PHYS7729: Plasma Physics 2, Spring 2019
Department of Physics and Astronomy
University of Iowa

Instructor: Prof. Scott D. Baalrud
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Course Website: www.physics.uiowa.edu/~sbaalrud/7729s19.html
Lecture notes and homework solutions will be distributed via email.

Time and Location: T,Th 12:30–1:45pm in 618 VAN


Office Hours: Tuesdays and Thursdays, 2:00pm-3:30pm, or by appointment.

DEO office: Prof. Fred Skiff, 203 Van Allen Hall

Homework: 8 homework assignments (20% of the grade)

Exams: Two in-class midterm exams (20% each)

Final exam (40%)

Grading: Grading will follow CLAS guidelines. Plus (+) and minus (-) scores will be used.

Attendance: Attending lectures is highly recommended. Homework must be handed in during or before class on the day it is due.

Fundamentals of Plasma Physics, draft, J. D. Callen, distributed in class
Magnetohydrodynamics of the Sun, E. Priest, Cambridge (2014).

Course Description and Estimated Schedule
A detailed description and estimated schedule can be found on the course website. Topics include:

Magnetohydrodynamics (MHD): macroscopic conservation laws, MHD approximations, waves, equilibrium, stability, energy principle, magnetic reconnection, dynamo

Kinetic theory: phase-space, Coulomb collisions, Vlasov equation, electrostatic waves and instabilities, Landau damping, echoes, electromagnetic waves

Nonlinear dynamics: Quasi linear theory, wave-wave interactions, shocks, solitons, sheaths, double layers

Policy on collaboration
Students may work on the homework problems with others or use online resources. However, each student must submit his or her own solutions.
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 tenth day 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.