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/3 lab)  
INSTRUCTOR'S INFORMATION  
(Instructor reserves the right to amend this information as necessary.)

Semester and Year: Spring 2015

Section: BIOL1406-83250

<table>
<thead>
<tr>
<th>Lecture Time and Location</th>
<th>Lab Time and Location</th>
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</thead>
<tbody>
<tr>
<td>Room WH145, Lecture</td>
<td>Room SH151 LAB</td>
</tr>
<tr>
<td>Saturday 9:00 AM-12:00 PM</td>
<td>Saturday 1 PM - 4:00 PM</td>
</tr>
</tbody>
</table>

Instructor: Irina Tskvitaria-Fuller  
Office: A110  
Phone: (972)238-6140

Last date to withdraw: Last day to drop a class without a “W” - Monday, February 2nd.  
Last day to drop a class with a “W” - Thursday, April 16.  
You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception.

Final Exam Day and time: Saturday, May 9, 2015.  
9:00 a.m. – 11:00 a.m. in room WH145.

DCCCD CATALOG 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.

PRE-REQUISITES  
One of the following must be met: (1) DREA 0093 AND DWRI 0093; (2) ESOL 0044 AND ESOL 0054; or (3) have met TSI Reading and Writing standards AND DCCCD Writing score prerequisite requirement.

RECOMMENDED PRE-REQUISITE: MATH 1314. Successful completion of College Algebra or concurrent enrollment in higher-level mathematics is recommended.

COURSE OBJECTIVES

1. To understand and apply method and appropriate technology to the study of natural sciences.
2. To recognize scientific and quantitative methods and the differences between these approaches and the other methods of inquiry, and to communicate findings, analyses, and interpretation both orally and in writing.
3. To identify and recognize the differences among competing scientific theories.
4. To demonstrate knowledge of the major issues and problems facing modern science, including issues that touch upon ethics, values, and public policies.
5. To demonstrate knowledge of the interdependence of science and technology, and their influence on, and contributing to, modern culture.

Evaluation Procedures:

A standard grading scale will be used to calculate % total points, rounded to the NEAREST whole number
100-90% = A; 89-80% = B; 79-70% = C; 69-60% = D; 59% and below = F

<table>
<thead>
<tr>
<th>Assessment Activity</th>
<th>Points</th>
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<tbody>
<tr>
<td>Lecture Component (690 pts)</td>
<td></td>
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<tr>
<td>3 exams: 3@100 pts each</td>
<td>300</td>
</tr>
<tr>
<td>Comprehensive final exam</td>
<td>200</td>
</tr>
<tr>
<td>Lecture Activities 9 @10 pts each</td>
<td>90</td>
</tr>
<tr>
<td>Online homework</td>
<td>100</td>
</tr>
<tr>
<td>Lab Component (310 pts)</td>
<td></td>
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<tr>
<td>Pre-lab questions</td>
<td>120</td>
</tr>
<tr>
<td>Lab quizzes</td>
<td>130</td>
</tr>
<tr>
<td>Lab Report</td>
<td>60</td>
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Grading scale may change at the discretion of the instructor.

Total Possible Points = 1000 pts

Lecture Grades (~2/3 of total grade):

LECTURE EXAMINATIONS: The exams will be a combination of multiple choice questions.

COMPREHENSIVE FINAL: The final exam is comprehensive over Chapters 1 – 8, 10, 11, 12, 14 & 15. It will be given on Saturday May 9 between 9:00 am – 11:00 am in room WH 145. It consists of 100 multiple-choice questions. You will need a scantron form 882E, for each exam.

LECTURE ACTIVITIES: Lecture activities will consist of lecture quizzes, discussions and other similar activities assigned in the classroom.

Online Homework: You will need to have an access code for the online homework system. The access code is included in a new book. If you buy a used book you will need to buy the access code separately. Once you have the code you will register for the course and use this url to enter your specific section:


Lab Grades (~1/3 of total grade):

LAB GRADES: Lab grades will be earned through taking lab quizzes, and completing the required lab activities. You will be given a lab grade for each lab class this semester (12). Your lowest 2 lab grades will be dropped.

Lab-Quiz: After completing all lab activities and cleaning your station, you will be given a quiz over that week’s lab. Do NOT share the quiz questions or answers with any other students that they have not taken the quiz yet. ABSOLUTELY NO MAKE-UPS FOR LAB QUIZZES. The lab quiz will be administered during the first 15 minutes of the lab period; if you are late for lab, you will have less time to finish the quiz. IF you leave the lab after taking the quiz (without completing the lab
exercise to the teacher’s satisfaction) your lab quiz for that day will not be graded (will receive a grade of zero). Pre-labs (found at the beginning of each lab exercise) are due at the beginning of the lab period. If you did not attend a lab, you cannot turn in a Pre-lab for it.

**Exercise Grade:** For successfully completing the lab and cleaning up your work area, you will earn a few points.

**LAB REPORT:** After performing the Lab 3 Scientific Methods, each individual student must write a lab report. If you did not attend the Lab 3, you CANNOT write a lab report for it. You will be given the lab report instructions at that time.

**Practice Tests:** There are 4 practice tests in total, each one should be completed before each of the 4 exams. Each completed of the practice test will have a value of 5 points extra credit. These are available on e-Campus. Grades for exams and quizzes will be posted on eCampus and your final course grade through eConnect. Your grade will NOT be sent to you or anyone else by email.

**Attendance Policy:** In order to be successful, students must attend and participate in enrolled courses. Attendance is necessary for class participation and course work. There will be no make-up opportunities for missed assignments. Thus, it is strongly recommended that students attend each class. However, there will be no official course grading policy on attendance. If there is a conflict in your schedule, contact me ASAP.

**Make-up Exam Policy, Late Work, and/or Lab:**

**Exams:** All students are expected to take exams as scheduled. NO EXAMs can be made up if missed except in case of an emergency such as illness or death in the family. The student must provide the documentation. If a student missed the exam, the student gets a zero for that exam. But the zero (only one) will be replaced by the student’s final exam percent score.

**Lab Grades:** Students will receive a zero for any lab missed. But the two lowest lab grades will be dropped.

**Lab Report:** Late lab report will receive a 50% deduction in total points. Late lab report must be submitted by **April 11, 2015**

**THE INSTRUCTOR RESERVES THE RIGHT TO AMEND THIS SYLLABUS AS NECESSARY.**

**Required Materials:**

- Richland Customized Copy of Biology, 10th edition, by Raven packaged with online access code to **connect** (LearnSmart)
  
  **ISBN-10:** 1-259-146030
  
  Available at our bookstore.

  **Notes:** See the instructions on eCampus.

- The Laboratory Manual is available online on your e-campus site.
Instructor Policies and Suggestions for Student Success:

- Lecture starts at 9:00 a.m. If you arrive late more than 5 minutes, please be as quiet as possible.
- Please **Turn off** your cell phone/computer
- No use of headphones during lecture time.
- Persistent talking among classmates during lecture will not be tolerated. It can distract other students and the instructor. A student may be asked to leave the classroom at the discretion of the instructor.
- Eating and drinking are not allowed in the lab due to safety concerns.
- You are expected to take good care of all the equipment/materials provided to you in the lab. It is your responsibility to keep your working area and materials clean.

Tips for Success:

- Stay focused, alert, and show interest during lecture and lab
- Be on time for lecture and lab
- Pay attention to the big picture first, and then learn details
- Making flash cards
- Using videos, animations, and pictures can help you to understand Biology better
- Make a link between concepts
- Make study groups and explain what you have learned
- You are welcome to ask your questions anytime, if some parts are not clear to you
- Practice tests or quizzes

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 ([http://www.richlandcollege.edu/qep/](http://www.richlandcollege.edu/qep/))

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

College Policies and Procedures:

For Institution Policies, please refer to the Richland website [www.richlandcollege.edu](http://www.richlandcollege.edu) or to [www.richlandcollege.edu/syllabusinfo/syllabiInformation.pdf](http://www.richlandcollege.edu/syllabusinfo/syllabiInformation.pdf)

Student Learning Outcomes

Upon successful completion of this course, students will:
1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Apply scientific reasoning to investigate questions and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
4. Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
5. Communicate effectively the results of scientific investigations.
6. Identify the basic requirements of life and the properties of the major molecules needed for life.
7. Compare and contrast the structures, reproduction, and characteristics of 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.
11. Identify the chemical structures, synthesis of nucleic acids and proteins.
12. Describe the unity and diversity of life and the evidence for evolution through natural selection.

CORE CURRICULUM Statement of Purpose

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.
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<tr>
<th>Date</th>
<th>Lecture Schedule</th>
<th>Lab Schedule</th>
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<tbody>
<tr>
<td></td>
<td>Saturday 9 am-12:00 pm</td>
<td>Saturday 1 pm-4:00pm</td>
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<tr>
<td>Jan 24</td>
<td>Ch 1: Themes in Biology &amp; Ch 2: The nature of molecules</td>
<td>LAB 1 SAFETY</td>
</tr>
<tr>
<td>Jan 31</td>
<td>Ch 2: The properties of water &amp; Ch 3: The chemical building /blocks of life</td>
<td>LAB 2 MICROSCOPY (Lab 2 quiz)</td>
</tr>
<tr>
<td>Feb 7</td>
<td>Ch 3: The chemical building /blocks of life</td>
<td>LAB 3 SCIENTIFIC METHOD (Lab 3 quiz) Collect Data for writing Lab Report.</td>
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<tr>
<td>Feb 14</td>
<td>Ch 6: Metabolic concepts</td>
<td>LAB 4 CHEMISTRY AND LIFE (Lab 4 quiz)</td>
</tr>
<tr>
<td>Feb 21</td>
<td><strong>Exam #1 (Chapters 1, 2, 3)</strong></td>
<td>LAB 5 SPECTROPHOTOMETRY(Lab 5 quiz)</td>
</tr>
<tr>
<td>Feb 28</td>
<td>Ch 4: Cells</td>
<td>LAB 6 ENZYME (Lab 6 quiz) Collect Data for writing Lab Report.</td>
</tr>
<tr>
<td>Mar 7</td>
<td>Ch 5: Membrane</td>
<td>LAB 7 CELLS: STRUCTURE AND FUNCTION (Lab 7 quiz)</td>
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<tr>
<td>MAR 14</td>
<td><strong>Spring Break</strong></td>
<td><strong>Spring Break</strong></td>
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<tr>
<td>Mar 21</td>
<td><strong>Exam#2 (Chapters 6, 4, 5)</strong> Lab will be conducted first – prior to the exam. Please appear in SH 151 first.</td>
<td>LAB 8 MEMBRANES: DIFFUSION AND OSMOSIS (Lab 8 quiz) Lab will be conducted first – prior to the exam. Please appear in SH 151 first.</td>
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<tr>
<td>Mar 28</td>
<td>Ch. 7: Cellular Respiration Ch. 8: Photosynthesis</td>
<td>LAB 9 RESPIRATION &amp; PHOTOSYNTHEIS (Lab 9 quiz) <strong>Enzyme - LAB Report Due</strong></td>
</tr>
<tr>
<td>Apr 4</td>
<td><strong>No Lecture - Spring Holiday</strong></td>
<td><strong>No Lab - Spring Holiday</strong></td>
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<tr>
<td>Apr 11</td>
<td>Ch 10: How cells divide Ch 11: Sexual reproduction and meiosis</td>
<td>Lab 10 THE CELL CYCLE (Lab 10 quiz) Lab 11, MEIOSIS (Lab 11 quiz)</td>
</tr>
<tr>
<td>Apr 18</td>
<td><strong>Exam#3 (Chapters 7, 8, 10, 11)</strong> Ch12: Pattern of Inheritance</td>
<td><strong>No Lab</strong></td>
</tr>
<tr>
<td>Apr 25</td>
<td>Ch 14: DNA : the genetic materials</td>
<td>Lab 12, MENDELIAN GENTICS (Lab 12 quiz)</td>
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<tr>
<td>May 2</td>
<td>Ch 15: Genes and how they work</td>
<td>Lab 13, GENE EXPRESSION (Lab 13 quiz)</td>
</tr>
<tr>
<td><strong>May 9</strong></td>
<td><strong>FINAL EXAM (Comprehensive final exam Chapters 1 – 8, 10, 11, 12, 14 AND 15)</strong></td>
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