BIOLOGY 101-001
SURVEY OF BIOLOGY
SPRING 2005

LECTURE TIMES: MWF 8:10-9:10
LOCATION: LA 205
INSTRUCTOR: Dr. J. Elson-Riggins
OFFICE: Science Rm. 118
PHONE: 657-1645
E-MAIL: jelsonriggins@msubillings.edu
OFFICE HOURS: MWF 12:10-13:10

COURSE DESCRIPTION AND OBJECTIVES
This course is not intended to transform you into a scientist. It will, however, introduce you to the principles of the biological and physical sciences and enable you to understand and discuss current issues in science. You will also learn about scientific reasoning, how to interpret scientific data, and critical thinking.

COURSE REQUIREMENTS
To pass this course you must attend lectures. Attendance will be monitored periodically and will be taken into account when determining your final course grade. You will be expected to read the assigned sections of the text books. These reading assignments will be announced prior to lecture. To summarize, your success in this class will be dependent upon attending lecture, taking detailed notes during the lecture, reading the text and attempting questions in the book and on the text web sites, completing all assignments, attending review sessions, and doing the practice exams.

Five quizzes and three examinations will be given in this course, in addition to the mandatory comprehensive final exam. Quizzes will be composed of ten multiple choice questions. To be successful in the quizzes, it will be necessary to attempt all the questions at the end of the text chapters and all the questions on the text web sites. The lowest of the five quizzes will be dropped, and the remaining four will be worth 20% of your final grade. The quizzes will be administered at the beginning of the lecture hour. Students arriving after the quiz has been distributed will not be permitted to take it.

Each exam may be composed of multiple choice, matching, true/false, and short answer questions. Study guides and practice exams will be posted on the class web site (see Biology 101 at http://www.msubillings.edu/sciences/handouts/classhandouts.htm) prior to the actual examination. It is VERY important that you attempt the practice exams (do them under exam conditions – time yourself!) and ask for help if you have trouble with the practice questions. The practice exams will be similar (but not the same!) as the real exams. Therefore, if you have trouble with the practice exams you will also have trouble with the real exams. Review sessions will be offered during office hours prior to the exams. Review attendance is not mandatory, but is highly recommended (students attending reviews usually outperform their peers). However, if you attend the review session, you will be required to have attempted the appropriate
practice exam beforehand. **Exam dates are tentative and will depend on the progress of the course. Any changes in date will be announced in lecture.** Each exam will be worth 20% of your final grade.

**MAKE UP EXAMS**
Make up exams will not be given without prior approval from the instructor and will only be permitted in dire circumstances beyond your control. If an exam is missed due to illness, **a note from a physician** will be required for a make up exam to be administered. There will be **no make up quizzes** under any circumstances.

**GRADES AND POINT BREAKDOWN**

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\begin{array}{c c}
\text{Assignment} & \text{Percentage of Points} \\
\text{Quizzes} & 20 \\
\text{Exams} & 80 \\
\text{Total} & 100 \\
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**EXTRA CREDIT**
There will be extra credit questions on the exams. However, **extra credit assignments will not be permitted** – so please do not ask for them!!!

**ACADEMIC MISCONDUCT**
It is **YOUR responsibility** to familiarize yourself with the Student Affairs Handbook. In particular, note Part IX, B.1, Academic Misconduct. You are expected to be **entirely** responsible for your own work. Any student cheating in an exam will receive a zero for that assignment, and possibly an “F” for the course. Plagiarism in any form will not be permitted. This includes verbatim copying of material from web sites and/or published work. You will be expected to transcribe in **YOUR OWN WORDS** all information from such sources.

**Verbal abuse** in any form will **NOT** be tolerated. Any student indulging in such behavior will be reported to the Dean of Arts and Sciences and The Office of Student Affairs.

**CLASS ETIQUETTE**
Students are expected to be attentive during lecture and to ask questions. However, disruptive behavior such as talking amongst yourselves, ringing cellular telephones, talking on cell phones, and reading non-course material during lecture will not be tolerated. Any students indulging in such behavior will be asked to leave the class. Cellular telephones must be turned off prior to lecture.

**STUDENTS WITH A DOCUMENTED DISABILITY**
Students with a documented disability requiring academic accommodation should make an appointment with the instructor.
HOLIDAY AND TENTATIVE EXAM SCHEDULE

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>Jan 31</td>
<td>Quiz 1</td>
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<td>Feb 11</td>
<td>Quiz 2</td>
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<td>Feb 14</td>
<td>Exam 1</td>
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<td>Feb 21</td>
<td>Presidents Day</td>
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<td>Feb 28</td>
<td>Quiz 3</td>
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<td>Mar 4</td>
<td>Exam II</td>
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<td>Mar 7-13</td>
<td>Spring Break</td>
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<td>Mar 24-27</td>
<td>Mini Spring Break</td>
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<td>Apr 1</td>
<td>Quiz 4</td>
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<td>Apr 6</td>
<td>Exam III</td>
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<td>Apr 25</td>
<td>Quiz 5</td>
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<td>Apr 29</td>
<td>University Day</td>
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<td>May 2 (12-13:50)</td>
<td>Final Exam</td>
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LECTURE TOPICS

Science:
- What is Biology?
- Organization of life
- The scientific Method

Chemistry of Life:
- Atoms, isotopes, and molecules
- Water
- Macromolecules

Cells:
- Properties of prokaryotic and eukaryotic cells
- Structure of eukaryotic cells
- Transport across cell membranes

Cell Cycle:
- Eukaryotic cell cycle
- Chromosomes
- Mitosis, meiosis, and cancer
- The sexual life cycle

Energy:
- Properties of energy
- Chemical reactions and enzymes
- Photosynthesis
- Cellular respiration

Information Flow and Disruption:
- Mendel and the principles of genetics
- Non-Mendelian patterns of inheritance
• Chromosomes and heredity
• Genetic diseases
• Gene expression – DNA ⇒ mRNA ⇒ Protein
• Mutation
• Genetic engineering
• Genomics

**Biological change:**
• Darwin
• Evidence for evolution
• Evolution of populations
• Adaptation
• The species concept

**Biodiversity:**
• Classification of organisms
• Viruses and prokaryotes
• Domains and kingdoms

**Ecology:**
• What is ecology?
• Ecosystems
• Population growth and its effect on the environment
• Communities
• Energy transfer in ecosystems
• Nutrient cycling
• Planet under stress