

## **PHYSICS 345, BIOPHYSICS**

Fall 2016, RLM 5.114, MWF 10-11AM

Unique number 56285

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**INSTRUCTOR:** Professor Vernita D. Gordon, email: [gordon@chaos.utexas.edu](mailto:gordon@chaos.utexas.edu), Office hours RLM 14.206: Tuesdays 10-11am, Thursdays 1-2pm, or by appointment.

### **TARDINESS, EARLY DEPARTURES and ABSENCES:**

Grading is not based on attendance, although your learning probably is.

Late arrivals and early departures are very disruptive. Please be seated before the bell rings and remain for the entire class. If this is chronically impossible for you, please talk with me.

If you will be absent, you must still turn in any assignment due by that assignment's deadline. If you will miss an exam, you must discuss this with me at least two weeks ahead of time so that we can arrange an alternative time for you to take the exam. Exceptions to both of these conditions are possible under extraordinary circumstances.

You are responsible for all material and assignments, including those assigned or covered during your absence, or during time you miss due to tardiness or early departure.

By UT Austin policy, you must notify me of your pending absence at least fourteen days prior to the date of observance of a religious holy day and no later than the 12<sup>th</sup> day of class. If you must miss a class, an examination, a work assignment, or a project in order to observe a religious holy day, you will be given an opportunity to complete the missed work within a reasonable time after the absence.

### **DISABILITIES:**

Students with disabilities may request appropriate academic accommodations from the Division of Diversity and Community Engagement, Services for Students with Disabilities, 471-6259, <http://www.utexas.edu/diversity/ddce/ssd/>.

**TEXT:** Physical Biology of the Cell, 2<sup>nd</sup> edition, by Phillips, Kondev, and Theriot. This textbook is required. Please make sure you have the second edition. Homework will come from this book. Additional material from other books or from journal papers may be introduced as needed.

**ONLINE RESOURCES:** There are extensive online resources for your textbook available at [http://www.garlandscience.com/garlandscience\\_resources/book\\_resources.jsf](http://www.garlandscience.com/garlandscience_resources/book_resources.jsf). These include movies, datasets and, perhaps most importantly, hints and strategies for attacking the more difficult end-of-chapter problems.

**PRE-REQUISITES:** Upper-division standing, Biology 311D, Chemistry 302, and Physics 355.

**HOMEWORK:** Homework will count for 50% of the course grade. There will be approximately 10 homework assignments throughout the semester. Late homework will not be

accepted. If the TA or I find your homework illegible, it will receive a score of zero. You are strongly encouraged to write legibly or to type your homework.

**TESTS:** There will be one midterm, to be given in mid-March. The exact date will be set later in the semester as needed to better accommodate instructional flow and the schedules of the instructor and students. The midterm will count for 25% of the course grade.

The final exam will count for 25% of the course grade, and will be given on December 12, 7pm – 10pm. Please check the registrar's website near the end of the semester to find where the final will be given.

**Grading:** Plus-minus grading will not be used.

**LAST POSSIBLE DROP DATE:** See UT Austin Academic Calendar. The last day to drop a class for a possible refund is September 9. The last day to drop the class, with the dean's approval, is November 1. There are exceptions to this date for urgent and substantiated, non-academic reasons that cause a need to drop. There is also a one-time-exemption policy that can allow later drops, subject to certain conditions.

**Pass/fail:** The last day to change registration from graded to pass/fail, or vice versa, is Nov 1.

**COURSE FORMAT:** The course format will consist primarily of lectures by the instructor. At the end of each lecture, I will ask you to give me a quick-response paper consisting of: one thing you learned from that day's lecture, and one question you have from that day's lecture. These are an important guide for me to make sure everyone is learning well and to let me know what I need to spend more time on. Please take them seriously.

As appropriate, we will have the occasional class discussion on a specific topic of special interest.

**CATALOG DESCRIPTION:** Basic concepts of physics developed and applied to biological systems. Topics include energy in living systems, entropic interactions, molecular forces and self-assembly, biopolymers, bio-membranes, cell-cell interactions, pattern formation, collective behavior, higher order systems, population dynamics and evolution.

**COURSE TOPICS:** Course topics will be chosen from those given in the catalog description according to the time constraints of the semester. Additional topics may be added to accommodate late-breaking science or other special tie-ins to the course material.

The content and the speed of the course will be adjusted according to the background and interests of the students in the class. I anticipate that we will likely cover Chapters 1-14 in Physical Biology of the Cell. Coverage of chapters will not be comprehensive and we will omit some topics to have time to cover more breadth. This textbook was written for a two-semester course and we have only one semester available to us, so we can't cover everything.

**ACADEMIC HONESTY:** I take this very seriously.

**University of Texas Honor Code:** The core values of The University of Texas at Austin are learning, discovery, freedom, leadership, individual opportunity, and responsibility. Each

member of the university is expected to uphold these values through integrity, honesty, trust, fairness, and respect toward peers and community.

I encourage you to study together and to work together on homework. Working together on homework should consist of discussing concepts and approaches and coaching each other through difficulties, not copying work. Duplicate assignments will be counted as plagiarism. Tests should be taken on your own, without aid from other students, although studying together for tests beforehand is certainly fine. Scientific calculators are allowed during exams. Any use of graphing calculators, cell phones, computers, or other inappropriate aids with high ability to facilitate cheating is not allowed during exams.

Academic dishonesty includes, but is not limited to, copying answers on exams or homework, having another person do homework or exams for you, or bringing non-allowed aids to exams. Collusion in another's academic dishonesty is itself academically dishonest. Generally speaking, academic dishonesty is any activity that misrepresents one person's work as another's, or that is intended to circumvent the intended purpose of evaluation tools like exams and homework. Don't do this. Cases of suspected academic dishonesty will be reported to the Office of the Dean of Students.

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**EMAIL:** All students should become familiar with the University's official e-mail student notification policy. It is the student's responsibility to keep the University informed as to changes in his or her e-mail address. Students are expected to check e-mail on a frequent and regular basis in order to stay current with University-related communications, recognizing that certain communications may be time-critical. It is recommended that e-mail be checked daily, but at a minimum, twice per week. The complete text of this policy and instructions for updating your e-mail address are available at <http://www.utexas.edu/its/help/utmail/1564> .

### **Behavior Concerns Advice Line (BCAL)**

If you are worried about someone who is acting differently, you may use the Behavior Concerns Advice Line to discuss by phone your concerns about another individual's behavior. This service is provided through a partnership among the Office of the Dean of Students, the Counseling and Mental Health Center (CMHC), the Employee Assistance Program (EAP), and The University of Texas Police Department (UTPD). Call 512-232-5050 or visit <http://www.utexas.edu/safety/bcal>.

### **Q drop Policy**

The State of Texas has enacted a law that limits the number of course drops for academic reasons to six (6). As stated in Senate Bill 1231:

"Beginning with the fall 2007 academic term, an institution of higher education may not permit an undergraduate student a total of more than six dropped courses, including any course a transfer student has dropped at another institution of higher education, unless the student shows good cause for dropping more than that number."

## **Emergency Evacuation Policy**

Occupants of buildings on the UT Austin campus are required to evacuate and assemble outside when a fire alarm is activated or an announcement is made. Please be aware of the following policies regarding evacuation:

- Familiarize yourself with all exit doors of the classroom and the building. Remember that the nearest exit door may not be the one you used when you entered the building.
- If you require assistance to evacuate, inform me in writing during the first week of class.
- In the event of an evacuation, follow my instructions or those of class instructors.

Do not re-enter a building unless you're given instructions by the Austin Fire Department, the UT Austin Police Department, or the Fire Prevention Services office.