Syllabus Part A **Course home page:**

https://www.physics.purdue.edu/fermion/courses.html

Syllabus for E&M II

Physics 631 at Purdue University

Before I came here I was confused about this subject. Having listened to your lecture I am still confused. But on a higher level.

by Enrico Fermi

Instructor: *Chris Greene,* PHYS 280

X6-1859, chgreene___at___purdue.edu

Class lectures: Mondays and Wednesdays at 9 am in PHYS 234

Grading rubric: Grades will be based on homework scores only. *You are not allowed to use A.I. resources or internet searches to assist in solving the homework problems*. If you get stuck or have trouble seeing how to solve problems, please ask me and I will give some suggestions liberally.

Office Hours: 1:30 pm, Tuesdays and Thursdays, or informally, or by appointment; also feel free to email me at any time with questions

Grader: to be announced

Required Text: J. D. Jackson, **Electrodynamics**, 3rd Edition

Recommended computational software: **Mathematica**

Tentative list of topics for the Spring 2026 semester:

Dispersion and the Kramers-Kronig Relations
Electromagnetic waves in waveguides and cavities
Radiation generated by oscillating charges and currents
Scattering and diffraction of electromagnetic waves, Rayleigh scattering
Special theory of relativity
The Thomas precession effect
Relativistic Lagrangian dynamics of particles and fields
Radiation by charged particles
Energy loss of charged particles, Cherenkov radiation, etc. (time permitting)
Radiation reaction and radiative damping

Syllabus Part B

GRADUATE ELECTRODYNAMICS II

PHYSICS 631

Semester: Spring 2026 **Meeting Times: see below; Credit Hours:**3 **Modality:** IN-PERSON

Instructor Information

- **Instructor:** Chris Greene
- **Office:** PHYS 280
- **Email:** chgreene_at_purdue.edu
- **Office Hours:** Tuesdays and Thursdays, 1:30-2:30
- **Preferred Contact Method:** email

Course Description

See part A

Learning Outcomes

By the end of this course, students will be able to understand and perform calculations in advanced electrodynamics.

Required Materials

- **Textbook(s):** Jackson, Electrodynamics, 3rd Edition
- **Software/Tools Encouraged:** Mathematica

Course Schedule

Mondays and Wednesdays, 9am, PHYS 234

Assignments & Grading

Grading is based on assigned problems only

Grading Scale

To be determined based on performance

Late Work Policy

Late homework will generally not be accepted, except in rare cases if agreed by the instructor.

Attendance/Participation Policy

Attendance at lectures is strongly encouraged but not mandatory

Course Policies

Academic Integrity, see the following:

https://www.purdue.edu/odos/osrr/academic-integrity/index.php

Accessibility & Accommodations, see the following:

https://www.purdue.edu/innovativelearning/tools-resources/accessibility/digital-instructional-materials-accessibility-checklist/

Nondiscrimination Statement

Purdue University is committed to maintaining a community that recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her potential. A hyperlink to Purdue's full Nondiscrimination Policy Statement is included in the Academic Resources table on your Brightspace homepage.

Emergency Preparedness

See Purdue's website on Emergency Preparedness: https://www.purdue.edu/ehps/emergency-preparedness/

Mental Health & Well-Being Resources

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try Therapy Assistance Online (TAO), a web and app-based mental health resource available courtesy of Purdue Counseling and Psychological Services (CAPS). TAO is available to all students at any time by creating an account on the TAO Connect website, or downloading the app from the App Store or Google Play.

Course Communication

- Announcements and assignments are posted in Brightspace