Biology 1406 83003

RICHLAND COLLEGE DEPARTMENT OF BIOLOGY
School of Mathematics, Science, and Health Professions
Course Syllabus For
Biol 1406: Biology for Science Majors I
4 credit hours (3 lec/3lab)

INSTRUCTOR'S INFORMATION
(Instructor reserves the right to amend this information as necessary.)

Semester and Year: Spring 2019

Section: 83003  Class time and days: Mon 9.40am – 11.00am Room WH131
                          Wed 9.40am – 11.00am Room WH131
                          Lab: Fri 8.10am – 11.00am Room: SH153

Instructor: Dr Lesley Benton  Contact Info: 972-238-6044 e-mail: lesley@dcccd.edu
          Office: SH262

Office Hours: Refer to instructor’s e-campus site

Last date to withdraw: Wednesday April 17th 2019

Final Exam Day and time: Wed 15th May 10.10am – 11.10am WH131

Evaluation Procedures: Your overall grade will be calculated from:
4 lecture exams worth 100 points each = 400 points
12 lab grades worth 25 points each = 300 points
1 lab report worth 50 points = 50 points
5 class activities worth 10 points each during review sessions = 50 points
1 comprehensive final exam worth 100 points = 100 points
Sapling Online Homework = 100 points
Total = 1000 points

The standard grading scale used is:
A = 90 -100% (900 points and above); B = 80 - 89% (800 – 899 points); C = 70 - 79% (700 – 799 points); D = 60 - 69% (600 – 699 points); F = 59% and below (599 points and below)

Attendance Policy: Attendance for lab and lecture is mandatory and recommended

Academic Progress: Students are encouraged to discuss academic goals and degree completion with their instructors. Specific advising is available throughout the semester. Check http://richlandcollege.edu/advising/ for more details.

Practice Tests
There are 4 practice tests in total, each one should be completed before each of the 4 class tests, completion of these practice tests will guarantee 20 points extra credit (5 points for each completed). These 20 points will be added to your final exam upon completion. These are available on e-campus and these points can be used to compensate for any missed labs since you cannot make-up labs unless alternative arrangements have been made previously and cleared with me.

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Required Materials: All are Free on e-campus

- **BIOLOGY 2e, by OpenStax**
  https://openstax.org/details/books/biology-2e
  Print: Optional
  ISBN-10: 1-947172-51-4

- **Sapling Learning (Online Homework System)**

**COURSE KEY CODE: 83003**

- **The Laboratory Manual** (as separate labs) is available (free) online on your e-campus site

**CATALOG COURSE DESCRIPTION**

**Course Description:** An introductory survey of contemporary biology for students majoring in the sciences. Topics emphasized will include the chemical basis of life, structure and function of cells, energy transformations, and molecular biology and genetics. (3 Lec., 3 Lab.).

**Prerequisite:** One of the following must be met: (1) DREA 0093 AND DWRI 0093; (2) English as a Second Language (ESOL) 0044 AND 0054; or (3) have met Texas Success Initiative (TSI) Reading and Writing standards AND the college Writing score prerequisite requirement.

**STUDENT LEARNING OUTCOMES LECTURE:**
1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
9. Describe the unity and diversity of life and the evidence for evolution through natural selection.

**STUDENT LEARNING OUTCOMES LAB:**
1. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
2. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
3. Communicate effectively the results of scientific investigations.
4. Describe the characteristics of life.
5. Explain the methods of inquiry used by scientist.
6. Identify the basic properties of substances needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
8. Describe the structure of cell membranes and the movement of molecules across a membrane.
9. Identify the substrates, products, and important chemical pathways in metabolism.
10. Identify the principles of inheritance and solve classical genetic problems.

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11. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
12. Describe the unity and diversity of life and the evidence for evolution through natural selection.

**Race to finish:**
([https://www.richlandcollege.edu/apply-reg/finishrace/pages/default.aspx](https://www.richlandcollege.edu/apply-reg/finishrace/pages/default.aspx)) is where students can find -- in one place -- all types of assistance and resources that can help them complete their degree(s) and/or certificate(s), seamlessly transfer to a university or enter the workforce with better opportunities.

**Richland College’s Quality Enhancement Plan - Learning to Learn: Developing Learning Power**

Richland College is piloting its Quality Enhancement Plan (QEP) in select classes. The QEP provides techniques, practices, and tools to help students develop the habits, traits or behaviors needed to be effective and successful lifelong learners in college and in life. For more information, please check QEP 2013: [http://www.richlandcollege.edu/qep/](http://www.richlandcollege.edu/qep/)

**CORE CURRICULUM STATEMENT:**

Through the Texas Core Curriculum, students gain a foundation of knowledge of human cultures and the physical and natural world, develop principles of personal and social responsibility for living in a diverse world, and advance intellectual and practical skills that are essential for all learning.

**Core Objectives for the Sciences:**

- **Critical Thinking Skills** - to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
- **Communication Skills** - to include effective development, interpretation and expression of ideas through written, oral and visual communication
- **Empirical and Quantitative Skills** - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- **Teamwork** - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal.

**Academic Progress:** Students are encouraged to discuss academic goals and degree completion with their instructors. Specific advising is available throughout the semester. Check [http://richlandcollege.edu/advising/](http://richlandcollege.edu/advising/) for more details.

**College Policies and Procedures:**
For Institution Policies, please refer to the Richland website: [www.richlandcollege.edu/syllabipolicies](http://www.richlandcollege.edu/syllabipolicies)

**Instructor Policies and Suggestions for Student Success:**

There is no eating or drinking allowed during lectures or labs. Please make sure all pagers and cell phones are switched off during labs and lectures. **Head phones are not allowed in class during lab or lecture, anyone wearing headphones during a lecture or lab exam will be given a zero grade.**

Please pay attention during lectures and labs, as I will emphasize important information, which will be of use when it comes to studying for exams. When in the lecture bring and read lecture notes (I strongly advise you to print out a copy), please read textbooks in the evenings/during study time to supplement the lecture notes. There is no need to bring textbooks to class (this will lighten your load considerably!). During lectures you should be constantly supplementing your lecture notes, some topics discussed will not be in the notes (or will need clarification) and will be examinable, so listen carefully! **You must also print out and bring the appropriate lab print out to that specific lab, failure to do so will result in a loss of points.**

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Persistent talking during the lecture is very distracting to both your fellow students and me. Feel free to ask questions related to the lecture at any time but please keep other unrelated chat till after the lecture. Please note it is not OK to leave/miss lectures or labs because of any outside job, remember this is your future don’t make it a missed opportunity! Lecture exams cannot be made-up without relevant official documentation.
<table>
<thead>
<tr>
<th>WEEK</th>
<th>WEEK OF:</th>
<th>LAB TOPIC (Fri 8.10 - 11.00am - SH153)</th>
<th>Mon LECTURE (9.40 - 11.00am) WH131</th>
<th>Wed LECTURE (9.40 - 11.00am) WH131</th>
<th>BOOK CHAPTERS</th>
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<tr>
<td>1</td>
<td>1/21/19</td>
<td>Course Orientation &amp; Lab 1 Safety</td>
<td>MLK HOLIDAY</td>
<td>The Study of Life</td>
<td>Chapter 1</td>
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<tr>
<td>2</td>
<td>1/28/19</td>
<td>Lab 2: Microscopy</td>
<td>The Chemical Foundation of Life</td>
<td>The Chemical Foundation of Life</td>
<td>Chapter 2</td>
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<tr>
<td>3</td>
<td>2/4/19</td>
<td>Lab 3: Scientific Method</td>
<td>Biological Macromolecules</td>
<td>Biological Macromolecules</td>
<td>Chapter 3</td>
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<td>4</td>
<td>2/11/19</td>
<td>Lab 4: Chemistry &amp; Life</td>
<td>Revision</td>
<td>EXAM 1 - Chapters 1-3</td>
<td>Chapters 1-3</td>
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<td>5</td>
<td>2/18/19</td>
<td>Lab 5: Spectrophotometry</td>
<td>Metabolism</td>
<td>Metabolism</td>
<td>Chapter 6</td>
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<td>6</td>
<td>2/25/19</td>
<td>NO LAB - TCCTA Meeting</td>
<td>Cell Structure</td>
<td>Cell Structure</td>
<td>Chapter 4</td>
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<td>3/11/19</td>
<td>SPRING BREAK</td>
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<td>8</td>
<td>3/18/19</td>
<td>Lab 7: Cells</td>
<td>Revision</td>
<td>EXAM 2 - Chapters 4-6</td>
<td>Chapters 4-6</td>
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<td>9</td>
<td>3/25/19</td>
<td>Lab 8: Membranes, Diffusion &amp; Osmosis</td>
<td>Cellular Respiration</td>
<td>Cellular Respiration</td>
<td>Chapters 7</td>
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<td>10</td>
<td>4/1/19</td>
<td>Lab 9: Respiration &amp; Photosynthesis</td>
<td>Photosynthesis</td>
<td>Photosynthesis</td>
<td>Chapter 8</td>
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<td>11</td>
<td>4/8/19</td>
<td>Lab 10: Cell Cycle, Mitosis</td>
<td>Revision</td>
<td>EXAM 3 - Chapters 7 &amp; 8</td>
<td>Chapters 7 &amp; 8</td>
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<td>12</td>
<td>4/15/19</td>
<td>NO LAB - SPRING HOLIDAY</td>
<td>Cell Reproduction (Lab report due) and Meiosis</td>
<td>Meiosis</td>
<td>Chapters 10 &amp; 11</td>
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<td>13</td>
<td>4/22/19</td>
<td>Lab 11: Meiosis</td>
<td>Mendel's Experiments &amp; Heredity / DNA</td>
<td>DNA Structure &amp; Function / Genes &amp; Proteins</td>
<td>Chapters 12 &amp; 14</td>
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<td>14</td>
<td>5/29/19</td>
<td>Lab 12: Mendelian Genetics</td>
<td>Genes and Proteins</td>
<td>Revision</td>
<td>Chapter 15</td>
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<td>15</td>
<td>5/6/19</td>
<td>Lab 13: Genes and Proteins</td>
<td>EXAM 4 - Chapters 10-15</td>
<td>Revision (Final)</td>
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<td>5/13/19</td>
<td>NO LABS</td>
<td>FINAL EXAMS WEEK</td>
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