***Cell Biology (Bio 308) Fall 2019***

***Instructor:*** Ted Wilson, PhD

Dept Biology; Office: 232 Pasteur Hall

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Textbook: Hardin, and Bertoni. Becker’s World of the Cell 9th Edition 2016. Students may wish to look at BarnesandNoble, Amazon.com, Thriftybooks.com or other used book website for a real cheap place to buy a book.

***Course Description:***

This is a course intended to help students understand how cells function as the basic biological unit. This class helps us understand how cells reproduce, take in energy, regulate energy expenditure, and communicate with their environment and/or other cells. Emphasis is placed on subcellular/ultrastructural, organization, organelle functions, enzyme activities, and regulation. Cell Biology encompasses elements of chemistry, physiology, and anatomy. *Prerequisites for this class are Principles of Biology 241/242 AND Organic Chemistry 340 or 350 (can be taken concurrently).* See instructor if you do not have these pre-requisites.

***This course meets the WSU requirements as a writing flag.***

***Course Grading:***

Grading will be based on numerical scores at the end of the semester.  The curve is set for you and it is up to you to apply yourself towards achieving the grade you desire. At the end of the semester, the instructor reserves the right to lower the grade cut-off slightly in your favor based on class and individual effort by up to 2.5%. There is no extra credit offered in this course, so please take every exam very seriously! All exams will be closed book. Cheating on quizzes, tests, assignments may result in a course grade of "F".

You are expected to take each exam or have a letter from your physician (almost no exceptions). If you cannot take a test, contact the instructor (***CALL and LEAVE MESSAGES*** at office phone number) before the exam is handed out, *otherwise you may not be offered a make-up opportunity*.

***Grade Breakdown***:

Lecture Exams: 3 X 50 pts Final Exam: 40 pt Unit test/40 pt Comprehensive

Lecture Quizzes and other assignments: about 100 pts **Documentation of lecture note taking**: (5 pts/evaluation (about 20 points) You must be present in class to receive points for note taking), at least one score will be dropped, so you could miss class or not participate at least once with no penalty.

TERM PAPER Peer-review/Literature Search Assignment: 10 points; Peer-reviewed sources: 10 pts; Paper Outline: 10 pts; Student rough draft (10pts) Paper Rough Draft: 20 pts; Term paper student Edits: 15 pts; Final Draft: 30 pts ***Rough drafts must be handed in with the final draft***

**LATE MATERIALS: Deduct -10% of score if late one day, -20% if late 2-5 days, 0 pts if late more +5 days**

### Minimum Grade Cutoffs: A= +90%, B= +80%, C= +70%, D= +60%, Below -60%=F

***Taking Quality Lecture Notes:***

To promote the learning process and improve your ability to take lecture notes, ***laptop computer use will not be permitted during normal lectures***. An outline of each days lecture note topics is available online prior to class, what you need to do in lecture is “fill in the skeleton”. This means for most folks they print the notes and write directly on them to highlight what they need to emphasize when they study lecture materials at a later time (preferably each evening). The better students will use the notes they prepare in lecture as the basis for their own notes (they will re-write them) in language that applies to themselves. On a rare special occasions we will use laptops for special projects, and they will be used on these occasions (***laptops are to be closed and turned off at all other times***).  The other reason laptop use during lecture is not permitted is as follows. Invariably when your lap top is turned on, non-lecture materials are accessed/become displayed on your computer, this is very distracting to other students. This will ensure that all students get a chance to think “just about Cell Biology” for the 50 minutes you are in lecture

You will be responsible for arranging your lecture notes in your own ***ringbinder (required)*** and bringing your notes/ring binder each day of class.  ***Once every one to two weeks*** your lecture notes will be reviewed to document that you have critically analyzed them for content and implications ***(evaluation dates will not be announced ahead of time so keep your lecture notes up-to-date)***.  To obtain the full points, you will need to have a ***minimum of 60 words*** written alongside your lecture notes for that day that help document that you have attempted to interpret/understand/emphasize/critically analyze the aspects of that days lecture materials. Some folks may even wish to write in their 60 words prior to the beginning of each days lecture.

***Attendance and Participation:***

Attendance will not be recorded in lectures, however it is your responsibility to know the material covered and poor attendance invariably means failing test scores. When possible, lecture outlines will be provided for you at the Cell Biology website to assist your note taking. Your active participation is ***GREATLY*** encouraged in lectures and participation will greatly improve your course performance. Participation will also improve the outcome for other students in the course. If you have questions please call, email, or visit the instructor. Generally if class attendance is poor, the instructor will have an unannounced quiz (10 points/no make-ups).

***Studying Habits and Grades Received:***

Most students find that they need to spend at least two hours of quality time (with no T.V., radio, or other distractions) studying out of class for each hour of lecture to earn a B-grade or better. Some students need to spend ***much more time***, and occasionally students get by with less. What is most important is that you find a way to succeed in learning and showing that you have learned the materials. The best way to learn is variable from student to student, try different methods and try to just “think" about what you have learned when you have the chance.

***Students with Special Needs:***

Some students have disabilities that prevent them from succeeding in a course with traditional learning/testing/evaluation methods. If you are a person who has a documented need for special academic accommodations, please contact both Dr. Ted Wilson and possibly one of the following: WSU Disability Resource Center (Phone: 457-2391 voice), Student Counseling Center (Phone: 457-5330). **Making arrangements for non-traditional needs is your responsibility and must be coordinated with the instructor.**

## Tentative Lecture Syllabus

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| ***Date*** | ***Chapter in Text/Activity*** |
| 8/26 M | Introduction to Course and the Structure of 20 Amino Acids (Fig 3-2)  Please read and review CH 1, 2, and 3: This should be familiar from Bio 241 and we will use this material for the rest of the semester. |
| 8/28 W | CH4: Cells and Organelles |
| 8/30 F | CH4: Cells and Organelles |
| 9/2 M | Labor Day Monday- No Class |
| 9/4 W | What is Peer Reviewed Literature and why do Cell Biologists need/use it?  ***Hand out Peer-Review/PubMed Search Assignment*** |
| 9/6 F | CH5: Bioenergetics  **20 point Quiz: Structure of carbohydrates, fatty acids, phospholipids, peptide bonds and amino acids (you will be asked to draw them) and contents of CH 1-4.** |
| 9/9 M | CH5: Bioenergetics:  ***Peer-Review Search Assignment Due 20 points*** |
| 9/11 W | CH 6 Enzymes-***Delta G assignment is due: 10 point*** |
| 9/13 F | CH6: Enzyme kinetics |
| 9/16 M | CH 6: Enzymes |
| 9/18 W | CH 6: Enzymes |
| 9/20 F | CH6 and CH 7: Membranes ***(Assignment Due: CH Que # 5-6, 5-7, 6-1, 6-4, 6-5 and 6-6)***  ***Copy of answer key is located in library at info desk for short term check out. 10 pts*** |
| 9/23 M | ***Exam #1: CH 4, 5, 6 and part of, plus Ch 1-3 review materials covered in notes*** |
| 9/25 W | CH 7: Membranes |
| 9/27 F | CH 8: Membrane Transport |
| 9/30M | CH 8: Membrane Transport : ***Choose Term Paper Topic* 5 pts** |
| 10/2 W | CH 9: Glycolysis **Glycolysis and Gluconeogenesis Assignment: 10 pts** |
| 10/4 F | CH 9: Glycolysis ***20 pt Quiz covering CH 7 and CH 8:*** |
| 10/7 M | CH9: Glycolysis and “How to email the author of a paper for a copy of their paper or clarification of paper content”.  ***Five Peer Reviewed References for Term Paper Due ( ¼-1/2 page summaries): 10 pts*** |
| 10/9 W | CH 10: Aerobic Respiration and Mitochondria |
| 10/11 F | ***Exam #2: CH 7, 8, and 9*** |
| 10/14 M | CH 10: Aerobic Respiration and Mitochondria |
| 10/16 W | CH 11: Photosynthesis How to Write a Term Paper Outline |
| 10/18 F | CH 11: Photosynthesis |
| 10/21 M | CH 22: Signal Transduction- how do cell talk to each other?  ***Term Paper Outline Due: 10 pts*** |
| 10/23 W | CH22: Signal Transduction: Membrane potential |
| 10/25 F | CH22: Signal Transduction: Membrane potential  ***20 pt Quiz covering CH 10, 11*** |
| 10/28 M | CH 23: Signal Transduction: Messengers and Receptors- how do cells talk to each other?  Membrane Potential Assignment Due: 10 pts |
| 10/30 W | CH23: Signal Transduction: Messengers and Receptors |
| 11/1 F | CH13: Cytoskeleton |
| 11/4 M | CH14: Cellular Motility |
| 11/6W | Review Unit and *How to Edit a term paper* |
| 11/8 F | **Exam #3: CH 10, 11, 22, 23, 13, and 14** |
| 11/11 M | No Class: Veterans Day Observance |
| 11/13 W | CH15 Cell Adhesion, Cell Junctions and Extracellular Structures  Peer-review practice in class-preparation for handing in your rough draft |
| 11/15 F | CH15: Cell Adhesion, Cell Junctions and Extracellular Structures  Your student- rough draft (**four copies**) are due at 8am at Dr Wilson office (-5pts if late) so they can be check, sorted and handed out in class so they can be edited by fellow students (-5 pts if late). |
| 11/18 M | CH16: DNA Chromosomes and the Nucleus  **Your three term paper edits are due 9am in class using the evaluation form (-5 pts if late) 15 pts** |
|  | **Student edited rough drafts are handed back to you at Dr Wilson’s Office Monday (hopefully) by 3pm Monday if you wish to work on them over Thanksgiving break.** |
| 11/20-11/24 | ***Thanksgiving Break: No Class*** |
| 11/25 M | CH17: DNA Replication Repair and Recombination |
| 11/27 W | **CH18: DNA and RNA: Transcription**  **Don’t forget to send out emails to request a copy of a manuscripts cited in your paper.** |
| 11/29 F | CH19: Translation of RNA into Protein |
| 12/2 M | CH20: Regulation of Gene Expression  ***Revised rough draft due in class. (20 pts for your final edited rough paper) Revised Rough Draft submission must include all three student edited copies.***  Student/Author manuscript request due attached to the back of FINAL draft (10 pts) |
| 12/5 W | CH 20: Regulation of Gene Expression  DNA Transcription-RNA Translation Assignment Due in Class (10 pts)  ***Revised rough Drafts with returned to you at Dr Wilson Office Thursday 10 AM*** |
| 12/6 F | CH26: Cancer and Cellular Dysfunction |
| 12/11  Tuesday  8-10 am | **Final Exam**  **Unit Test (40 points): CH 15, 16, 17, 18, 19, 20, and 26**  **Comprehensive Test (40 points): All material previously covered** |
| 12/13 W | ***Wednesday: Term papers due at Noon at Dr. Wilson’s office(-10 pts if late)***  Email reply from author of a paper cited in final draft is also due with final draft (10 pts) |
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