



Syllabus – Biology 133 Integrative Biology

Section: _____

Meets: _____ at: _____ in Bartlett _____

An introduction to biodiversity and biological systems, from the tissue level to the ecosystem level.

Prerequisite: Biology 101 or 102

Credit: 3 hours (3)

Offered Spring semester

Course Structure:

Three hours of lecture per week. Lecture material will focus on organisms and their systems, with application to environmental issues where appropriate.

Learning Objectives:

After taking this course, you should:

- be familiar with major groups of organisms
- understand basic biological processes, such as homeostasis, transport, gas exchange, etc.
- understand how organisms function as a whole
- understand how organisms adapt to the environment around them
- understand how biologists investigate natural phenomena

Biology Faculty:

Dr. Almuth Tschunko

Dr. Steve Spilatro

Dr. Dave McShaffrey (Dept. Chair) Office Rickey 242

Dr. Eric Fitch

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Dr. Katy Lustofin

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(adjunct)

Office: _____

Phone: _____

Texts:

Life, 6th Edition by Lewis, Parker, Gaffin and Hoefnagels

Assignments, Attendance & Grading

Types of assignments:

- Two written homework assignments.
 - 10 pre-class writing assignments / responses
- Note: Late assignments will **not** be accepted.

Quizzes: About 10 quizzes (roughly every week); will cover all previous material and assigned reading for that date. No make-up on quizzes!

Exams: Two or three tests and a comprehensive final; make-up by **prior** arrangement or legitimate excuse, such as your own death or illness.

Class participation: You are expected to come to class prepared to discuss assigned reading material and reading assigned to that date. You may be called on in class and asked to discuss the material at hand; if you are not prepared, your grade may be lowered.

Attendance: You are expected to attend all class meetings. Absences will likely affect your grade, either directly or indirectly.

I communicate with the class by email fairly frequently. Please check your Marietta College email account daily for important (in most cases) messages. Unfortunately, I simply can't set up alternate email accounts for you.

Grading Policy: 3 exams (300 pts.); Final exam (200 pts.); Quizzes (100 pts.); Homework (100 pts.) Pre-class writing assignments/responses (50/50 points). Note: If any of the assignments are not turned in, or are of particularly poor quality, a grade of 'F' may be assigned for the course. Plagiarism is grounds for failing the assignment **or the course**, at the discretion of the instructor.

Your final grade will be determined as follows:

| | | | | | | | | | |
|----|-----|----|-----|----|-----|----|-----|---|-------|
| A+ | 97% | B+ | 87% | C+ | 77% | D+ | 67% | F | < 60% |
| A | 93% | B | 83% | C | 73% | D | 63% | | |
| A- | 90% | B- | 80% | C- | 70% | D- | 60% | | |

NOTE: You will be expected to do some outside reading on your own. This can take the form of library research or work on the internet. For some assignments, you may be required to submit your work in both printed and electronic formats.

Final Exam: _____

TTh 1:00-2:15 – Final Exam Wednesday, April 29th @ 3:00-5:30 PM

Turnitin.com: Class ID - 2569664 Password: fungi

Tentative Biology 133 Schedule

| Week | Date | Lecture | Topic | Chapters |
|------|-------------|---------|--|--------------------|
| 1 | T Jan 13 | 1 | Intro | |
| | Th Jan 15 | 2 | Viruses and Bacteria | 20,21 |
| 2 | T Jan 20 | | | |
| | Th Jan 22 | 3 | Protista | 22 |
| 3 | T Jan 27 | 4 | Plantae | 23 |
| | Th Jan 29 | | | |
| 4 | T Feb 3 | 5 | Fungi | 24 |
| | Th Feb 5 | | Test 1 – Intro through Fungi | 20,21,22,23, 24 |
| 5 | T Feb 10 | 6 | Animals 1 | 25 |
| | Th Feb 12 | | | |
| 6 | T Feb 17 | 6 | Animals 2 | 26 |
| | Th Feb 19 | 7 | Plant Form and Function | 27 |
| 7 | T Feb 24 | 7 | Plant Form and Function | 27 |
| | Th Feb 26 | | Test 2 – Animals / Diversity | 20-26 |
| 8 | T March 3 | 8 | Animal Tissues and Organ Systems | 31 |
| | Th March 5 | 8 | Animal Tissues and Organ Systems | 31 |
| 9 | T March 10 | | Spring Break | |
| | Th March 12 | | | |
| 10 | T March 17 | | | |
| | Th March 19 | 9 | Plant Nutrition and Transport | 28 |
| 11 | T March 24 | | | |
| | Th March 26 | 10 | Animal Digestion and Nutrition | 38 |
| 12 | T March 31 | | | |
| | Th April 2 | | Test 3 – Anatomy, Nutrition and Transport | 27,28,31,38 |
| 13 | T April 7 | | | |
| | Th April 9 | 11 | The Circulatory System | 36 |
| 14 | T April 14 | | | |
| | Th April 16 | 12 | The Respiratory System | 37 |
| 15 | T April 21 | | Student's Choice | |
| | Th April 23 | | Student's Choice | |
| | | 13 | Plant Responses to Stimuli | 30 |
| | | 14 | The Nervous System | 32 |
| | | 15 | The Senses | 33 |
| | | 16 | The Endocrine System | 34 |
| | | 17 | The Musculoskeletal System | 35 |
| | | 18 | Animal Behavior | 42 |
| | | 19 | Homeostasis | 39 |

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Plagiarism is one of many forms of academic dishonesty – Academic dishonesty is not allowed at Marietta College and will be dealt with appropriately. Sanctions may include a lowered grade (including a 0) for an assignment, failing the course, or even expulsion from the college.

Academic Dishonesty

“Dishonesty within the academic community is a very serious matter, because dishonesty destroys the basic trust necessary for a healthy educational environment. Academic dishonesty is any treatment or representation of work as if one were fully responsible for it, when it is in fact the work of another person. Academic dishonesty includes cheating, plagiarism, theft, or improper manipulation of laboratory or research data or theft of services. A substantiated case of academic dishonesty may result in disciplinary action, including a failing grade on the project, a failing grade in the course, or expulsion from the College. If a substantiated case of academic dishonesty results in a failing grade in the course, a student who chooses to withdraw from the course will receive a grade of “F.” (Marietta College Undergraduate Programs, 2008-2009 Catalog, p. 138).

Translation: If you cheat, I will probably catch you, and I will flunk your sorry butt. You could get kicked out of school. If you are under a lot of pressure and cannot complete an assignment, do not cut corners – come see me or email me immediately instead. If you don't submit work to turnitin.com as required, I may flunk you for the course.

SKILLS OBJECTIVES

At Marietta College, we believe that "understanding" science is essential to a person's ability to succeed in today's society. By "understanding" we mean more than just possessing knowledge about the physical and natural world. "Understanding" also implies comprehending how science is practiced, and how scientists employ certain intellectual skills in their pursuit of knowledge. Below are listed some of the skills that we think you will need to truly understand science, and that we will be endeavoring to teach to you during this course.

1. To learn how scientists think about things. The practice of science requires curiosity, intellectual honesty, skepticism, tolerance of ambiguity, and openness to new ideas.

2. To understand the limits of scientific knowledge. Scientific knowledge is limited by the sensitivity of analytical instruments we use to study nature --such as the maximum magnification of a microscope. It is also limited by attitudes, beliefs and social constraints of scientists themselves. It is these beliefs that determine what scientists choose to study, and how they interpret their observations.

3. To use the scientific method as a tool by which observations can be reliably interpreted to yield an understanding of nature, and as a tool that can be used to solve problems in various spheres of human activity. Of particular importance will be learning how to develop a testable hypothesis, make predictions based upon sound experimental technique, and draw valid conclusions from experimental results.

4. To critically examine lecture notes and reading assignments, and from these to learn fundamental scientific concepts. These concepts should be structured into a mental framework into which supporting information and examples can be incorporated. Thus, that energy and nutrients in an ecosystem move through a food chain of predator-prey relationships is a primary concept, whereas the interactions occurring between specific organisms in a pond represent examples that illustrate predator-prey relationships.

5. To recognize how the fundamental biological concepts allow us to understand the effects of human activities upon nature. Thus, the concept of a food-chain is necessary to explain the effect of DDT in the environment.

6. To learn the importance of the precise vocabulary and terminology of science. Because scientists need to communicate information precisely and unambiguously, they often use "technical" terms, or attach specialized meanings to everyday words. The goal of this course is not that you memorize the jargon used in technical scientific writing, but that you can understand scientific information communicated in textbooks, popular scientific magazines, and the media.

7. To develop written communication skills. Part of learning the "language" of science includes being able to communicate ideas in a concise and accurate written form. We have this objective specifically in mind when making writing assignments during the semester.

8. To understand how mathematics contributes to the understanding of the natural world. Mathematics is an essential component of scientific learning. Scientists use mathematics to manage and interpret data, to express formal relationships between ideas, and to devise mathematical models of natural systems.

There are also certain abstractions that transcend all of science and mold a modern understanding of the universe and humanity's place within it. Awareness of these concepts will allow you to recognize affinities that extend across disciplinary boundaries and will facilitate learning of new ideas. Some of these unifying concepts are given below:

1. Scale and Proportion. Understanding the scale of the universe --from the size of the cosmos to that of an atom, from a geologic time frame to the daily events of human lives, from the speed of light to that of a snail --expands the human mind and places human existence in new perspective.

2. Change and Evolution. Evolution of new organisms, development from child to adult, chemical interconversions, and geologic plate tectonics, reveal the transient nature of the natural world. Knowing that the natural world undergoes systematic change over time is essential to scientific understanding.

3. Dynamic Equilibrium. Many natural phenomena are in a state of "dynamic equilibrium." This means that although the individual components of complex systems such as ecosystems and cells are in constant activity and change, the overall system remains constant. Recognition of this property illuminates the essential interdependence between individual components of nature.

4. Scientific "Modeling". Science will never reveal absolute knowledge of any aspect of nature. Thus, all scientific knowledge should be viewed as "models" of particular facets of nature. These models allow scientists to make predictions of the real world, but the models may also be modified in the future to accommodate new observations.

WHERE DO YOU GO FOR HELP?

You are asked to make many adjustments in your transition to life at college, and the adjustment to the educational and social environment of college can be very stressful. You may, sometime during this course, or in other courses, feel overwhelmed or distraught. It is of great importance that you learn to recognize and use the support system that is available at Marietta College. Foremost is remembering that you are not alone in your anxiety; many of your classmates also are feeling the same way. The secret is not to merely commiserate about the situation, but rather to seek out those resources that can help you. I believe that you will find all of the following resources helpful.

1. **Your professor** for BIOL 133. We are always willing to devote time to helping students having difficulties with the course material.

2. **Help sessions.** Many courses, including BIOL 133, offer help sessions during the semester. These are excellent opportunities to obtain a new explanation, or just to review material covered previously during the semester.

3. **Your advisor.** Advisors are provided to assist you, and are excellent resources for solving all sorts of problems.

4. The **student counseling center** is in Andrews Hall, room 112 (ext. 4477). The college counselor has great experience in helping students that are feeling overwhelmed with their course load or other activities.

5. **The Campus Writing Center.** This facility (in Thomas 217, ext. 4658) specializes in helping students with writing difficulties. On some occasions a professor may request that you seek help here.

6. **A student tutor.** Many departments, including Biology and Chemistry, can arrange for an upperclass major to help students having difficulty with a particular course.

7. **The Academic Resource Center** is located on the 3rd floor of Andrews Hall. ARC offers services to help students achieve their academic potential. These services include study skills assistance and tutoring services as well as individualized support. (ext. 4700)

8. **Students with disabilities.** Students who believe they need accommodations due to a documented disability must contact me AND the academic resource center as soon as possible to discuss possible accommodations. Any eligibility for accommodations must be verified by the ARC staff.

9. **Web Pages.** A number of web-based study guides are available, especially for the introductory material. The web pages are located at: <http://www.marietta.edu/~biol/133/index133.html>

ASSORTED KEYS TO SUCCESS

- 1) Read the textbook assignments. **Read the chapter summary and try the questions at the end of the chapters in Lewis et al.** Go to the online help.
- 2) Outline, rewrite or otherwise reorganize your lecture notes.
- 3) Ask lots of questions -- "stupid" questions are rarely encountered in classes. If you have a question, most likely many other students in the class are wondering about the very same thing.
- 4) Study with a classmate; quiz yourself and each other. "Self-examination" is one of the most effective learning skills.
- 5) Because of its breadth, a general biology course may be one of the most difficult you ever take. Be prepared for this, and spend adequate time studying. You cannot cram for tests in a course such as this. You must understand the material, and this understanding only comes with time and effort. Remember, as a general rule, for a 3-hour class you should be spending at least 12 hours per week studying for this class — maybe even more before a test. If you find the tests too difficult, ask yourself if you are really putting in the effort you need to.
- 6) The real key to success in anything is to enjoy what you are doing. You are embarking on the study of the most amazing miracle - life. Enjoy it. Quest for knowledge. Remember that the study of biology is at the heart of everything in your life, and mastering the subject will enrich you in ways you can not foresee at the outset.

Notes: Dr. McShaffrey's Sections:

Come in and see me in MY OFFICE, ROOM 242, EXT. 4743. email: mcshaffd

I maintain an "open door" policy toward consultations. Feel free to see me after class or just drop by my office; I can almost always spare some time, but if not, we will find a time when we can meet. If I am not there, a schedule near the door will help you find a good time to catch me in my office. If it's really important, call me at home, 374-8687.

"A student on academic probation may enroll in no more than 14 credit hours each semester. The following co-curricular restrictions will apply to a student on academic probation:

- a) **They are ineligible to participate in any college athletic team or club sport;**
- b) **They may not hold office in any campus organization or social fraternity or sorority.**
- c) **They may not travel off campus to a meeting or trip with any college organization or club unless required to do so for an academic program.**
- d) **They may not represent the college in any on-campus or off-campus public events or other co-curricular activities (e.g. plays, musical performances, student newspaper) unless required to do so for an academic course.**
- e) **They may not register for courses that require co-curricular participation unless required by their major.**

The restrictions continue in force until the student has returned to "good academic standing", with the exception that when a student on academic probation earns a semester grade point average of 2.0, or better, co-curricular restrictions will be removed for the following semester." (*Marietta College Undergraduate Programs, 2008-2009 Catalog*, p. 144).

Pre-Class Writing Assignments

It is vital that you read the text before coming to class. To facilitate that reading, and to help me determine what material I need to stress in class, I would like you to complete 10 short pre-class writing assignments (there are at least 14 chapters we will cover, so you don't have to do one every week). Here are the rules:

1. The assignments are due at 8AM of the day **before** we start the material. You are responsible for keeping track of when the material will start (it will not necessarily be on the days indicated in the syllabus). Any assignment submitted after the 8AM deadline will not receive any points (even if we don't actually get to the material that next day).
2. The default assignment is to summarize the main points of the chapter in 250-500 words of text in paragraph form (not bulleted lists). Obviously, you won't be able to list out all the facts. Let's say you are looking at Chapter 26 on Chordates. You couldn't just list all the animals that are chordates, but you could describe the things that separate Chordates from other such groups and perhaps list some of the characteristics used to separate the groups within the Chordates. You should work hard to avoid using the textbook's chapter preface or summary as a model – I want your own words. In addition, you need to submit a list of 5 questions – things you don't understand, things you want to know more about, questions the chapter raises. Grammar, spelling and punctuation all count!
3. In some cases I may email a question or questions to you which will take the place of the chapter summary. If I do so, you should answer the question(s) instead of the summary, and also add your list of 5 questions.
4. Grading will follow one of 2 forms:
 - a. I will give everyone who submits a complete assignment on time 5 points.
 - b. In some cases I might do superficial grading giving 3, 4, or 5 points based on a superficial reading of your response.
5. Please submit your questions via WebCT – there are 2 ways to do so:
 - a. If you want to keep your response confidential, email it to me WITHIN WebCT (I won't accept assignments emailed to my college email address).
 - b. Even better, POST it to the appropriate thread on the discussion page.

The other part of the assignment is to respond to **other** student's questions. In order to receive points for a response it must be correct, *original* and at least 250 words long. It must be posted by 8AM of the day we do discuss the material in class (in other words, it must be posted no later than 24 hours after the questions were due). These responses must be posted in the discussion section of WebCT. 5 points for each correct response. You must earn at least ½ of these 50 points before mid-term.

Responses to responses, corrections of other student's responses, etc. are all welcome. Enthusiastic and effective online participation above and beyond the assignments listed above will be considered at final grade time!