Instructor: Dr. Victoria Newton
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Office Hours:
MW: 11:30am–12:15pm, 3:30-5:30pm
T: 4:00pm–5:30pm
Also by appointment

Course Description and Goals
Cells are integral to the function of life on earth. Certain properties define a cell and are shared whether cells are working together to make a heart or redwood tree, or acting as a single unit, such as bacterium in a pond. In this course, we study in-depth the basic principles and concepts of life at its most basic unit—the cell. We will examine each cellular component and how these units act together to produce a living cell, and eventually, how cells act together to form tissues, organs and organisms. While this course will focus mainly on eukaryotic organisms, we will relate many of these same processes to prokaryotes as well. Students will also be expected to choose a cell-type of their choosing (subject to instructor approval) and produce an in-depth study of it and its potential relation to disease in the form of a term paper.

Upon completion of this course, students will be able to complete the following goals...

- Define, compare, contrast and explain
  - Basic prokaryotic and eukaryotic biology
  - The components of the cell and their function
  - Cell reproduction: Mitosis vs. Meiosis
  - Processing of genetic information: DNA vs. RNA vs. Proteins
  - Mechanisms of energy utilization
- Recognize and apply/explain terminology used in the field of cell biology
- Relate concepts in this course to higher systems, such as physiology and diseases.
- Design an experiment using the scientific method
- Hypothesize, using knowledge in-class with additional information, the effect of fictional conditions on a given cell.
- Command use of precise scientific language in written and oral communication.

Prerequisites: Students taking this course should have taken both “Introduction to Biology” courses (BIO 143, BIO144) and General Chemistry I (CHE 131). Non-majors are welcome to take this course as long as the prerequisite courses have been met. Concepts in these courses are critical to fully understanding the information that will be covered in this course. The course survey you took today will allow me to evaluate your retention of these concepts from previous courses and evaluate whether I need to adjust my lesson plans.

Course Material
Other: Additional reading materials will include journal, magazine, and newspaper articles may be assigned to prepare you for the day’s activity.

Course Website: All printed materials for this course can be found online at Moodle and will be disturbed through this site. It is expected that you will check the website before class to gather materials and check for updates. Grades and attendance will also be recorded on the website as well as Jenzebar, as will any class news. http://hermes.jcsu.edu/moodle
Under Bio241 S12 in the Biology Courses
**Course Requirements:**

**Grading**

*Cell Biology Lecture (850 points / 85%)*
- Class Assignments: 100 points
- Term Paper: 100 points
- Quizzes: 50 points
- Exams (3 + 1 Final): 600 points (150 points each)

*Cell Biology Lab (150 points or 15%)*
- Lab Notebooks: 25 points
- Lab Assignments: 50 points
- Lab Reports (5): 75 points

**TOTAL**: 1000 points

The following grading scheme will be used:

- **A** 1000 – 900 pts
- **B** 899 – 800 pts
- **C** 799 – 700 pts
- **D** 699 – 600 pts
- **F** ≤ 599

**Lecture (850 points / 85%)**
The following is an explanation of the grading. Any further details will be given in class.

**Class Assignments: (100 points / 10%)**
Assignments will be given throughout the year, that will be worth ~10 points each. These assignments will be inquiry-based assignments, requiring students to answer directed questions from the textbook or from reputable scientific sources, such as PubMed Central.

**Term Paper (100 points / 10%)**
Students will be expected to choose an instructor-approved cell-type for in-depth study and typed report. Using reputable sources online and through the library, students will give a detailed analysis of the biology (structure, function, special features, etc) of their cell or cell-type of focus and how that cell type relates to biology as whole. Is it involved in a particular disease? Does it relate to ecology or the consumption energy? What is the current research? All these questions don’t have to be answered, but be creative and really connect what you are learning about your cell-type to current research, news and health in the world around you. Exact details for formatting and references will be given during the first 2 weeks of class. Periodic checkpoints are listed on the course calendar in this syllabus.

**Quizzes (50 points / 5%)**:  
There will be 15 unannounced weekly quizzes, worth 5 points each. 12 quizzes will count, with the 2 lowest quiz grades dropped. Each quiz will be conducted in the first minutes of class, so if you are late, you will only have the time remaining. Quizzes can be made up for ONLY for excused absences (not for tardiness). Quizzes are not cumulative, but will be specific the sections covered from one quiz to the next.

**Exams (600 points /150 points each)**
There will be 4 exams in this course that will account for a significant portion of the final grade (600 points), with each exam, including the final, worth 200 points. The second (mid-term) and third exam will have small (15%) cumulative section, covering topics from all the lessons we have covered at that point in the course. The final exam will be cumulative, testing all objectives for the course equally. This is not meant to “add to your
workload”, but to be tool to help you prepare for the final cumulative exam and to demonstrate you have met the course goals, in their entirety. **As per University regulations, all students are required to take the final examination and mid-terms in each course for which he or she is properly enrolled.** All exams will count, so there are no dropped exams. See make-up exams in class policies

**Laboratory (150 points / 15%)**
The labs meet every Thursday at 1pm – 3:50pm. Laboratory exercises will be given on a weekly basis. Students will be required to maintain a detailed laboratory notebook. Further information will be given in the laboratory section.

1) **Lab Notebook (25 points / 25%)**
A vital skill in any laboratory is keeping a proper and informative lab notebook. It is the definitive record of your experiments and should include every aspect of a study. Further instructions for keeping lab notebooks will be given at the first lab. Notebooks will be collected at the end of labs on Tuesday and graded. They will be available for pick-up by the next day in class or during office hours. **Ensure you have picked up your notebook as you will need it to complete any lab assignments.**

2) **Lab Assignments (50 points / 5%)**
I will have assignments due for labs in the form of prepared questions to answer during and at the end of each lab. These worksheets are intended to guide you through the data collection and gain practice in analyzing and discussing scientific results.

3) **Lab Report (75 points / 5%)**
We will use certain labs to hone your scientific writing skills. Communicating your studies through written word is key to informing the public of your research. While we may not be curing cancer, it is vital that any biology student know how to write a scientific paper.

**Course and University Policies (As per the Johnson C. Smith 2011-2012 Course Catalog)**

**Cheating**
**Cheating in any form will result in a non-negotiable zero** for the assignment/quiz/exam in question on the first occurrence. A second instance will result in expulsion from the class with an automatic F plus disciplinary action. Allowing others to copy your work in any form counts as cheating and will be treated as such.

**Plagiarism**
**Plagiarism will not be tolerated.** Please see me or your English professor for clarification on when or how to use citations. Plagiarized assignments will receive a non-negotiable zero grade and cannot be rewritten. Plagiarism in any instance is where the work of others (other students, books, websites, etc) is presented as your own. Do not use extensive verbose quotations in place of plagiarizing. Paraphrase the statement and cite the source properly.

**Laptops and other Electronic Devices**
Computers can be a valuable resource for class, but can also be a major distraction. Laptops may be used for class work only. If I find that they are being used for anything other than class work, at the first offense, all laptops in class, regardless of the offender, must be closed immediately and put away. If this occurs a second time, this policy will change and laptops will not be allowed unless specifically directed by me. Any other electronic device (iPods, devices with earphones, etc) are not acceptable during class. **Cell phones must be turned off or on silent.** See clarification for cell phone use under Policy on Disruptive Behavior.

**Make-up Exams**
I understand that life happens so I will allow for make-up exams **with prior notification and arrangements for excused absences only.** If you are unable to attend an exam, please notify me **24 hours** before the exam and arrange to take a make-up exam. I prefer you notify me in person at my office hours to discuss your options, but
I am always available by email if that cannot be arranged. If you miss an exam without making arrangements at least 24 hours beforehand, I will require documentation explaining your absence for you to make-up the exam. I cannot stress this enough: Simple notifications are not sufficient; you must also schedule the make-up exam prior to your absence.

Make-Up Quizzes
Make-up quizzes will only be given for excused absences. It is your responsibility to contact me to determine if a quiz was given and to schedule a make-up quiz.

Late Assignments
Late assignments and term-papers will be penalized and will be accepted only the next class after they were originally due.

Class Attendance
“Class attendance is required for all JCSU students. Each students is allowed as many hours of absence per term as credit hours received (not to exceed 3) for the class. The policy does not apply to internships and student teaching. The offering department will determine attendance policies for these classes.

• A student is expected to attend all classes, complete all required work, and not be absent without adequate cause. Punctuality in attending classes is expected of all students. Regulations on class tardiness are determined by the instructor of the class.
• It is the responsibility of the student to know, at all times, the number of absences he/she has for each class. If a student exceeds the number of allowed absences for his/her class, the student may request an excused absence from his/her instructor.
• Students who exceed the maximum number of absences may receive a failing grade for the course.”

Note that this is inclusive of both excused AND unexcused absences. Therefore, if you anticipate absences due to athletics, chorus/band, etc, do not miss class otherwise. Absences from unannounced tests or other assignments may be made up at the discretion of the instructor. It is your responsibility to see me to determine if there are assignments you may have missed.

What is an excused absence? Below is a list of what I consider to be an excused absence. Any other excuse that does not meet the criteria below, will be considered an unexcused absence.
1. Personal illness or attendance in school endangering a student’s health or the health of others;
2. A serious illness or death in a student’s immediate family necessitating absence from school;
3. A court order or any order by a governmental agency, including pre-induction physical examinations for service in the armed forces, mandating absence from school;
4. Celebrating religious holidays, necessitating absence from school;
5. Conditions rendering attendance impossible or hazardous to the student’s health or safety;
6. Field trips or attendance at events/functions representing the University or a school-related activity that conflicts.

Instructors are responsible for monitoring student attendance and participation in their classes. If you enter class late it is your responsibility to see me and ensure I have recorded your presence, especially if there was a quiz that day.

Policy on Disruptive Behavior
Academic excellence demands that appropriate behavior and decorum be maintained by students at all times in the classroom. Johnson C. Smith University will not tolerate disruptive behavior by students or condone any behavior by students or teachers which incites such behavior. Disruptive behavior is defined here as any behavior which causes disorder or turmoil to exist in the classroom. When the student is judged to have engaged in disruptive behavior, the instructor shall initiate the following procedures:

1. Instructor will request the student to discontinue the disruptive action
2. If the behavior continues, the instructor will instruct the student to leave the classroom. Security will be called to remove the student if he or she does not leave when requested.

3. An incident report will then be completed by the instructor and filed with the Council of Deans. Copies will be sent to the student, advisor, Office of Enrollment Services and Student Success, and the Teaching and Learning Center.

4. After the completion of an incident report, including the student’s comments, the student must secure the written permission of the Council of Deans in order to return to class. The student will be held responsible for all absences incurred between the time of suspension from class and his or her return.

5. Any recurrence of disruptive behavior on the part of the student cited will result in expulsion from the class and a grade of “F” recorded in the semester in which the offense occurred.

**Cell Phones:** Although not considered disruptive behavior by university guidelines, these devices can certainly be disruptive to the smooth functioning of the class. Therefore, THEY MUST BE TURNED OFF DURING THE CLASS PERIOD (not silent, OFF). If you forget once, and your phone does ring you must turn it off immediately (Do not answer it). If this occurs again you will be asked to leave the class. TEXTING COUNTS AS PHONE CALLS AND WILL BE TREATED AS SUCH. Do not answer, text, play games or do anything with a phone during class.

**THE ONLY EXCEPTION IS WHEN USING THE CALCULATOR FUNCTION FOR GROUP WORK ACTIVITIES, AFTERWHICH ALL CELL PHONES MUST BE PUT AWAY.**

**Johnson C Smith Honor Code**

The following University approved Honor Code is enforced by the Office of Academic Affairs and the University Judiciary Board:

_I pledge that this work is my own and I will not cheat, or represent the words, ideas or projects of others as my own. I further pledge that I will not engage in academic dishonesty, which includes lying, stealing, or assisting others in misrepresenting their work. As a member of the student body of Johnson C. Smith University, I also pledge to report all violations of the Honor Code that I observe in others. I understand that violations of the Honor Code are subject to disciplinary procedures by the University._

By signing your name on your exam/assignments/papers, etc, you pledge that you have abided by the University Honor code.

**Lecture Schedule**

(May be subject to small changes)

Week 1: Jan 11    Introduction, Review Syllabus: What is a cell?
Week 2: Jan 16   MLK Day, No Class
Week 2: Jan 18   Basic Cellular Structure: Comparison of Eukaryotic and Prokaryotic Cells.
Week 3: Jan 23   Proteins and Enzymes: Structure and Function
Week 3: Jan 25   The Plasma Membrane and Membrane Proteins
Week 4: Jan 30   Membrane Transport
Week 4: Feb 1    The Structure and Function of the Nucleus
Week 5: Feb 6    Nucleic Acids – Structure and Function, Quiz Bowl, Term Paper Topic Due
Week 5: Feb 8    EXAM 1

Week 6: Feb 13   The Cell Cycle and Regulatory Mechanisms
Week 6: Feb 15   Cellular Division: Mitosis
Week 7: Feb 20   Cellular Division: Meiosis, Sexual vs. Asexual reproduction
Week 7: Feb 22   Gene Expression
Week 8: Feb 27   Transcription
Week 8: Feb 29   Translation (Ribosomes and Endoplasmic Reticulum)
Week 9: Mar 5  The Golgi and Vesicular Transport, Quiz Bowl,
Week 9: Mar 7  **EXAM 2** *(List of References and Outline Due at end of week)*

Week 10: Mar 12  SPRING BREAK
Week 10: Mar 14  SPRING BREAK
Week 11: Mar 19  Cellular Respiration – Glycolysis/Citric Acid Cycle
Week 12: Mar 26  Generating Energy – Photosynthesis and Chloroplasts
Week 12: Mar 27  The cytoskeleton I: Microfilaments in structure and transport
Week 13: Apr 2  The cytoskeleton II: Microtubules in Cell Motility and Division
Week 13: Apr 4  Cellular Junctions and Barriers, Quiz Bowl
Week 14: Apr 9  EASTER HOLIDAY, No Class
Week 14: Apr 11  **EXAM 3**

Week 15: Apr 16  Cell-to-Cell Communication and Signaling
Week 15: Apr 18  Apoptosis/Survival and Cancer
Week 16: Apr 23  Tissue Maintenance and Stem Cells
Week 16: Apr 25  How Genes and Genomes Evolve – Term Papers Due, Quiz Bowl

**Week 17: May 1 – May 5**  CUMULATIVE FINAL EXAM