

BSC 101 - General Biology
Sections 4, 5, 6
Winter 2013 Syllabus and Schedule
Lecture: MW 9:35-10:50, A 121 SCI

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Course Description

This course is designed to introduce non-major students to the basic principles of Biology and acquaint them with the diversity of life. We will explore basic cellular-level processes, genetics and reproduction, evolution, biological diversity, and how organisms relate to one another within their environments. Because this course is designed to suit the needs of non-majors, we will give special emphasis to the applicability and relevance of biological concepts, knowledge, and technology to average citizens.

Enduring Understandings

Students completing this course will understand that:

1. The complexity of living systems is understandable in terms of demonstrable natural processes that are themselves fairly simple.
2. At higher orders of complexity, biological systems show emergent properties, so that the sum of the parts is greater than the whole.
3. Our lives, livings, and all human activity are inextricably linked to biological systems and processes.

Essential Questions

1. What natural processes shape the complexity of living systems?
2. What properties are emergent at different levels of biological organization?
3. How does and understanding of biological processes and systems make me better prepared to participate in our society?

Student Learning Outcomes

Students completing this course will be able to:

1. Apply the scientific method, and describe how the scientific method distinguishes the sciences from other branches of learning.
2. Discuss the cellular level functions that are necessary for life.
3. Explain basic genetics and how genetic technology impacts our society.
4. Summarize the basic processes of inheritance and evolutionary change.
5. Analyze the forms and functions of animals and plants within an evolutionary context.
6. Describe the basic functioning of populations, communities, and ecosystems, and recognize how the properties of these systems relate to the organisms that comprise them.

Required texts:

JB Reece, Taylor MR, Simon SJ, and JL Dickey. 2012. **Campbell Biology: Concepts and Connections, 7th ed.** Benjamin Cummings/Pearson, Boston.

Biology 101 Lab Manual, Available in the Campus Book store.

Attendance Policies

Attendance at lectures will help you to perform well on exams. There is no formal attendance requirement for lectures, but there are often quizzes and activities during lecture for which you will receive points. If you are absent from lecture, you will not be able to make up these points.

Attendance in labs is required. All labs are associated with prelabs and lab reports, for which you will receive points. These assignments are provided to help you focus your learning and to give you a direct grade-incentive to attend labs. They are not, however, the educational focus of the lab. Performing the lab assigned for any given week is what is educationally valuable about lab. Therefore, there are no make-ups for lab reports or prelabs missed due to absence. If you have more than two unexcused absences from labs, 10 points will be deducted from your total score for each additional absence.

Attendance at exams is required. In general, the reasons that you miss an exam should be the same as those for which you would miss your own wedding. Make up exams are difficult to administer, and students usually do poorly on them. Because of this, it is best to avoid make up exams if you can. If, however, you are very ill, in court, have a dental emergency, death in the family, etc, you can take a make up exam. In order to qualify for a make up exam, you must provide a written, verifiable excuse from an authorized party (doctor, dentist, minister, etc.) within one week of the missed exam. This excuse should clearly articulate that you were UNABLE to make it to class for the exam, including a timetable for restriction from work or school. **All make up exams will be held in the lab room at 4 pm on May 10, 2013.** There are no rewrites for make up exams.

Grading

My philosophy of grading is that **student learning is paramount**, and should be rewarded even if it does not occur according to *my* schedule. Therefore, this course is designed so that you can almost always improve your grade if you are not pleased with your score. Your grade in this course will be based on the following:

1. **Exams.** Exams will cover lecture and lab material, as well as assigned readings. They will contain a combination of multiple choice, fill in the blank, and short essay questions. There are three regular exams and a comprehensive final. Each exam will be worth 120 points. Approximately 20 points of each exam will come from lab. The remainder will be based on topics covered in lecture and the text. You may drop your lowest exam score. Consult your schedule for the exact date of each exam.
2. **Exam Re-writes.** After exams are returned, you will be allowed to review your exam. If you have missed any question, you will be able to recoup up to **half** of the points you missed by writing an explanation detailing why the answer you put on your exam was incorrect or insufficient, and making a clear contrast with the correct answer. All exam rewrites must be submitted through the D2L dropbox, and will be checked for plagiarism using the Turn-it-in software program. Exam

re-writes are **OPTIONAL** and are due one week from the date of exam return. Because of the timing, there are **NO rewrites** for the third exam or the comprehensive final exam.

3. **In-Class Quizzes and Activities.** These will be given randomly during lecture. Each quiz or activity will be worth 5 points. You will receive up to 100 points for the activities you complete. Students not in attendance will NOT be allowed to make up these points. There will be about 120 points worth of quizzes and activities during the term, but the maximum possible score is 100 points.
3. **Project.** During the term, you will be expected to collect news reports from the within the past 9 months that pertain to particular topics covered in class. You will write three to six paragraphs connecting each article to the principles learned in class, explaining how your understanding of biology has clarified the news report, or helped you to analyze it more completely. All projects must be submitted through the D2L dropbox, and will be checked for plagiarism using the Turn-it-in software program. 100 points.
4. **Prelab exercises.** These are located in the lab manual. You must complete them before coming to lab each week, and you must attend lab in order to receive credit for these. We will be completing 16 lab exercises this term. Your highest 14 prelab exercises, worth 4 points each, will count toward your grade.
5. **Lab reports.** These are located in the lab manual. You will complete them in lab each week. Lab reports will not be accepted from students not attending lab. Your highest 13 lab reports, worth 11 points each, will count toward your grade.
6. **Extra Credit:** Because interesting opportunities for learning sometimes come up (visiting lecturers, special events, etc), I will occasionally announce small assignments that will yield up to 5 points of extra credit each. Extra credit points will be added to your course total at the end of the term. No extra credit will be provided at the request of students as a means of grade improvement.

| | | |
|------------------------|---------------------------|-------------------|
| Exams | Best 3 @ 120 points | 360 points |
| Quizzes and Activities | 5 pts @ up to 100 points | 100 points |
| Project | | 100 points |
| Pre Labs | Best 14 of 16 @ 4 points | 56 points |
| Lab Reports | Best 14 of 16 @ 11 points | 154 points |
| Total | | 770 points |

Grading Scale

| | | | | |
|------------|------------|------------|------------|---------|
| A = 94-100 | B+ = 87-89 | C+ = 77-79 | D+ = 67-68 | |
| A- = 90-93 | B = 84-86 | C = 74-76 | D = 64-66 | F = <60 |
| | B- = 70-83 | C- = 70-73 | D- = 60-63 | |

Grades will be available to students on the class site at Desire to Learn. Privacy laws preclude the distribution of grades via email or the phone.

Safe Learning Environment

UWSP values a safe, honest, respectful, and inviting learning environment. In order to ensure that each student has the opportunity to succeed, we have developed a set of expectations for all students and instructors. This set of expectations is known as the *Rights and Responsibilities* document, and it is

intended to help establish a positive living and learning environment at UWSP. More information is available at: <http://www.uwsp.edu/stuaffairs/Pages/rightsandresponsibilities.aspx>

Academic Misconduct

All acts of dishonesty in any work constitute academic misconduct. This includes, but is not limited to, cheating, plagiarism, fabrication of information, misrepresentations of a student's academic performance, and abetting any of the above. This includes submitting papers that reflect the work of a group rather than the work of an individual. **(Be very careful about this. In your projects and on your exam rewrites, you may work in groups. However, the written work you submit to me MUST BE YOUR OWN INDEPENDENT COMPOSITION.)** The Academic Standards and Disciplinary Procedures of the University of Wisconsin will be followed in the event that academic misconduct occurs. Students should refer to the UWSP Community Rights and Responsibilities 2008 – 2009 Rules and Regulations Governing Faculty, Staff, and Students for more information. Copies are available on the web or from the Coordinator of Student Rights and Responsibilities.

Disability and Assistive Technology Center

The Americans with Disabilities Act (ADA) is a federal law requiring educational institutions to provide reasonable accommodations for student with disabilities. For more information about UWSP's policies, check : <http://www.uasp.edu/stuaffairs/Documents/RightsRespns/ADA/rightsADAPolicyInfo.pdf> If you are registered with the Disability and Assistive Technology Center, please contact me as soon as possible to plan any course accommodations that may be necessary. If you have a disability but have not contacted the DATC, please call 346-3365 or visit 609 LRC to register for services.

Lecture Schedule

| Date | Lecture Topics | Reading | Assignments |
|-------------|---------------------------------------|--------------------|---------------------|
| Jan 23 | Introduction/Scientific Study of Life | Chapter 1 | |
| Jan 28 | The Chemicals of Life | Chapters 2 and 3 | |
| Jan 30 | Cells | Chapters 3 and 4 | |
| Feb 4 | How Cells Work | Chapter 5 | |
| Feb 6 | Chemical Energy in the Cell | Chapter 6 | |
| Feb 11 | Photosynthesis | Chapters 7 | |
| Feb 13 | Cellular Reproduction | Chapter 8 | |
| Feb 18 | Inheritance | Chapter 9 | |
| Feb 20 | Genes and their control | Chapters 10 and 11 | |
| Feb 25 | DNA Technology and Genomics | Chapter 12 | |
| Feb 27 | | | Exam I |
| Mar 4 | Evolution 1 | Chapter 13 | |
| Mar 6 | Evolution 2 | Chapter 14 | |
| Mar 11 | Evolution 3 | Chapter 15 | Exam I rewrite due |
| Mar 13 | Microbes, Protists, Fungi | Chapters 16 and 17 | |
| Mar 18 | Plants | Chapters 17 | |
| Mar 20 | Invertebrate animals | Chapters 18 | |
| Mar 25 & 27 | Spring Break | | |
| Apr 1 | Vertebrates, Form and function | Chapters 19 and 20 | |
| Apr 3 | Nutrition and Digestion | Chapter 21 | |
| Apr 8 | | | Exam II |
| Apr 10 | Gas Exchange | Chapter 22 | |
| Apr 15 | Circulation | Chapters 23 | |
| Apr 17 | Reproduction | Chapters 27 | Exam II rewrite due |
| Apr 22 | The Biosphere | Chapters 34 | |
| Apr 24 | Behavioral Adaptations | Chapter 35 | Project Due |
| Apr 29 | Populations Ecology | Chapter 36 | |
| May 1 | Communities and Ecosystems | Chapter 37 | |
| May 6 | Conservation Biology | Chapter 38 | |
| May 8 | | | Exam III |
| | Final Exam 12:30-2:30 pm | | Final |

Lab Schedule

| Week of | Lab Topics |
|----------------|---|
| Jan 21 | Lab A. Conveying Biological Information <i>and</i> Lab B. Microscopy |
| Jan 28 | Lab C. Scientific method |
| Feb 4 | Lab D. Biochemistry of foods |
| Feb 11 | Lab E. Exploring Enzymes |
| Feb 18 | Lab H. DNA, Asexual Reproduction/ Cell Cycle |
| Feb 25 | Lab I. Sexual Reproduction, Meiosis, Genetics and Inheritance |
| Mar 4 | Lab Q: Modeling Natural Selection |
| Mar 11 | Lab J. Biological Classification |
| Mar 18 | Lab L. Bacteria, Protist, Fungal diversity |
| Mar 25 | Spring Break. No labs. |
| Apr 1 | Lab M. Plant Diversity I |
| Apr 8 | Lab N. Plant Diversity II |
| Apr 15 | Lab O. Animal Diversity I |
| Apr 22 | Lab P. Animal Diversity II |
| Apr 29 | Lab R. Web of life from Owl Pellets <i>or</i> Lab U. Ecology at Schmeekle (Weather dependent) |
| May 6 | Lab T. Ecology and Soil Invertebrates <i>or</i> Lab U. Ecology at Schmeekle (Weather dependent) |