

CHEM 3400: Physical Chemistry for the Biological Sciences Summer C Semester 2023

Instructor: Ajith Perera email: perera@ufl.edu
Office: NPB 2344 Telephone: 352-392-6616

Time & Place: In-class lectures, **MWF 8.00 – 9.15 AM, Leigh 207.**

Office Hours: **MW 3:00 – 4:00 PM NPB 2344.** Office hours will start the second week of classes; please, consult the instructor via email before that start if necessary. For extra consultations, please, contact the instructor via email to arrange a Zoom session.

CANVAS access: Students must be able to access CANVAS the e-learning management system utilized by University of Florida (<https://elearning.ufl.edu/>). Announcements, lecture notes, grades, and access to the online homework system will be managed through CANVAS

<u>Grading:</u>	<u>% of Final Grade Points</u>
Homework	30
Two Midterm Exams	40 (15% each)
Final Exam	<u>30</u>
Total	100

Grading scale: A > 90, A- 87.5 to 89.99, B+ 82.5 to 87.49, B 77.5 to 82.49, B- 75 to 77.49, C+ 72.5 to 74.99, C 67.5 to 72.49, C- 65 to 67.49, D+ 62.5 to 64.99, D 57.5 to 62.49, D- 55 to 57.49. E <60

All grades will be posted on CANVAS

Midterm exams: In-class on Fridays: June 16, and July 14.

Final exam: In-class on Friday: August 11.

In the exams, you can use a calculator, your notes (open book), extra batteries, pencils, eraser, and the provided scratch paper to work out your answers.

Please Note: Conflicts with these exams' dates should be resolved with the instructor no later than one week prior to the exam date. There will be no make-up exams.

Homework: Online web-based homework via *Pearson Mastering Chemistry* will be assigned on a regular basis. **You are strongly encouraged to complete all homework, even after the**

due date, in order to be better prepared for the exams.

COURSE MATERIALS

A computer or laptop to access CANVAS and to complete online homework. Tablets and cell phones may be used to complete assignments.

Recommended textbook: "Physical Chemistry, Principles and Applications in Biological Sciences" by I. Tinoco, K. Sauer, J. C. Wang, J. S. Puglisi, G. Harbison, D. Rovnyak, 5th Edition, Pearson (2014).

eText and Homework Online Access: To obtain the eText and to access the online homework system, you should have access to *Mastering Chemistry with Pearson eText*. Please see <https://ufl.instructure.com/courses/481621/announcements> for details. You can reach out to Ms. Christina Bolton (ufpearsonhelp@gmail.com) if you have additional questions that are not adequately addressed (Please make sure to consult her only if you have questions that are not adequately addressed in the postings).

Calculator: A **calculator** is required and should be brought to every lecture. Calculators will be use on examinations too. However, students must not use programs, communication capabilities or apps on the calculator or computer during quizzes and examinations. Failure to comply with this policy is considered a serious violation of the student honor code.

Learning Objectives:

Upon completion of this course, a student will be able to:

- Use the ideal gas law and apply the kinetic theory of gases.
- Use a distribution function.
- Apply the first and second laws of thermodynamics to biochemical systems.
- Discuss and calculate properties of non-electrolyte and electrolyte solutions,
- Calculate an equilibrium constant and relate it to the free energy.
- Calculate the electromotive potential for electrochemical cells and for electron transfer in biological processes.
- Determine rate constants, rate laws, and mechanisms for chemical reactions of biological interest.
- Fundamentals of atomic/molecular structure and spectroscopy.

Course Overview: This course is the first in a two-semester sequence covering fundamental topics of physical chemistry for biological systems. The course is primarily designed for biological majors. In this course, we will cover chapters 1-10 of the textbook.

Attendance: Lecture attendance is essential for your success in this class. However, we will not take roll.

Course Evaluations: Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>

Honor code: The student honor code can be found at <http://www.registrar.ufl.edu/catalog/policies/students.html>

[Links to an external site.](#)

The students, instructor(s) are honor bound to comply with the Honors Pledge:

We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.

On all work submitted for credit by students at the university, the following pledge is either required or implied: On my honor, I have neither given nor received unauthorized aid in doing this assignment.

Students with disabilities: Students requiring special accommodations need to register at the Dean of Student Offices and bring the documentation to the instructor.

Counseling services are available at [**http://www.counsel.ufl.edu**](http://www.counsel.ufl.edu) . or call (352)-392-1575 during regular service hours (8am-5pm). For other hours or weekends call the Alachua County Crisis Center (264-6789). Students may also call the clinician on-call at Student Mental Health for phone callback and consultation at (352)-392-1171