

**Cell Biology BIOL 300**  
**Fall 2020**  
**Online, asynchronous**

**Instructor information**

Dr. Varuni Jamburuthugoda

Office: ISC355

**Virtual Office Hours: Mondays 2-3.30pm and Thursdays 3-4.30pm and by appointment**

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**Supplemental Instruction (SI)**

Austin Feasley

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SI sessions: TBA

**Required Textbook**

The required textbook is Essential Cell Biology, Alberts et al, 5<sup>th</sup> edition

Smarnkwork5 is highly recommended.

**Course Description**

The main goal of this course is to allow you to have a clear and detailed understanding of the structure and functions of eukaryotic cells and to be familiar with experimental methods used to explore biology of the cell. The lectures will usually follow the textbook. We will note how faulty cellular mechanisms lead to human diseases. Upon completion of the course, I expect you to possess solid background knowledge of the principles of cell biology as well as an understanding of emerging concepts of this exciting field.

The power point slides are posted on Canvas one or two days before each lecture and the annotated lectures will be posted Mondays and Fridays by 2pm. Please remember that slides, annotated lectures and videos are just a guideline for you to study and you are supposed to refer to your textbook to have a thorough understanding of the topics. This will allow you to perform very well in the exams. I encourage you to email me or set up a time to have a meeting if you have any questions or need clarification.

Students are expected to check their email/course announcements at least once a day

**Learning Objectives**

Students who complete this course successfully will be able to:

- Describe the basic facts, concepts and fundamental principles in cell biology
- Apply those facts, concepts and principles to current biological questions of today.
- Describe cell structure and how it relates to cell functions.
- Describe experimental techniques in cell biology
- Describe cell membrane and membrane transport

- Describe cellular compartmentalization and how material is sorted and transported between intracellular compartments.
- Describe how mis-regulation of cell signaling leads to cancer and other diseases.
- Describe regulation of cell cycle and apoptosis

## **Exams**

There will be three online exams, each covering roughly one third of the course and consisting of multiple choice, true/false, fill in the blank and short answer questions and will challenge you to integrate and apply what you have learned by watching the annotated lectures and reading the assigned material in your textbook. **Online exams will be timed (75 minutes similar to regular class time); and you can use your textbook and your class notes, but you cannot use the internet, nor can you consult with your fellow classmates about answers. If it comes to light that you have done so you will receive a 0 for the exam.**

All three exams will NOT be comprehensive but cover only the material between each exam as outlined in the syllabus. Please note that although the material is not comprehensive you will not succeed in learning later topics if you have not mastered earlier topics. You should utilize the relevant chapters of the text to strengthen your understanding of the topics, but if it has not been mentioned in annotated lectures, power point slides, videos or assigned reading you will NOT be tested on it.

## **Online Quizzes**

There will be five online quizzes that will help you prepare for the exams. Be sure to pay close attention to deadlines; there will be no make-up quizzes without a serious and compelling reason and instructor approval.

## **Assignments**

Assignments will include case studies and will be comprised of questions related to the case study. These assignments will be completed in groups, and one copy will be turned in per group. **Each person will be graded by peers for contribution to group work and 50% of the assignment grades will be based on peer evaluations.**

## **Late Work**

Late work will not be accepted. Assignments will not be available after the deadline. If you have an extenuating circumstance, please email me before the assignment is due to make alternate arrangements.

## Grading

Exam 1	100 points
Exam 2	100 points
Final exam	100 points
Quizzes	25 points
Assignments	<u>25 points</u>
TOTAL	350 points

## Grading Scale

The following scale will be used to calculate final grades. Student point totals or grading scheme maybe adjusted to reflect course difficulty or section differences (instructor's discretion).

A = 100-93%	A <sup>-</sup> = 92.9-90%	B <sup>+</sup> = 89.9-87%	B = 86.9-83%
B <sup>-</sup> = 82.9-80%	C <sup>+</sup> = 79.9-77%	C = 76.9-73%	C <sup>-</sup> = 72.9-70%
D = 69.9-60%	F = 59-0%		

## Makeup Exam policy

I will not makeup exams unless you have a valid excuse such as an illness or a family emergency. To be fair to everyone in class and to follow departmental and university policies, documentation for such emergencies will be required. If you miss an exam for any of the above stated exceptions, you must contact me as soon as possible to make alternate arrangements.

## How to get the most out of this course:

- Read assigned chapters before you watch the annotated lectures.
- Take charge of your own learning. Study for understanding of the concepts, not just memorization of "facts".
- Be alert and take good notes while watching the annotated lectures. Go over your notes after you watch the annotated lectures and make extra notes from your reading.
- Consider studying (virtually or while practicing social distancing) with other students or your group members to discuss the material and prepare for exams.
- **Even though the exams are open notes, study as if they were closed notes exams. You will not have time to go through your notes and find the correct answers to every question during the timed exam period.**
- **Get help when necessary. Feel free to email me anytime and I will be happy to help.**

## Accessibility

SUNY Geneseo is dedicated to providing an equitable and inclusive educational experience for all students. The Office of Accessibility will coordinate reasonable accommodations for persons with documented physical, emotional, or cognitive disabilities, as well as medical conditions related to pregnancy or parenting. Students with letters of accommodation should submit a letter to each faculty member at the beginning of the semester and discuss specific arrangements.

Please contact the Office of Accessibility Services for questions related to access and accommodations.

Office of Accessibility Services

Erwin Hall 22

(585) 245-5112

### **Safeguarding your mental health**

Diminished mental health, including significant stress, mood changes, excessive worry, or problems with eating and/or sleeping can interfere with optimal academic performance. The source of symptoms might be strictly related to your course work; if so, please speak with me. However, problems with relationships, family worries, loss, or a personal struggle or crisis can also contribute to decreased academic performance.

SUNY Geneseo provides mental health services to support the academic success of students. Counseling Services, a part of the Lauderdale Center for Student Health & Counseling, offers free, confidential psychological services to help you manage personal challenges that may threaten your well-being.

In the event I suspect you need additional support, I will express my concerns and the reasons for them, and remind you of resources (e.g., Counseling Services, Career Services, Dean of Students, etc.) that might be helpful to you. It is not my intention to know the details of what might be bothering you, but simply to let you know I am concerned and that help, if needed, is available. Getting help is a smart and courageous thing to do for yourself /and /for those who care about you.

### **Academic Honesty and Plagiarism**

Academic dishonesty includes cheating, knowingly providing false information, plagiarizing, and any other form of academic misrepresentation. Academic dishonesty will not be tolerated in this course. Students are expected to adhere to the University's policy on academic dishonesty and plagiarism, located in the handbook. Academic dishonesty and plagiarism have serious consequences, and if you're struggling, please ask for help rather than resort to dishonesty! Academic dishonesty will result in a zero on the assignment or exam. In addition, a report will be filed to the department chair and Dean of the College, and a record of academic dishonesty will be placed in the student's file at the Dean of Students Office.

### **Copyright Notice**

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### Tentative Schedule

Date	Lecture	Topic	Chapter
8/31	1	Introduction to cell biology Cell: The fundamental units of life	1
9/4	2	Chemical components of cells	2
9/7	<b>Labor Day-No Classes</b>		
9/11	3	Catalysis and use of energy by cells	3
9/14	4	Amino acids and protein folding <b>Online Quiz 1</b>	4
9/18	5	Protein structure and function	4
9/21	6	Protein regulation	4
9/25	7	Experimental Design and Methods I <b>Case Study 1-Answers due</b>	2, 10
9/28	8	Experimental Design and Methods II <b>Online Quiz 2</b>	10
9/30	<b>Rejuvenation Day</b>		
10/2	9	Experimental Design and Methods III	10
10/5	<b>Exam 1 (Lectures 1-9)</b>		
10/9	10	Plasma Membrane Structure	11
10/12	11	Membrane Transport: Transporters	12

10/16	12	Membrane Transport: Ion Channels	12
10/19	13	Transport in vivo; muscle as an example	12, 17
10/23	14	Intracellular Compartments and Protein transport	15
10/26	15	Vesicular Transport	15
10/27	<b>Rejuvenation Day</b>		
10/30	16	Secretory and Endocytic Pathways <b>Online quiz 3</b>	15
11/2	17	Cytoskeleton- Intermediate Filaments and Microtubules <b>Case study-2 answers due</b>	17
11/6	18	Cytoskeleton- Actin Filaments	17
11/9	<b>Exam 2 (Lectures 10-18)</b>		
11/13	19	Cell Signaling	16
11/16	20	G-Protein Coupled Receptors	16
11/20	21	Enzyme Linked receptors	16
11/23	22	Cell Cycle Regulation <b>Online quiz 4</b>	18
11/27	<b>Thanksgiving Break</b>		
11/30	23	Apoptosis	18
12/4	24	Extracellular Matrix and Connective Tissues	20
12/7	25	Cancer and stem cells	20
12/11	26	Cancer continues <b>Case study-3 answers due</b>	20
12/14	27	Wrap up <b>Online Quiz 5</b>	
12/18	<b>Final Exam</b>		

- The schedule may change at the discretion of the instructor based on class progression.