BIO 200: Cell Biology and Molecular Genetics

Fall 2013: TWF 10:30AM-11:20AM
Albertus Magnus 108
Credit Hours: 3.0

PROVIDENCE
COLLEGE

Instructor:

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Office Hours: Most workdays you can find me in either my office or my research lab. I will always be in either my office or my lab on **T** and **W 11:30AM-1:00PM** as my designated office hours. You may also schedule an appointment if needed. I can easily be reached by email and will check and respond to emails until **9PM** each night.

Course Textbook:

Customized text from Wiley comprised of chapters from Karp, Voet and Snustad textbooks.

Course Description:

This course is designed for junior and sophomore students as a continuation of General Biology 103. Biology 200 is a prerequisite for upper level elective courses in cell and molecular biology. The course focuses on the fine structure of cells, intra- and intercellular communication, and the molecular organization and transfer of genetic information. Experimental design, methodology, and current biotechnological applications will also be discussed. For many of the lecture topics, primary research and review articles will be assigned for reading pertaining to the lecture. The overall goal of the course is for students to synthesize knowledge of how cells function with experimental design and experimental methodology. Upon the completion of this course students should be able to successfully convey this knowledge through scientific writing, and add to their knowledge through reading and understanding of scientific literature.

Intensive Writing II Proficiency:

This course is currently being proposed as a way for Biology majors to fulfill the Intensive Writing II proficiency requirement of the new core curriculum. The goal of this proficiency is for students to significantly improve their scientific writing ability through practice and instructor feedback, enhance their ability to use stylistic techniques in their writing, and to learn proper use and correct citation of scientific literature. To satisfy the Intensive Writing II proficiency each student will 1) complete **three 1,300 word** written assignments pertaining to a disease project, and 2) write a **1,500 word** final paper pertaining to a piece of primary scientific literature.

Sakai:

Electronic course material (lectures, primary literature, required reading, movies, images, etc.) will be posted on Sakai. The PowerPoint lecture slides will be available prior to class so that students my print them out for note taking (recommended). Written assignments must be submitted via Sakai and will be screened through Turnitin. Students will have access to the results and may fix any issues prior to the due date. Any correspondence from me will be via Sakai- please check your @friars.providence.edu account regularly and/or have your Sakai mail forwarded to your personal account.

Assessments: Your grade in the course will be determined by the following assessments:

Exams:
Evaluation of performance will be based on three exams covering the main topics discussed in the lectures (this includes primary literature). Each exam will be worth 100 points and will consist of short answer, essay, or suppressor screen questions. A thorough knowledge of the experimental methods and data presented in the lectures will be assumed. You will be allowed one sheet of letter-sized paper to fill with any information you would like. The exams are testing your ability to synthesize the material and apply it to the questions, as opposed to testing your memorization of facts.

Quizzes:
Five quizzes will be given during the semester that will cover an assigned literature reading. The lowest quiz grade will be dropped from consideration of the overall grade. Quiz days are identified in bold on the syllabus.

Disease Project:
Another assignment that will run throughout the semester is a disease project consisting of **3** written reports. You will pick a human disease to study that will include reports on 1) the cellular basis for the disease, 2) the genetics of the disease, and 3) treatment options/targets. Each report will be **~1,300** words. Deadlines for the disease project are outlined below. The final grade for each writing assignment will be determined by 1/3 of the first draft grade and 2/3 of the final submission grade. Prior to the first draft deadline you will participate in a peer review process. Your peer review groups will be assigned and some class time will be set aside for expressing feedback and discussing revisions. All first and final drafts must be submitted by both hard copy and on Sakai. Additional instructions will be given prior to each report.
Deadline to pick a disease: Wednesday, **September 11th** during **office hours** or by appointment.

Disease Project	Turn in for Peer Revision	Peer Revision Feedback	First draft due	Final revision due
Cell biology	9/20	9/24	9/27	10/8
Genetics	10/18	10/22	10/25	11/6
Therapies	11/15	11/19	11/22	12/10

Final Exam:
A scientific manuscript will be assigned at the end of the semester covering a specific topic. You will be given an **unfinished** manuscript consisting of an introduction, methods and figures. You will write up a results and discussion section composed of **1,500** words and hand this in as your final evaluation. The first draft will account for 1/3 of your final exam grade and your final submission will account for 2/3s. Additional instruction will be given when the final exam paper is assigned.

Final Manuscript	First draft due	Final revision due
	12/6	12/14

Grading scale:

Assignment	Points	Total	Percent
Exams	100	300	53%
Quizzes	20	80	14%
Disease project	30	90	16%
Final paper	100	100	17%
		570	

Classroom Policies:

Attendance: Attendance is very important to experience and obtain the fullest amount of information from the course. As many of the class discussions revolve around primary literature in addition to your textbook, your success in this class will most likely correlate with your presence and participation in the classroom. You are allowed to miss three classes, after these 3 each additional missed class will result in a deduction of 3 points from your grade in the course.

Missed exams/quizzes or late assignments: Anyone who misses one of the in-class exams must take the make-up exam or receive a zero for the missed exam grade. There are no scheduled substitute exam times or other make-up exams, **so do not skip any exam unless absolutely necessary**. Under no circumstances will missed exams be made up unless I am notified prior to the exam as a result of an unavoidable situation. A make up exam will be scheduled at a time convenient as close to the original exam date as possible. There will be no make-ups for missed quizzes. Late written assignments **will not** be accepted unless you have spoken to me in advance and have been given explicit permission.

Technology in the Classroom: Please do not bring laptops, or tablets to class without first speaking with me. I ask that you also do not use your cell phone in class to look up information, or text message unless asked to do so. When you enter the class please turn your phone off or switch to silent mode (not vibrate). If there is an urgent reason to use your phone, please leave the classroom.

Academic Integrity:

Academic dishonesty, cheating, or plagiarism will not be tolerated. The penalty for a first offense will be a zero on the exam or assignment for all students involved, and will be reported to the Dean. A second offense will result in a failing grade (an F) for the course, as well as a hearing with the board of Academic Integrity. For more information, please consult the current Providence College Undergraduate Catalog for its statement on Academic Honesty.

Students with Special Needs:

Students with special needs who are taking this class and who need special accommodations (for example, for learning, attention, or physical disabilities) are encouraged to work with Office of Academic Services (OAS) and the instructor to arrange accommodations. Arrangements must be made first with the OAS, who will notify and work with the instructor to make appropriate arrangements.

Tentative Lecture Schedule:

Class	Date	Topic	Reading	Assignment
1	T 9/3	Introduction	Voet 1	
2	W 9/4	Bioenergetics	Karp 2-3	
3	F 9/6	Bioenergetics	Karp 2-3	
4	T 9/10	Membrane structure	Voet 9	
5	W 9/11	Membrane structure	Voet 9	*Select a disease (office hours)*
6	F 9/13	Membrane transport	Voet 10	
7	T 9/17	Membrane transport	Voet 10	
8	**W 9/18**	Membrane transport	Voet 10	**Quiz**
9	F 9/20	Cell communication	Voet 13	*1-Draft Peer Revision*
10	T 9/24	Cell communication	Voet 13	*1-Return feedback*
11	W 9/25	Cell communication	Voet 13	
12	F 9/27	Extracellular matrix	Karp 7	*1-First draft due*
13	T 10/1	EXAM I- (Bio - Cell Comm.)		
14	W 10/2	Extracellular matrix	Karp 7	
15	F 10/4	Intracellular compartments	Karp 8	
16	T 10/8	Intracellular compartments	Karp 8	*1-Final draft due*
17	**W 10/9**	Cytoskeleton	Karp 9	**Quiz**
18	F 10/11	Cytoskeleton	Karp 9	
	T 10/15	No Class- Monday Schedule		
19	W 10/16	Cell cycle	Karp 14	
20	F 10/18	Cell cycle	Karp 14	*2-Draft Peer Revision*
21	T 10/22	Cell cycle	Karp 14	*2-Return feedback*
22	**W 10/23**	DNA and chromosomes	Voet 24	**Quiz**
23	F 10/25	DNA and chromosomes	Voet 24	*2-First draft due*
24	T 10/29	EXAM 2 (Matrix – Cell Cycle)		
25	W 10/30	DNA replication	Voet 25	
26	F 11/1	DNA replication	Voet 25	
27	T 11/5	DNA replication	Voet 25	
28	W 11/6	DNA repair	Snustad 13	*2-Final draft due*
29	F 11/8	Transcription	Voet 26	
30	T 11/12	Transcription	Voet 26	
31	**W 11/13**	Transcription	Voet 26	**Quiz**
32	F 11/15	Translation	Karp 11	*3-Draft Peer Revision*
33	T 11/19	Exam 3 (DNA – Translation)		
34	W 11/20	Drug development		*3-Return feedback*
35	F 11/22	Regulation of gene expression	Voet 26	*3-First draft due*
36	T 11/26	Regulation of gene expression	Voet 26	
	W 11/27	No Class- Thanksgiving		
	F 11/29	No Class- Thanksgiving		
37	**12/3**	Regulation of gene expression	Voet 26	**Quiz**
38	12/4	Cancer	Karp 16	
39	12/6	Cancer	Karp 16	*First draft of final exam due*
40	12/10			*3-Final draft due*
41	12/14			*Final draft of final exam due*