

## **BIOLOGY 10: Introduction to Life Science**

**Spring 2017**

Instructor: Alexander Shiglik

E-mail: alexander.shiglik@reedleycollege.edu

Lecture #59452: Tuesday/Thursday 6:00-7:15 PM; LFS 11

Office Hours: By appointment only

### **I. COURSE DESCRIPTION**

**A. Title:** Biology 10 – Introduction to Life Science

**B. Prerequisite:** None - Just the desire to learn.

**C. Summary:** This lecture course is recommended for the non-biological science and pre-education majors. This is an introductory course using biological concepts. The organismal structure, function, inheritance, evolution, and ecology are covered. Students needing a life science lab must enroll in Biology 10L in addition to Biology 10. Not open to students with credit in Biology 3.

**D.** Biology 10 is a 3 unit lecture class.

### **II. COURSE CONTENT**

#### **Student Learning Outcomes:**

*Upon completion of this course, students will be able to:*

1. Evaluate current scientific literature and examine how the scientific method is employed in biological research.
2. Identify levels of biological organization and apply these concepts to living systems.
  1. By examining anatomical and physiological features.
  2. By investigating chemical and energy relationships.
3. Assess human impacts on natural systems and critically evaluate solutions to environmental problems.
4. Explore the cellular basis of life.
5. Apply the principles of Mendelian genetics to evolutionary theory and human medicine.
6. Recognize the function of DNA and how its discovery has impacted modern science.
7. Classify the wide range of living organisms and identify the evolutionary mechanisms that have impacted this diversity.
8. Recognize the chemical basis of life.

#### **Objectives:**

*In the process of completing this course, students will:*

1. compare and contrast Eukaryote and Prokaryote cell structure.
2. recognize chemical elements, bonds and properties of water.
3. compare anatomical and physiological features seen in the animal kingdom with emphasis on human body systems.
4. calculate genetic probabilities based on the principles of Mendelian genetics.
  - o identify human genetic mutations and explain probable causes for their occurrence.
5. distinguish the processes of transcription and translation and identify their roles in protein synthesis.
6. diagram plant life cycles and identify major plant adaptations.
7. explain and compare the processes of photosynthesis and cellular respiration.

8. demonstrate knowledge of evolutionary theory and identify the different mechanisms responsible for biological change.
9. describe energy flow and nutrient cycling within an ecosystem.
  - o consider human impact on natural systems.
10. relate principles of population ecology to the study of the global human population.
11. read scientific literature and apply the steps of the scientific method to laboratory research.

### III. MATERIALS:

1. Text: Mader, S. Essentials of Biology, 4th edition McGraw Hill + Learnsmart Access
2. Scantron 882-E

### IV. ATTENDANCE:

You must attend class in order to pass. I will drop any student who fails to attend the first day of class. After that you are required to drop yourself. If you stop showing up you will likely remain enrolled and receive a final grade of an F. Perpetual absence will result in the student being dropped. I will give warning via email.

### V. TESTS AND EVALUATIONS:

#### A. Grading

Description	Points
30 Learnsmart Assignments (10 points each)	300
Midterms (4)	400
<u>Final</u>	<u>200</u>
Approximate Total	900

#### B. Grading scale:

90% = A      80% = B      70% = C      60% = D      59% and below = F  
 Rounding up will depend on how close your grade is as well as your overall performance and effort throughout the course.

C. Tests cannot be made up without prior arrangement or proof of extenuating circumstances. Exams will consist of multiple choice as well as essay questions.  
**Policy for missed exams:** You will have one week to make up the missed exam. *Your exam score will have 10 percentage points deducted as a penalty for late work.* If you have a medical excuse you will be exempt from the point deduction.

D. Learnsmart assignments will be assigned for each chapter covered in the textbook. You will need an active Learnsmart access code purchased through the publisher. No late assignments will be accepted unless prior approval is given by the instructor.

### VI. EXPECTATIONS AND POLICIES

- Be respectful and pay attention during lecture and instructions. I will ask disruptive students to leave the classroom.
- No makeups without prior arrangement.
- Cheating and plagiarism will result in failing the assignment and discussed further with administration.
- Please keep electronic devices silent and electronics of any kind are not permitted during exams.
- No food or drink out in the classroom. There is a 15 minute break between lecture and lab for students to utilize.

## VII. ACCOMODATIONS

If you have a verified need for an academic accommodation or material in alternate media (i.e. Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

### Lecture Schedule Biology 10 – Spring 2016

Lecture	Text
<b>Week 1: 1/10 &amp; 1/12</b>	
<b><u>Lesson #1</u></b>	
Orientation, Grading, Goals, Attendance	Syllabus, Schedule
A View of Life	Ch. 1
Chemistry	Ch. 2
Organic Molecules (basics)	Ch. 3
<b>Week 2: 1/17 &amp; 1/19</b>	
<b><u>Lesson #2</u></b>	
Inside the Cell	Ch. 4
Dynamic Cell (basics)	Ch. 5
<b>Week 3: 1/24 &amp; 1/26</b>	
<b><u>Lesson #3</u></b>	
Cell Reproduction	Ch. 8
Cellular respiration/Fermentation	Ch. 7
<b>Week 4: 1/31 &amp; 2/2</b>	
<b><u>Lesson #4</u></b>	
<b>Exam #1 (Chs. 1,2,4,7,8)</b>	
Photosynthesis	Ch. 6
<b>Week 5: 2/7 &amp; 2/9</b>	
<b><u>Lesson #5</u></b>	
DNA	Ch. 11

Protein synthesis	
Sexual Reproduction	Ch. 9
<b>Week #6: 2/14 &amp; 2/16</b>	
<b><u>Lesson #6</u></b>	
Patterns of Inheritance	Ch. 10
Genetic Counseling	Ch. 13
<b>Week 7: 2/21 &amp; 2/23</b>	
<b><u>Lesson #7</u></b>	
<b>Exam #2 (Chs. 6,9,10,11,13)</b>	
Evolution	Ch. 14
<b>Week 8: 2/28 &amp; 3/2</b>	
<b><u>Lesson #8</u></b>	
Microevolution	Ch. 15
Macroevolution & Classification	Ch. 16
<b>Week 9: 3/7 &amp; 3/9</b>	
<b><u>Lesson #9</u></b>	
<b>Exam #3 (Chs. 14-16)</b>	
Viruses	Ch. 17
<b>Week 10: 3/14 &amp; 3/16</b>	
<b><u>Lesson #10</u></b>	
Prokaryotes	Ch. 17
Protists	Ch. 17
<b>Week 11: 3/21 &amp; 3/23</b>	
<b><u>Lesson #11</u></b>	
Fungi	Ch. 18
Plants	Ch. 18
<b>Week 12: 3/28 &amp; 3/30</b>	
<b><u>Lesson #12</u></b>	
Animals 1	Ch. 19
Animals 2	Ch. 19
<b>Week 13: 4/4 &amp; 4/6</b>	
<b><u>Lesson #13</u></b>	
<b>Exam #4 (Chs. 17-19)</b>	
Animal Organization	Ch. 22
<b>Week 14: 4/18 &amp; 4/20</b>	
<b><u>Lesson #14</u></b>	
Animal Digestion	Ch. 24
Animal Circulation	Ch. 23
<b>Week 15: 4/25 &amp; 4/27</b>	
<b><u>Lesson #15</u></b>	
Animal Respiration	Ch. 24
Animal Excretion	Ch. 24
<b>Week 16: 5/2 &amp; 5/4</b>	
<b><u>Lesson #16</u></b>	
Ecology of Populations	Ch. 30
<b>Week 17: 5/9 &amp; 5/11</b>	
<b><u>Lesson #17</u></b>	
Ecosystems	Ch. 31
Human Impacts	Ch. 32

Conservation Biology

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**Week 18: 5/16 (6:00-8:00 PM)**

**Lesson #18**

**Final (Cumulative, but with an emphasis on Chs. 22-24 & 30-32)**

**\*Schedule is tentative and may be modified with notification**