

Lecture: Friday 1:00 – 1:50 PM

Room: P-148

Instructor: Dr. Karen Peterson
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Office hours: CSL-309: Mon, Wed 10:00-11:00 pm; also, by appointment

Course Description

CHEM 210. Chemical Applications of Calculus and Physics (1)

Chemical problems that utilize calculus and physics relevant to upper division chemistry. Chemical rate laws, chemical thermodynamics, and molecular quantum mechanics. Recommended if a grade of C- (1.7) or below was received in Mathematics 150, 151, 252, Physics 195, or 196.

In this course, we will review and work on the mathematical concepts found in Chem 410A Physical Chemistry. It is intended to be taken concurrently with Chem 410A so that relevant mathematical ideas can be studied in a timely manner. Some of the topics that I expect to cover are listed below, but any mathematical or physical concepts that you or Dr. Pullman feel need extra work will be considered.

Sketching functions

Differentiation

Integration

Complex numbers

Vectors

Matrices

Potential energy functions

Polar/spherical coordinates

Expectation values

Gaussian functions

Angular momentum

Taylor's series expansions

LEARNING OUTCOMES:

By the end of the course, you will be able to do the following:

- Connect mathematical relationships to physical phenomena in chemistry.
- Solve elementary derivatives and integrals in the context of chemical problems.
- Work through calculus problems found specifically in physical chemistry
- Visualize and draw mathematical functions used in quantum chemistry
- Estimate values of physical properties to be solved in a problem to check validity of calculations.
- Identify the formulas and/or principles from mathematics and physics needed to solve a word problem in physical chemistry

The last day of class in Chem 410A is Wednesday, Dec. 12, and the final is scheduled for Friday, Dec. 14, 1:00 – 3:00 pm. There will not be a final in Chem 210.

Grading

The grading for this course will be based on attendance and participation. There are a total of 14 meeting times and the grades will be given as follows.

Days attending/ participating	Grade		Days attending/ participating	Grade
12-14	A		6	C
11	A-		5	C-
10	B+		4	D+
9	B		3	D
8	B-		1-2	F
7	C+			

Add/Drop Procedure: The add/drop deadline is Sept 10, 2018. For details, see http://arweb.sdsu.edu/es/registrar/schedule_adjustment.html

Students with Disabilities:

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that I cannot provide accommodations based upon disability until I have received an accommodation letter from Student Disability Services. Your cooperation is appreciated.