Welcome to Physics 9 Honors: Introductory Physics I for Physical Science and Engineering Majors. This course is more than just a requirement for your major. It is an opportunity to develop strong problem-solving skills, utilize scientific reasoning, and explore the world from a different perspective. Physics 9H is a mathematically intense introduction to classical electromagnetism for students who are motivated to learn physics at an advanced level. Utilizing calculus, topics include electrostatics, magnetism, AC and DC circuits, electromagnetism, and optics. Advanced coursework prepares students for advanced study in physical science and engineering courses. This syllabus outlines the goals, structure, and policies of the course.

Instructor: Dr. Carrie Menke, COB 305, cmenke@ucmerced.edu
Office Hours: Wednesdays, 2:30 – 4:30pm, or by appointment (see CROPS for most up-to-date schedule)

Teaching Assistant: (see CROPS for office hours)
  • Jussi Amaral, jamaral2@ucmerced.edu

Lectures: MWF, 10:30 – 11:20am, COB 105
Discussion: T, 3:00 – 4:50pm, COB 262
Lab: R, 3:00 – 4:50pm, S&E 111 *When no lab is scheduled we’ll use this session as an extra discussion section. As with regular discussion, attendance is expected.

MasteringPhysics Course ID: MPMENKE80096 (for signing on the first time)

Required for Course:
The textbook, student workbook, and MasteringPhysics are bundled together and sold separately at the bookstore. You may purchase MasteringPhysics with or without the etext directly from masteringphysics.com. Clickers are available at the bookstore (and cheaper than what I’ve found online).
  • Physics for Scientists and Engineers: A Strategic Approach, by Randall D. Knight (etext is fine)
    o Edition: either 2nd or 3rd (I’ll be referencing the 2nd in class.)
  • MasteringPhysics, an online tutoring and homework system.
    o Course ID: MPMENKE80096 (for signing on the 1st time)
  • Student Workbook for Physics for Scientists and Engineers
  • Clicker

CROPS site
The CROPS website (S13-PHYS 009H 01) will be used extensively throughout the course. Look there for announcements, resources (i.e. lecture slides, worksheets, etc.), and grades. Also, the most recent course information, office hours, and contact information will be posted on the home page.
Course Goals & Student Learning Objectives

Every aspect of this course is designed to help you, the student, achieve the learning outcomes. Additionally, these goals and objectives support the Physics Programmatic Learning Outcomes and UC Merced’s Eight Guiding Principles of General Education. Your achievement of these objectives is measured by homework, labs, exams, the research summary, and Standards-Based Grading (SBG). SBG is in the context of very specific learning objectives (aka standards) and is fully described in the Course Structure section of the syllabus.

This course is designed to enable you, the student to:

1. Learn the basic principles and mathematical tools of Classical Physics
   a. Course Goals: We will present the definitions, language, and mathematical tools of classical physics through examples, demonstrations, and discussions of physical phenomena.
   b. Student Learning Outcomes:
      i. You should be able to demonstrate your expertise in this subject by utilizing the definitions, language, and mathematical tools (geometry, algebra, and calculus) to discuss classical physics problems verbally, in writing, and mathematically.
      ii. You will most likely discover some misconceptions you have about the physical world and will be able to reconcile them with a correct understanding in classical mechanics.
   c. Example: From a graph of electric potential due to point charges, you solve for the electric field, discuss the forces between the charges, or explain to a peer how much work was involved in assembling that configuration of charges.

2. Learn applications of physics to real-world problems
   a. Course Goals: We will demonstrate and coach you in the process physicists use to solve problems, and apply that process to solve problems in classical mechanics.
   b. Student Learning Outcomes: You should be able to analyze a written problem or observed phenomena, simplify it, identify the key known and unknown features, make predictions, and evaluate those predictions based on the principles of physics.
   c. Example: You use the explore relationships between electric fields and magnetic fields in a PhET simulation and are able to explain how transformers convert 240 V to 120 V in your house.

3. Develop the problem-solving perseverance required to succeed in the physical sciences & engineering.
   a. Course Goals: We will reinforce the tools, methods, and material throughout the semester to prepare you for the next course in the series—Physics 010—and beyond.
   b. Student Learning Outcomes: By learning the basic techniques of problem solving and conscientiously expressing physical problems mathematically you will be well-prepared to study more advanced topics in physics.
   c. Examples:
      i. Your homework notebook becomes an excellent resource when studying for the final exam; and you also find yourself referring to it in your upper-division physics (or engineering, math, or chemistry, etc.) course.
      ii. In order to understand an experimental technique referred to in the journal article for the research summary, you look up another journal article that describes that technique in detail. In an upper-division lab course, you know how to find applicable journal articles to understand and write up an impressive Introduction to your lab report.

4. Connect textbook and lecture material to contemporary research topics
   a. Course Goals: We will share our enthusiasm for physics—especially topics in classical mechanics—by connecting course material with real-world problems, demonstrations, and ongoing research.
   b. Student Learning Outcomes:
      i. At the level of an introductory physics student, you will practice analyzing physical phenomena and reading research.
      ii. Your interest in and appreciation for physics will hopefully increase throughout the course, regardless of your major.
c. *Examples:*
   
i. Your roommate reads your research summary about a journal article on magnetic monopoles and can clearly explain the main points of the research and why it’s so interesting.

ii. You find yourself recognizing how electromagnetic induction is used in everyday life when you’re not even thinking about this physics course!

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<tr>
<th>Physics Program Learning Objectives</th>
<th>8 Guiding Principles of General Education</th>
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<tbody>
<tr>
<td>By the end of the program, physics majors will demonstrate the following:</td>
<td>All UC Merced graduates will reflect these principles:</td>
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<tr>
<td>1. Physical Principles</td>
<td>1. Scientific literacy</td>
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<tr>
<td>2. Mathematical Expertise</td>
<td>2. Decision making</td>
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<td>3. Experimental Skills</td>
<td>3. Communication</td>
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<tr>
<td>4. Communication and Teamwork</td>
<td>4. Self and Society</td>
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<tr>
<td>5. Research Proficiency</td>
<td>5. Ethics &amp; Responsibility</td>
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<td>6. Leadership &amp; Teamwork</td>
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<td>7. Aesthetic Understanding &amp; Creativity</td>
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<td>8. Development of Personal Potential</td>
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Course Structure

**Grades:** The table below gives the weight for each component of the course. All scores will be posted on the UCMCROPS Gradebook. It is your responsibility to check that scores are recorded accurately.

<table>
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<tr>
<th>Component of Course</th>
<th>Weight</th>
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<tbody>
<tr>
<td>A. Homework</td>
<td>10%</td>
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<tr>
<td>B. Discussion &amp; Labs</td>
<td>10%</td>
</tr>
<tr>
<td>C. Research Summary</td>
<td>10%</td>
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<tr>
<td>D. Exams</td>
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<tr>
<td>a. Midterms (2)</td>
<td>30%</td>
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<tr>
<td>b. Final Exam</td>
<td>20%</td>
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<tr>
<td>E. Standards-Based Grading</td>
<td>20%</td>
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Grades will be determined using the *approximate* framework: A: 100-85%, B: 85-70%, C: 70-55%, D: 55-50%

The flavor of letter grade (+, even, -) will be determined when final grades are assigned.

**Lectures, Lecture Prep, & Lecture Participation:** Lectures will be very interactive; include demonstrations, PowerPoint slides, clicker questions, work on the whiteboard; and begins on time. Come prepared, ask questions, and participate. We’ll be using clickers in lecture to check lecture preparation, provide feedback on your understanding, foster discussion, explore and clear up confusing aspects of the material and to delve deeper into the course material. Questions are also periodically used to gather anonymous course feedback.

**Clicker Policy:** *It is your responsibility to bring your (and only your) clicker to every lecture, ensure that it is properly registered, working, and that it has working batteries.* “Clicking” for a classmate will be considered a violation of the academic honesty policy. Although clicker scores are not part of your course grade (as they are in the regular Phys 9 course), this clicker policy still applies.

**A. Homework:**

a. **MasteringPhysics (MP):** The weekly homework assignments are on MasteringPhysics.com, an online tutoring and homework system. The system provides immediate feedback on your answer, and many questions provide hints that guide you to the correct answer. When used correctly, this immediate feedback is a powerful tool to help you learn the material.
   
   i. **Course ID:** MPMENKE8096 (for signing on the first time)
   ii. **Due Fridays at 11:59pm unless otherwise noted.**
   iii. Instructions for signing onto MP and helpful hints are posted on CROPS/Resources.
   iv. **Timing of HW versus Exams:** Sometimes the due date for a HW applicable to an exam is after the exam. We highly recommend you complete associated HW before the exam. Starting with HW02, you have two weeks to work on each assignment.
   v. **Write-up/notebok:** Although we will not collect your write-up, we highly recommend you write up your homework well to be used with ‘Standards Based Grading’ (see below).
   vi. **Dropped scores:** no MasteringPhysics scores will be dropped.

**B. Discussion & Lab**

a. **You must attend the discussion/lab session that you are officially enrolled in. No exceptions.**

b. **Discussions:** Discussion sessions provide opportunities to hone your physics skills, and attendance is expected.

i. You’ll work in groups to discuss lecture material, review topics, and work problems with the guidance of your teaching assistant. Come prepared: bring discussion worksheets (posted on CROPS site), the student workbook, your textbook, notes, and questions.

ii. **Grading:** Your TA will determine your discussion grade based on the quality of your work and participation during the discussion sessions. The discussion grades will be posted as “High Pass,” “Pass,” “Low Pass,” or “Fail.” A “Pass” will have a neutral effect on your course grade. A “High Pass” is in recognition of exceptional work and will raise your course grade by a flavor (i.e. C+ to a B-; however it will not change an A to an A+ or a D to a C-). A “Low Pass” results from poor attendance (including arriving late or leaving early), not coming prepared, and not participating fully; this score will lower your course grade by a flavor (but will not lower a D- to an F). “Fail” is the result of excessive absences and/or impeding the learning of others in discussion; zero credit for discussion will be applied when calculating the final grade.
iii. When there is no lab scheduled, you will use the lab session (in S&E 111) as an additional discussion. As with regular discussion, attendance is expected. These discussions also count towards the High Pass/Pass/Low Pass/Fail grade.

c. Labs: There are 7 labs. The lab sheets are posted on CROPS; print them out and bring them with you to lab. Lab sheets will be turned in at the end of the lab session. Check the schedule and make sure you attend every lab!

   i. No lab scores will be dropped.
      1. If you miss a lab for an officially excused reason (major religious holiday, documented illness or family emergency, or official university business, etc.) your score will be left blank in the CROPS Gradebook and the other labs will then be used to calculate your lab grade. Bring documentation to Dr. Menke in order for the absence to be excused.
      2. An unexcused absence in a lab will drop your course grade by 3% in addition to being recorded as a zero in the CROPS Gradebook.

C. Research Summary: Classical physics is one of the very basic subjects that constitute Physics, but it is far removed in many ways from current research areas and applications. To make sure that you get a taste of how physics is done in research labs and how results are reported, your course grade includes a summary of a professional, peer-reviewed journal article.
   a. Note that the UC has strict rules about plagiarism, which guarantees severe action against the student. Refer to the Academic Honesty Policy for further information about plagiarism.

D. Exams: All exams will consist of qualitative and quantitative problems, based on homework, lecture material, discussion problems, and labs. See the course schedule for the dates and material covered on the exam. Although only the final exam is explicitly comprehensive, the course material builds upon itself.
   a. The midterms will be taken during discussion, you will need a bluebook for each of the 2 midterms. Phys 9 regular has their exams in lecture. You are not permitted to take the Phys 9 regular midterms. (See the schedule.)
   b. The final exam is in the lecture hall, per the Registrar’s schedule.
   c. There will be no early or make-up exams. If you miss an exam for an officially excused reason (major religious holiday, documented illness or family emergency, or official university business, etc.) bring documentation to Dr. Menke for the absence to be excused. For an excused absence the rest of your coursework will determine your course grade.
   d. Skipping the final exam will result in an automatic failure (‘F’) in the course.
   e. Exam Regrading:
      i. If your score was tabulated incorrectly, please let your TA or Dr. Menke know and it will be corrected. Once you leave the room after picking up your exam, you may not request a correction.
      ii. If you believe your exam was graded incorrectly you may request a regrade by writing a note on the cover sheet and turning the exam back to Dr. Menke (or your TA if returned during discussion). Dr. Menke will regrade the entire exam, which may result in a higher score, a lower score, or no change. Once you leave the room after picking up your exam, you may not request a regrade.

E. Standards-Based Grading (SBG): We’ll be including a different assessment approach this term, Standards-Based Grading, which addresses the following issues
   • Students cram for an exam, but often don’t retain the information.
   • Students can sometimes be more focused on points than understanding.
   • If a student doesn’t “get it” at the time of homework being due or the exam, they lose points, even if they clearly learn it by the final.

The standards below include content and skills that are particularly important in Physics 9. And even though they do not encompass every important aspect covered in this course, we’ll restrict SBG to the list below. The idea is that you will have many opportunities throughout the course to prove your achievement of these

<table>
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<th>Lab</th>
<th>Prelab?</th>
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<tr>
<td>Equipotentials I</td>
<td>YES</td>
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<tr>
<td>Equipotentials II</td>
<td>YES</td>
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<tr>
<td>DC Circuits</td>
<td></td>
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<tr>
<td>Electromagnetism</td>
<td>YES</td>
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<td>Oscilloscopes</td>
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<td>Diffraction</td>
<td>YES</td>
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<td>Optics</td>
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standards. Every time a standard is assessed, the score for that standard is updated in the gradebook. The score might go up and it might go down. You can reassess any standard often, at least within reason.

- **Assessing Standards**: Each assessment should involve your explaining the material.
  - **Options for assessment**:
    1. Thursday Discussion sessions (when there is no lab); you’ll most likely be assigned a standard to be assessed. You can write up one page of notes to use.
    2. Office visits: If you schedule it in advance (including mentioning which standard you want assessed), you can come to my office and work a problem in front of me.
    3. I’m still working on online/video options.
  - **Two week rule**: Once a standard has become live (meaning we’ve worked on it in class), you have two weeks to turn in your first assessment for it. If you don’t, you must take a zero for that standard for the course.
  - **Brevity**: Being able to show your understanding of material efficiently is a sign of deeper understanding. It shows that you know the priority of the important concepts, as you don’t spend too much time on the less important ones. You will not receive a 4 for a technically correct assessment if it’s deemed too long. A good rule of thumb for the duration of a typical assessment is 10 minutes.

- **Standards for SBG**: Chapter numbers refer to Knight’s 2nd edition, with chapter numbers for the 3rd edition given in parentheses.

1. **Overall**: Standards 1.c – 1.f will become “live” after we’ve covered these topics, which span multiple chapters.
   - I can accurately assess another student’s work and provide useful feedback.
   - I can relate Physics 9 material to physical principles and techniques covered in Physics 8.
   - **Electrostatics**: I can conceptually and mathematically relate electric force, field, potential, and potential energy for both insulators and conductors.
   - **Electromagnetism**: I can conceptually and mathematically connect electricity and magnetism.
   - **Waves**: I can identify and explain parallels between the conceptual and mathematical treatment of electromagnetic and physical waves.
   - **Optics**: I can identify when wave or ray optics is applicable to describing physical phenomena of light.

2. **Chapter 26 (25): Electric Charges & Force**
   - I can use Coulomb’s Law to calculate the electric force between charges.
   - I can identify, calculate, and incorporate the unit vector when calculating electric force (and other vector quantities in this course).
   - I can use the charge model to explain basic electric phenomena.

3. **Chapter 27 (26): The Electric Field**
   - I can describe and calculate the electric field due to multiple point charges and a continuous distribution of charge.
   - I can describe and calculate the motion of charges and dipoles in an electric field.

4. **Chapter 28 (27): Gauss’s Law**
   - I can use Gauss’s Law to calculate the electric field of symmetric charge distributions.
   - I can explain the properties of conductors in electrostatic equilibrium using Gauss’s Law.

5. **Chapter 29 (28): The Electric Potential**
   - I can use electric potential energy and conservation of energy to analyze the motion of charged particles.
   - I can describe and calculate the electric potential to useful and important charge distributions.

6. **Chapter 30 (29): Potential & Field**
   - I can determine the electric field from electric potential, and visa versa.
   - I can explain the concept of capacitance, and relate charge, potential difference, and capacitance for capacitors in series and/or parallel configurations.

7. **Chapter 31 (30): Current & Resistance**
a. I can describe and determine electric current and current density in terms of the microscopic properties characterizing the flow of electric charge.
b. I can explain and determine electrical resistance and relate current, voltage, and resistance using Ohm’s Law.

8. **Chapter 32 (31): Fundamentals of Circuits**
   a. I can analyze circuits containing resistors in series and/or parallel configurations.
   b. I can explain and determine the growth and decay of current in RC circuits.

9. **Chapter 33 (32): The Magnetic Field**
   a. I can describe and determine the magnetic field due to charged particles and currents.
   b. I can calculate magnetic forces and torques on currents.

10. **Chapter 34 (33): Electromagnetic Induction**
    a. I can use Lenz's Law and Faraday's Law to determine the direction and size of induced currents.
    b. I can analyze circuits with inductors.

11. **Chapter 35 (34): Electromagnetic Fields & Waves**
    a. I can explain and show how Maxwell’s equations predict the existence of electromagnetic waves that travel at the speed of light, c.

12. **Chapter 36 (35): AC Circuits**
    a. I can use phasors to analyze an AC circuit with resistors, capacitors, and inductors.

13. **Chapter 20 (20): Traveling Waves**
    a. I can use the Doppler effect to explain and determine the speed of wave sources and observers.

14. **Chapter 21 (21): Superposition**
    a. I can apply the principle of superposition to explain and determine how waves constructively and destructively interfere.
    b. I can calculate the allowed wavelengths and frequencies of standing waves.

15. **Chapter 22 (22): Wave Optics**
    a. I can use the wave model of light to explain the interference patterns of double slits and diffraction gratings.

16. **Chapter 23 (23): Ray Optics**
    a. I can quantitatively describe the refraction of light at the interface between two transparent materials.
    b. I can describe total internal reflection and determine under what circumstances it occurs.

17. **Chapter 24 (24): Optical Instruments**
    a. I can use analyze combinations of spherical mirrors and thin lenses.

c. **Rubric for SBG**
   i. **1-level scale:** Standards 1.a and 1.b will be graded on a 1-level scale (0 = not achieved, 1 = achieved). The remaining standards will be assessed using the 4-level scale.
   ii. **4-level scale (all remaining standards)**

**Note:** Not assessed: 0

1. **Doesn’t meet expectations:** 1
   - I need lots of help from my instructor (one-on-one).
   - I have low confidence on how to do the skills and need more instruction.
   - I need my textbook/notes at all times.
   - I do not understand the concept/skills.
   - I cannot correctly identify concepts and/or define vocabulary.
   - I cannot make connections among ideas or extend the information.
   - My responses lack detail necessary to demonstrate basic understanding.
   - I cannot articulate most of the main ideas involved in the standard.

2. **Approaches expectations:** 2
   - I have a general understanding of the content/skills, but I'm also confused about some important parts.
   - I need some help from my instructor (one-on-one or small group) to do the skills correctly.
• I do not feel confident enough to do the skills on my own.
• I need my textbook/notes most of the time.
• I can correctly identify concepts and/or define vocabulary; however, I cannot make
  connections among ideas and/or independently extend my own learning.
• My responses demonstrate basic understanding of some main ideas, but significant
  information is missing.

3. Meets expectations: 3
• I understand the important things about the content/skills.
• I have confidence on how to do the skills on my own most of the time, but I need to continue
  practicing some parts that still give me problems.
• I need my handouts and notes once in a while.
• I am proficient at describing terms and independently connecting them with concepts.
• I understand not just the “what,” but can correctly explain the “how” and “why” of scientific
  processes.
• My responses demonstrate in-depth understanding of main ideas.

4. Exceeds expectations: 4
• I understand the content/skills completely and can explain them in detail.
• I can explain/teach the skills to another student.
• I have high confidence on how to do the skills.
• I can have a conversation about the skills.
• I can independently demonstrate extensions of my knowledge.
• I can create analogies and/or find connections between different areas within the sciences or
  between science and other areas of study.
• My responses demonstrate in-depth understanding of main ideas and of related details.

Course Policies

I. Late Work & Absences
• No late work will be accepted for any aspect of the course. No extensions are granted and there are
  no “make-ups” for any assignment, lab, or examinations. Refer to the specific section in the syllabus
  about whether any scores are dropped for that component of the course.
• Skipping the final exam will result in an automatic failure (‘F’) in the course.

II. Collaboration
As with swim teams, you’ll train together then compete alone. Physics education research shows that
  collaborating helps you learn the material better and for longer.
• Train together: lecture participation, discussion group problems, labs, getting feedback on your
  research summary, homework assignments, etc.
• Compete alone: exams

Are you ready to compete successfully? Practice solving problems and answering questions on your own.
Can you do it solo? Yes? Then you’re ready.

III. Accommodations for Students with Disabilities: The University of California Merced is committed to
  ensuring equal academic opportunities and inclusion for students with disabilities based on the
  principles of independent living, accessible universal design and diversity. I am available to discuss
  appropriate academic accommodations that may be required for students with disabilities. Requests for
  academic accommodations are to be made during the first three weeks of the semester, except for unusual
  circumstances. Students are encouraged to register with the Disability Services Center to verify their
  eligibility for appropriate accommodations.

IV. Academic Integrity (summarized)
• Each student in this course is expected to abide by the University of California, Merced’s
  Academic Honesty Policy.
• **Any work submitted by a student in this course for academic credit will be the student’s own work.** Collaborating is allowed in lecture, discussions, labs, and on homework.

• You are encouraged to study together and to discuss information and concepts covered in lecture and the sections with other students. You can give “consulting” help or receive “consulting” help from such students. However, this permissible cooperation should never involve one student having possession of a copy of all or part of work done by someone else, in the form of an e-mail, an e-mail attachment file, a diskette, or a hard copy. **Should copying occur, both the student who copied work from another student and the student who gave material to be copied will both automatically receive a zero for the assignment.** Penalty for violation of this Policy can also be extended to include failure of the course and University disciplinary action.

• **During examinations you must do your own work.** Talking or discussion is not permitted during the examinations, nor may you compare papers, copy from others, or collaborate in any way. **Any collaborative behavior during the examinations will result in failure of the exam, and may lead to failure of the course and University disciplinary action.**

• **Plagiarism will not be tolerated.** Plagiarism refers to the use of another’s ideas or words without proper attribution or credit. This includes, but is not limited to: copying from the writings or works of others into one’s academic assignment without attribution, or submitting such work as if it were one’s own; using the views, opinions, or insights of another without acknowledgment; or paraphrasing the ideas of another without proper attribution. Credit must be given: for every direct quotation; when a work is paraphrased or summarized, in whole or in part (even if only brief passages), in your own words; and for information which is not common knowledge. The requirement to give credit applies to published sources, information obtained from electronic searches, and unpublished sources. **Plagiarism will result in failure of the assignment, and may lead to failure of the course and University disciplinary action.**

• **Clickers:** Entering answers for another student using their clicker is considered a violation of the academic honesty policy.

• **MasteringPhysics:** We can detect cheating on MasteringPhysics. This is considered a violation of the academic honesty policy.

• The full academic honesty policy is online. Go to studentlife.ucmerced.edu, click on Student Judicial Affairs, click on Academic Honesty Policy.

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**Advice & Additional Resources**

**How to Succeed in this Course:** Characteristics of the most successful students include: *completing all of the work*; preparing for lectures, engaging in lecture, and reviewing lecture material; trying to figure out answers for themselves rather than have someone explain it to them; getting help if they cannot figure something out for themselves; working to understand the concepts behind the mathematical treatment; utilizing a thorough problem-solving process rather than a “plug-and-chug” method; using their own words and their own analogies to explain something rather than parroting the text or the lecture; and they’re not afraid to explore different paths to a solution. They don’t always get the right answer, but they always try. Successful students know that they’re responsible for their education. They tend to have a positive attitude about their ability to figure things out, even if things don’t come quickly or easily. Successful students ask questions; they don’t let the discomfort of potentially looking “stupid” (their word, not mine) get in the way of learning.

**Time Commitment:** Expect to spend 2 – 3 hours in addition to contact hours (i.e. lectures, discussions, and labs) for every credit in the course. For this 4-unit course, that’s 8 – 12 hours in addition to almost 7 contact hours. Being a full-time university student is more than a full-time job.

**Getting Help:** Get help earlier rather than later! We are here to help you succeed in this course. Honestly, we love when students rock this course. (And one of the many things I love about teaching is helping students get to the “a-ha” moment in understanding physics, which I think is an especially cool subject.) There are multiple options for getting help. *Please* take advantage of them.

• Lectures, discussion sessions, and labs: ASK QUESTIONS!! It’s a good thing.
• Office Hours: mine and the TAs
  o Bring course materials, especially your notes and homework notebook!
  o Check CROPS for updated times & locations.
  o You may attend my other classes’ office hours (unless otherwise noted). Just understand those students will get top priority.
  o I’ve been told I’m actually quite friendly and not nearly as intimidating as I seem during lecture. (I really don’t mean to be intimidating.)
• Open-door policy: I have an open-door policy. If I’m busy I’ll let you know it’s not a good time.
• Free tutoring through UCMerced’s Calvin E. Bright Success Center!
  o Check http://learning.ucmerced.edu/ for the schedule.
• Additional Books (not required)
  o Portable TA: A Physics Problem-Solving Guide, Volume I by Andrew Elby
  o Cracking the SAT Physics Subject Test by Princeton Review
• Is the required textbook not working for you? Feel free to reference other textbooks!
• Study Skills in Physics Meetings: This is a periodic meeting where we discuss various study skills, strategies, time management, and what it means to learn, all in the context of the physics course. The goal is for the skills to be immediately applicable and useful in other courses, too. It’s completely voluntary, casual, and you can drop in anytime during the semester.