**Cell Biology BIOL 300**
**Spring 2024, 2:00 – 3:15 pm**
**ISC 115**
**Instructor information**
**Dr. Jani Lewis**
**Office hours: ISC 354**
**Wednesdays, 9 – 11 am**
**Thursday, 2 – 4 pm**
**And by appointment**
**Email: lewisj@geneseo.edu**
**Office phone: 585-245-5310**

**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. The lectures will usually follow the textbook. We will note how faulty cellular mechanisms lead to human disease. 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. You will also gain insight into how scientists investigate the structure and function of cells.

Required Textbook

The required textbook is Essential Cell Biology, Alberts et al, 5th edition

Smarkwork5 is also required.

**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 ho material 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

**In class and online (annotated) materials**

Each chapter's material has a module. In these modules you will find links to the learning outcomes, videos and/or podcasts, the powerpoint slides and assignments. I am asking you to be familiar with each modules content before we start that chapter. I may assign some of the videos or podcasts to be done before coming to class so that we can discuss them in class. The face-to-face portion of the class will meet Tuesday and Thursday, at which time there will be a lecture of the remaining parts of the material and will incorporate both in class questions that reflect those given on an exam as well as discussion of parts of primary journal articles that you should read ahead of time and try to answer on your own or in small groups. It will also be a time to go over problem sets that you might be given to help you better understand the material. The in-class time is also when you can ask questions related to the material presented in the papers, worksheets and in the Smartworks.

**Groups and "Question of the Day" (QD).**
Sometime during almost every class period you will be given a question to do as a group. This question will be collected and count towards your test grades. It is important to recognize that some of these questions may end up in some form on your exams. If you have been there for every QD (-1) during that testing period you will receive 2% extra credit on your exam. The -1 means that you can miss one class per quarter and still get the 2% extra credit on your exam. Everyone from your group who participates must sign the answer sheet to receive credit for the question. Any group who submits a group-member's name that is not present at the time the question was done will lose all credit for that question.

**Problem Sets and/or Journal article assignments**
Problem sets and/or primary journal articles with accompanying questions will be assigned throughout the semester. The topics will be related to the material we are covering in the lectures. These problem sets and/or journal article questions will be discussed during class time and it is expected that you do the work ahead of the class time. Answers to the questions will not be posted so it is imperative that you come to class to make sure your answers are correct. These sessions and the article questions are meant to 1). Help you understand how to read a journal article; 2.) Become more familiar with a given topic and; 3). Learn about the methodology that is used to study the structures and functions of cells. Each person should submit a copy of the answers to the paper questions by the deadlines listed. There will be 1 – 2 questions on the respective papers or problem sets on the exams. To receive full credit for the questions on the exams you must have submitted a copy of the answers to the questions and/or problem sets by their due dates.

**Smartworks assignments**
You will be assigned topics within the Smartworks which you must complete to receive credit. Smartworks also has many resources including links to great animations that will aide you in understanding the material. Please note that you must purchase access to Smartworks to complete these assignments. This access can be purchased through the bookstore or directly from the publisher (which I believe may be cheaper than via the bookstore). The Smatworks does include access to the ebook. In the modules for this course the first one is titled "Essential Cell Biology Course Materials". Within that module is a link to a video entitled "How to register for Smartwork video". It is extremely helpful for becoming familiar with the online system for homeworks and navigating the ebook and resources.

**Exams**
There will be 4 exams including the final. None of the exams will be cumulative. Exams will cover lecture topics in class, Smartwork assignments and parts of primary journal articles and problem sets we go over during the period between exams. Please remember that looking over your powerpoints by themselves will not adequately prepare you for exams. You should utilize your notes taken during class, any questions I post in the module that is associated with the lecture and the relevant chapter material in the text to strengthen your understanding of what is being covered. Exams will be largely made up of multi-part short answer questions as well as multiple choice questions. The questions are meant to challenge you to integrate and apply

what you have learned in class and on assignments. Exams will be given during class time and on the computer. You will need to download the lockdown browser and bring your laptop to class for the exam. If you have accommodations for extra time or other accommodations, you will have to alert me to this and schedule time in the testing center at least 3 business days before the in-class exam.

**Grading**

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|---|---|
| Exams (4 exams including the final) | 75% |
| Smartworks | 12.5% |
| Answers to paper questions and worksheets covered in class | 12.5% |

**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% | $A^-$ =92.9-90% | $B^+$= 89.9-87% | B = 86.9-83% |
| B -= 82.9-80% | $C^+$ = 79.9-77% | C = 76.9-73% | C- = 72.9-70% |
| D = 69.9-60% | F = 59-0% | | |

**How To Get the Most from Your Studying**

· Take charge of your own learning.

· Study for understanding of the concepts, not just memorization of "facts".

· Read assigned chapters and watch the annotated lectures. Make notes as you do and pay careful attention to the questions that I ask during lecture and the questions to think about that I post for each chapter.

· Watch the recommended videos that come with your book or those that I provide links to in the modules.

· Come to class each week, preferably after looking over the chapter at least once, but even if you miss doing that before class, <u>come to the class each week</u>. This will help you stay on top of the work and not leave it until the last minute before the exam.

· Do the Smartworks assignments in the order they are listed in the modules. Keeping up with these assignments as you go through the chapter material reinforces your learning and also reduces your stress for getting these items finished in advance of when they are due.

· Be alert and take good notes during class. Go over your notes after class and make extra notes from your reading. Look at any questions I place in each module and consider these while reading the material and watching the annotated lectures.

· Consider studying with other students outside of class to discuss the material and prepare for exams.

· Read the questions related the primary articles, read through these articles and try to answer these questions on your own first and then utilize your fellow students to help answer these questions.

· Get help when necessary. Feel free to email me anytime and set up a meeting if you need any help. It is worthwhile to come to office hours even if you only have one question. Your one

question might help other students who come to office hours at that time and vice versa. It is like an extra tutoring/studying session.

| Revised Schedule 1/29/2024 | | | |
|---|---|---|---|
| **Date** | **Topics** | **Unit** | **Chapter** |
| 1/22 | Introduction to the course, chapter 1 lecture | 1 | 1 |
| 1/24 | Continued discussion on Chapter 1 and 2. | 1 | 2 |
| 1/29 | Thermodynamics, Free energy and Catalysts | 1 | 3 |
| 1/31 | Thermodynamics, Free Energy and Catalysts continued | 1 | 3 |
| 2/05 | Protein Folding and enzyme function | 1 | 4 |
| 2/07 | Protein Folding and enzyme function cont. and Paper #1 part A | 1 | 4 |
| 2/12 | Paper #1 Part A discussion | 1 | 4 |
| 2/14 | Exam #1 – Chaps. 1-4, paper #1 Part A questions | 1 | |
| 2/19 | First half of Chapter 11 through SDS PAGE | 2 | 11 |
| 2/21 | Second half Chap. 11 | 2 | 11 |
| 2/26 | Chapter 12 first half | 2 | 12 |
| 2/28 | Chapter 12 second half | 2 | 12 |
| 3/04 | Chapter 15 part I. | 2 | 15 |
| 3/06 | Chapter 15 part II. | 2 | 15 |
| 3/11 | Spring Break - no classes | | |
| 3/13 | Spring Break - no classes | | |
| 3/18 | Chapter 15 and Paper #1 Part B | 2 | 15 |
| 3/20 | Finish up Chapter 15 and finish up Paper #1 Part B | 2 | 15 |
| 3/25 | Exam #2 – Chaps. 11, 12, 15 and Questions Paper #1 Part B. | 2 | |
| 3/27 | Chapter 16 through G-protein signaling | 3 | 16 |
| 4/01 | Chapter 16 to end of chapter | 3 | 16 |
| 4/03 | Chapter 16 and Paper #2 discussion | 3 | 16 |
| 4/08 | No class – Solar Eclipse | | |
| 4/10 | first part of Chapter 17 – work through online lecture | 3 | 17 |
| 4/15 | Chapter 17 in class. | 3 | 17 |
| 4/17 | Chapter 17 and do actin/myosin worksheet. | 3 | 17 |
| 4/22 | Finish Chapter 17 | 3 | 17 |
| 4/24 | Great Day, no class | | |
| 4/29 | Exam #3 – Chaps. 16 and 17 and Paper #2 questions | 3 | |
| 5/01 | Chapter 18 -Intro to cell cycle regulation | 4 | 18 |
| 5/06 | Chapter 18 – Regulation of cell numbers | 4 | 18 |
| 5/08 | Chapter 18 Part II | 4 | 18 |
| 5/16 | Exam #4 3:30 – 6:00 pm<br>NOTE TIME CHANGE and this is a THURSDAY | | |

## Important Links that you can find in this Brightspace Course

About this Course
In Class Lectures and Powerpoint Slides
Groups and “Question of the Day” (QD)
Problem Sets and/or Journal article assignments
Smartworks Assignments
Exams
Grading Scale
Makeup Exams
Appealing Grades
IMPORTANT POLICIES (in alphabetical order)
ACADEMIC DISHONESTY
ACADEMIC INTEGRITY AND PLAGARISM
ACADEMIC SUPPORT SERVICES
ACCESSIBILITY
BIAS RELATED INCIDENTS
COMMUNICATION
COMPUTER AND TECHNOLOGY SUPPORT
COPYRIGHT NOTICE
EMERGENCY FUNDING
FOOD SECURITY FOR SUNY GENESEO STUDENTS
GENESEO MISSION AND VALUES
GUIDELINES FOR ATTENDANCE AND PUBLIC HEALTH
LIBARY RESEARCH HELP
MILITARY OBLIGATIONS AND CLASS ATTENDANCE
POLICY EXCEPTIONS AND CHANGES
PROFESSIONALISM
RELIGIOUS OBSERVATIONS AND CLASS ATTENDANCE
SAFEGUARDING YOUR MENTAL HEALTH
WELL BEING