

29:293

Plasma Physics II

Spring 2015

- Instructor:** Gregory Howes
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Office Hours: 1:45–3:30pm T, 10:45am–12:00pm W, or by appointment
Department: Physics & Astronomy, 203 Van Allen Hall, Prof. Fred Skiff, Chair
- Catalog Description:** Continuation of 029:194 (PHYS:4731); cold plasma waves, MHD stability, kinetic theory of plasmas, including Landau damping and velocity space instabilities; nonlinear evolution.
- Meeting:** Tuesday and Thursday 12:30pm - 1:45pm
618 Van Allen Hall
- Textbook:** Required: D. A. Gurnett & A. Bhattacharjee, *Introduction to Plasma Physics with Space and Laboratory Applications*
Optional: T. J. M. Boyd & J. J. Sanderson, *The Physics of Plasmas*
- Web Page:** <http://www.physics.uiowa.edu/~ghowes/teach/phys293/index.html>
- Exams** **Two Midterm Exams:** Tentatively on Thursday, Mar 12 and Thursday, Apr 23
Final Exam: To be announced by Registrar in mid-February
- Grading:** Homework: 20%
Two Midterm Exams: 20% each
Final Exam: 40%
- Homework:** Homework will be assigned on a regular basis with a time allotment corresponding to the level of difficulty. Longer assignments will be weighted more heavily in the homework score. Late homework will not be accepted. You are encouraged to work together in groups on the homework, but each student must write his or her own solutions; you may discuss how to solve the problem together, but you may not copy another student's solution.
- Topics:**
1. MHD Stability
 2. Kinetic Theory and Landau Damping
 3. A Selection of Special Topics: Quasilinear Theory, Laboratory Plasmas, Multiple Timescale Methods, Turbulence, Space and Astrophysical Phenomena, etc.
- Reference books:** R.D. Hazeltine and F.L. Waelbroeck, *The Framework of Plasma Physics*
N.A. Krall and A.W. Trivelpiece, *Principles of Plasma Physics*
D.R. Nicholson, *Introduction to Plasma Theory*

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 Policies Handbook at <http://clas.uiowa.edu/students/handbook>.

Electronic Communication

University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

Accommodations for Disabilities

A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See www.uiowa.edu/sds/ for more information.

Academic Honesty

All CLAS students or students taking classes offered by CLAS have, in essence, agreed to the College's Code of Academic Honesty: "I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty." Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

CLAS Final Examination Policies

The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. *No exams of any kind are allowed during the last week of classes.* All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar's web site and will be shared with instructors and students. It is the student's responsibility to know the date, time, and place of a final exam.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident (CLAS Academic Policies Handbook).

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 for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather

In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Department of Public Safety website.