COURSE OUTLINE **PHYSICS 451** **Spring 2017**

Instructors: Cristiano Dias: 481 Tiernan Hall, cld@njit.edu

Office Hours: Thursdays from 4-5 pm

PREREQUISITE: Phys. 121.

COURSE MATERIAL:

- **Textbook**: *Physical Biology of the Cell*, Second Edition, by Rob Phillips, Jane Kondev, Julie Theriot, Hernan G. Garcia. The publisher is Garland Science—Taylor & Francis Group.

ATTENDANCE: It is expected that students will attend all lectures. Attendance will be taken at all classes and exams. More than 3 unexcused absences (in total) are excessive. If you have excusable absences contact your instructor or the Dean of First Year Students. If you must withdraw from the course, do it officially through the Registrar. Do not simply stop attending and taking exams: that forces the instructor to assign a course grade of "F".

GRADING: Your final letter grade in Phys 451 will be based on a composite score for term's work that includes exams, in-class quizzes, and homework scores.

1) Exams Two exams will be given during the semester.

In-class quizzes covering the preceding or current work may be given during lectures and/or recitations. Those scores count toward your final course grade. **There are no make-ups for in class activities**. Students missing a quiz will receive a grade of zero for that item. The general policy is that students who miss a common exam will receive a score of zero for that Exam. That score will be included in the calculation of your final grade. Students that miss both exams automatically fail the course. Students who anticipate an absence from a common exam should discuss their situation with their instructor PRIOR TO their absence. In order to be qualified to receive a "make-up" common exam score (a very rare occurrence), the student should present documentation for not being able to take the test as scheduled. As is the standard policy of NJIT, this documentation should be presented to the student's instructor AND to the Dean of Students - (973) 596-3466, Room 255 Campus Center. BOTH the instructor and Dean of Students must concur in permitting a "make-up" common exam. Students who miss common exams that do not present documentation within 7 days of the common exam will receive a score of zero for the common exam.

In the event that the above qualification is met, a separate make-up test for the missed common quiz will not be offered. Instead, the portion of the final exam relevant to the contents of the missed test will be considered for giving a grade for the missed test. The instructor will evaluate the final exam questions from those chapters and normalize this portion of the student's grade for the missed common quiz.

2) Lecture Quizzes Short quizzes will be given during each lecture period.

3) Homework Homework assignments will be posted on moodle every two weeks.

Final Letter Grades: Here are the weights to be used for calculating the composite score:

- **25%** for midterm exam
- **35%** for the final exam
- **10%** for the total of homework
- **20%** for student presentatio
- **10%** for in-class quizzes

The cutoff percentages for various letter grades will be:

Percentage	Letter Grade
> 85%	A
85 - 80	B+
80 – 70	B
70 - 65	C+
65 - 55	C
55 - 50	D
< 50	F

Final grades are not negotiable: A score of 84.999999% is a B+, not an A.

HONOR CODE STATEMENT: NJIT has a zero-tolerance policy for cheating of any kind and for student behavior that disrupts learning by others. Violations will be reported to the Dean of Students. The penalties range from a minimum of failure in the course plus disciplinary probation up to expulsion from NJIT. Avoid situations where your own behavior could be misinterpreted as dishonorable. **Students are required to agree to the NJIT Honor Code on each exam, assignment, quiz, etc. for the course.**

Turn off all cellular phones, wireless devices, computers, and messaging devices of all kinds during classes and exams. Please do not eat, drink, or create noise in class that interferes with the work of other students or instructors. Creating noise or otherwise interfering with the work of the class will not be tolerated.

Syllabus

TOPIC	TEXT STUDIES	RECOMMENDED PRACTICE PROBLEMS
Week 1 Selected topics		
Week 2 The molecules of life		
Week 3 The mathematics of water	Chapt. 12	
Week 4 A Statistical View of Biological Dynamics	Chapt. 13	
Week 5 A Statistical View of Biological Dynamics	Chapt. 13	
Week 6 Rate Equations and Dynamics in the Cell	Chapt. 15	
Week 7 Student Presentation + Exam		
Week 8 Rate Equations and Dynamics in the Cell	Chapt. 15	
Week 9 Rate Equations and Dynamics in the Cell	Chapt. 15	
Week 10 Dynamics of Molecular Motors	Chapt. 16	
Week 11 Dynamics of Molecular Motors	Chapt. 16	
Week 12 Gene Regulation	Chapt. 19	
Week 13 Student Presentation + Exam		