BIOLGY 103
BIOLOGY & SOCIETY
FALL 1995

INSTRUCTOR
Dr. Gary A. Laursen
Office: 305A Bunnell
Tele: 474-7542/6295

TEACHING ASSISTANTS
Renee Crain
AH 19A 5930
Tom Simpson
AH 158 7085

LECTURE SCHEDULE 466 DUCK
Lecture: M & W 5-6:30 p.m.

LAB SCHEDULE 308 BUNN
EV1 - M 1:30 - 4:30 p.m.
EV2 - M 7-10:00 p.m.

COURSE DESCRIPTION

Biology 103 (Biology and Society) is a one-semester "survey" course for students who are non-majors in the natural sciences. This is not intended to be a "watered-down" biological science course, however. Nor is it a non-rigorous science core curriculum course that meets the laboratory requirement for graduation. It will be comprehensive, but its content will be made applicable, relevant and palatable. This instructor is conscious to the presence of true science "anxiety" and "phobia"!

Our course is intended to introduce the nature and mechanics (Structure and Function) of living organisms for non-scientists. You will, however, learn more than mere "science of life" in our course. You will be exposed to the sciences of chemistry, physics, geology, art, history and drama - since these are all integrated into the function and existence of living things. You will be asked to ponder and noodle philosophical and ethical questions that confront scientists and society today. We shall contemplate characteristics of living organisms, how organisms are organized, the functional complexities of becoming a large organism, the nature of procreation, evolution, abortion and creationism, etc. Basically, there are endless interesting topics to investigate and we shall look into lots of them. In so doing, we will cover the entire content of our text, BIOLOGY: The Unity and Diversity of Life, 6th Edition, by Starr and Taggart.

Scientists have amassed an incredible amount of understanding about living systems over the centuries. So much so that it is tempting to fill you with "facts." We shall attempt, however, to resist that temptation and fill you instead with wonder (and lots of questions). Biological concepts, tempered with a healthy dose of factual content, will be our theme. Whenever possible, we shall try to pose questions to help you understand how the methods of science can help address problems. This should give you functional knowledge of what biology is about and how scientists work. In this respect, the laboratory component of our course will be invaluable and shouldn't be missed! We will have an opportunity to ask questions and pursue answers in small group study. You will interact with fellow students, teaching assistants, graduate students, and faculty. Laboratories will provide opportunities to try out ideas, ask questions, share knowledge and to just ponder marvelous things relevant to the living world all about each and every one of us.
This should be an exciting and rewarding learning experience for us all. I hope you gain a greater understanding of our biological world this semester, such that we develop a working knowledge about science in general with emphasis on some biological specifics. **Our attempt is to educate and produce informed and discerning citizens.** Be tactfully critical. At the same time, your charge is to become compassionate as well as to understanding of new and/or revolutionizing ideas. Go for it! We're glad you decided to embark upon this journey with us. Help us guide you into learning about life as we trek down provocative "garden paths" together.

**GRADING POLICY**

Your grade will be performance based. Included are exams (lecture), quizzes (laboratory), and homework assignments (laboratory). There will be **FOUR** in-class **ONE HOUR EXAMS**. A non-comprehensive **final** exam will constitute Exam 5. Our exams will consist of short essay, multiple choice, true-false, short answer/fill-in-the-blank and contemplative/synthesizing essay questions. They will examine your ability to recognize correct responses, recall ideas and terminology, discuss knowledge of concepts, synthesize new relationships between existing concepts and using your new-found knowledge to solve problems. **QUIZZES** (9-10) will be given during **most** laboratory sessions. Quizzes will focus on questions that arise in the lab and, to a lesser extent, lecture. **HOMEWORK** will vary in type and complexity to fulfill the laboratory experience. For example, you will be asked to: 1) prepare written and oral presentations for the laboratory, 2) collect data at home (for use in the lab), and 3) read science articles and report on them in lab.

**TEXT**

Our **required** text is **BIOLOGY: The Unity and Diversity of Life**, 6th Edition, by C. Starr and R. Taggart, published by Wadsworth Publishing Co. The bookstore also has available a limited number of **Study Guides** for this textbook, written by J.B. Taylor. It is **highly recommended** that you purchase and study from the Study Guide. We shall provide exam Review Questions for you, but reserve the right to extract questions **directly** from the student study guide for use in lecture exams.

We have also placed a copy of the **text** and **ancillaries** on **Library Reserve** for those of you who cannot afford the text or need a copy while studying on campus. Your TA's also have copies of both the text, Student Study Guide, and Answers to End-of-Chapter Questions. Chapter note sets used in lecture and corresponding chapter exam question examples are also on reserve in Biology 103 notebooks for your perusal. **PLEASE, DO NOT REMOVE** either of the two copies provided from the library, at the risk of being severely ridiculed by your fellow students WHO ALSO WANT THE ADVANTAGE OF USING THESE LEARNING AIDS.

**OFFICE HOURS**

We three will determine the best times to meet with you during laboratory sessions. We shall establish time **EACH WEEK** to meet with you for **REVIEWS**. You are also encouraged to set up individual appointments with your TA or me whenever you determine that individual attention is needed. Please utilize us. We
know more about this course than anyone else because we are all actively involved in its development, set-up and teaching, and are here to help you succeed!

**MISSING CLASSES**

If you miss your regularly scheduled lab, you MAY be allowed to attend another lab section but ONLY if you **check and clear it with your TA**. We need to make sure that we do not overload lab sections. All labs are expected to begin the semester at full capacity - 25 students/lab. DON'T miss lectures! **There is a strong correlation with lectures and laboratories missed to final grades!**

**GRADE DETERMINATION SYNOPSIS**

| Hour exams: 100, 100, 100, 100  =  400 |
| Lab, Quizzes and Homework = 225 |
| Final exam = 100 |

If you **must miss an EXAM**, please **contact us BEFORE** the exam. We will ONLY provide make-up exams when the excuse is valid (documented, a debilitating illness; University-related travel, etc.) and **we have been notified in advance of the exam**. Otherwise, you will forfeit the make-up to that exam. **No exams** may be made-up once graded exams have been passed back; generally within one week.

You may receive **extra credit** by preparing a **Research Paper**. The main thrust of the paper must be biological, but overtones in your major are invited and encouraged (i.e., “Legal implications of surrogate motherhood,” “A historical outline of the development of vaccines,” “Metamorphosis: a lesson plan for 5th grade science”). All extra credit projects **should be approved in advance**. We’ll help you get started. Maximum point value = 25 points. Due date: **29 November** (at class time). Final grades shall be based on ca. 725 total points and determined by percentage values as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A+</td>
<td>98%</td>
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<tr>
<td>A</td>
<td>92-97%</td>
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<tr>
<td>A-</td>
<td>90%</td>
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<tr>
<td>B+</td>
<td>88%</td>
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<td>B</td>
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<td>80%</td>
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<td>C+</td>
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<td>72-77%</td>
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<td>C-</td>
<td>70%</td>
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<td>D+</td>
<td>68%</td>
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<td>D</td>
<td>62-67%</td>
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<td>D-</td>
<td>60%</td>
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<tr>
<td>F</td>
<td>59%</td>
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Regular attendance for the laboratory component is **expected**. Obviously, we cannot chain you to a desk. Indeed, we do not want to! Any student desiring a passing grade in the class **MUST** make a reasonable effort (regular attendance, participation in projects, completion of assignments, etc.) in Lab. If a “reasonable effort” is not realized in lab, a student **will** receive a lower grade than might be
expected, regardless of grades achieved on lecture exams, due to a lower number of averaged-in points for the lab. We will adhere to UAF guidelines for the issuance of "Incomplete" grades. If you neglect the lab, you run a high risk of **failing** this course, as it is designed to fulfill a science lab and core curriculum (breadth) requirement for graduation.

**BIOLOGY 103**  
**BIOLOGY & SOCIETY LECTURE SCHEDULE**  
**MW 5:00 - 6:30 P.M.**

<table>
<thead>
<tr>
<th>Month</th>
<th>Day</th>
<th>Discussion Topic</th>
<th>Assigned Readings</th>
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<tbody>
<tr>
<td>SEP.</td>
<td>Th</td>
<td>First day of instruction at UAF</td>
<td></td>
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<tr>
<td>M</td>
<td>11</td>
<td>Methods, Concepts, Chemistry &amp; Carbon</td>
<td>Chs 1 (<strong>2</strong>,3)</td>
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</tbody>
</table>
| W     | 13 | Populations, Communities  
Last Day to Register, Add a Class and pay fees | Chs 44, 45        |
| M     | 18 | The Biosphere, Ecosystems & Human Impact | Chs 46, 4, 48     |
| W     | 20 | **EXAM 1 (6 Chpts.)**  
**Last Day To Drop Without Reflecting a "W"** | Chs 1, **44-48**   |
| M     | 25 | Cell & Membrane Structure & Function,  
Metabolism  
**Exam 1 Return** | Chs 4,5 (**6**)    |
| W     | 27 | Cell Division, Mitosis and Meiosis | Chs 9, 10         |
| F     | 29 | **Last day for student initiated withdraws for all  
Soph., Jrs. & Srs.  
For Freshman and Non-Degree students, 13 Oct.** |                  |
| OCT.  | M  | Inheritance, Chromosome Variation Human  
Genetics, DNA | Chs 11 (**12**) 13 |
| W     | 04 | **EXAM 2 (6 Chpts.)** | Chs 4-5, **9-11, 13** |
| M     | 09 | Protein Syntheses, Gene Expression,  
Recombinant DNA and Genetic Engineering  
**Exam 2 Return**  
**Term Project Ideas DUE in Lab!** | Chs 14 (**16**)   |
| W     | 11 | Evolution, Microevolution, Life's Origin's and  
Macroevolutionary Trends | Chs 17 (**18**) 19 |
| F     | 13 | **Last day for student initiated withdraws  
(Frosh. & Non-degree seeking)** |                  |
| M     | 16 | Classification, Human Evolution  
**Last day to apply for fall graduation** | Chs 20, 21       |
| W     | 18 | Viruses, Bacteria, Protists, Fungi | Chs 22, 23       |
Midterm grades for freshman students

M 23 EXAM 3 (8 Chpts.) Chs 14-23
W 25 Plants, Tissues, Nutrition and Transport Chs 24, 27, 28
M 30 Plant Reproduction, Growth & Development Chs 29, 30
Exam 3 return

Term Project Proposal DUE in lab!

NOV.
W 01 Animals, (Invertebrates & Vertebrates) Chs 25, 26
M 06 Tissues, Organ Systems, Homeostasis Chs 31, 32
Information Flow and the Neuron

W 08 EXAM 4 (9 Chpts.) Chs 25-26, 31-32
M 13 Integration & Control; Nervous & Endocrine Chs 33, 34
Systems
Exam 4 return

W 15 Sensory Reception, Protection, Support & Chs 35, 36
Movement
M 20 Digestion and Human Nutrition; Energy Chs 37 (7,8)
Pathways for Acquisition & Release Priority registration for Spring 1995
Priority registration for Spring 1995
Body Temperature Data DUE in Lab!

W 22 No Class (due to evening delivery Chs 39, 40
pre-Thanksgiving)
Th 23 Thanksgiving Holiday
F 24 Thanksgiving Holiday
M 27 Circulation Ch 38

Term Project PROGRESS Report DUE in Lab!

W 29 Immunity and Respiration Chs 39, 40
Extra Credit Papers DUE!
M 04 Water, Balance & Temperature Control Ch 41

DEC.
W 06 Principles of Reproduction & Development Ch 42
M 11 Human Reproduction & Development Ch 43
F 15 Last Day of Instruction at UAF

W 13 EXAM 5, FINAL (11 Chpts.) Chs 33-43
M 18 or possibly on the 18th? Your choice! 5pm • 466 Duck

Dates to Remember:

Sep. 20 Exam 1 6 Chs (Chpts. 2, 3 & 6 no test)
Oct. 04 Exam 2 6 Chs (Chpts. 12, 16 & 18 no test)
Oct. 23 Exam 3 8 Chs
Nov. 08 Exam 4 9 Chs (Chpts. 7, 8 no test)
Dec. 13/18 Exam 5 Final 11 Chs (Chpts. 49 & 50 no test)
<table>
<thead>
<tr>
<th>WEEK OF</th>
<th>TOPIC</th>
<th>NOTES</th>
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</thead>
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| Sep. 18 | The Science of Biology  
Animal Behavior | Methods of Science  
Oral reports |
| Sep. 25 | Osmosis and Membrane  
Permeability | Quiz 1  
Oral reports |
| Oct. 2 | Cell Division and  
Genetics of Fruit flies  
Prime flies | Quiz 2  
Oral reports |
| Oct. 9 | Genetics: Human  
Term Project Ideas due | Quiz 3  
Oral reports |
| Oct. 16 | Analyze and Count flies  
Mono- & Dihybrid Crosses | Quiz 4  
Oral reports |
| Oct. 23 | Trees, Bugs & Microbes in Winter | Quiz 5  
Oral reports |
| Oct. 30 | Life of Plants  
Term Project | Quiz 6  
Proposals due |
| Nov. 6 | Animal Kingdom | Quiz 7  
Thermometer distribution. |
| Nov. 13 | Human Senses | Quiz 8  
Oral reports |
| Nov. 20 | Animal Structure:  
Fetal Pig Dissection | Quiz 9  
Body Temp. Data due |
| Nov. 27 | Human Reproduction  
Term Project Progress | Quiz 10  
Report due |
| Dec. 4 | Open Lab: Completion of Term Projects | Use our expertise!  
No quiz today, folks! |
| Dec. 11 | Term Project Reports | Oral reports  
Paper submission |
| Dec. 18 | NO LAB! Final Exam | In Lecture |