Course Title: Topics in Biology  
Course Hours/Credits: 3 hours – 3 credits  
Prerequisites: CSE099, ENG099, MAT096 or Waivers

Instructor:  
Instructor Contact Information:  
Instructor Office Hours:  

Course Coordinator: Dr. Tonya Hendrix  
Course Coordinator Contact Information:  
email thendrix@lagcc.cuny.edu  
office M-220D

Course Description:  
This course, which is designed for non-biology majors, is intended to introduce students to some of the most important aspects of current biological theory, methodology, and research. The course earns General Education credit under the Life and Physical Sciences category. Successful students will demonstrate the skills necessary to understand and apply scientific concepts and reasoning. Concepts will derive from cell biology, genetics, biotechnology, evolutionary theory, organismal biology and ecology. Students will also be expected to understand application of the scientific method to data collection, analysis and interpretation. In support of these goals, laboratory work will be an integral part of the course, with every other week exercises that parallel topics covered in the lecture class.

Required Materials:  
- **MasteringBiology.com** code for online access is included with the purchase of the text and lab manual in LAGCC’s bookstore
COURSE REQUIREMENTS

**Attendance:** Students are required to attend all lecture and laboratory sessions. Lateness or absence of greater than 10% is considered excessive and could result in a lowering of your course grade.

The final course grade will be based on the following:

<table>
<thead>
<tr>
<th>Lecture:</th>
<th></th>
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<tbody>
<tr>
<td>5 Quizzes (5 points each - lowest dropped)</td>
<td>20%</td>
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<tr>
<td>Midterm Examination</td>
<td>15%</td>
</tr>
<tr>
<td>Final Examination</td>
<td>15%</td>
</tr>
<tr>
<td>Assignments*</td>
<td>15%</td>
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</table>

<table>
<thead>
<tr>
<th>Laboratory:</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>6 lab reports (3 points each – lowest dropped)</td>
<td>15%</td>
</tr>
<tr>
<td>Lab Midterm Examination</td>
<td>10%</td>
</tr>
<tr>
<td>Lab Final Examination</td>
<td>10%</td>
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</tbody>
</table>

*The nature of the assignments will be announced in class.*

**No make-ups** will be permitted on quizzes missed due to absence or lateness. However, the lowest quiz grade will be dropped.

Make-ups on midterms and finals will be permitted only with documented absence (e.g. doctor’s note). However, make-up examinations will tend to be considerably more difficult than the scheduled examinations.

**Grade Standards:**

<table>
<thead>
<tr>
<th>Course Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-92.9</td>
</tr>
<tr>
<td>B+</td>
<td>87-89.9</td>
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<tr>
<td>B</td>
<td>83-86.9</td>
</tr>
<tr>
<td>B-</td>
<td>80-82.9</td>
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<tr>
<td>C+</td>
<td>77-79.9</td>
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<tr>
<td>C</td>
<td>73-76.9</td>
</tr>
<tr>
<td>C-</td>
<td>70-72.9</td>
</tr>
<tr>
<td>D+</td>
<td>67-69.9</td>
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<tr>
<td>D</td>
<td>63-66.9</td>
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<tr>
<td>D-</td>
<td>60-62.9</td>
</tr>
<tr>
<td>F</td>
<td>&lt; 59.9</td>
</tr>
</tbody>
</table>

**Grading:** A minimum of 60% of the possible points must be earned in order to receive a passing grade for the course.

**Quizzes:** There will be five quizzes, each quiz of about twenty five minutes duration, throughout the semester (see Course Schedule below).
The College’s regulations regarding cheating will be strictly enforced. The policy on academic integrity is available at the following address:
http://library.laguardia.edu/files/pdf/academicintegritypolicy.pdf

Artifact Assessment
This class will be depositing student work for this semester. Students will be depositing an assignment for the Inquiry and Problem Solving competency and Written Communication ability.

For a tutorial on how to deposit student work, go to: http://eportfolio.lagcc.cuny.edu/support/tutorials.htm and find the section called, “Assessment for Students.” Click on the adobe flash button for “ Depositing Assessment Artifact in Digication Instructions for Students.” You will see a brief video on how to deposit.

LECTURE

Schedule

<table>
<thead>
<tr>
<th>WEEK #</th>
<th>TOPIC</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (2-Hour)</td>
<td>Introduction to Biology, Scientific Method</td>
<td>Ch. 1</td>
</tr>
<tr>
<td>1 (1-Hour)</td>
<td>Chemistry of Life</td>
<td>Ch. 2</td>
</tr>
<tr>
<td>2 (1-Hour)</td>
<td>Chemistry of Life</td>
<td>Ch. 3</td>
</tr>
<tr>
<td>3 (2-Hour)</td>
<td>Quiz #1 (Ch. 1-3)</td>
<td>Ch. 4</td>
</tr>
<tr>
<td>3 (1-Hour)</td>
<td>Cell Structure &amp; Function</td>
<td>Ch. 10</td>
</tr>
<tr>
<td>4(1-Hour)</td>
<td>Cell Division</td>
<td>Ch. 8</td>
</tr>
<tr>
<td>5(2-Hour)</td>
<td>Quiz #2 (Ch. 4, 8, 10)</td>
<td>Ch. 9</td>
</tr>
<tr>
<td>5(1-Hour)</td>
<td>DNA Technology Bioethics</td>
<td>Ch. 12</td>
</tr>
<tr>
<td>6(1-Hour)</td>
<td>MIDTERM EXAM Lecture (Ch. 1-4, 8-10, 12)</td>
<td>(Covers Ch. 1-12)</td>
</tr>
<tr>
<td>7(2-Hour)</td>
<td>Animal Structure and Function Circulatory and Respiratory Systems</td>
<td>Ch. 21 (Pg. 454-463) Ch. 23</td>
</tr>
<tr>
<td>7(1-Hour)</td>
<td>MIDTERM EXAM Lab</td>
<td>(Covers Labs 1-3)</td>
</tr>
<tr>
<td>8(1-Hour)</td>
<td>Urinary System</td>
<td>Ch. 21 (Pg. 464-471)</td>
</tr>
<tr>
<td>9(2-Hour)</td>
<td>Quiz #3 (Ch. 21, 23)</td>
<td>Digestive System and Nutrition</td>
</tr>
<tr>
<td>9(1-Hour)</td>
<td>Gamete Formation and Fertilization</td>
<td>Ch. 26 (Pg. 551-562)</td>
</tr>
<tr>
<td>10(1-Hour)</td>
<td>Human Development</td>
<td>Ch. 26 (Pg. 563-570)</td>
</tr>
<tr>
<td>11(2-Hour)</td>
<td>Quiz #4 (Ch. 22, 26) Evolution</td>
<td>Ch. 13-15</td>
</tr>
<tr>
<td>11(1-Hour)</td>
<td>Evolution</td>
<td>Ch. 16-17</td>
</tr>
<tr>
<td>12(1-Hour)</td>
<td>Quiz #5 (Ch. 13-17) Ecology</td>
<td>Ch. 18 ,20</td>
</tr>
<tr>
<td>13 Finals Week</td>
<td>FINAL EXAM (Lab and Lecture)</td>
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</tr>
</tbody>
</table>

**LABORATORY**

**Schedule**

<table>
<thead>
<tr>
<th>LAB</th>
<th>WEEK</th>
<th>TOPIC</th>
<th>ASSIGNMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>Metric system &amp; Scientific Method</td>
<td>Lab Report #1</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>Microscope &amp; Cell structure</td>
<td>Lab Report #2</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>Connecting Meiosis and Genetics</td>
<td>Lab Report #3</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>DNA Isolation/Biotechnology</td>
<td>Lab Report #4</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>Fetal Pig Anatomy / Food Analysis</td>
<td>Lab Report #5</td>
</tr>
<tr>
<td>6</td>
<td>12</td>
<td>Ecosystems</td>
<td>Lab Report #6</td>
</tr>
</tbody>
</table>

**Lab 1**

**Safety:** Watch department safety presentation

**Exercise 2: “The Metric System”**

Page 4- 8, (conversions, balancing act, volume, temperature)

Students will be able to:
- correctly convert units of measure for length, mass, and volume
- accurately use a balance
- accurately measure liquids
- convert temperature between Fahrenheit and Celsius

**Exercise 3: “Introduction to the Scientific Method”**

Activity 1 and 2, Page 11-14,
Activity 4, Page 18-21,

Students will be able to:
- use the scientific method to solve problems
- draw conclusions that are supported by experimental data

**Lab Report #1** pg 9, Review Questions; pg 15, Comprehension Check; pg 29, Self-Test, #1 - 7

**Lab 2**
Read p 45, 46, 48

Exercise 4: “The Microscope”

Part A, page 33
Students will be able to:
- identify parts of a microscope
- calculate total magnification

Part B, page 36
Students will be able to:
- focus a microscope using low and high power
- explain how a microscope transforms the image of a specimen

Exercise 5: “The Cell”
Assignments 4, page 51, & 5, page 52
Students will be able to:
- prepare a wet mount
- identify features of plant and animal cells visible using a light microscope

**Lab Report #2** pg 43, Exercise – The Microscope; pg 55 – 56, Laboratory Report

**Lab 3**
Read p 93- 94

Exercise 8: “Connecting Meiosis and Genetics”
Activities 1 - 4, page 95
Students will be able to:
- name and describe the stages of meiosis
- demonstrate an understanding of the changes in chromosome number that occur during meiosis and fertilization
- draw and complete Punnett squares and use them to determine genetic probabilities in monohybrid crosses

Activities 5, page 104 (done as homework)
Students will turn in pages 103 and 105

**Lab Report #3** pg 103, What’s Your Baby’s Genotype; pg 105 (or 106), Baby’s Phenotype, pg 124-125, Practicing Genetics Problems

**Lab 4**
Read handout
Handout: “Strawberry DNA Extraction”
Complete entire procedure
Students will be able to:
- explain the steps and materials needed for DNA extraction
- collect a DNA sample
- observe the physical characteristics of DNA
Students will complete analysis questions at the end of lab. Students will turn in the last page of the handout.

**Lab Report #4** handout, Strawberry DNA Extraction

**Lab 5**
Read pg 151-53; 165-166

Exercise 10: “Dissection of a Fetal Pig”
- The thoracic organs, page 151
- Digestive organs in the abdomen, page 152
- Models of the digestive system will also be available
  Students will be able to:
  - identify the major internal organs of the thoracic and abdominal cavities in a fetal pig

Exercise 11: “Food Analysis and Choices for Good Health”
- Positive and negative indicator tests, page 166
- Testing food samples, page 170
  Students will be able to:
  - perform chemical tests to detect the presence of starch, carbohydrates, lipids, and proteins in food samples
  - relate the nutrient content of a food to its original function in plants and animals

**Lab Report #5** pg 171, Tables 2 and 3; pg 172, Comprehension Check; pg173-74, An Embryo in a Peanut Seed;

**Lab 6**
Read pg 185-186

Exercise 12: “Ecosystems”
- Activity 1, page 187
- Activity 3, page 191 (may be assigned as part of lab report)
- Activity 4, page 194
  Students will be able to:
  - discuss the methods by which nutrients are recycled in an ecosystem
  - diagram and label food chain and food web
  - explain how natural factors and human activities can effect an entire ecosystem

**Lab Report #6** pg 191 – 93, Food Chains Interact to Form Food Webs; 196-98, Comprehension Check
UNIVERSITY RESOURCES

Tutoring:
CSTEP - Rm E-342
Academic Peer Instruction - Rm E-115
Student Government Association Tutoring Program - Rm M-159

Disabilities Act:
If you have a physical, psychological or learning disability which may interfere with your ability to complete assignments, then please contact Disabled Student Services (DSS), Room M-102 / 718-482-5279. They will review your concerns and determine with you, what accommodations are necessary and appropriate. All documentation of and information regarding disabilities is confidential. You must register with the Disabilities Office to receive special accommodations.

The Writing Center:
The Writing Center, Room B-200, offers tutoring in writing skills and assistance on individual papers, both for this class and others. The Center is open Monday-Friday from 9:15am-9:00pm.

The Health Services Center:
The Health Services Center promotes health, safety, and the well-being of the college community. The goal is to help each student achieve optimum health to ensure their participation in the educational opportunities at LaGuardia Community College.

Among the services offered are:
1. Immunization
2. Health Counseling
3. Health education
4. Personal Counseling (i.e., family issues, anxiety, depression, etc.)

Services are free to LAGCC students and the Center is located in MB-40 and can be reached at 718-482-5280.

Revised: 03/01/2016 – T. Hendrix