BIOLOGY F103X

Biology and Society

SPRING 2009

Instructor:  305A Bunnell

Gary A. Laursen, Ph.D.
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ffgal@uaf.edu

Teaching Assistants:

To Be Announced
312 & 316 Bunnell

Lecture Schedule:  Schaible Auditorium

Monday & Wednesday evenings
5:15 - 6:45 pm

Laboratory Schedule:  308 Bunnell

FE1:  33288  T  8:30 - 11:30 am
      5:15 - 6:45 pm
FE2:  33289  T  2:00 - 5:00 pm
FE3:  33290  T  5:20 - 8:20 pm

Required Textbook, Student Guide & Workbook

BIOLOGY:  The Unity and Diversity of Life, 10th Ed., C.Starr & R. Taggart,
Wadsworth Publishing Co.

Study Guide & Workbook:  An interactive approach, for Starrr & Taggart's Biology:
The Unity and Diversity of Life, 10th Ed. J.B. Taylor & J.D. Jackson.  Wadsworth
Publishing Co.

The textbook also contains a valuable CD ROM.  It is highly recommended
that you purchase, read, and study these two documents.  Your academic
success in this class, in addition to your presence at lectures and laboratories,
will depend on it.  We reserve the right to extract questions directly from the
Student Study Guide & Workbook and our laboratory guide for use on exams!

Course Description

Biology 103 (Biology and Society) is a one-semester, 4-credit, laboratory "survey" course
for students who are non-majors in the natural sciences.  This is not a "watered-down"
biology course, nor is it a non-rigorous science core curriculum course.  It does meet the
BREADTH option for a Natural Science requirement for graduation as a applicable
laboratory science course.  It will be comprehensive, but its content will be made relevant,
exciting, and palatable for you, the HUMAN organism.  This instructor is acutely aware of
true "anxiety, phobia, and real fears of science", perhaps incited by lack of subject exposure,
poor early high school experiences, having had your last science class "eons" ago, or
"subject" learning disability, which we probably all share!  We understand your fear, if
present, in taking this class, but will work very hard to make this a wonderful, event-filled,
and meaningful experience for you and to share how biology is an integral part of society.

Our course is intended to introduce the nature and mechanics (Structure and Function) of
living organisms to non-scientists. You will, however, learn more than the mere "science of life" in our course. You will be exposed to the sciences of chemistry, physics, geology, speech, art, art-history, history, and drama; all of which are integrated into the fabric, function, structure, and existence of living things. You will be asked to ponder and noodle philosophical and ethical questions that confront you, me, scientists, and all of society today. We shall contemplate characteristics of living organisms, how organisms are organized, the functional complexities of becoming too large, the nature of procreation, evolution, abortion, and creation, etc. Basically, there are endless topics to investigate, and we will peer into lots of them. We will largely cover the content of our entire text in four thematic units defined by our four exams. We will not cover ALL chapters in our text, BIOLOGY: The Unity and Diversity of Life, 10th Edition, by Starr and Taggart, may "glide" through others, "dissect" a few in detail, or repeatedly come back to one or more chapters thematically. It is an easily read text. READ IT! Buckle up! We are about to launch this experience in total and virtual reality together!

Scientists have amassed an incredible amount of understanding about living systems over the past three hundred years. So much so that it is tempting to fill you with the many, many "facts." We will resist that temptation, however, and fill you instead with wonder by asking lots of questions. Biological concepts, tempered with a healthy dose of factual content, a search for understanding, and laboratory experiences meant to enlighten, will be our theme. Whenever possible, we pose questions to help you understand how the methods of science can help addresss everyday problems in any subject area, not just science. This should give you a functional knowledge of what biology is about and how scientists work. In this respect, the laboratory component of our course is invaluable, appropriately makes up a large proportion of our course, and is too important to be missed! We will have an opportunity to ask questions and pursue truths in small group study. You will interact with fellow students, our teaching assistants, and me. Laboratories will provide opportunities to try out new ideas, ask more questions, share knowledge, and to ponder marvelous things about the living world we live, breathe, function, and reproduce in; where we conduct LIFE.

This is meant to be an exciting and rewarding learning experience. We hope you gain insights into and an understanding of our living world such that you develop a working knowledge about science in general with an emphasis placed on biological phenomenon. Our attempt is to educate, to produce informed, questioning, critical thinking, and discerning citizens. Your charge is to become tactfully critical, compassionate, open to and understanding of new and/or revolutionizing concepts. Go for it! We're glad you've decided to embark upon this journey with us. Help us guide your learning about life as we trek down provocative "garden paths" together.

Grading Policy

Your grade will be performance and point-based. This is not "our" grade—it is "yours". It is earned with significant effort; albeit, each one of us has the right to fail. Included are readings (see Lecture Schedule), lecture exams, lab. quizzes (see Laboratory Schedule),
and a few, but fun laboratory homework assignments and readings.

There will be four 1.5 hour, in-class exams. Each exam will consist of Matching, Multiple Choice, True-False, Short answer/fill-in-the-blank, Short answer essay, and Contemplative and/or Synthesizing essay questions. A "detailed review sheet" for each exam will be provided one week prior to that exam. Exams will "test" your ability to recognize correct responses, recall ideas and terminology, discuss knowledge of concepts, synthesize new relationships between existing concepts, and to solve problems using your new-found knowledge.

Quizzes (10 pts each) will be given during all (but the first) laboratory sessions. They are given only during the first 15 minutes of each lab. So, be on time as there are NO lab quiz makeups unless you have made PRIOR arrangements with your Lab. TA. Quizzes will focus on questions that arise from lab manual readings, lab preparation, assigned text readings, and from the most recent lab. For example, you will be asked to:

1) prepare written laboratory assignments,
2) collect data outside of lab (at home) for use in lab.,
3) read and report on readings in lab., and
4) prepare and give oral presentations.

Grade Determination Synopsis:

Lecture: Hour exams: 1-4, ca. 125 points each 500

Laboratory: Lab. Evals (140), Oral Rpts (50),
Quizzes (130), Lab Assign. (80) ca. 400

Extra Credit: 5 Random Lecture Attendance Checks 10

TOTAL COURSE POINTS ca. 900 + 10 EC

Final grades will be based on ca. 900 total course points and determined by percentages:

A = 90 - 100%
B = 80 - 89%
C = 70 - 79%
D = 65 - 69%
F = 0 - 64%

Office Hours

We will determine the best time and place to meet with you in addition to lecture, laboratory, and exam review sessions. We will establish separate times to meet with you for three EXAM REVIEWS, directed by each of your TA's, before each exam. You will also be encouraged to set up individual appointments with your TA's or me whenever you feel that individual attention is needed. Please utilize us. We know more about this course than
anyone else because we have been actively involved in its development, set-up, and now in its teaching. **We are here to help you succeed!**

**Missed Classes, Lectures, and Laboratories**

If you are going to miss your regularly scheduled Lab., check and **clear it** with your TA. All three laboratories are expected to begin the semester at full capacity, ca. 25+ students each. **DON'T** miss laboratories or lectures! **There is a strong correlation with lectures and laboratories missed with final grades!** Hint, hint!

If you will **miss an EXAM or LAB QUIZ**, please contact us **BEFORE** either is administered. We will ONLY provide quizzes and make-up exams when the excuse is valid (documented, a debilitating illness, sport or university-related travel, etc.), **and** we have been notified in advance of the exam or quiz to be missed. Otherwise, you will forfeit the quiz or the make-up of that exam. **NO missed exams or quizzes** may be taken once graded and returned to classmates.

On five randomly selected dates, we will take attendance in lecture. If you are present for this lecture, you will receive 2 Extra Credit points, up to a total of ten possible Extra Credit points.

Regular attendance is **expected**. Obviously, we cannot chain you to a desk. Nor do we want to! Any student desiring a passing grade in our class must make a reasonable effort (regular attendance, participate in labs and projects, complete assignments, etc.). If a "**reasonable effort**" is not realized in lab., a student **will** receive a lower total course grade than might be expected, regardless of grades achieved in Lecture (lecture exams), as points are "weighted", ca. 40% for Lab. and 60% for Lecture. We will adhere to the UAF guidelines for issuance of "Incomplete" grades and administer "honor codes." If you neglect your lab, you significantly risk **failing** this course. It is designed to fulfill a science lab. core curriculum graduation requirement.

**Course Objectives**

It is our sincere hope that as you participate in and complete this course that you will develop skills and gain knowledge that will assist you throughout your lives. Biology is the study of life, living things, and the settings in which interactions take place. As living things, we think it is important that you learn how you work and how you interact with the world around you. Specifically, we hope that you will:

1. Learn to conduct experiments safely in the laboratory.
2. Expand your powers of observation by using tools to assist you (ex. microscopes).
3. Use your observational skills to gather information and the scientific method to assess, synthesize, and gather support (or fail to support) for your own hypotheses.
4. Understand the four basic food groups as the building blocks of living things.
5. Be able to describe how materials are transported throughout your body.
7 Understand how very UNIQUE you are.
8 Identify the roles and impacts of human populations on earth. Are there moral obligations involved?
9 Explore characteristics of organismal life forms (bacteria, viruses, fungi, protists, plants, and animals) and discover how their populations function and interact to form communities, ecosystems, biomes, and the biosphere.
10 Use the fetal pig as a model, learn and explore the anatomy (structure) and physiology (function) of mammalian systems and make inferences to you, the human animal.
11 Grasp a better understanding of your sensory system (even w/o your acute awareness) to increase your awareness of the world around us. It's all about information input, so that you can make informed decisions.
12 Use your newfound knowledge/appreciation for biology to assist you in daily activities from reading the newspaper, to going to the grocery store, to selecting a candidate for public office, to the use of our natural resources, to make informed comment in public forums, etc.
13 Continue your lives, reproducing if you CHOOSE to do so, responsibly (and learn how no to if you CHOOSE so).
14 View humans as one of many species of animal (specifically, mammals) that function, interact, and impact each other and the system in which we live.

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**Important Dates to Remember**

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<tr>
<th>Day</th>
<th>Month</th>
<th>Date</th>
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<tbody>
<tr>
<td>W</td>
<td>FEB</td>
<td>16</td>
<td>EXAM 1</td>
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<td>W</td>
<td>MAR</td>
<td>9</td>
<td>EXAM 2</td>
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<td>MAR</td>
<td>14-20</td>
<td>Spring Break</td>
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<tr>
<td>T</td>
<td>MAR</td>
<td>22</td>
<td>Genetics Problems DUE in Lab.</td>
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<td>T</td>
<td>APR</td>
<td>5</td>
<td>Lab. 9 Petri Dish Observation DUE in Lab.</td>
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<td>13</td>
<td>EXAM 3</td>
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<td>APR</td>
<td>19</td>
<td>Body Temperature Data DUE in Lab.</td>
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<td>T</td>
<td>APR</td>
<td>26</td>
<td>Make-Up Labs DUE in Lab</td>
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<td>W</td>
<td>MAY</td>
<td>4</td>
<td>EXAM 4 (5:45 pm Schaible Aud.)</td>
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