

**Faculty of Science Course Syllabus**  
**Department of Chemistry****Chem 2304***Introduction to Physical Chemistry II**Winter 2020***Instructor(s):** Josef W. Zwanziger [jzwanzig@dal.ca](mailto:jzwanzig@dal.ca) Chemistry 326**Lectures:** Tue/Thu 8:35-9:55, Chemistry 226**Laboratories:** 4 hrs per week**Office Hours:** Monday 11:30-1:00 PM, Chemistry 326**Course Description**

The physical properties of chemical systems at the level of atoms and molecules are examined. Topics include the quantum mechanical description of atoms and molecules, chemical bonding, experimental and computational methods for studying molecular systems, and the kinetics of chemical processes.

**Course Prerequisites**

CHEM 1011.03/1012.03 or equivalent; MATH 1000.03 and MATH 1010.03 or equivalent (grade of C- or better). PHYC 1280.03/PHYC 1290.03 or PHYC 1300.06 is strongly recommended.

**Course Objectives/Learning Outcomes**

Students will learn some important concepts on chemical kinetics and the fundamental theory of quantum chemistry.

**Course Materials**

"Physical Chemistry -- Custom" (required), by Silbey, Wiley, 2013. See BrightSpace for announcements, keys, etc.

**Course Assessment**

<b>Component</b>	<b>Weight (% of final grade)</b>	<b>Date</b>
<b>Tests</b>		
<i>Term test 1</i>	20%	<i>Feb 6 in class</i>
<i>Term test 2</i>	20%	<i>Mar 19 in class</i>
<b>Final exam</b>	30%	<i>Scheduled by Registrar</i>
<b>Weekly Assignments</b>	10%	
<b>Laboratory</b>	20%	

**Other course requirements**

- *Laboratory must be passed in addition to entire course*
- *Tests+Assignments must be passed in addition to entire course*

**Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale**

<b>A+</b> (90-100)	<b>B+</b> (77-79)	<b>C+</b> (65-69)	<b>D</b> (50-54)
<b>A</b> (85-89)	<b>B</b> (73-76)	<b>C</b> (60-64)	<b>F</b> (<50)
<b>A-</b> (80-84)	<b>B-</b> (70-72)	<b>C-</b> (55-59)	

## Course Policies

*Weekly assignments due in class, at the beginning, no late assignments allowed*

*Please use Student Declaration of Absence form for missed academic requirement in this course, through BrightSpace.*

*Lectures are not recorded but you may do so if you wish.*

## Course Content

- *Through term test 1: chemical kinetics*
- *Through term test 2: quantum theory of atoms and molecules*
- *Through final: review, catch up as needed, special topics*

## Learning and Support Resources

\* General Academic Support – Advising

[https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

\* Counselling

[https://www.dal.ca/campus\\_life/health-and-wellness/counselling.html](https://www.dal.ca/campus_life/health-and-wellness/counselling.html)

\* Library <http://libraries.dal.ca>

\* Copyright Office <https://libraries.dal.ca/services/copyright-office.html>

\* E-Learning website <http://www.dal.ca/dept/elearning.html>

\* Writing Centre [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

\* Faculty or Departmental Advising Support: Studying for Success Program

[http://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](http://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

## University Policies, Statements, Guidelines

This course is governed by the academic rules and regulations set forth in the University Calendar and the Senate.

<https://academiccalendar.dal.ca/Catalog/ViewCatalog.aspx?pageid=viewcatalog>

\* Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these

values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity. (read more: [http://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](http://www.dal.ca/dept/university_secretariat/academic-integrity.html))

\* Accessibility

The Advising and Access Centre and the Student Success Centre (Agricultural Campus) serve as Dalhousie's centres for expertise on student accessibility and accommodation. Our work is governed by Dalhousie's Student Accommodation Policy to best support the needs of Dalhousie students. Our team work with students who request accommodation as a result of: disability, religious obligation, an experienced barrier related to any other characteristic protected under Canadian Human Rights legislation. (read more at: [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html))

\* Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution. (read more: [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/student-life-policies/code-of-student-conduct.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/student-life-policies/code-of-student-conduct.html))

\* Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported. (read more: <http://www.dal.ca/cultureofrespect.html>)

\* Recognition of Mi'kmaq Territory

Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

\* Missed or Late Academic Requirements due to Student Absence

Dalhousie students are asked to take responsibility for their own short-term absences (3 days or less) by contacting their instructor by phone or email prior to the academic requirement deadline or scheduled time and by submitting a completed Student Declaration of Absence to their instructor in case of missed or late academic requirements. Only 2 separate Student Declaration of Absence forms may be submitted per course during a term (Note: faculty, college, school, instructor or course-specific guidelines may set a lower maximum).

(read more: [https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university\\_secretariat/policy-repository/StudentAbsenceRegulation\(OCT2017\)v2.pdf](https://cdn.dal.ca/content/dam/dalhousie/pdf/dept/university_secretariat/policy-repository/StudentAbsenceRegulation(OCT2017)v2.pdf))

### **University Policies and Programs**

o Important Dates in the Academic Year (including add/drop dates) [http://www.dal.ca/academics/important\\_dates.html](http://www.dal.ca/academics/important_dates.html)

o Dalhousie University's Grading Practices Policy  
[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

o Scent-Free Program <http://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

o Faculty Information: Student Self-Declaration of Absence  
[https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/academic-policies/student-absence/student-absence---for-faculty.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/academic-policies/student-absence/student-absence---for-faculty.html)

Safety (excerpts emphasized as appropriate to discipline/course)

\* Laboratory Chemical Safety Manual <http://www.dal.ca/dept/safety/programs-services/chemical-safety.html>