

**BIOL 3300: CELLULAR AND MOLECULAR BIOLOGY
FALL 2016**

Lecture: M, W 11:00AM-12:15PM, IC 321
Laboratory: R 8:00-10:50AM, IC 320
Instructor: Dr. Sarah Rosario
Email: srosario@gordonstate.edu ***preferred***
Office: IC 226
Phone #: (678) 359-5842
Office Hrs: M 9:30-11:00am
W 9:30-11:00am
R 11:00am-4:00pm

Course Description:

Prerequisite: BIOL1107/1108, CHEM 1211K with a grade of C or better. Introduction to the cellular and molecular basis of biology. Key concepts covered will include function, structure, development, and interaction of cells at the molecular level. The laboratory exercises will represent the major methods and techniques used in modern cellular and molecular biology.

Student Learning Outcomes:

At the end of the course, students will be able to:

- Identify the major types of cells and their distinguishing characteristics
- Classify the major groups of biological molecules
- Explain the relationship between protein structure and function
- Understand the principles of DNA structure, replication, repair and recombination
- Outline the process of gene expression and regulation
- Characterize the structure and function of membrane systems, including the transport of molecules across membranes
- Explain how cells obtain and use energy for biochemical reactions
- Trace the transport of molecules through intracellular compartments
- Trace cell communication through molecular signaling pathways
- Identify the major components of the cytoskeleton and the functions of each
- Explain the stages of the cell division cycle and how it is regulated

Required Course Materials

- 1) Molecular Biology of the Cell by Lodish (8th ed)
- 2) Launchpad access
- 3) Lab Goggles
- 4) Lab Notebook (composition style)
- 5) Additional articles and course materials can be found on Desire2Learn Brightspace.

Course Grading:

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = below 60%

Grades will be calculated as follows:

	Percentage
Unit Exams	50%
Cumulative Final Exam	10%
Lab Assignments	15%
Lab Exam	10%
Launchpad Assignments	15%

There will be no make-up assignments for missed exams or laboratory activities. Late assignments will not be accepted.

Attendance:

Students are expected to attend all lectures and labs. Students are responsible for all announcements, information and material presented in class. If you must miss a period due to serious illness or other emergency, documentation is required for validation. Students are required to be on time for lecture and laboratory. Students who are more than 10 minutes late to laboratory classes or an exam WILL NOT be admitted. Students who miss more than 3 labs may be assigned a failing grade for the entire course at the discretion of the instructor.

Academic Integrity:

Academic dishonesty will not be tolerated. All work, exams, labs is expected to be your own. Plagiarism and cheating are serious academic offenses, which may result in a grade of zero (and potentially a failure of the course); the incident will be reported to the Division Chair and the Dean. Please review the Student Code of Conduct (particularly the sections on Academic Dishonesty and Classroom Behavior) in the Gordon College Academic Catalog.

Cell Phone and Other Disruptions Policy

Please turn off all cell phones and electronic devices before entering the classroom. During an exam, if your phone rings or if you are caught with any electronic device, you will receive a zero and will be asked to leave the testing area immediately.

***This syllabus may change at the discretion of the instructor and announcements/changes will be made in class, by email, or on Desire2Learn Brightspace. Students are responsible for checking your email account and Desire2Learn Brightspace in addition to any in-class announcements. Additional course materials, revised due dates and schedules, assignment grades, etc. will be posted on Desire2Learn Brightspace.

Availability of Services by the Americans with Disabilities Act (ADA)

Gordon State College is committed to making reasonable efforts to assist individuals with disabilities in their efforts to access a high quality post-secondary education. Gordon State College will provide reasonable accommodations for persons with documented qualifying disabilities in accordance with the policies of the University System of Georgia and Gordon State College. If you have a disability and feel you need accommodations in this course, you must present a current letter to me from Accessibility Services, indicating the existence of a disability and the approved accommodations. To register a disability contact Accessibility Services, Student Center, Room 212, 678-359-5585 under the direction of Mrs. Laura Bowen. Call for an appointment with Mrs. Bowen for documentation review and assessment for an accommodation. Upon approval, you will be given a letter stating the accommodations allowed, which your professor will sign and you return to Mrs. Bowen. Make sure to apply early in the semester for these accommodations since they begin upon date of approval from Student Counseling and Disability Services office and not beforehand.

Title IX

Gordon State College is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence and stalking. If you (or someone you know) has experienced or experiences any of these incidents, know that you are not alone. All faculty members at Gordon State College are mandated reporters. Any student reporting any type of sexual harassment, sexual assault, dating violence, domestic violence or stalking must be made aware that any report made to a faculty member under the provisions of Title IX will be reported to the Title IX Coordinator or a Title IX Deputy Coordinator. If you wish to speak with someone confidentially, you must contact the Counseling and Accessibility Services office, Room 212, Student Life Center. The licensed counselors in the Counseling Office are able to provide confidential support.

Gordon State College does not discriminate against any student on the basis of pregnancy, parenting or related conditions. Students seeking accommodations on the basis of pregnancy, parenting or related conditions should contact Counseling and Accessibility Services regarding the process of documenting pregnancy related issues and being approved for accommodations, including pregnancy related absences as defined under Title IX.

Important Dates

August 31st- Exam I

September 5th- Labor Day- NO CLASS

October 5th- Exam II

October 10th- Fall Break- NO CLASS

November 7th- Exam III

November 17th- Lab Final

November 23rd- Thanksgiving Holiday- NO CLASS

December 6th - Exam IV, Final Exam, 8:00-10:00am

Tentative Course Schedule

Week	Date	Day	Topic
1	10-Aug	Wednesday	Introduction, Ch 1: Molecules, Cells and Model Organisms
	11-Aug	Thursday	Lab 1: Safety, Pipetting, Making Solutions
2	15-Aug	Monday	Ch 2: Chemical Foundations
	17-Aug	Wednesday	Ch 3: Protein Structure and Function
	18-Aug	Thursday	Lab 2: Microbial growth
3	22-Aug	Monday	Ch 3: Protein Structure and Function
	24-Aug	Wednesday	Ch 7: Biomembrane Structure
	25-Aug	Thursday	Lab 3: Genomic DNA Prep, DNA quantification
4	29-Aug	Monday	Ch 7: Biomembrane Structure
	31-Aug	Wednesday	Exam I
	1-Sep	Thursday	Lab 4: PCR of SOD
5	5-Sep	Monday	LABOR DAY- NO SCHOOL
	7-Sep	Wednesday	Ch 5: Fundamental Molecular Genetic Mechanisms
	8-Sep	Thursday	Lab 5: PCR Clean-Up and DNA Gel
6	12-Sep	Monday	Ch 5: Fundamental Molecular Genetic Mechanisms
	14-Sep	Wednesday	Ch 8: Genes, Genomics, and Chromosomes
	15-Sep	Thursday	Lab 6: Plasmid Prep

7	19-Sep	Monday	Ch 8: Genes, Genomics, and Chromosomes
	21-Sep	Wednesday	Ch 9: Transcriptional Control of Gene Expression
	22-Sep	Thursday	Lab 7: DNA digest, Ligation
8	26-Sep	Monday	Ch 9: Transcriptional Control of Gene Expression
	28-Sep	Wednesday	Ch 10: Post-transcriptional Gene Control
	29-Sep	Thursday	Lab 8: Transformation
9	3-Oct	Monday	Ch 10: Post-transcriptional Gene Control
	5-Oct	Wednesday	Exam II
	6-Oct	Thursday	Lab 9: Confirmation of transformants (Mini preps or colony PCR)
10	10-Oct	Monday	FALL BREAK- NO CLASS
	12-Oct	Wednesday	Ch 11: Transmembrane Transport of Ions and Small Molecules
	13-Oct	Thursday	Lab 10: Growth and Induction
11	17-Oct	Monday	Ch 11: Transmembrane Transport of Ions and Small Molecules
	19-Oct	Wednesday	Ch 12: Cellular Energetics
	20-Oct	Thursday	
12	24-Oct	Monday	Ch 12: Cellular Energetics
	26-Oct	Wednesday	Ch 13: Moving Proteins into Membranes and Organelles
	27-Oct	Thursday	Lab 11: His-Tag Purification
13	31-Oct	Monday	Ch 13: Moving Proteins into Membranes and Organelles
	2-Nov	Wednesday	Ch 14: Vesicular Traffic, Secretion, and Endocytosis
	3-Nov	Thursday	Lab 12: SDS-PAGE
14	7-Nov	Monday	Exam III
	9-Nov	Wednesday	Ch 15: Signal Transduction and G Protein-Coupled Receptors
	10-Nov	Thursday	Lab 13: Western Blot
15	14-Nov	Monday	Ch 15: Signal Transduction and G Protein-Coupled Receptors
	16-Nov	Wednesday	Ch 16: Singaling Pathways that Control Gene Expression
	17-Nov	Thursday	Lab Final
16	21-Nov	Monday	Ch 17: Cell Organization and Movement I: Microfilaments
	23-Nov	Wednesday	THANKSGIVING- NO CLASS
	24-Nov	Thursday	THANKSGIVING- NO CLASS
17	28-Nov	Monday	Ch 18: Cell Organization and Movement II: Microtubules and Intermediate Filaments
	30-Nov	Wednesday	Ch 19: The Eukaryotic Cell Cycle
	1-Dec	Thursday	Study Day
	6-Dec	Tuesday	Exam IV, FINAL EXAM, 8:00-10:00am