**Cell Biology (Bio 206)**

**Lecture: R 11:00 – 1:45, AA413**

**Lab: T 11:00 – 1:45, AA413**

**4 credits**

**Fall 2015**

Instructor: Dr. David Fernandez

Office: AA352, Row 5

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Office hours:

Monday: 11:00 – 2:00, Wednesday: 11:00 – 12:00, Thursday: 8:00 – 11:00, Friday: 8:00 – 2:00

(Friday office hours in AA 412 and/or 415)

\*Please email me to set up an appointment\*

*The purpose of this syllabus is to address relevant administrative concerns and policies. If you have questions of this nature throughout the semester, please consult this syllabus first, before directing these questions to your Professor.*

**Census Date: 9/10/15**

Last day to withdraw with refund

**Withdraw Date: 11/3/15**

Last day to withdraw without a grade penalty (receive a “W”)

**Course Text (Required)**

Essential Cell Biology by B. Alberts et al. 4th Ed.

**Course Overview**

Cell Biology will offer students the chance to explore life at the cellular and molecular level. Basic biological concepts, such as structure/function, thermodynamics, and evolution, will also be addressed within the cellular context. Prerequisites for this course include completion of Bio 101 and 102 and Chm 111 or Chm 111 and 112 and Bio 101. Upon successful completion of this course, the student should be able to:

A. describe the structures commonly found in eukaryotic and prokaryotic cells   
B. explain the functions of the cell parts   
C. describe the chemical composition of cells and their parts   
D. explain the basic principles of bioenergetics and apply these principles to enzymology and metabolism   
E. describe both metabolic and genetic regulatory mechanisms in cells   
F. describe the patterns of growth, reproduction, and heredity in prokaryotic and eukaryotic cells   
G. explain the differences between generalist and specialized cells   
H. describe some of the common specialized cell functions   
I. explain the concept of unity and diversity of cell structure and function

**Exams**

Exams will be administered as designated in the schedule. If you arrive late to class, you will miss all or part of the time allotted for taking the exam, so come on time if you want the maximum amount of time to take your exam. During the course of the semester, four non-cumulative exams will be given, focusing primarily on the material since the proceeding exam. All cell phones and other such devises must be completely off for the duration of an exam. If you have a special circumstance (such as expecting a call from a doctor, a family emergency, etc…), you must notify me before the exam begins. Exam format will be short answer / essay questions. Exam 2 will be a take-home exam. Its due date is shown in the schedule below. Students may use any resources available to them, but must cite them in a works cited page at the end. Students may NOT work together on this exam, and plagiarism will result in a 0 on this exam.

\*\*\*The Honor Code applies at all times. Cheating during an exam in any form will not be tolerated. Wandering eyes, whispering, intentionally allowing other students to clearly see your exam will result in a 20% drop on that exam grade, for a first offense. A second offense will result in a 0 being given on that exam.\*\*\*

**Study Guides**

Study guides will be posted on Bb prior to each exam. They are aimed at focusing your efforts when preparing for each exam, but are not necessarily a cumulative list of topics. If something appears in your PPTX slides, either from Bb or (especially) during class, it is fair game to appear on your exam, so please study accordingly.

The study guide for the final exam is simply your three previous study guides.

**Review Article**

Each student will write a review article on a topic of his or her choice within the field of cell biology. See Bb for detailed instructions.

**Extra Credit**

Extra credit opportunities may be offered during the semester, at the discretion of the Professor. Exams may be curved at the discretion of the Professor. Extra credit may mean the difference between a letter grade and the next letter grade up, but only if the student’s overall grade is extremely close (probably within 1% of the next letter grade). Relying on extra credit is NOT the way to earn a grade.

**How to Get the Most Out of This Course:**

Consider the following as a checklist for success. If you wish to improve your grade, first consult this checklist and perform an honest self-evaluation:

* Have a strong foundation in biology (especially), chemistry, and physics. Some remedial studying of these topics may be needed for some students.
* Be present physically and mentally, from start to finish, at every class. Do NOT pack up your belongings before the class officially ends.
* Study without distractions, at least 10 hours per week, outside of scheduled lecture or lab times.
* Check your NOVA email at least once per day.
* Turn off your phone/tablet/laptop unless using these items for note taking or reading PPTX slides.
* Ask and/or answer as many questions as you can.
* Come to office hours / email questions frequently.
* Take detailed notes during class\*.

**\*Lectures/Note Taking**

Lecture PPTs will be posted on Bb under “Course Documents” prior to each class. The slides you see on the screen will be the same as the slides you have in your PPT notes, and so it may be unnecessary and counterproductive to try to copy every word from the screen during class. Instead, your notes should focus on concepts, themes, and points of emphasis made during class. Try to write down what isn’t already written for you.

**Grading Policy**

Grades are earned, not given. Grades reflect not only the student’s effort, but also comprehension and mastery of the material. Simply “working hard”, while necessary, does not warrant a specific grade. As such, “I think I deserve a grade of \_\_\_\_ because I worked so hard and always came to class” is not an acceptable argument, and will not hold any value. This is especially true at the end of the semester. The time to think about your grade is starting from the very first day, not waiting until the last one. If you need a grade of \_\_\_\_ to get into a specific program or further your career, I am here to help you achieve that. But you are the one responsible for earning that grade.

Bio 206 consists of lecture and laboratory. There are no separate attendance or participation grades, as these are things students should be doing anyway. Your overall grade (out of **1000 pts**) will be calculated as follows:

**Lecture (700 pts):**

4 exams (150 pts each) **= 600 pts**

Review Article (Instructions provided in Bb) **= 100 pts**

**Lab (300 pts):**

See lab syllabus.

**Overall course grades will be assessed as follows:**

**A: > 90 %**

**B: 80-89.99%**

**C: 70-79.99%**

**D: 60-69.99%**

**F: < 59.99%**

**Grades are earned, not given.**

**Time expectations for grading**

Exams and/or other assignments will be graded as soon as possible. The actual timeframe may vary. Inquiring into when you can expect to see your grade will NOT expedite the grading process. Rather, your focus should be on preparing for the next grading opportunity.

**Tutoring**

Students are strongly encouraged to bring questions or points of confusion directly to the instructor. However, for additional assistance, you may contact the Academic Success Center (ASC), located in AA 229 (703-845-6363). They offer free tutoring for enrolled students. Please make an appointment with them before stopping by.

**Special Needs/Accommodations**

If you need special assistance, you may contact disability services (nvcc.edu/depts./disability). You may then bring me documentation from disability services at the beginning of the semester, at which time we will discuss any special accommodations to best suit your needs.

**Lecture Schedule**

The lecture schedule appears on the next page. It is subject to change as necessary and at the discretion of the Professor.

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| --- | --- |
| **Tentative Date** | **Topic/Chapter** |
| 8/25, 8/27 | Syllabus, Intro to Cells,  Model Organisms / 1 |
| 9/1, 9/3 | General Chemistry, Organic Chemistry, Biochemistry / 2 |
| **9/10** | **Exam 1** |
| 9/17 | Protein Structure & Function / 4  Enzymes & Metabolism / 3 |
| 9/24 | Membrane Structure & Function / 11 |
| 10/1 | Membrane Transport / 12 |
| 10/8 | Cytoplasmic Membrane Systems / 15 |
| **10/15 (Exam 2 Due)** | Cytoskeleton / 17  Extracellular Matrix, Tissues / 20 |
| 10/22 | Cellular Respiration,  Photosynthesis / 13-14 |
| 10/29 | DNA, Chromosomes,  Genes, & Genomes / 5,9 |
| 11/5 | Transcription & Translation / 7 |
| 11/12 | Control of Gene Expression / 8 |
| 11/19 | Manipulating Genes / 10  DNA Replication & Repair / 6 |
| **11/26** | **Thanksgiving** |
| **12/3 (Papers Due)** | Mitosis & Meiosis / 19-20  Cell Cycle / 18 |
| 12/10 | Stem Cells & Cancer / 20  Signal Transduction / 16 |
| **12/15 (11:30 – 1:10)** | **Exam 3** |

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| --- | --- |
| **Tentative Date** | **Topic** |
|  | **Exam 2**,  Transcription & Translation / 7 |
|  | Transcription & Translation / 7  Control of Gene Expression / 8 |
|  | Manipulating Genes / 10  DNA Replication & Repair / 6 |
|  | Mitosis & Meiosis / 19-20 |
|  | Control of the Cell Cycle / 18  Stem Cells, Cancer / 20 |
|  | Signal Transduction / 16  **Exam 3, Review Articles Due** |
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