Instructor:
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Website: www.seattlecentral.edu/faculty/rheller
Office Hours: see website

Text
“Physics for Scientists and Engineers", 4th ed., by Knight, including Workbook and MasteringPhysics license
"Tutorials in Introductory Physics" by Lillian McDermott, Peter Shaffer and the Physics Education Group.
Homework: MasteringPhysics: to register use the class ID: PHYS221FALL17HELLER

Tools
A scientific calculator will be required. Flash drives, colored pencils, a protractor, a ruler, and graph paper will be helpful.

Meeting Times

<table>
<thead>
<tr>
<th>Section 2:</th>
<th>Section 3:</th>
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<tbody>
<tr>
<td>TThF 10-10:50, SAM206</td>
<td>TThF 11-11:50, SAM206</td>
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<tr>
<td>M 9-10:50, SAM206</td>
<td>M 11-12:50, SAM206</td>
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<tr>
<td>W 9-10:50, SAM205 (lab)</td>
<td>W 11-12:50, SAM205 (lab)</td>
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Content
This class covers the basic principles of mechanics. We will study kinematics, Newton's laws of motion, work and energy, and linear momentum. We should cover the first 11 chapters of the textbook.

Outcomes for Physics 221
After successful completion of this course, students will be able to do the following:
1. Demonstrate problem solving skills for kinematics problems in one and two dimensions.
2. Demonstrate fluency in visualizing and graphically representing motion.
4. Identify and classify forces in a variety of physical situations and draw the corresponding free-body diagrams.
5. Apply Newton’s laws of motion to a variety of one-dimensional and two-dimensional physical situations.
6. Solve problems involving impulse and momentum, work and energy, as well as conservation laws.
7. Analyze a physical system to decide what information and principles are relevant to understanding the behavior of the system.
8. Use scientific methods, analyze physical systems, apply quantitative measures to answer questions, and solve problems through experiments and hands-on activities based on the principles introduced in Phys221.

Assessment
Exams: 70%.
Lab write ups and tutorials: 20%
Homework: 10%

Note: This syllabus is subject to change. Please check online for the most recent version. I usually include your feedback on office hours etc.
Exams
There will be 4-5 exams. Dates will be given as we progress through the quarter. There won’t be any makeup exams for the first missed exam, the lowest exam score will be dropped.

Labs and Tutorial/Practice Sessions
There will be two weekly 2 hour sessions. One of these will be used for labs, the other for a combination of lecture, tutorials, and practice sessions. Participation is mandatory (you must be present during the lab). Lab reports must typically be turned in at the end of the week following the lab, specific dates and times will be given in class and/or on the website. I will give you details about what to turn in for each experimental lab. The lowest score on your lab write-ups will be dropped. Lab report drafts are strongly encouraged. These help you do your work efficiently and more effectively. You must turn in your draft on the Monday following the lab.

Homework
There will be three types of assignments:
1. Pre-Reading assignments: on MasteringPhysics, submission online. Designed to encourage you to read the chapter before it is covered in class. Solutions will NOT be posted. No late pass.
2. Homework assignments: on MasteringPhysics, submission online. Designed to reinforce and help you practice the concepts covered in class. Solutions will be posted on the website.
3. Workbook: these will turned in as a hardcopy. Should be done every day after class to help you practice daily. Will be collected roughly once a week. Solutions will be posted on the website.
All due dates will be posted on the class website.

Start working on your homework assignments as soon as we have covered the material in class. This will allow you to ask questions and work on difficult problems with others. I strongly recommend that you discuss problems with your classmates, however, your final work has to be your own, not a copy of somebody else’s work.

Note that late homework may not be accepted. If it is, there may be a deduction. If you have trouble finishing your work on time please let me know ahead of time, not after the due date.

Special Assistance

Students with documented disabilities requesting class accommodations, requiring special arrangements in case of building evacuation, or have emergency medical information the instructor should know about are asked to contact the disability support services office (DSS) in Rm. 1112. Once the disability is verified with DSS you will be given a letter of accommodation to be handed to your instructor.

Title IX
Seattle Central College seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this. For more information about your options at Seattle Central, please go to: http://seattlecolleges.edu/HR/about.aspx

And let’s not forget to have fun 😊

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Rough Course Outline – you must check online calendar for details

<table>
<thead>
<tr>
<th>Week</th>
<th>Material Covered</th>
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<tbody>
<tr>
<td>1</td>
<td>Motion diagrams, linear kinematics in one dimension</td>
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<tr>
<td>2</td>
<td>Kinematics in one dimension</td>
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<tr>
<td>3</td>
<td>Vectors, kinematics in two dimensions, motion in a plane, circular motion</td>
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<tr>
<td>4</td>
<td>Kinematics in two dimensions, motion in a plane, circular motion</td>
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<tr>
<td>5</td>
<td>Newton’s Laws of Motion and Applications</td>
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<tr>
<td>6</td>
<td>Newton’s Laws of Motion and Applications</td>
</tr>
<tr>
<td>7</td>
<td>Newton’s Laws of Motion and Applications and Rotational Dynamics</td>
</tr>
<tr>
<td>8</td>
<td>Work and Energy</td>
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<tr>
<td>9</td>
<td>Work and Energy</td>
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<tr>
<td>10</td>
<td>Work and Energy</td>
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<tr>
<td>11</td>
<td>Impulse and Momentum, Conservation of Momentum</td>
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**How to Succeed in Physics 221**

1. Attend class every day. If you miss class be sure to find out what you may have missed. Do not assume that the schedule will not change.
2. Read your text. Your text is very well written (for a physics text). Plan 3 pages/hour to really understand what is being said. Read with a pencil – do sample problems, summarize sections, etc.
3. Do your homework regularly and as soon as possible. You must practice daily in order to allow your mind time to absorb and organize the physics we are studying.
4. Hand in drafts of your lab reports. Students who take advantage of this service consistently score >10 % higher on their labs.
5. Collaborate but don’t hide behind others. While working and studying in groups is encouraged, make sure to spend time on your own organizing your work or rewriting your homework or labs in your own words.
6. Ask for help as soon as you need it. Do not wait until you are really behind or confused. Feel free to drop by during office hours or email me with your questions.
7. There are a variety of ways for you to get help, including Phys299, the tutoring center and google groups. Please check the website for details.
8. If you have a personal/family emergency that is affecting your ability to work in or attend the class be sure to contact me as soon as possible so that we can discuss appropriate accommodations to help you to succeed in the class.