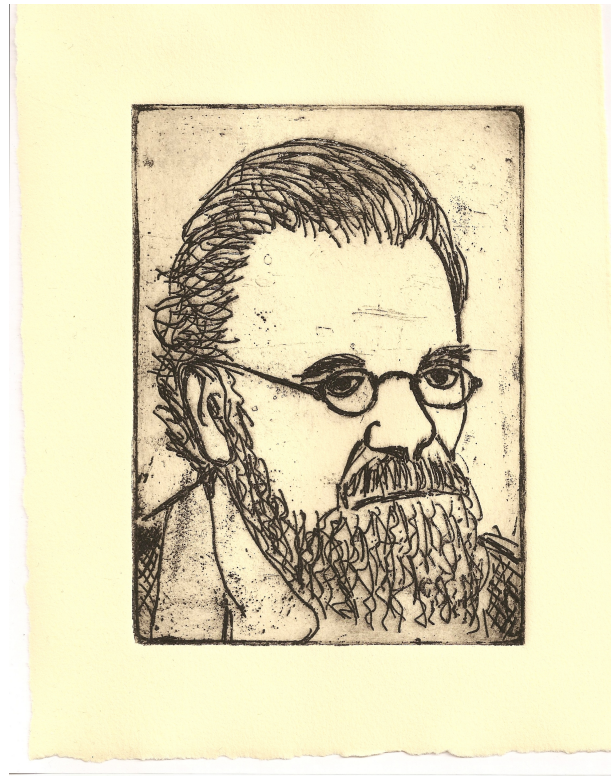


PHYS:5730 (29:212) Statistical Mechanics Syllabus

Spring Semester 2017



INSTRUCTOR

- Professor Yannick Meurice
- Office: 514 VAN
- Phone: 335-1991
- Email: yannick-meurice@uiowa.edu
- Web page: <http://www-hep.physics.uiowa.edu/~meurice/> or link from <http://www.physics.uiowa.edu/>
- Lectures: 12:30P - 1:45P TTh 618 in Van Allen Building.

OFFICE HOURS

Monday 10:30AM-12noon and Thursday 9:00-10:30 AM. Feel free to schedule appointments at other times.

TEXTBOOKS

- R. Pathria and P. Beale, Statistical Mechanics, Third Edition, 2011, Oxford (the main textbook, [available online](#))
- E. Fermi, Thermodynamics, Dover, 1936.

Additional references:

- C. Kittel, Elementary Statistical Mechanics, 1958, Dover
- K. Huang, Statistical Mechanics, Second edition, 1987, Wiley.

- E. Fermi, Thermodynamics, Dover, 1936.
- D. Schroeder, Thermal physics, 2000, Addison Wesley.
- L. Landau and E. Lifshitz, Statistical Physics, 1980, Pergamon.
- F. Schwabl, Statistical Mechanics, Second Edition, 2006, Springer ([available online](#)).

There are also many good undergraduate textbooks that you may consult (Mandl, Morse, Reif, ...)

COURSE SPECIFIC INFORMATION

The course is an introduction to statistical physics and is organized as follows:

1. Statistical basis of thermodynamics
2. Equilibrium ensembles (classical and quantum)
3. Ideal and real gases
4. Magnetism
5. Phase transitions
6. Study of specific models and applications

HOMEWORK AND READINGS

A reading assignment and a problem set will be provided each week. The problem sets are assigned on Wednesday and collected on Monday (before midnight, hard copies only, use my mailbox or slide under my office door if needed); one day extensions may be requested by email to the instructor; no late work (do not hand the homework to the grader); two worse homework grades are dropped from the average.

EXAMINATIONS AND FINAL GRADE

The final grade will be based on homework (30 percent), two midterms (40 percent), and the final (30 percent). The final dates will be provided by the registrar in February [\(see final exam schedule\)](#). The midterms are scheduled for March 2 and April 27 from 12:30 to 2:30PM.

MISCELLANEOUS

Suggestions for pedagogical innovations are welcome. If students miss a class it is their responsibility to gather the information or material provided during the missed class.

DEPARTMENT OF PHYSICS & ASTRONOMY MAIN OFFICE

- 203 Van Allen Hall
- 319-335-1686
- Chair– Professor Fred Skiff at frederick-skiff@uiowa.edu

The College of Liberal Arts and Sciences

Policies and Procedures

Administrative Home

The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the CLAS [Academic Handbook](#).
[\[www.clas.uiowa.edu/students/academic_handbook/index.shtml\]](http://www.clas.uiowa.edu/students/academic_handbook/index.shtml)

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their standard University of Iowa e-mail address (@uiowa.edu). Students should check their account frequently. (Operations Manual, III.II.[15.2](#). k.11.)

Academic Fraud

Plagiarism and any other activities when students present work that is not their own are academic fraud and are considered by the College to be a very serious matter. Academic fraud is reported by the instructor to the departmental DEO who enforces the departmental consequences. The Associate Dean for Undergraduate Programs and Curriculum is also informed. The Associate Dean enforces collegiate consequences which may include suspension or expulsion. See the [CLAS Academic Handbook](#).

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit the instructor, then the course supervisor and the departmental Associate chair Craig Pryor. Complaints must be made within six months of the incident. See the [CLAS Academic Handbook](#).

Accommodations for Disabilities

A student seeking academic accommodations should register with Student Disability Services and meet privately with the course instructor to make particular arrangements. For more information, visit this [site](#).
[\[www.uiowa.edu/~sds/\]](http://www.uiowa.edu/~sds/)

Understanding Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI [Comprehensive Guide on Sexual Harassment](#) at www.uiowa.edu/~eod/policies/sexual-harassment-guide/index.html for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, the class members should seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and free-standing expanses. The class will continue if possible when the event is over. (Operations Manual, IV. [16.14](#). Scroll down to sections e and i for severe weather information.)

*The CLAS policy statements have been summarized from the web pages of the College of Liberal Arts and Sciences.