



*This was my first introductory biology class in 2001 – love the TV monitor. You are the first Biol 111 section to be taught in the new CBB.*

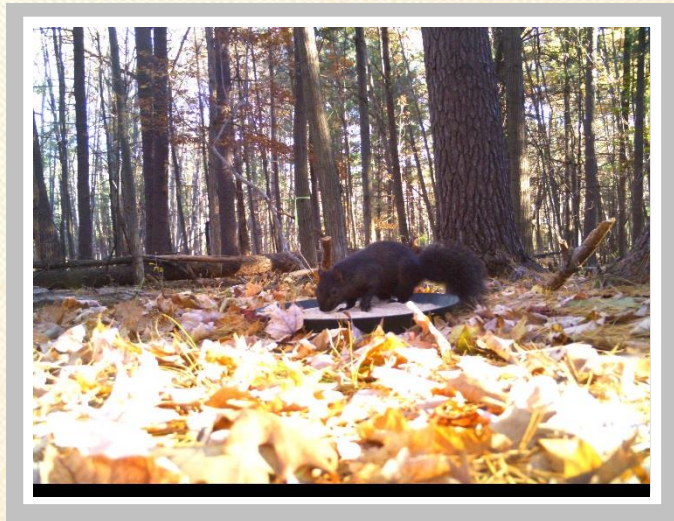
## BY THE END OF THE SEMESTER YOU WILL BE ABLE TO:

1. Summarize basic patterns of biological diversity.
2. Outline emergent properties and processes at the organizational levels of organs, organ systems, organisms, populations, communities, ecosystems, and the biosphere.
3. Apply the scientific method and techniques to answering biological questions, using formal practices of observation, experimentation, hypothesis testing, quantitative analysis and mathematical reasoning.
4. Evaluate, synthesize, and communicate biological information from the scientific literature.
5. Recognize the relevance of organismal diversity, systems biology, and ecology to social decision-making, their lives, and society.

## Course Description and Goals

A continuation of the foundation developed in Biology I, this course examines fundamental principles of biology including the evolutionary history and patterns of diversity of life, plant and animal systems, and ecology. Scientific skills necessary to create biological hypotheses, analyze and interpret data, evaluate biological literature, and draw important links between biology and society are integrated throughout the course.

To introduce students to the fundamental principles of evolutionary history, biodiversity, organismal form and function, ecology, and scientific investigation upon which other courses will build; to introduce laboratory techniques and procedures, hypothesis testing, and use of data to answer questions in science; and to make connections between biological concepts and society.



*Squirrel are everywhere on college campuses, and UWSP has a higher diversity than most campuses. We will conduct a semester-long behavioral ecology experiment on campus squirrels. Our data will be shared to a national dataset with other classes conducting similar experiments. Teams of students will design and present a final talk on the results.*

Dr. Christopher J. Yahnke

Office: TNR 478 phone: x2455 email: [cyahnke@uwsp.edu](mailto:cyahnke@uwsp.edu)

Office hours: Mondays and Wednesdays 10-12 or by appointment

Lecture: M W 8:00 - 9:15 CBB 165

Lab section: T 9:00 - 11:50 CBB 120

## Grading

Your grade in this class will be determined by your performance on two one-hour exams, 10 team laboratory summaries, 1 team assignment, and class notes. Each exam is worth 100 points (x2 = 200 points), the lab summaries worth 5 points each (x10 = 50), the team assignment is worth 100 points, and class notes will be filled in and submitted to the drop box in Canvas prior to class and be worth 5 points each (x20 = 100 points). Thus, there are a total of 450 points to be earned in this class. The final points will be added up, divided by 450, and multiplied by 100; the percentage obtained will determine your grade.

90-100% = A (A- 90-92)

80-89% = B (B- 80-82, B+ 88-89)

70-79% = C (C- 70-72, C+ 78-79)

60-69% = D (D+ 68-69)

< 60% = F

There will be no make-up exams unless arranged with the instructor in advance. This is a 8:00am lecture; don't oversleep and arrive late or sleep through the exam. You will not be able to reschedule the lab practical so make sure to set your alarm on "really frickin' loud" the night before a lab practical. Missed exams will result in a zero. Extreme cases will be reviewed on an individual basis.



*Technology has changed the way undergraduates engage with labs. Here a group of students use Snapchat to record and digitally label a specimen for further review.*

## Academic Honesty:

Any form of cheating on exams, quizzes, home works, or lab reports, or any misrepresentation of your work will result in zero (0) points being recorded for that graded component of the course. **This includes plagiarism of published works or fellow students. Please see me for any clarification on what constitutes plagiarism if you have doubts.** All students are required to adhere to the standards outlined by UWS/UWSP Chapter 14, Student Academic Standards and Disciplinary Procedures which can be found at the following web address: <http://www.uwsp.edu/admin/stuaffairs/rights/rightsChap14>

## Required Books:

Biology 11th ed. Campbell (rental), Lab manual for Biol 111 (purchase)

**Chance favors the prepared mind.  
Louis Pasteur**

# Syllabus

Fall

2019

## Lecture Schedule

Week	Date	Topic	Campbell
1	9/2	Labor Day	
	9/4	Course Introduction	
2	9/9	Phylogeny and the tree of life*	Ch 26
	9/11	Bacteria and Archaea*	Ch 27
3	9/16	Protists*	Ch 28
	9/18	Plant diversity I: Colonizing land*	Ch 29
4	9/23	Plant diversity II: Seed plants*	Ch 30
	9/25	Fungi	Ch 31
5	9/30	An overview of animal diversity	Ch 32
	10/2	An introduction to invertebrates*	Ch 33
6	10/7	Origins and evolution of vertebrates*	Ch 34
	10/9	Plant structure and growth*	Ch 35
7	10/14	Transport in vascular plants*	Ch 36
	10/16	Angiosperm reproduction*	Ch 38
8	10/21	Plant responses to signals	Ch 39
	10/23	<u>Exam I through Ch 39</u>	
9	10/28	Animal form and function*	Ch 40
	10/30	Animal nutrition*	Ch 41
10	11/4	Circulation and gas exchange*	Ch 42
	11/6	Osmoregulation and excretion*	Ch 44
11	11/11	Animal reproduction*	Ch 46
	11/13	Animal development	Ch 47
12	11/18	Neurons, synapses and signaling	Ch 48
	11/20	Animal behavior*	Ch 51
13	11/25	Introduction to ecology*	Ch 52
	11/27	Population ecology*	Ch 53
14	12/2	Community ecology*	Ch 54
	12/4	Ecosystem ecology*	Ch 55
15	12/9	Conservation biology	Ch 56

**Final Exam** Monday May 13<sup>th</sup> 8:00 – 10:00 Open Notes

Asterisk\* denotes that notes are due to Canvas prior to lecture

## LAB SCHEDULE

Week 1 Introduction to lab

Week 2 Introduction to bacterial diversity and culture

Week 3 Feeding in ciliate protists

Week 4 Plant structure and organs

Week 5 Survey of plant diversity – seedless plants

Week 6 Survey of plant diversity – seed plants

Week 7 Water balance in plants

Week 8 Survey of animal diversity – invertebrates

Week 9 Survey of animal diversity – Vertebrates

Week 10 Digestive system and enzymes in cockroaches

Week 11 Metabolism in endotherms and ectotherms

Week 12 Introduction to Biostatistics using Excel and SPSS (bring laptops)

Week 13 Introduction to graphs and table

Week 14 Final team presentations

*Science is built up of facts, as a house is built of stones; but an accumulation of facts is no more a science than a heap of stones is a house. ~Henri Poincaré, Science and Hypothesis, 1905*

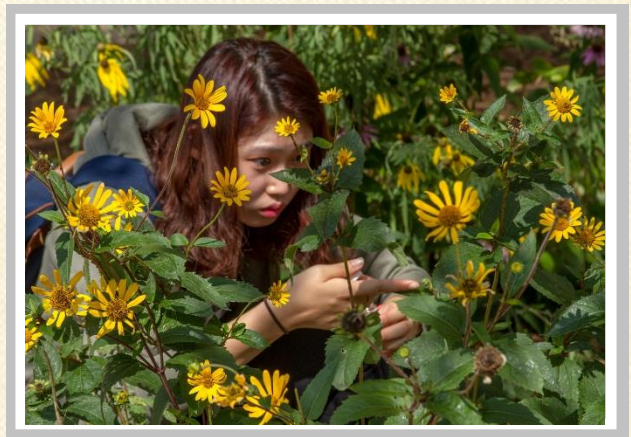
1. Ability to work in a team structure
2. Ability to make decisions and solve problems (tie)
3. Ability to communicate verbally with people inside and outside an organization
4. Ability to plan, organize and prioritize work
5. Ability to obtain and process information
6. Ability to analyze quantitative data
7. Technical knowledge related to the job
8. Proficiency with computer software programs
9. Ability to create and/or edit written reports
10. Ability to sell and influence others

## THE 10 SKILLS EMPLOYERS MOST WANT IN 2019 GRADUATES.

NATIONAL  
ASSOCIATION OF  
COLLEGES AND  
EMPLOYERS

## This was a biology sampler

*Many students come in with some idea what they want to do with a biology degree, but most find their passion while they are here, and some in quite unexpected places. You might even change your mind once or twice. Don't Panic! I love this picture of a student looking for insects outside of the TNR for her entomology collection.*



*But, in spite of enemies, squirrels are happy fellows, forest favorites, types of tireless life. Of all Nature's wild beasts, they seem to me the wildest. May we come to know them better.  
John Muir July 1, 1869, My First Summer in the Sierras*