Lectures: Mondays, Wednesdays, and Fridays 10.00–10.50am in Duane G1B30
Instructor: Magnus Gustafsson
Office: Ekeley S175 and Duane F521
Email address: gustafm@spot.colorado.edu
Office hours: MWF 11–12 in the help room (also check behind G1B30 stage)

Recitations: Tuesdays in Duane G2B75 and G2B77
Instructor: Dana Anderson
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Email address: dana@jila.colorado.edu
Office hours: TBA

Teaching assistants: (sections in parentheses)
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Shrishti Yadav, Shrishti.Yadav@Colorado.edu (202, 204, 207, 211)

Course Objectives: Phys 1120 is the 2nd semester of introductory physics. We emphasize conceptual understanding and problem solving skills. We cover electricity, circuits, magnetism, electromagnetic waves, light, and optics: the foundations of our modern technological society. Our goals are for you to continue developing knowledge and intuition about how the world works, to learn to approach, solve, and understand physics problems on both qualitative and quantitative levels, to relate classroom physics to the real world you live in, and to develop a deeper appreciation of the scientific method.

Course website: www.colorado.edu/physics/phys1120 – Check it often!

Required Materials:
Textbook: R. D. Knight: Physics, Vol. 3 and 4
Tutorial: L. C. McDermott: Tutorials in Introductory Physics
Clicker: H-ITT

Pre/co-requisites: Calc II (MATH 2300/APPM 1360) must be taken at least in parallel. You should have a strong working knowledge of algebra, trigonometry, Calc I, and Phys 1110. Phys 1140 lab is highly recommended. Enthusiasm, curiosity, and an open mind will also be helpful!

Reading: The purpose of lecture is to clarify your understanding, to help you make sense of the material. We will assume you have done the required readings in advance. We’ll cover roughly one chapter/week, starting with Ch. 25, and the readings will be posted on the course website.

Etiquette: Please turn off cell phones when entering any classroom. It is perfectly OK to interrupt
the lecture with questions. Questions in lecture are always good! We encourage collaborative teamwork on homework and tutorials – an essential skill in science and engineering which is highly valued by employers. Scientists and engineers work in groups as well as alone. Social interactions are critical to scientists’ success and most good ideas grow out of discussions with colleagues. When you study together, try to help your partners get over confusions, ask each other questions, critique HW and tutorial write-ups. Teach each other. You will learn a lot! While collaboration is the rule in technical work, evaluations of individuals also play an important role. Exams will be done without help from others. For all assignments, the work you turn in must in the end be your own: in your own words, reflecting your own understanding.

Recitations: In addition to lectures you will meet in much smaller groups each week on Tuesdays. Much of the focus will be on working through the tutorial text that accompanies your Knight text. You must bring both volumes of the tutorial text to recitation. As is true of the lecture, attendance is mandatory and a portion of your grade will be derived from participation in these recitations. An on line pretest on the material you cover on Tuesday will be due by 8am Tuesday morning; there will be a weekly assignment from the Tutorial Homework as well, which will be due promptly at the beginning of recitation.

Homework: Problem sets will be assigned weekly, generally on Wednesday except when it falls on a holiday. We will be using an interactive on-line homework system called Mastering Physics. Your homework solutions will be entered into the computer directly, with instantaneous feedback given. On line hints will also be available for those that need them. Homeworks will generally be due on Wednesday evenings at the time listed on the Mastering Physics homework page. On exam weeks the homeworks will be shortened somewhat and the deadline extended until Thursday evening. Note that even for a few days past the due date you will be able to work on the problems, but at a reduced score.

Exams:
Exam 1: Tuesday, Feb. 13th, 7:30pm–9:15pm in Duane G1B20 & G1B30
Exam 2: Tuesday, March 13th, 7:30pm–9:15pm in Duane G1B20 & G1B30
Exam 3: Tuesday, April 10th, 7:30pm–9:15pm in Duane G1B20 & G1B30
Final Exam: Monday, May 7th, 10:30am–1:00pm, location TBA

There are no makeups. You may be excused from an exam only for a medical or personal emergency beyond your control. You must present written documentation to us no later than one week subsequent to the exam you missed. In the unusual case of an (at most, single) excused absence, your other exams will be used to compute an exam average.

Grading: Your grades will be evaluated as follows:

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<th>weight</th>
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<tr>
<td>Exam 1:</td>
<td>15%</td>
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<td>Exam 2:</td>
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<td>Final exam:</td>
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<td>Mastering physics homework:</td>
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<td>Recitation:</td>
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<td>Total:</td>
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Your clicker score will count to improve your midterm (exam 1, 2, and 3) score according to

\[ m(1 - \frac{c}{10}) + 45c \]

where \( m \) is your total midterm score (0–450) and \( c \) is your total clicker score (0–1).
For the evaluation of your grade we will drop one (your lowest) Mastering Physics homework, one tutorial homework, one online pretest, one weekly tutorial participation, and three lecture participation (clicker) scores.

**How to succeed in this course:** The topics that we will cover in Physics 1120 are among the greatest intellectual achievements of humans. Don’t be surprised if you have to think hard and work hard to master the material and keep in mind that being good at physics problem solving comes from practice. A few tips:

- Read the chapter material before lecture and recitation. If you read it first, it’ll sink in faster during lecture. We won’t repeat what’s in the book – especially definitions. Lecture is for making sense of what’s in the text!
- Take notes on your reading and try to write down questions you may have. If you ask those questions in class, we’ll try to answer them.
- Come to class. Stay involved in class and tutorials. Come to office hours at the Physics Help Room.
- Start the homeworks early. Give yourself the time to work and understand. Remember that it’s possible to have a perfect homework score by putting in the time and effort.
- Work together. Physicists often work in groups. You need to do your own thinking, but talking to others is a great way to sort out your thoughts.
- Avoid getting behind. It is hard to catch up.
- Get help early (from your Profs/TAs/LAs/etc.) if you feel you are struggling with any aspect of the course. We’re here to help!
- Don’t give up! You can make sense of all this stuff – it just may take some effort.

**Disabilities:** If you qualify for accommodations because of a disability, please submit to the instructor a letter from Disability Services within the first two weeks of class so that your needs may be addressed. Disability Services determines accommodations based on documented disabilities. Contact: 303-492-8671, Willard 322, www.colorado.edu/disabilityservices.

**Other University of Colorado policies:** For information on CU policies on the following issues, please visit the corresponding websites.

1. Absence due to religious observance: www.colorado.edu/policies/fac_relig.html
2. Classroom behavior: www.colorado.edu/policies/classbehavior.html
3. Discrimination and harassment: www.colorado.edu/policies/discrimination.html
4. Student honor code: www.colorado.edu/policies/honor.html

All information in this syllabus is as accurate as is possible at the time of writing. Announcements about changes of any kind will be made in class and on the web page, and will take precedence over this syllabus. You are responsible for announcements made in class, whether or not you are in attendance.