

Syllabus Physics 452/852 Fall 2023

Instructor: Herman Batelaan
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Meets: Monday, Wednesday and Friday @ 11:30-12:20pm in Jorgensen Hall 149
We will meet in person in class. If tested positive for covid and you must quarantine please report it to me and I will work with you so that you can still continue with our course.

Textbook: Introduction to Electrodynamics by David J. Griffiths 4th Edition

Office Hours: We will have group helpsessions usually Friday afternoon. Location and time TBA. And we can meet on other times by appointment, do not hesitate to ask.

Course Prerequisites: A grade of P, C or better in PHYS 451. In PHYS451 the material including Chapter 5 of the textbook was covered and discussed.

Learning Outcomes: 1) Develop skills needed for work in physics. 2) Gain understanding of the structure, validity regime and details of theory of electrodynamics 3) Prepare for graduate level electrodynamics courses 4) Gain understanding of the relation of electrodynamics to other areas of physics, 5) Improve problem solving skills.

Time required to do well: 10 hours/week outside of class. An important part of this class is self study. Not all parts of the book that are part of the exam material will be repeated in class. If parts of the book are excluded for exam purposes, this will be announced in class.

Reading assignment: Before class, you read the relevant section and write an email to me with one short paragraph on what you understand and one short paragraph on what you do not understand. This email is due at 10:00 am the day of the class, so I have time to read it before class.

Attendance: This is required. Let your instructor know if you can make it to class. We adhere to UNL's rules for excusable absences.

Lectures: The lecture will include going over the material, doing some practice problems either by me or you (recitation style), and discussion of your reading.

For graduate level 852: Please discuss with your instructor the specific graduate content of the course.

Homework: Homework will be due every week (unless otherwise announced) by email Monday at midnight. The format is pdf. The email of the grader will be announced in class. No late homework sets will be accepted, except if permission is obtained from the instructor *before* the homework deadline. Homework assignments are posted on Canvas by Wednesday. Announcements in class supersede this. For example, if there is no posted assignment, but one is announced in class, then there is homework. Make sure your answers are accompanied with a statement of the homework questions (this helps the grader and enhances your chance at a better grade). The lowest HW score will be dropped. If you find yourself spending more than 30 minutes on getting started on a single homework problem, *get help*. I am happy to help you. The first week's homework is for practice only and does not count toward your grade. Help is available by appointment and in the helpsession. Some helpsessions (usually starting at Friday at 2:30 pm) will be announced in class (it is my experience that these are helpful, reduce the amount of time you need to spend on homework problems and have an impact on your homework and exam scores). You are responsible for mastering the material on the homework. You can use all resources available to you on the web, library, or class mates. While writing the exams I will assume that the HW problems have been worked on and understood so that you can work similar problems with success on the exams.

Exams: Date and place: See schedule below

<u>Grading:</u>	Homework	10 %
	Reading	5 %
	1 st midterm	25 %
	2 nd midterm	25 %
	Final (cumulative)	35 %

Grading Scale:

<56: F; 56-58: D-; 59-61: D; 62-65: D+; 66-68: C-; 69-71: C; 72-75: C+; 76-78: B-; 79-81: B; 82-85: B+; 86-88: A-; 89-91: A; >92: A+

UNL Course Policies and Resources: Students are responsible for knowing the university policies and resources found on this page (<https://go.unl.edu/coursepolicies>):

- University-wide Attendance Policy
- Academic Honesty Policy
- Services for Students with Disabilities
- Mental Health and Well-Being Resources
- Final Exam Schedule
- Fifteenth Week Policy
- Emergency Procedures
- Diversity & Inclusiveness
- Title IX Policy
- Other Relevant University-Wide Policies

Students with disabilities are encouraged to contact the instructor for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska-Lincoln to provide flexible and individualized accommodation to students with documented disabilities that may affect their ability to fully participate in course activities or to meet course requirements. To receive accommodation services, students must be registered with the Services for Students with Disabilities (SSD) office, 132 Canfield Administration, 472-3787 voice or TTY.

PHYSICS 452 Fall 2020 TENTATIVE LECTURE SCHEDULE (subject to changes announced in class)

DATES	SECTION	TOPICS
08/21-08/25	Review, 7.1-7.2	Finding out where we stand and start...
08/28-09/01	7.1-7.2	Faraday, Maxwell
09/06-09/08	8.1-8.2	Poynting, Momentum
09/11-09/15	8.2-8.3	Momentum, Angular momentum
09/18-09/22	9.1-9.2	Work, Waves
09/25-09/29	9.3-9.5	Waves in matter, Guided waves
10/02-10/04	Chapters 8-9.2	Review
10/06	MIDTERM 1 11:30-12:20	CHAPTERS 7-9 - Room JH 149
10/09-10/13	10.1	Potential
10/18-10/20	10.2	Continuous distributions
10/23-10/27	10.3	Point Charges
10/30-11/03	11.1	Dipole radiation
11/06-11/10	11.2	Point charges
11/13-11/15	Chapters 10-11	Review
11/17	MIDTERM 2 11:30-12:20	CHAPTERS 10-11 - Room JH 149
11/20-11/24	12.1	Relativity
11/27-12/01	12.2	Mechanics
12/04-12/08	12.3	Electrodynamics
12/14	FINAL EXAM 10:00am – 12:00pm	CUMULATIVE – Room JH 149