# CHM427H1 S

## Statistical Mechanics

## Winter 2025 Syllabus

## Course Meetings

### CHM427H1 S

| Section | Day & Time | Delivery Mode & Location |
|---|---|---|
| **LEC0101** | Thursday, 4:00 PM - 6:00 PM | In Person: WI 2006 |

Refer to ACORN for the most up-to-date information about the location of the course meetings.

## Course Contacts

**Instructor:** Dvira Segal
**Email:** dvira.segal@utoronto.ca
**Phone:** 4169460559
**Office Hours and Location:** Every Tues 1:30 pm to 2:30 pm in LM 420D
**Additional Notes:** Email: Please include course code in your subject line.

## Course Overview

Ensemble theory in statistical mechanics. Applications, including imperfect gases and liquid theories. Introduction to non-equilibrium problems.

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### Course Learning Outcomes

Knowledge of the foundations of statistical mechanics and its application to gas phase and liquid phase; familiarity with computer molecular dynamics simulations; understanding the integration of statistical mechanics with classical thermodynamics and quantum mechanics; communication of scientific ideas and results; basic scientific programming.

**Prerequisites**: CHM326H1, CHM328H1
**Corequisites**: None
**Exclusions:** None
**Recommended Preparation**: None
**Credit Value:** 0.5

## Marking Scheme

| Assessment | Percent | Details | Due Date |
|---|---|---|---|
| **HW1** | 10% | | 2025-01-23 |
| **HW2** | 15% | | 2025-02-06 |
| **HW3** | 15% | | 2025-02-27 |
| **HW4** | 15% | | 2025-03-20 |
| **HW5** | 15% | | 2025-04-03 |
| **Class presentation** | 10% | | 2025-04-03 |
| **In-Person Final Exam** | 20% | | Final Exam Period |

These are **tentative** dates, to be modified according to teaching pace. Please follow announcements in class and on the portal.

### Late Assessment Submissions Policy

2 points per day are taken for late submission. Please contact me ahead of time if you require accommodations.

## Policies & Statements

### Late/Missed Assignments

This item is listed here to remind you to include your late/missed assignment policy; if you have late penalties, you are required to publish them in your syllabus. Please see the A&S Academic Handbook (https://www.artsci.utoronto.ca/faculty-staff/teaching/academic-handbook) sections on missed term work (Section 4.7), late term work and extensions (section 4.8), and missed term tests (Section 5.3) for more information.

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### Academic Integrity

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters (https://governingcouncil.utoronto.ca/secretariat/policies/code-behaviour-academic-matters-july-1-2019). If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, please reach out to me. Note that you are expected to seek out additional information on academic integrity from me or from other institutional resources. For example, to learn more about how to cite and use source material appropriately and for other writing support, see the U of T writing support website at http://www.writing.utoronto.ca. Consult the Code of Behaviour on Academic Matters for a complete outline of the University's policy and expectations. For more information, please see

A&S Student Academic Integrity (https://www.artsci.utoronto.ca/current/academic-advising-and-support/student-academic-integrity) and the University of Toronto Website on Academic Integrity (https://www.academicintegrity.utoronto.ca).

## Course Materials, including lecture notes

Course materials are provided for the exclusive use of enrolled students. These materials should not be reposted, shared, put in the public domain, or otherwise distributed without the explicit permission of the instructor. These materials belong to your instructor, the University, and/or other sources depending on the specific facts of each situation and are protected by copyright. Students violating these policies will be subject to disciplinary actions under the Code of Student Conduct.

## Cell Phones and Laptop Usage

Technology can support student learning, but it can also become a distraction. Research indicates that multi-tasking during class time can have a negative impact on learning. Out of respect for your fellow students in this class, please refrain from using laptops or mobile phones for purposes unrelated to the class. Do not display any material on a laptop which may be distracting or offensive to your fellow students.

## Quercus Info (if using)

This Course uses the University's learning management system, Quercus, to post information about the course. This includes posting readings and other materials required to complete class activities and course assignments, as well as sharing important announcements and updates. New information and resources will be posted regularly as we move through the term. To access the course website, go to the U of T Quercus log-in page at https://q.utoronto.ca. SPECIAL NOTE ABOUT GRADES POSTED ONLINE: Please also note that any grades posted are for your information only, so you can view and track your progress through the course. No grades are considered official, including any posted in Quercus at any point in the term, until they have been formally approved and posted on ACORN at the end of the course. Please contact me as soon as possible if you think there is an error in any grade posted on Quercus.