MAJOR CONCEPTS IN BIOLOGY

Fall 2014

BIOL2010

Section 002

M W 3:30 – 4:45 PM

SM2110

Instructor: Dr. Sally E. Harmych

Office: WO1235K

Office Hours: Tuesday 9:30 AM – 11 AM

Wednesday 1 PM – 3 PM

Thursday 9:30 AM – 11 AM

Phone: 419-530-4585

Email: sally.harmych@utoledo.edu (I am happy to answer questions via email if you are not able to attend office hours)

This course will discuss topics related to the major concepts of biology such as evolution, the cell, the gene and homeostasis. This course is designed for students majoring in science, engineering or other fields that require biology as a prerequisite.

Learning Outcomes:

Students who successfully complete this course will be able to:

- Generate a hypothesis from a set of observations and then design experiments to test the hypothesis.
- Describe the structure and function of prokaryotic and eukaryotic animal and plant cells.
- Describe the processes of cell communication.
- Outline the structure of proteins, nucleic acids, lipids and carbohydrates.
- Explain the flow of genetic information in the cell from DNA to RNA to proteins.
- Explain patterns of inheritance and describe the processes of mitosis and meiosis.
- Describe how natural selection has resulted in the diversity of life on earth.
- Explain the processes by which animals maintain homeostasis by monitoring the internal and external environments.

**Students are expected to gain a foundational level of understanding that will allow the students to be prepared for success in the major's biology Fundamentals of Life Science series.

Required Materials:

Principles of Biology from Nature Education, MacMillian (http://nature.com/principles)

Turning Technologies Radio Frequency "Clicker" with LCD screen.

Course Websites: Information pertaining to the course will be available on the course website, available via UT's Blackboard portal (classic view: http://blackboard.utdl.edu or mobile view: m.utoledo.edu/dl). If you have issues accessing Blackboard or with its function you can let me know, but for technical assistance you should contact Learning Ventures (by email: utdl@utoledo.edu or phone: 419-530-8835**).**

In addition to the Blackboard site we will also be using the **Principles of Biology website (www.nature.com/principles**). This is where you will go to complete your online homework assignments and practice the material. We will discuss more of the features of the available with the textbook as the course continues.

Assessment:
Students will be assessed based on their performance on midterm exams, a final exam and in-class and online work as outlined below.

Midterm exams	40%
Final exam	20%
In-class work and assignments	30%
Online homework	10%

Midterm exams: Students will be given 4 midterm exams worth 100 points each. The exams will be worth 40% of the final grade. The lowest midterm score will be dropped at the end of the semester.

Final Exam: The final exam will be comprehensive and will count for 20% of the grade. This exam will be worth 150 points.

In-class work and assignments: This portion of the grade will include in-class group assignments as well as clicker points. Students will be divided into class groups by the instructor at the beginning of the semester. These groups will be asked to work together on in-class assignments and discussions over the material. Assignments will include both group assignments that all members of the team will contribute to as well as individual assignments. Each team member is expected to take an active part in the work that is assigned and will be asked to sign a contract with the other members of the team. Members of a team will be asked to assess each other's contributions to the work throughout the semester. These assignments and clicker points will be worth 30% of the final grade.

Online Homework: Students will be assigned material to read before each class meeting. This information can be found in the Topic Schedule below. It is the student's responsibility to look ahead on the schedule and see which module we will be covering in the next class so they can read the material. In addition to reading, students will be assigned a short online quiz to complete before each class over the material that will be covered that day. These quizzes will be worth 5 points each and need to be completed before walking into lecture for that day. The online homework will be worth 10% of the final grade.

Final Grade Calculation: Your final grade will be calculated from a combination of In-class work and assignments (30%), your online homework (10%.), the **best three (3)** of four (4) midterm exams (40%) and the final comprehensive exam (20%)

******Academic dishonesty may lead to failure of this course. Read the University policy about this subject******

Grading Scale: Exams will be scored as % correct points, which will correspond to a letter grade according to the table below. This scale is based on the assumption that knowledge of more than 50% of the material is needed to pass this course.

GRADE	% CORRECT	GRADE	%CORRECT
A	90 – 100	C	67 - 70
A-	87 – 89	C-	63 - 66
B+	83 – 86	D+	59 - 62
B	79 – 82	D	55 - 58
B-	75 – 78	D-	51 – 54
C+	71 – 74	F	0 - 50

*******Any student listed in the course after **October 31** can only receive a **grade of A – F.**

Any student who stops attending class after taking the first exam will receive a grade of F for all the missed exams, ***unless that student withdraws from the course by October 31.***

I will only assign **IN** grades in extraordinary cases when unexpected conditions prevent a student from completing the course within the term of enrollment. An IN grade must be removed by the end of the following semester.

Classroom Expectations:

I expect that since you are taking this course you are interested in learning about the subject of biology. The best way to be successful is to read the text, attend lecture, take notes and do your online assignments. It is helpful if you read the text before attending lecture. When you come to lecture it is expected that your focus will be on the material covered, not your cell phone, latest email or Facebook postings, or today's news headlines. During lecture I will outline the subject matter and cover key points. In addition, attending lecture gives you an opportunity to ask questions about the material and helps me know when you are having difficulties. What is covered in lecture is much more likely to be seen on exams. I encourage you to ask questions if you are having difficulty. You can also ask me questions directly after class, during office hours, via email or over the phone. I am here to help you be successful, but I cannot do that if you do not ask.

Please bring a **#2 pencil, an eraser and your valid UT student ID card** to each examination. No student will be permitted to take the exam without proper identification.

Examinations start and end at specified times. Under no circumstances will students be admitted to an exam after the first student has left the exam. Extra time will not be given for students that show up late. If you must miss an exam you must contact me within 24 hours to schedule the make-up exam. When we meet you must have a written excuse. If proper documentation is not provided then the missed exam will be scored as your lowest exam score for the semester. If you know in advance that you must miss an exam for a legitimate reason then please see me to schedule an early exam.

Planned Schedule of Topics (Subject to change, changes will be announced in class)

DATE		TOPIC	MODULE(S)
August	**25**	Introduction to the Course and Overview	
August	**27**	What is Science and How do Scientists study Science?	1
September	**1**	No Class - Labr Day	
September	**3**	Basic Cellular Chemistry	2, 3

September	**8**	Carbohydrates and Lipids	4, 5
September	**10**	Proteins and Nucleic acids	6, 7
September	**15**	Cells, Eukaryotic cells and cell membranes	8, 9, 10
September	**17**	Exam I (Modules 1-10)	
September	**22**	Cell signaling and Signal transduction	11, 12
September	**24**	Cell division (mitosis)	13
September	**29**	Cell cycle control	14
October	**1**	Meiosis and sexual reproduction	15
October	**6**	Mendel's principles and inheritance	16, 17
October	**8**	Mendel's principles and inheritance	16, 17
October	**13**	NO CLASS - Fall Break	
October	**15**	DNA and DNA replication	18, 19
October	**20**	Exam 2 (Modules 11-17)	
October	**22**	Gene expression	20
October	**27**	Evolution	22, 23
October	**29**	Forces that drive evolution	24
November	**3**	Animal structure and function	25
November	**5**	Homeostasis and Thermoregulation	26, 27
November	**10**	Nervous systems and Action potentials	28, 29
November	**12**	Exam 3 (Modules 18-27))	
November	**17**	Sensory receptors and the CNS	30
November	**19**	Hormones as signaling molecules	31
November	**24**	Hormones and the body and the Endocrine system	32, 33
November	**26**	NO CLASS - Thanksgiving Break	
December	**1**	Osmoregulation, Excretory systems and The Nephron	34, 35, 36
December	**3**	Osmoregulation, Excretory systems and The Nephron	34, 35, 36
December	**8**	Exam 4 (Modules 28-36)	
December	**10**	Final review day	
December	**16**	**Final Exam 2:45-4:45 pm in SM2110**	