....	206-221
	Collection and Preservation of Plants	Handout & Appendix 2
	Identification of Gymnosperms Using Taxonomic Keys	Handout
Week 9 (3/9-3/13)	Phylogenetic Relationships of Angiosperms	225-231
	Basal Angiosperms and Magnoliid Complex	232-248
	Identification of Angiosperms Using Taxonomic Keys	Handout
Week 10 (3/16-3/20)	Petaloid Monocots	249-276
	Exam 2 (Friday, March 20)	
Week 11 (3/23-3/27)	Commelinoid Monocots	276-306
	Grass Phytography.....	Handout
Week 12 (3/30-4/3)	Eudicots – Basal Tricolpate	307-317
	Core Eudicots.....	318-345
Week 13 (4/6-4/10)	Spring Break (No Classes)	
Week 14 (4/13-4/17)	Rosid Clade	346-440
Week 15 (4/20-4/24)	Rosid Clade	346-440
	Asterid Clade.....	441-515
Week 16 (4/27-5/1)	Asterid Clade.....	441-515
Week 17 (5/4-5/6)	Composite Phytography	Handout
Monday, May 11	Final Exam (11:00-1:30pm)	