

BIOLOGY 411 and 411G --- CELL BIOLOGY --- Winter 2024
Lectures: On the web from December 11th – January 13th

Homepage: <http://blackboard.wku.edu> Login using your Net ID and Password

Professor Info:

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COURSE DESCRIPTION: This course will involve in-depth analysis of eukaryotic cell structure and function, including membrane structure and transport, cellular organelles & the cytoskeleton, cell communication. Emphasis will be on experimental approaches to understanding concepts in cell biology.

PREREQUISITES: BIOL 319/322 or BIOL 327; or consent of instructor.

REQUIRED TEXT: Molecular Biology of the Cell, Alberts, et al 6th edition. In addition, selected articles that are required reading will be posted on the web through Blackboard.

GOALS AND OBJECTIVES: This 3 credit hour course is designed to provide students with a foundation regarding the most fundamental concepts of eukaryotic cell organization and function in order to provide a conceptual framework of cell biology upon which to further build.

DROP/WITHDRAWAL/INCOMPLETE: Ceasing to attend class does not activate the drop, withdrawal, or incomplete grade processes. You must submit the appropriate forms for each by the published deadlines to end your enrollment in this class. Failure to complete the appropriate forms may result in a failing grade for this course. You are responsible for monitoring the university's Academic Calendar for important dates relating to add/drop, withdrawal, etc.

ATTENDANCE: Following the "schedule of reading" in this class is essential to you learning the material and for you to be able to do your best in the course. I will also post lecture slides on Blackboard covering various topics in the syllabus. It is important for you to go over these slides, read associated material in the book

ACCOMODATIONS: In compliance with university policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center (SARC), formerly referred to as Office for Student Disability Services in Downing Student Union, First Floor, 1074. The phone number is (270) 745-5004. More information can be found at: <https://www.wku.edu/sarc/index.php>
Please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from SARC.

ACADEMIC INTEGRITY: Students are expected to **do their own work throughout this course and demonstrate academic integrity.** Academic dishonesty in the form of cheating or plagiarism will not be tolerated. Please refer to the WKU Student handbook for polices and definitions regarding academic integrity at: <https://www.wku.edu/handbook/>

COURSE SCHEDULE:

Date	Lecture Topic	Chapter
Dec 11 th	Introduction to the course; Principles of cell structure and function	
Dec 11 th	How cells are studied; Cells and organisms used in research	Chapter 8, Page 439-448
Dec 12 th	Microscopy	Chapter 9
Dec 13 th	Basic Cellular Biochemistry	Chap. 2, p.47-50; 96-101 Chap. 3, p.109-123 Chap. 4, p. 173-179 Chap 6, p. 353-357; Chap 10, p. 565-568
Dec 14 th		
Dec 15 th	Membranes - Structure	Chap. 10, p.569-577
	Membranes – Transport	Chap. 11, p.597-603;604-611
Dec 16th	Exam 1 Due	
Dec 17 th	Intracellular compartments and protein sorting	Chap. 12, p.641-649
Dec 18 th	Nucleus and nuclear transport	Chap. 12 p. 649-657
Dec 19 th	Mitochondrial transport /Chloroplasts	Chap. 12, p. 658-666 Chap 14, p.753-762; 776-795
Dec 20 th	Endoplasmic reticulum	Chap 12, p.669-684
Dec 21 st	Golgi and lysosomes Exocytosis and endocytosis	Chap. 13, p.695-718; 722-729 Chap 13, p.730-735; 738-739; 741-744
Dec 23rd	Exam 2 Due	
Dec 27 th	Cell Signaling Intro	Chap. 15, p. 813-831
	G protein coupled receptors – calcium pathways	Chap. 15, p. 832-842
Dec 28 th	Enzyme linked receptors I	Chap. 15, p. 850-858
Dec 29 th	Ion channels – membrane potential	Chap. 11, p. 611-625; 629-633
Dec 30 th	Cytoskeleton I & II	Chap. 16
Jan 3 rd	Cell Junctions/Extracellular Matrix	Chap. 19
Jan 4th	Exam 3 Due	
Jan 5 th	Cell cycle	Chap. 17
	Mitosis and Cytokinesis	Chap. 17
Jan 7 th	Grad Student Presentations Due (only for students enrolled in G section)	Research Article Presentation by Grad Student
Jan 8 th	Apoptosis	Chap. 17, Chap. 18
Jan 9 th	Cancer I – Intro and Basics; Cancer II – Metastasis and Angiogenesis	Chap. 20, p. 1091-1103
Jan 10 th	Stem Cells – An Introduction	Chap. 22, p. 1217-1227

Jan 11 th	300 word Grad Student Presentation Summary Due for BIOL411 Students	
Jan 13 th	FINAL EXAM DUE	

GRADING AND EXAMS: Student grades will be determined by the total number of points earned on exams and assignments. Points will be divided as follows:

Midterm Exams 1-3 (for all students)	3 exams at 100 points each	300 points
Final Exam (for all students)	1 exam at 100 points	100 points
Short Quizzes (for all students)	Approximately 10 in Number, 5 points each	50 points
Class Introductions (all students)	Introduce yourself to the class, tell your background, why you are taking the course and anything else that you think might be relevant for others to know.	10 points
Summary of Graduate Student Presentation (only for BIOL411 students)	One graduate student presentation summary	40points
Research Paper Presentation (Only for Biology 411G Graduate Students)	One ~25-30 slide (max) PPT presentation of a research article or articles covering a problem in Cell Biology	100 points

EXAM FORMAT: The lecture exams will be given approximately every 6 days. Exams will be on the web. **It is your responsibility to contact me a minimum of 24 hours prior to the exam to reschedule.** I will not reschedule any makeup exams if you contact me *after* the exam due date. **All students must take the final exam.**

Fair game for exams is material from lecture notes, handouts, anything in the assigned reading from the textbook not covered during lecture, and outside reading as assigned. All exams will be given on the web and will include a variety of question formats, i.e. multiple choice, fill-in-the-blank, identify, diagram, and short answer or essay. Tests will be used to not only evaluate the amount of knowledge you have gained but also to test your ability to apply your new found information and skills. You are expected to write your answers legibly using proper English grammar. If I can't read your answer or it is unclear or incomplete, you will not receive full credit. You will also receive short quizzes (1-5 questions) over the course of this summer session (May 13th to June 7th).

Final course grades will be determined on the following percentage scale:

90-100%	A	Outstanding
80-89%	B	Above average
70-79%	C	Average
60-69%	D	Below Average
Below 60%	F	Failing

The syllabus is subject to change at my discretion. Once I make a change I will make you aware of that change.