Physics 545
Introduction to Plasma Physics

Class Instruction: MWF 1:00-1:50 PM, C258 ESC


Instructor: Bryan G. Peterson
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Office: N355 ESC
Office Hours: 9:30-10:30 MWF and by appointment (or whenever you can catch me in my office)
Research Area: C341 ESC
(you are welcome to come by the lab if you have questions and I’m not in my office)

Course materials: Course materials may be accessed on the course web page:

Course Description: Introduction to plasma physics, including single-particle motion and both fluid and kinetic models of plasma behavior.

Course Objectives: This course is intended to introduce the basic concepts of plasma physics. We will examine both the single-particle and the fluid behavior of a plasma, waves in plasmas, and equilibrium and stability of a plasma. We will also introduce the kinetic theory of a plasma and nonlinear effects.

Course prerequisites: Physics 321, 431, and 441 or equivalent are strongly suggested.

Homework: There will be 6 homework assignments during the semester with a collection of problems from the book plus three extra problems. The problems from the book are mostly worth 5 points each, with some worth 10 points each. The three extra problems are each worth 10 points.

Exams: There will be two unit exams and one comprehensive final exam.

Grading: The summary of the grading breakdown:

<table>
<thead>
<tr>
<th>Item</th>
<th>Weight</th>
</tr>
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<tbody>
<tr>
<td>Unit Exams</td>
<td>20% each</td>
</tr>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>35%</td>
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</tbody>
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General Class Policies

Collaboration: You are encouraged to study together in doing homework and in test preparation. Remember, however, that you must understand the material after the discussion is through since your homework must be your own work and your group will not be present when it comes time
to take an exam. Answers that are consistently identical between individuals are an indication of copying and may result in a loss of credit or a referral to the BYU Honor Code Office.

**Honor Code Standards:** In keeping with the principles of the BYU Honor Code, students are expected to be honest in their academic work. Academic honesty means, most fundamentally, that any work you present as your own must in fact be your own work and not that of another. Violations of this principle may result in a failing grade in the course and additional disciplinary action by the university.

Students are also expected to adhere to the Dress and Grooming Standards. Adherence demonstrates respect for yourself and others and ensures an effective learning and working environment. It is the university’s expectation, and my own expectation in class, that each student will abide by all Honor Code standards. Please call the Honor Code Office at 422-2847 if you have any questions about these standards.

**Preventing Sexual Discrimination or Harassment:** Harassment of any kind is inappropriate at BYU. Specifically, BYU’s policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter sexual harassment, gender-based discrimination, or other inappropriate behavior, please talk to your professor, contact the Equal Employment Office (D-240C ASB, 422-5895 or 367-5689), or contact the Honor Code Office (4440 WSC, 422-2847).

**Students With Disabilities:** BYU is committed to providing reasonable accommodation to qualified persons with disabilities. If you have a disability that may adversely affect your success in this course, please contact the University Accessibility Center (1520 WSC, 422-2767). Services deemed appropriate will be coordinated with the student and instructor by that office.

**Children in the Classroom:** The serious study of the physical and mathematical sciences requires uninterrupted concentration and focus in the classroom. Having small children in class is often a distraction that degrades the educational experience for the entire class. Please make other arrangements for child care rather than bringing children to class with you. If there are extenuating circumstances, please talk with your instructor in advance.