Course:  Principles of Biology (BY14)

Credits: 4.0

Instructor: Mr. Christopher Duffner, Adjunct Instructor in Biology

Lecture:  Tuesday and Thursday: 12:30 P.M. – 1:45 P.M.

Lab:  Tuesday: 2:00 P.M. – 3:50 P.M.


Course Objectives: The objectives of this course are to provide the student with a basic understanding of biological principles, including:

1. Basic chemistry of life
2. Cell structure and function
3. Taxonomy, classification and characteristics of living things
4. Human body systems, structures and functions
5. Genetics
6. Evolution
7. Ecology

Student Assessment/ Grading Criteria:

(1) There will be five lecture exams. All exams will include short answer as well as “extended response” format questions. Each will comprise 15% of the final grade.

(2) There will be a comprehensive laboratory exam which will include both practical and written components. This will comprise 10% of the final grade.

(3) A “reaction / research paper will comprise 5% of the final grade.

(4) A participation grade will account for the remaining 10% of the final grade. This grade will be based on (a) lecture and laboratory attendance and punctuality; (b) demonstrated laboratory work habits and attention to safety issues; (c) contributions to class discussions as well as asking and/or answering pertinent questions; (d) satisfactory completion of laboratory work sheets.

Student responsibilities include reading all assigned chapters and/or topics in the textbook; and reading the material for each lab exercise and completing the appropriate work sheets in the lab manual.

Attendance Policy: Students are expected to attend all lectures and labs and are responsible for all that transpires in class whether or not they are in attendance. Excessive absence or lateness may lead to failure of this course or removal from the class roster. Excessive absence is defined as any amount of time missed in excess of one week’s lecture and lab time.
### Tentative Schedule of Lectures and Exams

**Date** | **Textbook reference** | **Topic(s)**
--- | --- | ---
1/25/05 | Chap. 1 | “Orientation;” Introduction to Biology
1/27/05 | Chap. 2 | Basics of Life: Chemistry
2/1/05 | Chap. 3 | Organic Chemistry
2/3/05 | Chap. 3 & 5 | Organic Chemistry; Enzymes
2/8/05 | Chap. 4 | Cell Structure and Function
210/05 | Chap. 4 | Cell Structure and Function <1>
2/15/05 | Chap. 6 | Biochemical Pathways: Cell respiration; Photosynthesis
2/17/05 | First Lecture Exam: Chapters 1-5
2/22/05 | Chap. 7 | DNA and RNA: The Molecular Basis for Heredity
2/24/05 | Chap. 8 & 9 | Mitosis and Meiosis
3/1/05 | Chap. 10 | Mendelian Genetics <2>
3/3/05 | Chap. 22 | The Origin of Life
3/8/05 | Chap. 23 | Classification and Evolution of Organisms
3/10/05 | Second Lecture Exam: Chapters 6-10
3/15/05 | Chap. 24 | Microorganisms
3/17/05 | Chap. 25 | Plants
3/22/05 | Chap. 26 | Animals
3/24/05 | Chap. 26 | Animals <3>
4/5/05 | Chap. 18 | Cardiovascular, Immune and Respiratory Systems
4/7/05 | Third Lecture Exam: Chapters 22-26
4/12/05 | Chap. 18 | Digestive and Excretory Systems
4/14/05 | Chap. 19 | Nutrition, Food and Diet
4/19/05 | Chap. 20 | Nervous and Endocrine Systems
4/21/05 | Chap. 20 | Senses and Musculoskeletal System
4/26/05 | Chap. 21 | Human Reproduction, Sex and Sexuality <4>
4/28/05 | Chap. 11 & 12 | Principles of Evolutionary Change
5/3/05 | Fourth Lecture Exam: Chapters 18-21
5/5/05 | Chap. 12 & 13 | Principles of Evolutionary Change
5/10/05 | Chap. 14 & 15 | Principles of Ecology
5/12/05 | Chap. 15 & 16 | Principles of Ecology <5>
5/17/05 | Fifth Lecture Exam: Chapters 11-16

<#> denotes end of material for corresponding lecture exam
<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/25/05</td>
<td>Handout; Lab safety; S.I. Units; Lab Measurements Lab Manual Intro.</td>
</tr>
<tr>
<td>2/1/05</td>
<td>Lab Manual pp 1-13 The Microscope</td>
</tr>
<tr>
<td>2/8/05</td>
<td>Lab Manual pp 15-26 Chemical Aspects</td>
</tr>
<tr>
<td>2/15/05</td>
<td>Lab Manual pp 35-49 The Cell</td>
</tr>
<tr>
<td>2/22/05</td>
<td>Lab Manual pp 27-34 Enzymes</td>
</tr>
<tr>
<td>3/1/05</td>
<td>Lab Manual pp 61-71 Cell Division</td>
</tr>
<tr>
<td>3/8/05</td>
<td>Lab Manual pp 177-191 Heredity</td>
</tr>
<tr>
<td>3/15/05</td>
<td>Lab Manual pp 73-86 Prokaryotes &amp; Protists</td>
</tr>
<tr>
<td>3/22/05</td>
<td>Lab Manual pp 97-107 Fungi</td>
</tr>
<tr>
<td>4/5/05</td>
<td>Lab Manual pp 109-121 Terrestrial Plants</td>
</tr>
<tr>
<td>4/12/05</td>
<td>Lab Manual pp 123-133 Structure of Flowering Plants</td>
</tr>
<tr>
<td>4/19/05</td>
<td>Lab Manual pp 135-149 Simple Animals</td>
</tr>
<tr>
<td>4/26/05</td>
<td>Lab Manual pp 151-163 Mollusks, Segmented Worms, &amp; Arthropods</td>
</tr>
<tr>
<td>5/3/05</td>
<td>Lab Manual pp 165-176 Echinoderms &amp; Chordates</td>
</tr>
<tr>
<td>5/10/05</td>
<td><strong>Lab Final Exam</strong> (This exam will have both written and practical components)</td>
</tr>
<tr>
<td>5/17/05</td>
<td><strong>No Lab</strong></td>
</tr>
</tbody>
</table>
Reaction/ Research Paper

The NY State Education Dept. has mandated a writing assignment as part of the course requirements for students in BY14. In fulfillment of that requirement, students will do the following:

1. Select an article from the science section of Newsday or The New York Times.
2. Read the article and highlight the major points.
3. Write a “reaction” to the article, either supporting or refuting it, including at least three annotated references.
4. References should be from reputable science journals or online sources.
5. Your written paper should be 3-4 typed, double-spaced pages, not including the bibliography.
6. Attach the list of references and the original highlighted article to the paper.
7. The last day for submission of the paper is April 28, 2005. Since this is a NY State mandated requirement, you cannot receive credit for this course if this assignment has not been completed.

Other Important Items:

- Do not absent yourself from any lab exercise. Due to the complexity of materials needed for most lab exercises, they are difficult, if not impossible, to make up.
- Do not leave the lab until all materials have been cleaned up and properly stored.
- Read each lab exercise before you come to the lab.
- Communicate and be pro-active. If you find yourself falling behind, seek help immediately! Don’t wait until it’s too late.
- No make-up will be given for lecture exams except in the event of an emergency or serious illness. Please contact me by voice mail or email.
- Use the online resources available with your text at www.mhhe.com/enger11