

Chem 166: Physical Chemistry Lab, 1.0 credit

Fall 2022 Lab

W, 1:10 PM ±5:10 PM, Discovery W407

Instructor

Prof. Matt Liptak

Innovation E336

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Instructor Office Hours

WF, 9:30 ±10:30 AM, Innovation E336

Teaching Assistant

Jacob Morris

Discovery W107

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Prerequisites

Chem 165

General Education Requirements

This course does not satisfy any general education requirements

Course Description

Chem 166 is the laboratory course for physical chemistry, covering selected topics in

a community, we should strive to uphold the ideals of Our Common Ground:

<https://www.uvm.edu/president/our-common-ground>

I welcome any suggestions as to how I can promote a diverse and inclusive classroom.

Course Learning Objectives

Upon completion of Chem 166, it is anticipated that you will:

1. Demonstrate practical skills in experimental and computational physical chemistry.
2. Apply your knowledge of physical chemistry to evaluate laboratory data.
3. Produce comprehensive laboratory reports containing critical data analysis.

The instructor reserves the right to change everything, with notice

### Attendance Policy

Attendance of Chem 166 is mandatory. You are only permitted to miss one laboratory with a university- or medically-sanctioned absence. Additional absences will result in a failing grade.

### Grading

Your grade will be based upon six laboratory reports.

Laboratory Report s: 100 points each

Each laboratory report should contain the following sections:

1. Introduction (200-300 words, 20 points ). What was the goal of the experiments performed? Why were the methods employed appropriate?
2. Methods (200-300 words, 20 points ): Complete and concise summary of experimental and theoretical techniques employed. The reader should be able to repeat your experiments based upon this section.
3. Results (400-600 words, 40 points ): Present and analyze your data and figure. Provide a justification for the results and explain inconsistencies in the data.
4. Discussion (200-300 words, 20 points ): Discuss the implications of your data with regards to the original goal of your experiments. Summarize your conclusions.

Each section will be graded based upon: content (80%), formatting (10%), and language (10%).

General Considerations

## Course Schedule

Jan. 18: Course Introduction

Jan. 25: No Class

Feb. 1: Infrared Spectroscopy of HCl and DCI

Feb. 8: Infrared Spectroscopy of HCl and DCI

Feb. 15: THz Spectroscopy of Polymorphic CuSO<sub>4</sub>, Lab Report #1 Due

Feb. 22: THz Spectroscopy of Polymorphic CuSO<sub>4</sub>

Mar. 1: Electronic Spectroscopy of Anthracene, Lab Report # 2 Due

Mar. 8: Electronic Spectroscopy of Anthracene

Mar. 15: No Class

Mar. 22: Bomb Calorimetry of Camphor, Lab Report # 3 Due

Mar. 29: Bomb Calorimetry of Camphor

Apr. 5: Differential Scanning Calorimetry of Polymers, Lab Report # 4 Due

Apr. 12: Differential Scanning Calorimetry of Polymers

Apr. 19: NMR Spectroscopy of NNDMA, Lab Report # 5 Due

Apr. 26: NMR Spectroscopy of NNDMA

May 3: Course Evaluations, Lab Report #6 Due

Intellectual Property Statement/Prohibition on Sharing Academic Materials:  
Students are prohibited from publicly sharing or selling academic materials that they did not author (for example: class syllabus, outlines or class presentations authored by the professor, practice questions, text from the textbook or other copyrighted class materials, etc.); and students are prohibited from sharing assessments (for example homework or a take-home examination).  
Academic Integrity.

University -wide Policies and Procedures

Student Learning Accommodations

The purpose of this policy is to communicate the rights of students regarding access to, and privacy of their student educationalt1-4()-4()5(t1-4ds a4(o 4(i)5(pg)-8(a7(o [(pr(he)dt)-4d )-47(or)9(cy)11( )-n -8

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