Biology 100 – Principles of Biological Science

4 Credits, CRN # 20221
Spring 2014

Instructor: James Castle
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Blackboard: http://imperial.blackboard.com
Class Schedule:
Lecture Tuesday 6:30 – 9:40 PM Room 2717
Laboratory Thursday 6:30 – 9:40 PM Room 2717
Required Materials:
Textbook: Biology 100: Principles of Biological Science IVC, by Marielle Hoefnagels
Lab Manual: Principles of Biological Science BIOL100 Lab Manual
Lab Note Book (composition book) 2 black pens (ball point) and 6 inch ruler
Safety goggles, gloves (required) and Lab Apron/coat (optional)

Course Description:

A comprehensive one semester general biology course for non-majors. Includes life from the molecular to the organismic level of both plants and animals and their interactions within the environment. Special emphasis is put on human biology within appropriate areas of study. Appropriate for general education as well as nursing, pre-professional, and higher level biology courses. Includes laboratory component.

Course Objectives:

1. The student will identify the basic characteristics of all living things.
2. The student will name basic chemical aspects that pertain to life and the concept of homeostasis.
3. The student will describe the subcellular components of the cell including their structure and function.
4. The student will explain the light and dark reactions of photosynthesis.
5. The student will explain cellular respiration and its relations to the entire organism.
6. The student will demonstrate knowledge of the structure and function of DNA and RNA.
7. The student will explain protein synthesis and site the central dogma of cell biology.
8. The student will compare and contrast the fundamentals of asexual and sexual reproduction.
9. The student will define ecology and the overall impact of ecology to conditions in the environment.
10. The student will solve problems in general genetics and in human genetics and relate advances in genetics to social responsibility of geneticists.
11. The student will identify and relate the functions of the major systems of the human body, the interrelationship among body systems and nature of disease.
12. The student will classify organisms in the kingdoms of plants and animals, discuss their evolutions and their relationships.

Student Learning Outcomes (SLOs):
(1) Communication Skills
(2) Critical Thinking Skills
(3) Personal Responsibility,
(4) Information Literacy
(5) Global Awareness
Upon completion of this course students will be able to:
1. Demonstrate an understanding of the steps of the scientific method. (2)
2. Communicate an understanding of the various patterns of inheritance of genetic traits. (1 & 2)

3. Explain how the processes of natural selection influence evolution. (1 & 2)
4. Perform lab activities properly, and correctly analyze lab data. (1 & 2)

Class Policies:

1. Class attendance and tardy policy follows the regulations in the IVC catalog.
2. Attendance will be taken at the start of each lecture and lab.
3. Students may be asked to drop the class if absent from more than 3 lectures and/or labs.
NOTE: Family issues, travel issues, work-related problems, alarm clock failure, UFO sightings, etc., are not valid reasons for being late or absent to class! Only real emergencies will be considered to be excused absences. Excused absences must be documented.
4. The deadline for dropping a course without appearing on transcript is 12 April 2014
5. The deadline for dropping a full-term class is
6. No food or drinks in the lab. Only bottled water allowed in the classroom.
7. **Cell phones must be turned off at all times!** Ringing cell phones are a distraction both to me and to other students in the class. If you must use your cell phone during class, please take it outside, and then come back in when you are done. You should not be checking your phone, or texting, during lectures. If you are caught checking your phone, or texting, during class, you may be asked to leave for the day and will be marked absent.
8. **No talking during class!** Talking is a distraction to me and other students in the class. If you have questions during the lecture, please ask me! If you are caught talking, you may be asked to leave for the day and will be marked absent.
9. **Cheating and plagiarism will not be tolerated at all! Plagiarism** is defined as copying entire sections or parts from the lab manual, textbook, or any other source (including other students) for any assignment. Students will receive a **zero** for any assignment if they are caught **cheating** or **plagiarizing**. Students may work together for worksheets and lab worksheets, but each student must turn in **their own work in their own words**. If students turn in assignments with the same or similar wording (i.e., from copying off another student), they will all be given a **zero** for that assignment. Additional disciplinary action may be taken if needed.
10. Lab groups cannot leave the lab until **all** members of the group have finished the experiments. Lab groups will have to show me the data from the lab, and may be asked to explain the data before the lab group is allowed to leave the lab. Lab groups **must** thoroughly clean up after themselves, or else groups will be assigned to do clean up at the end of the next lab!
11. When doing labs, make sure that you observe the results from all parts of the experiments. You may be asked about your results before you can leave the lab, so make sure you have seen the results, or else you may have to repeat that experiment!
12. Any student with a documented disability who may need educational accommodations should notify the instructor or Disabled Student Programs and Services Office (DSP&S; Room 2117, Health Science Building; 355-6312) as soon as possible.

Grading

1. There will be **3** exams, worth **100 points** each (**300 points** total). Exams will begin at the start of class. Exams will last 60 minutes, and will consist of 50 multiple choice/matching questions dealing with lecture material. Exams are closed notes, books and/or any electronic device. Scantron sheets will be provided, but make sure you bring good-quality #2 pencils with working erasers. If you are late to the exam, you will not be given extra time to finish it. There will be no make-up exams, except for extreme circumstances. If you have a valid, documented reason for missing an exam, it is **your responsibility** to tell me about it and provide valid documentation by the **next class meeting**, otherwise you will not have the opportunity to make up the exam, and will be given a **zero** for that exam.

2. There will be **10** quizzes worth **10 points** each (**100 points total).** The quiz will begin at the start of class and you will have 10 minutes to complete the quiz. The quiz will consist of short answer and true/false questions. The quiz will be 5 questions worth 2 point per question. **There will be no make-up for quizzes.**

3. There will be **14** lab worksheets (Lab Manual) and a Lab Notebook [Composition Book] worth (**7 points**) and a Lab Report worth (**2 points**) for a total of (**100 points**). Lab Notebooks will be turned in before the mid-term and the final.

4. Spelling and grammar count on all written assignments! You will lose up to **20% of the points** on each assignment if you have excessive spelling or grammatical errors.

Grading scale:
3 Exams = 300 points
10 Quizzes = 100 points
14 Lab worksheets = 100 points

Total = 500 points
A 450 - 500 points
B 400 - 449 points
C 350 -399 points
D 300 - 349 points
F 0 -299 points

How to do well in this class:
1. Make sure you come on time to all lectures and labs! Arriving late or missing a class for any reason (excused or unexcused) can cause you to miss lecture and lab material, and will only put you at a disadvantage in this class.

2. Make sure you know what will be happening each day for class! Keep the class schedule handy.

3. Skim through or read the chapter before coming to lecture. You will have a general feel for the subject matter, which will help your understanding of the material during lecture. Look through the figures for the chapter, and try to understand them.

4. Take Notes!!! Weather you take notes via paper and pen or an electronic device (computer, tablet, etc does not matter, the important point is you will not pass this course with out good note take skills. Pay attention during lectures! I will say things during lecture that are not written on the PowerPoint slides or the board that will be on the exams. Make sure you take good notes during class. Don't just mindlessly write down word-for-word what is on the slides. Listen to what I have to say and supplement the slides with my lecture and the text

5. Read the Text/Lab Manual. I will ask you questions from reading sections in your text/lab manual.

4. Read through the lab activity before coming to lab. It will make you more prepared to do the lab activity, and you can perform it better, quicker, and will be able to easily understand what is happening in the lab.

5. Study, study, study! You should spend at least 4-5 hours studying for this class each week. This is a 4 unit class, the ratio is 1:2 so for each unit of instruction you should study 2 hours; therefore 8 hours would be the average.

You should study in an area where there are no distractions (television, radio, computers, iPods, other people, etc.).

6. You should also spend time studying in groups. Nothing makes you learn the material better than having to explain it to someone else!

8. Don't cram! It's better to spend some time each week studying as compared to saving it all until the night before the exam.

9. It is not enough just to memorize facts! On the exams, you will be responsible for using the information learned and applying it to new situations. You need to understand what these facts mean!

WK	DATE	LECTURE (TUESDAY)	DATE	LABORATORY (THURSDAY)
1	01-21	Introduction / Chapter 1	01-23	Scientific Method; Lab Report and Lab Rules
2	01-28	Ch 2, 7, 11 Chemistry/DNA	01-30	Exp. 3: Chemical Composition of Cells (3.1, 3.2, 3.3, 3.4)
3	02-04	Ch 3, Cell Structure (Microscope)	02-06	Exp. 2: Metric & Microscopy (2.1, 2.3, 2.4, 2.5)
4	02-11	Ch 8 Cell Division and Meiosis	02-13	Exp. 4: Cell Structure & Function (4.3, 4.4, 4.5)
5	02-18	Ch 15 Microbial Life and Evolution	02-20	**Exam 1**
6	02-25	Ch 4 and 6 Energy	02-27	Exp. 5: Enzymes (5.2, 5.3, 5.4)
7	03-04	Ch 16, 21 Plant Diversity and Evolution	03-6	Exp. 7: Cellular Respiration (7.2)
8	03-11	Ch 17 Animal Diversity and Evolution	03-13	Exp. 24/25: Vertebrates and Animal Organization (Computers)
9	03-18	Animal Diversity ll (Dissection Prep)	03-20	Exp. 26/27: Fetal Pig / Frog Dissection
10	03-25	Ch 26 and 27 Physiology l	03-27	**Mid-term Exam**

11	04-01	Ch 24 Physiology ll	04-03	Exp. 30: Senses
12	04-08	Ch 12 and 13 Evolution	04-10	Darwin Dangerous Idea (DVD Film)
13	04-15	Ch 10 Genetics	04-17	Exp. 10: Human Genetics
14	04-29	Ch 14 Speciation and Extinction	05-01	**Exam 3**
15	05-06	Ch 18, 19 and 20Ecology	05-08	Exp. 33/34: Ecology
16	05-13	**FINAL EXAM REVIEW**	05-15	**FINAL EXAM**