127-03/04/09 Life Investigation Lab II

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Biology 127 Life Investigation Lab II Syllabus and Course Requirements  Spring 2014

<table>
<thead>
<tr>
<th>Section</th>
<th>Day and Time</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>T 1:00 – 2:50 pm</td>
<td>Roy</td>
</tr>
<tr>
<td>02</td>
<td>T 3:00 – 4:50 pm</td>
<td>Zoller</td>
</tr>
<tr>
<td>03</td>
<td>W 9:00 – 10:50 am</td>
<td>Matre</td>
</tr>
<tr>
<td>04</td>
<td>W 12:00 – 1:50 pm</td>
<td>Matre</td>
</tr>
<tr>
<td>05</td>
<td>W 2:00 – 3:50 pm</td>
<td>Tehrani</td>
</tr>
<tr>
<td>06</td>
<td>W 7:30 – 9:20 pm</td>
<td>Nikolaidis</td>
</tr>
<tr>
<td>07</td>
<td>R 11:30 am – 1:20 pm</td>
<td>Roy</td>
</tr>
<tr>
<td>08</td>
<td>F 10:00am – 11:50 am</td>
<td>Tehrani</td>
</tr>
<tr>
<td>09</td>
<td>F 1:00 – 2:50 pm</td>
<td>Matre</td>
</tr>
</tbody>
</table>

**Laboratory Instructors:**

Dr. Nancy Matre: Albers 111, 745-3828  
Dr. Nikolaos Nikolaidis: Albers 1, 745-3823  
Dr. Pamela Roy: Albers 112, 745-3806  
Ms. Kathy Tehrani: Albers 105A, 745-3494  
Dr. Erin Zoller: Albers 1, 745-3823

**Required Text:** Investigating Life, Pamela W. Roy, Ph.D.

This Life Lab does not go with a Life Lecture, so all of the course content must be learned during the lab. Because of this, instructors will need to talk about the lab and tell you enough background information for you to understand the lab. Reading the lab beforehand will cut down on the amount of instruction and leave more time for discussion and experiments.

**Course Outcomes:** This biology course has been designed to satisfy a core science requirement for students who do not major in biology. You will understand what characteristics all living things possess and begin to see the enormous diversity of life on earth. This semester, the emphasis is on microscopic fungi, protists, and bacteria. We begin the semester looking at human nutrition, and end the semester looking at how our immune system protects us from microorganisms and viruses found everywhere. Throughout the semester, we will look at how to understand science in the popular press, relating it to the process of science (the scientific method), and learn how we can determine whether that information is trustworthy. Completing this course should result in meeting core curriculum goals and student outcomes contained in goals 1, 2, 3, 4, 5, 6, and 7.

**Attendance** is mandatory. There are seven other labs besides the one you are enrolled in. If you miss your class, you might be able to make up the lab in another section if you notify your instructor and the instructor of the other section. Most of you probably don’t have a class on Wednesday night or Friday afternoon, so keep those labs in mind. Since seating is limited to 20 in each lab, it might not be possible to make up the lab in some sections. If you do not make up the lab in another section, you will not receive team or individual points for that lab. You must inform your instructor in advance if you will miss class due to a university-approved function and arrange to make up the class in another section that meets before or after your lab meets. In past years, some students have gone to other sections several times, without permission. If you routinely miss the class that you have signed up for, your instructor will ask you to drop the class because an instructor is not responsible for assigning you a grade when they have not personally witnessed your performance on tests and team assignments.
**Snow Days:** If class is cancelled because of snow, you will need to make up the work in another lab. You can attend any of the remaining labs that week or attend a make-up lab from 11am -1pm on Saturday.

**Tests:** are given at the start of class. The same test is given in all eight sections with graphs, photos, microscopes, or other test question materials changed for each class or day. All instructors have been invited to submit questions and the test is a compilation of questions submitted. Because the tests are the same for each class, once the first section has taken a test, your instructor will not answer any questions that you have about the material, so students in all eight sections should review the material before the test starts in case there are questions. **Leaving a test for any reason once the test has started will result in a zero for that test. Bathroom breaks and water breaks should be taken care of before the test begins.**

**Laptops, cell phones, beepers, pagers, other handheld electronic devices:** so that your classmates are not distracted and lab interrupted, I ask that you turn off all electronic devices during lab, including laptops. Lab is a time for the exchange of knowledge free from the distraction of other media. Please be ready to take notes and discuss the material face-to-face and voice-to-voice. No handheld devices (such as cell phones, calculators, beepers, or pagers) or devices attached to your ear (such as ipods or bluetooth) may be used during the exams. Anyone found to have any of these devices out during an exam will be told to leave the exam and will receive a zero on the exam. You will need to put all electronic devices away (none are allowed on your person during the exam). If you do not have a backpack to place these in, you may leave them with me during the exam.

**Grades** will include individual (352 points) and team (98 points) assignments for a total of 450 points. A = 416-450, A- = 403-415, B+ = 389-402, B = 371-388, B- = 358-370, C+ = 344-357, C = 326-343, C- = 313-325, D+ = 299-312, D = 281-298, D- = 268-280, F = <268.

<table>
<thead>
<tr>
<th>Individual Grades</th>
<th>Pts</th>
<th>Team Grades</th>
<th>Pts</th>
</tr>
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<tbody>
<tr>
<td>Popular Press Articles (7)</td>
<td>42</td>
<td>Slow Food</td>
<td>43</td>
</tr>
<tr>
<td>Tests 1, 2, and 3</td>
<td>225</td>
<td>Water test</td>
<td>10</td>
</tr>
<tr>
<td>Calories</td>
<td>10</td>
<td>Graphs/Table (2)</td>
<td>30</td>
</tr>
<tr>
<td>Zoo Project</td>
<td>50</td>
<td>Gel Electrophoresis Analysis</td>
<td>15</td>
</tr>
<tr>
<td>America’s Worst Food</td>
<td>25</td>
<td></td>
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<tr>
<td>Total</td>
<td>352</td>
<td></td>
<td>98</td>
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**Academic Misconduct:** The Xavier University Handbook states that “…violations of certain standards of ethical behavior will not be tolerated at Xavier University. These include theft, cheating, plagiarism, unauthorized assistance in assignments and tests, unauthorized copying of computer software, the falsification of results and material submitted in reports…” The first incidence of academic misconduct will result in a zero for the assignment. The second incidence will result in failure of the course. When the misconduct involves two or more students, all students involved will receive a zero the first time and an F for the course the second time. It does not matter if you copied the work or allowed it to be copied. Both are academic misconduct, and will receive the same treatment.

In Biology 127, academic misconduct is defined as cheating, plagiarism, or helping someone cheat or plagiarize. **Cheating includes:**

1. the use of handheld electronic devices during a quiz or test. Handheld devices include calculators, cell phones, computers, or pagers. These devices must be completely put
away in your backpack. You cannot have them physically on your person during an exam or quiz.

2. the use of notes during a quiz or test
3. asking another student to tell you the questions or answers to a question on a quiz or test
4. giving/telling another student the questions or answers to a question on a quiz or test
5. asking another student to tell you the answers to assignments/projects
6. providing another student with the answers to assignments/projects
7. asking another student to let you copy the answers to assignments/projects
8. allowing another student to copy the answers to assignments/projects

Plagiarism includes:
1. copying the work of another student, past or present, and submitting it as your own
2. copying material from a journal, magazine, book, or the internet, and submitting it as your own

The first incidence of academic misconduct will result in a zero for the assignment/test/quiz. The second incidence will result in failure of the course. When the misconduct involves two or more students, all students involved will receive a zero the first time and an F for the course the second time. It does not matter if you copied the work or allowed it to be copied. Both are academic misconduct, and will receive the same treatment.

Schedule of Labs

<table>
<thead>
<tr>
<th>Lab/Dates</th>
<th>Activity</th>
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</table>
| Lab 1 Jan 14, 15, 16, 17 | Discussion: Syllabus explained, BMI, BMR, healthy diet, nutrition labels  
Activity: calculate BMI, BMR. Deconstruct a nutrition label  
Due at end:  
Homework: Read Lab 2. Read, sign, and date Lab Safety Agreement. Bring in a nutrition label |
| Lab 2 Jan 21, 22, 23, 24 | At the start of lab: Lab Safety Agreement due  
Discussion: Food pyramid, sugar in pop, pseudoscience and science, the process of science, writing science, peer review  
Activity: determine the amount of sugar in pop and your food label  
Due at end:  
Homework: Read lab 3. Science in the popular press article. |
| Lab 3 Jan 28, 29, 30, 31 | At the start of lab: Science in the popular press article due (6 pts)  
Discuss: fast food, America’s Worst Food Project  
Activity: calculate calories for breakfast, lunch, and dinner  
Due at end: pages 22 and 23 (10 points)  
Homework: Read lab 4. Begin thinking about America’s Worst Food |
| Lab 4 Feb 4, 5, 6, 7 | At the start of lab:  
Discuss: Michael Pollan food rules, Slow Food  
Activity: Slow Food Project  
Due at end: Team Activity: Slow Food Project (43 points)  
Homework: Study for Test 1 (labs 1-4). Study Guide pages 30-31 |
| Lab 5 Feb 11, 12, 13, 14 | At the start of Lab: Test 1 (75 points)  
Homework: Read Lab 6. Zoo Project assigned, Science in the popular press article |
| Lab 6 Feb 18, 19, 20, 21 | At the start of lab: Science in the popular press article (6 pts)  
Discussion: Protists, pollution  
Activity: Look at prepared slides of protists and living protists, test water for chemicals |
<table>
<thead>
<tr>
<th>Lab</th>
<th>Date</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab 7</td>
<td>Feb 25, 26, 27, 28</td>
<td>Due at end: Team Activity: Chemicals in water (10 points)</td>
</tr>
<tr>
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<td>Homework: Read Lab 7. Science in the popular press article.</td>
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<tr>
<td>Lab 7</td>
<td></td>
<td>At the start of lab: Science in the popular press article (6 pts)</td>
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<td>Discussion: Interdependence of life, bacteria, fungi, growing organisms on agar, fecal bacteria, reading patient information sheets.</td>
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<td>Activity: Watch Video, test air and water for bacteria and fungi</td>
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<td>Due at end:</td>
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<td></td>
<td></td>
<td>Homework: Read lab 8. Science in the popular press article.</td>
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<tr>
<td>Lab 8</td>
<td>March 11, 12, 13, 14</td>
<td>At the start of lab: Science in the popular press article (6 pts)</td>
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<td></td>
<td></td>
<td>Discussion: Tables and graphs</td>
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<tr>
<td></td>
<td></td>
<td>Activity: Results from testing air and water. Graph results from water pollution lab</td>
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<td>Due at end: Team Activity: Graph or Table (15 pts)</td>
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<td></td>
<td>Homework: Study for Test 2 (labs 5-8). Study Guide p 50-51</td>
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<tr>
<td>Lab 9</td>
<td>March 18, 19, 20, 21</td>
<td>At the start of lab: Test 2 (75 points)</td>
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<td>Homework: Read lab 10. Zoo project due at First aid station by 5pm on Sunday, March 23rd (50 pts)</td>
</tr>
<tr>
<td>Lab 10</td>
<td>March 25, 26, 27, 28</td>
<td>At the start of lab: Zoo project was due Sunday</td>
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<td>Discussion: Viruses, vaccinations</td>
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<td></td>
<td></td>
<td>Activity: Build a virus, watch video, act out invasion of flu virus</td>
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<td>Due at end:</td>
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<td></td>
<td></td>
<td>Homework: Read lab 11. Science in the popular press article.</td>
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<tr>
<td>Lab 11</td>
<td>April 1, 2, 3, 4</td>
<td>At the start of lab: Science in the popular press article (6 pts)</td>
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<tr>
<td></td>
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<td>Discussion: Bacteria, growing microorganisms, hand bacteria, respiratory bacteria</td>
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<td></td>
<td></td>
<td>Activity: Culture bacteria from hands, respiratory tract</td>
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<td></td>
<td></td>
<td>Due at end:</td>
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<td></td>
<td>Homework: Read lab 12. Science in the popular press article, America’s Worst Food due</td>
</tr>
<tr>
<td>Lab 12</td>
<td>April 8, 9 11</td>
<td>At the start of Lab: Science in the popular press article (6 pts), America’s Worst Food (25 pts)</td>
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<td>Discuss: Pregnancy test</td>
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<td></td>
<td>Activity: simulated pregnancy test, results from hands and respiratory tract Cultures, graph hand or cough results</td>
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<td></td>
<td></td>
<td>Due at end: Team Activity: Graph of hand or cough results (15 pts)</td>
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<td></td>
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<td>Homework: Science in the popular press article.</td>
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<tr>
<td>April 17-21</td>
<td></td>
<td>Easter Break: No lab April 15, 16, 17, 18</td>
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<tr>
<td>Lab 13</td>
<td>April 22, 23, 24, 25</td>
<td>At the start of lab: Science in the popular press article (6 pts)</td>
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<td>Discussion: select America’s Worst Food, graph pooled class data</td>
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<td></td>
<td>Due at end: Team Activity: Gel electrophoresis analysis (15 pts)</td>
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<td></td>
<td></td>
<td>Homework: study for Test 3 (Labs 9-13). Study Guide p 74-75</td>
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<tr>
<td>Lab 14</td>
<td>April 29, 30, May 1, 2</td>
<td>Test 3 (75 points)</td>
</tr>
</tbody>
</table>

**Computers** in Albers 1 are provided for your convenience to work on team projects during class. **Misuse of computers** will result in loss of team and/or individual points at the discretion of the
instructor. **Misuse** includes using the computers for personal email or instant messaging, or altering settings.