

Physics 3320: Principles of Electricity and Magnetism II (Spring 2016)

Instructor: Michael Hermele
Duane F-615 (Gamow Tower)
(303) 492-7466
michael dot hermele at colorado dot edu

Lectures: Monday, Wednesday, Friday, 9:00 am– 9:50am, Duane G125

Textbook and other required materials: The text is *Introduction to Electrodynamics*, by David J. Griffiths. You will also need an “iClicker,” since answering clicker questions will be an important part of participation in lecture and will count for extra credit.

Webpage: <http://www.colorado.edu/physics/phys3320>

Updates to the syllabus may be made on the webpage (and will be announced in class), and will take precedence over the original paper version!

Office Hours: Tuesday and Thursday 2:20pm-3:20pm. Tuesday office hours are held in *Prof. Hermele’s office*. Thursday office hours are held in the *11th floor reading room*, except on March 10th and March 31st, when they will be held in Duane D142. Please stop by!

Grader: Zhengzheng Zhai

Course description: Physics 3320, *Principles of Electricity and Magnetism II*, is the second semester of our two-semester sequence of junior-level classical electromagnetism. It uses the tools of vector calculus for dynamic properties of non-static electromagnetic fields. The topics we will cover include non-static electric and magnetic fields, induction, the complete Maxwell equations, momentum and energy of electromagnetic fields, electromagnetic waves and waveguides, radiation, full potential treatment of non-static electromagnetic fields, and special relativistic aspects of electromagnetism.

Prerequisites: *Principles of Electricity and Magnetism I* (PHYS3310) is a prerequisite to take this course. If you have not met this prerequisite, and would like to take this course, please come see me.

Lectures: I hope and expect you will interrupt me with questions during lecture. If there is something you don’t understand, chances are others don’t understand it either. Please ask questions!

Reading: Reading the textbook (Griffiths) will be an important part of the course. Each lecture I will assign reading that I will expect you to complete before the next lecture. The purpose of these assignments is to get you thinking about the material before lecture, so we can have a more useful discussion.

Clicker questions: I will ask clicker questions during lectures – these will count for your grade purely as extra credit, by reducing the weight of your midterm exams toward the final grade, and replacing those percentage points with a perfect score, up to 10% of the midterm grade (3.4% of your total grade). The formula we use is designed so that extra credit only helps you and never hurts you. More details on grading in the course can be found below and at the course webpage.

Homework: There will be weekly homework assignments due *at the beginning of class* each Friday. No late homeworks will be accepted. This includes homeworks handed in during class on Friday after the lecture has started. There will be no homework due the weeks of the two midterm exams. Homework solutions will be posted on D2L.

If you have an illness, family emergency or similar, and are unable to complete a homework, you will be excused from the assignment (I may ask you to provide documentation). In this case, it is important that you work out the problems for yourself as soon as you are able, to avoid falling behind on the course material. Your lowest homework score will be dropped.

You may work together on homework assignments as long as you participate creatively in solving the problems, and understand what you write. For example, this means it is *not* ok to work in a group where one person is doing most of the work/thinking to figure out the problems, and the others are following along. **You must write up your solutions on your own. I strongly suggest that you first get as far as you can on each assignment on your own.** Then, work on the problems with your classmates, and, finally, write it up on your own.

Policy on using Mathematica, MATLAB, and similar software: For doing simple arithmetic (e.g. plugging numbers into a formula), or for producing graphs or figures, use of any software is always ok. *For any other purposes (e.g. evaluating an integral), you are only allowed to use computer software if the homework assignment explicitly states this is allowed for a particular problem or part of a problem.*

D2L: This course has a D2L website, which will be used to post homework and exam solutions, as well as homework and exam scores.

Exams: There will be two midterm exams and one final exam. The midterms will be held on Thursday evenings. **You must be free during the midterm exam times to take the course. Any exceptions to this policy need to be approved by Prof. Hermele, in writing, no later than Friday Jan. 22nd.**

Exam 1	<u>Thursday, February 18</u>	BESC 180	<u>7:30pm – 9:30pm</u>
Exam 2	<u>Thursday, April 7</u>	BESC 180	<u>7:30pm – 9:30pm</u>
Final Exam	Thursday, May 5	TBA	4:30pm – 7:00pm

Grading: The course grade will be determined by weekly homework assignments (30%), two midterm exams (17% each), and a final exam (36%). Clicker questions will count for extra credit. The effect of the extra credit will be to raise your total grade on the midterm exams – see the webpage for the detailed formula. The grading scale will be: 90 – 100 (A, including A-); 79 – 89 (B, including +/-); 68 – 78 (C, including +/-); 55 – 67 (D, including +/-); and < 55 (F). Exact +/- cutoffs will be set later. I may adjust this scale (“grade on a curve”), but *only* in your favor. So, for example, a grade of 90 will be at least an A-, no matter what happens with the curve.

Disabilities: If you qualify for accommodations because of a disability, please submit to your professor a letter from Disability Services in a timely manner (for exam accommodations provide your letter at least one week prior to the exam) so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu. If you have a temporary medical condition or injury, see [Temporary Injuries guidelines](#) under the Quick Links at the [Disability Services website](#) (<http://www.colorado.edu/disabilityservices/>) and discuss your needs with your professor.

Religious observances: Campus policy regarding religious observances requires that faculty make every effort to deal reasonably and fairly with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. In this class, please let Prof. Hermele know as soon as possible if you have a conflict with any part of the course. If you have a conflict with one of the *exams*, please inform Prof. Hermele within the first two weeks of the course (no later than January 22, 2016), to ensure adequate time to make an accommodation.

See [campus policy regarding religious observances](#) (<http://www.colorado.edu/policies/observance-religious-holidays-and-absences-classes-andor-exams>) for full details.

Classroom Behavior Policy: Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to such behavioral standards may be subject to discipline. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, color, culture, religion, creed, politics, veteran’s status, sexual orientation, gender, gender identity and gender expression, age, disability, and nationalities. Class rosters are provided to the instructor with the student's legal name. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the semester so that I may make appropriate changes to my records. For more information, see the [policies on classroom behavior](#) (<http://www.colorado.edu/policies/student-classroom-and-course-related-behavior>) and [the student code](#) (http://www.colorado.edu/osc/sites/default/files/attached-files/studentconductcode_15-16.pdf).

Statement on Discrimination and Harassment: The University of Colorado Boulder (CU-Boulder) is committed to maintaining a positive learning, working, and living environment. CU-Boulder will not tolerate acts of sexual misconduct, discrimination, harassment or related retaliation against or by any employee or student. CU's Sexual Misconduct Policy prohibits sexual assault, sexual exploitation, sexual harassment, intimate partner abuse (dating or domestic violence), stalking or related retaliation. CU-Boulder's Discrimination and Harassment Policy prohibits discrimination, harassment or related retaliation based on race, color, national origin, sex, pregnancy, age, disability, creed, religion, sexual orientation, gender identity, gender expression, veteran status, political affiliation or political philosophy. Individuals who believe they have been subject to misconduct under either policy should contact the Office of Institutional Equity and Compliance (OIEC) at 303-492-2127. Information about the OIEC, the above referenced policies, and the campus resources available to assist individuals regarding sexual misconduct, discrimination, harassment or related retaliation can be found at the [OIEC website \(http://www.colorado.edu/institutionalequity/\)](http://www.colorado.edu/institutionalequity/).

Honor Code: All students enrolled in a University of Colorado Boulder course are responsible for knowing and adhering to [the academic integrity policy \(http://www.colorado.edu/policies/academic-integrity-policy\)](http://www.colorado.edu/policies/academic-integrity-policy) of the institution. Violations of the policy may include: plagiarism, cheating, fabrication, lying, bribery, threat, unauthorized access, clicker fraud, resubmission, and aiding academic dishonesty. All incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-735-2273). Students who are found responsible of violating the academic integrity policy will be subject to nonacademic sanctions from the Honor Code Council as well as academic sanctions from the faculty member. Additional information regarding the academic integrity policy can be found at <http://honorcode.colorado.edu>.