

Plant Taxonomy (BIOL 3204)

Spring 2009



BIOL 10906

Mon/Wed

11:15 – 12:05

Room: 100 GBJ

Instructor's Name: SUNNY CRAWLEY **Email address:** sunnyd31@vt.edu

Office: 5099 Derring

Lab: 5017 Derring

Lab Phone: 231-8932

Office Hours: Tues 10:30am – 12:00pm, Wed 3:30pm – 5:00pm or by appointment as needed. If I'm not in class or teaching, you can find me in my lab everyday, please feel free to stop by anytime, drop me an email or call to make an appointment to meet if office hours don't work with your schedule.



Pre-requisite – BIOL 2304 Plant Biology. If you haven't taken this course, come talk with me and we'll decide if you have enough background knowledge or what we can do to supplement your background knowledge so that you will succeed in this course.

Text: Required – Plant Systematics, M. G. Simpson – Elsevier Academic Press, 2006

Course Website: <http://leran.vt.edu> – We will be using Blackboard to organize our course materials. Blackboard organizes things in a straightforward manner; if you have questions, don't hesitate to ask and I'd be happy to help you figure things out.

Other Useful Websites: The Angiosperm Phylogeny Website

<http://www.mobot.org/MOBOT/Research/APWeb/welcome.html> and the Tree of Life Web Project <http://tolweb.org/tree> (Links can also be found through the course website on Blackboard)

Laboratory Information: The labs are an integral part of this course where you will have the plants in front of you to dissect and scrutinize. Additionally, toward the end of the semester you will be going on field trips to see plants in their natural habitats. You will have assignments and quizzes as a part of your grade through the lab section as defined by your lab TA. You will be receiving a syllabus from your TA that will give you more specific information regarding your lab section. General lab information is provided below:

Teaching Assistants: Matt Dittler (mdittler@vt.edu) and Amal Harb (aharb6@vt.edu)

Lab Times and Place: Tues 2:00pm – 4:50pm (10907), Thurs 9:30am – 12:15pm (10908), and Thurs 2:00pm – 4:50pm (10909). All labs are held in Derring 3004.

Lab Texts: Guild to the Vascular Plants of the Blue Ridge, B. E. Wofford – Georgia Press, 1989 and A Photographic Atlas for the Botany Laboratory 3rd edition, K. M. Van De Graff et. al. – Press 1998

Teaching Philosophy – I love biology and that is the biggest motivation I have for teaching it. If I can help someone see that science doesn't have to be hard and

intimidating, but can be fun and wonderful I feel like I've made a difference. Increasing our understanding the world around us is a central theme in biology. One of the best parts of plant taxonomy is that you will be learning about the plants that surround you here at Virginia Tech each and every day. It is my hope that as you get to know these plants by name, you feel more like a part of the natural community around you and less like an outside observer of that community. This goal can best be accomplished as we work together in class to discover what taxonomy is all about. I hope that together we are able to maintain an environment of learning where everyone feels 1) respect for each other, 2) comfortable asking questions and 3) confident volunteering answers when questions are asked.

Course Description and Objectives: The purpose of this course is to help increase your understanding of plant families and the characteristics you can use to recognize them. We will explore both traditional and modern approaches to systematics, and the recent advances in the field will be emphasized. We will be learning about plant biodiversity and evolution with a focus on angiosperms (flowering plants).

Specifically this course aims to 1) familiarize you with the morphology and life cycles of vascular plants, 2) be able to draw the evolutionary relationships of vascular plants on a phylogenetic tree (emphasis will be placed on angiosperms), 3) Map the evolution of various plant features onto a phylogenetic tree, 4) use morphological characters to recognize common plant families, 5) use keys to be able to identify local plant species, and 6) describe the life cycles of several vascular plants.

What to do to succeed in this course:

- There is a lot of great material in the textbook; you will get the most benefit from that information if you do the reading before attending class.
- You will have many more opportunities to learn and ask questions if you attend both the lecture and the lab sections regularly.
- I also strongly encourage you to form study groups, between 3 and 5 students seems to be a good number. There is a lot of new information that will be covered both in the lecture and the labs at the beginning of the semester, such as the morphological traits of the plants, these traits will be laying a groundwork for the synthesis of that information in recognizing plant families near the end of the semester. This information is much easier to learn if you have other students with whom you can practice quizzing each other on traits and family morphologies. That being said, I will incorporate group activities into our class lecture as appropriate to facilitate learning while we are in class as well.

Course policies: All exams will be given in class on the date listed on the schedule. Exams will be *multiple choice* and should take you no longer than the scheduled

class time. If you are not able to take the exam on the assigned date, please contact me as soon as possible to make arrangements for taking the exam prior to the in class exam. If that is not possible a *written* exam can be taken after the exam has been given in class as long as arrangements are made as soon as you are aware that you will miss the exam. Appropriate documentation should be provided in such cases (ex. note from doctor, or school excused absence form).

Grading:

First Exam -	20%
Second Exam -	20%
Final Exam -	30%
Lab scores -	30%
Total -	100%

Honor Code: I will be enforcing The Virginia Tech Honor Code in this course. The Honor Code states that there will be no cheating or plagiarizing. This generally means that all work will be your own ideas, and if you use someone else's ideas you give them credit for their work. This also includes the buying and/or selling of class notes. Any suspected violations of the Honor Code will be promptly reported to the Honor System. There is a great description of exactly what the honor code covers on the honor system website <<http://www.honorsystem.vt.edu>>, check it out!

Special Needs: If you need adaptations or accommodations because of a disability (learning disability, attention deficit disorder, psychological, physical, etc.), if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible.

Principles of Community: Virginia Tech is a public land-grant university, committed to teaching and learning, research, and outreach to the Commonwealth of Virginia, the nation, and the world community. Learning from the experiences that shape Virginia Tech as an institution, we acknowledge those aspects of our legacy that reflected bias and exclusion. Therefore, we adopt and practice the following principles as fundamental to our on-going efforts to increase access and inclusion and to create a community that nurtures learning and growth for all of its members:

- * We affirm the inherent dignity and value of every person and strive to maintain a climate for work and learning based on mutual respect and understanding.

- * We affirm the right of each person to express thoughts and opinions freely. We encourage open expression within a climate of civility, sensitivity, and mutual respect.

* We affirm the value of human diversity because it enriches our lives and the University. We acknowledge and respect our differences while affirming our common humanity.

* We reject all forms of prejudice and discrimination, including those based on age, color, disability, gender, national origin, political affiliation, race, religion, sexual orientation, and veteran status. We take individual and collective responsibility for helping to eliminate bias and discrimination and for increasing our own understanding of these issues through education, training, and interaction with others.

* We pledge our collective commitment to these principles in the spirit of the Virginia Tech motto of Ut Prosim (That I May Serve).

Course Schedule:

Class	Topic	Assigned Readings
<i>INTRODUCTION AND BACKGROUND</i>		
Jan 21	Taxonomy and Biosystematics: An Introduction	Ch 1
Jan 26	History of Classification	Handouts
Jan 28	Plant Identification and Nomenclature	Ch 15 and 16
Feb 2	Diversification and Classification of Land Plants: Old vs. Contemporary Views	Ch 1, Ch 3
Feb 4	Morphology - Flower and Inflorescence	Ch 9
<i>SOURCES OF TAXONOMIC EVIDENCE</i>		
Feb 9	Morphology - Fruit and seed	Ch 9
Feb 16	Habit, Habitat and Anatomy	Ch 10
Feb 23	Cytology, Genetics and Reproduction	Ch 13, plus handouts
Feb 25	Molecular Information	Ch 14
Mar 2	FIRST EXAM (covers material from Jan 11 to Feb 23)	
Mar 4	Informatics: Phylogenetics and systematics	Ch 2
Mar 9,11	SPRING BREAK - No Classes	
Mar 16	Informatics: continued	Ch 2
Mar 18	Lycophytes and Monilophytes	Ch 4
<i>PLANT GROUPS</i>		
Mar 23	Gymnosperms: Characteristics and classification	Ch 5
Mar 25	Flowering Plants - Characteristics, Origin and Evolution	Ch 6
Mar 30	Flowering Plants - "Sexual Encounter of the Floral Type"	Video Handout
Apr 1	Flowering Plants - Phylogeny and Classification	Ch 7, p.137-141
Apr 6	Basal Grade-Amborellaceae, Illiciales and Nymphaeales	Ch 7, p. 141-145
Apr 8	Magnoliids	Ch 7, p. 146-153
Apr 13	SECOND EXAM (covers material from Feb 25 to April 1)	
Apr 15	Monocots: Phylogeny and Taxonomy	Ch7, p. 153-226
Apr 20	Monocots - Continued	Ch7, p. 153-226
Apr 22	Eudicots - Basal Grade	Ch 8, p. 227-238, plus handouts
Apr 27	Core Eudicots - Rosids	Ch 8, p. 252-289
Apr 29	Core Eudicots - Asterids	Ch 8, p. 289-343
May 4	Core Eudicots - Caryophyllales, Saxifragales, etc.	Ch 8, p. 238-252
May 6	Domesticated Plants: Taxonomy and Evolution	Reserved Reading
May 8	FINAL EXAM 2:05pm - 4:05pm - GBJ 3104 (exam will be cumulative)	

Handouts: All handouts will be posted in the course web site on Blackboard and will be used to supplement the textbook readings.

Reserved Readings: These assigned readings will be placed on reserve in the Newman library, they can found on the second floor outside of room 205.

* This syllabus is subject to revision throughout the course of the semester as needed, all revisions will be posted on Blackboard and announced in class *