

# Fundamentals of Life Science II

BIOL 2170-021 - Summer 2013

MTWRF from 9:50-11:30 p.m. in BO1045

## Instructor

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Office Hours: Monday 11:30 am - 12:30 pm & Wednesday 2 -3 pm or by appointment

## Course Description

As a requirement for biology majors this course is the second half of a general introduction to the fundamentals of life science. Topics of discussion include the molecules of life, cell structure and function, the stages of cell division and how they are controlled, energy processing pathways in plants and animals, genetics, gene expression and cell signaling mechanisms.

## Learning Outcomes

Students who successfully complete the course will be able to:

- Outline the structure of the important macromolecules found in all living organisms.
- Describe the function and structure of cells and the metabolic reactions that occur in cells.
- Explain the process of inheritance.
- Describe how RNA, DNA and proteins are synthesized.
- Explain the process of cell division in both somatic and germ cells.

## Required Materials

If you have taken BIOL 2150 previously you should already have the required materials, but you must register your clicker on the Blackboard course web site if you have not already done so (instructions below). The following materials are required for BIOL 2170:

- **Life, The Science of Biology** (9<sup>th</sup> Edition), Sadava, Hillis, Heller and Berenbaum editors (ISBN 978-1-4292-4646-0). Purchase a hardcover, looseleaf or eBook version. The study guide that goes with the textbook is not required for this course.
- **Clicker:** Turning Technologies response cards are available in the UT bookstore and elsewhere. The most basic model is sufficient.

## Clicker Registration

You must register your clicker on Blackboard by 5 pm, Monday, **July 1**. Use the Blackboard “Clicker Registration” link and be careful not to enter the letter “o” in place of zero (0) when entering your device ID. The letter “o” is not used in any device ID. *If you miss the deadline or change clickers during the semester you must send me your new clicker ID by email.* The Blackboard registration mechanism will not be used after the July 1 deadline. You will not receive clicker question points unless your current clicker ID is registered in advance of the lecture.

## General Information

- CHEM 1090 or a CHEM placement score of 20 or BIOL 2150 is a prerequisite for this course.
- Lecture slides will be available for download from Blackboard before class (usually the evening before the lecture). Note that you can arrange your Blackboard settings so that you are informed by email when the lecture slides are posted to Blackboard. For instructions see the file “Changing Notifications in Blackboard” under the “More Course Info” link on Blackboard.
- Exam, clicker and homework grades will also be posted on Blackboard. Contact me immediately if there are any issues regarding your clicker or homework grades. Once the exam answers are available you will have *one week to respond* with any exam grading concerns.
- Please ask questions during the lecture, especially if you feel something was not explained clearly. You also have the option of asking questions by email or during office hours.
- Please turn off your cell phone or set it to silent. Cell phones should be out of site during class.
- If you are going to bring a laptop or tablet to class please use it for note taking only.
- Please do not bring food into the room, although a drink is acceptable.
- If you wish to make audio recordings of the lectures please ask me first.

## Student Evaluation

Your final grade will be calculated as follows:

54% Best three of the four in-class exams (18% of your final grade for each)

31% Comprehensive final exam

5% Clicker points

10% Homework

100%

Grading Scale:	90-100%	A	67-70%	C
	87-89%	A-	63-66%	C-
	83-86%	B+	59-62%	D+
	79-82%	B	55-58%	D
	75-78%	B-	50-54%	D-
	71-74%	C+	<50%	F

## Homework

- Homework will consist of pre-lecture quizzes taken on Blackboard (under the “Quizzes” link).
- Pre-lecture quizzes consist of ten multiple-choice questions.
- The quizzes are assigned to encourage reading from the textbook before lectures, so *the best practice is to read the appropriate sections of the textbook before the quiz and the lecture.*
- Quizzes are due at 9:45 am before the start of the lecture.
- The first quiz will be due on **June 26** before the start of the third lecture.
- You can take each quiz twice to try to improve your score if necessary.
- Your three lowest quiz grades will be dropped for the calculation of your final grade.
- For a trouble-free quiz-taking experience it is recommended that you read the file “Blackboard Test-Taking Tips” found on Blackboard under the “More Course Info” link.

## Clicker Questions

- In each lecture you will be asked approximately four “clicker questions” about the lecture material that will require your response using the Turning Technologies response card (clicker).
- Your clicker must be set to channel 41 to communicate with the receiver.
- We will start using the clickers in the sixth lecture (July 2).
- **A full point is given for a correct answer, half a point for an incorrect answer.**
- The grading system for clicker questions will be set so that you can still receive full credit even if you miss three classes during the semester. If, for example, 72 clicker points are available over the course of the semester (18 lectures x 4 questions) then you will only need to collect 60 points to receive the full 5% credit for clicker points.
- A small prize will be given to the student that outlasts all other students by maintaining a perfect score in the clicker questions.
- Bringing a clicker to class for someone else is considered academic dishonesty for both students involved. The penalty is no clicker point credit for the semester.

## Exam Information

- There will be four one-hour exams during the semester and each will consist of 50 multiple-choice questions. These exams will cover only new material (since the last exam). Exam questions will be based on the material covered in the lectures.
- The final exam (one hour and forty minutes in length) will be comprehensive and consist of 100 multiple-choice questions. Approximately half of the exam will cover the last section of the course while the remaining half of the exam will cover the earlier sections of the course.
- Bring at least two pencils and an eraser to the exams.
- Students will be asked to present a **picture ID** when turning in their exam.
- Additional time will not be given to students who come late for exams and latecomers will not be permitted to start if someone has already left the exam.
- Do not talk to other students or use electronic devices during the examinations. Keep your eyes on your own work. Those that violate these rules will receive an F for the exam.
- If for any reason the university is closed on the day of a scheduled exam, the exam will be given during the next scheduled class.

## Absences

- Make-up exams and adjustments to clicker grades or quiz deadlines will only be provided for *serious* medical or personal reasons that are backed up with the proper documentation such as a doctor's note. *Accommodations will be made only if I am notified as soon as possible after the absence.*
- Make up exams will be scheduled within a week of the original exam date. If multiple students need a make-up exam they will write it at the same time in the Testing Center (FH1080). If it is not possible for a student to take the make-up exam within one week then the three remaining in-class exams will be used to determine the final grade for that student. Make-up exams will be long answer or essay format with few, if any, multiple-choice questions.

## Keys to Success

1. **Attend every class.** Material presented during class will be emphasized for the exams and clicker points contribute to your final grade. I will let you know what is important and what is not.
2. **Do not wait until a day or two before the exam to study.** This is one of the worst and most common mistakes students make. Go over your notes as often as you can between exams and make sure you understand the material *before* your last study session. Ask questions about topics you don't understand as soon as possible, either during lecture or during office hours.
3. **Be active with your studying.** Reading the textbook before class, taking notes during class, and making a separate set of study notes after class will aid in your ability to understand and retain the presented concepts.
4. **Test yourself.** Have a roommate or classmate ask you questions about the material in your notes. Do all of the available textbook online activities (Quizzes, Flash Cards, Tutorials, etc.) and the self-quizzes in the textbook and study guide. Online activities associated with the textbook are available at "<http://bcs.whfreeman.com/thelifewire9e/default.asp - t 542578>". (This link is also available on Blackboard under "Textbook Resources"). Doing this will let you know where you might have to spend more time on the details.
5. **Form a study group.** It helps with number four above and you will find out how well you know the material when you try to explain it to someone else.
6. Additional information can be found in the files "Keys to Success" and "Survival Skills" under the "More Course Info" link on Blackboard.

## Course Schedule

Date	Lecture	Topic	Chapter
June 24	1	Syllabus and Chemistry of Life	2
June 25	2	Macromolecules I: Proteins	3
June 26*	3	<b>First Homework Quiz Due</b> Macromolecules II: Carbohydrates	3
June 27*	4	Macromolecules III: Lipids and Nucleic Acids	3/4
June 28*	5	Cells I: The Working Units of Life	5
<b>July 1</b>		<b>Exam I</b> <b>(Last Day to Drop)</b>	
July 2	6	<b>Clicker Questions Begin<sup>#</sup></b> Cells II: The Working Units of Life	5
July 3	7	Cell Membranes	6
July 4		<i>Independence Day</i>	
July 5	8	Osmosis and Membrane Transport	6
July 8*	9	Cell Signaling and Communication	7
July 9*	10	Energy, Enzymes and Metabolism	8
<b>July 10</b>		<b>Exam II</b>	
July 11*	11	Pathways That Harvest Chemical Energy	9
July 12*	12	Photosynthesis: Energy From Sunlight	10
July 15	13	The Cell Cycle and Cell Division I	11
July 16	14	The Cell Cycle and Cell Division II	11
July 17	15	Inheritance, Genes and Chromosomes I	12
<b>July 18</b>		<b>Exam III</b>	
July 19	16	Inheritance, Genes and Chromosomes II <b>(Last Day to Withdraw)</b>	12
July 22	17	DNA and It's Role in Heredity I	13
July 23	18	DNA and It's Role in Heredity II	13
July 24	19	From DNA to Protein: Gene Expression I	14
July 25	20	From DNA to Protein: Gene Expression II	14
<b>July 26</b>		<b>Exam IV</b>	
July 29	21	Gene Mutation	15
July 30	22	Regulation of Gene Expression I	16
July 31	23	Regulation of Gene Expression II	16
Aug 1	24	Genomes and Review	17
<b>Aug 2</b>		<b>Final Exam (9:50-11:30 am)</b>	

The pace of the lectures varies from year to year so the exact day a particular topic is discussed may differ from this schedule. However, the topic order and the exam dates will not change.

**#Register your clicker by 5 pm on July 1.** If you miss the deadline please email me your clicker ID instead of using the Blackboard registration. This also applies if you change your clicker ID during the semester.

\*These lectures will be presented online. There will be no in-class lecture on these days.