Physics 2220   Physics for Scientists & Engineers II   Summer 2017

University of Utah (4 semester units, 5 June – 3 August, MWF, 8.00–9.50 a.m., JFB 103)

(Each student must also register for a discussion section, meeting Tu, Th 8.00–9.50 a.m.)

Instructor: Dr Christopher Stone, Associate Professor (Lecturer)

Office: 124 JFB, 801–585–9850

Office hours: MWF 10.15–11.15 a.m., or see me at the end of class in JFB 103, or by appointment at other times. (I am on campus MWF only.) email: cstone@physics.utah.edu or cstone@dsdnail.net. You may also leave a message at the Physics Department office: 201 JFB, 801–581–6901.

Secretary: Mary Ann Woolf, 205 JFB, 801–581–4246, woolf@physics.utah.edu

Course web page: www.physics.utah.edu/~woolf/2220_stone.html

Textbook: Physics for Scientists and Engineers (6th ed.), by Serway & Jewett (Thomson, Brooks/Cole, 2004). As this is an older edition, it should be possible to obtain either a used hard copy or online access fairly cheaply.

Course Description:

We shall cover most of Chapters 23 – 38 of the textbook, some sections in more detail than others. The lectures will follow the book fairly closely, but supplementary information may also be discussed in class, and you will be held responsible for it as well as for textbook material on the examinations. Therefore, regular class attendance and participation are strongly encouraged.

Typically, there will be two WebAssign homework sets due each week (see page 3 for details). Each set of problems must be submitted electronically by noon of the day after its nominal due date – e.g., a Tuesday homework set is due by noon on Wednesday; a Thursday homework set is due by noon on Friday. If you wish, you may work together on homework, provided that each person contributes to the solution and that no one merely copies from someone else. You may well find that you learn more by discussing concepts and collaborating with other students of approximately the same level as yourself than you would by simply working alone. Homework solutions will be available later on the WebAssign site, as well as past examination problems for review on the course web page. If you have any technical difficulties with WebAssign, contact Doug Baird (doug.baird@utah.edu).

To get the most you can from this course, study your textbook and class notes carefully till the material makes sense to you. If you are still having trouble, talk to one of the TAs – Megha Agarwal, Rohit Kumar, Rajesh Malla, or Rachel Morris (the course marshal) – or to me. We shall be glad to help you. Please seek assistance as soon as you have a problem, so as not to fall behind in a subject that is unavoidably cumulative in nature. I urge you to read the relevant sections of your textbook at least once before we get to them in the lectures (and again afterwards), as we shall not have enough time to discuss in class all the textbook material that is relevant to the course. Also, feel free to ask questions or raise points of concern during the lectures. That way we can use our class time as efficiently as possible by concentrating on those parts of the subject that you find most difficult.

There will be three examinations during the term (see page 2 for dates and coverage). They will test you on both the information in the textbook and that discussed in class. You may use one standard sheet of paper (both sides) with notes and formulas during each exam. The lowest one of your three exam scores will be dropped when computing your total marks for the course. Your two lowest homework scores will be dropped. The final examination (for which you may use four note sheets), on Thursday 3 August, will be comprehensive, but weighted towards Chapters 35 – 38, which will not have been covered on the previous three exams. The total for the term will consist of 25 per cent (homework), plus 45 per cent (the sum of your best two ordinary exams), plus 30 per cent (final exam), for a total of 100 per cent. The grading scale for the course will be approximately as follows (in per cent):

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>E</td>
<td>50</td>
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<tr>
<td>D–</td>
<td>54</td>
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<tr>
<td>D</td>
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<td>B+</td>
<td>90</td>
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<tr>
<td>A–</td>
<td>93</td>
</tr>
<tr>
<td>A</td>
<td>100</td>
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**Summer 2017**  
**Schedule for Physics 2220**  
(Subject to change, with notice given in class)

Monday 5 June: Chapter 23  
Wednesday 7 June: Chapters 23 and 24  
Friday 9 June: Chapter 24

Monday 12 June: Chapter 25  
Wednesday 14 June: Chapters 25 and 26  
Friday 16 June: Chapter 26

Monday 19 June: Chapter 27  
Wednesday 21 June: Chapter 28  
Friday 23 June: Chapters 28 and 29; **First Exam** (Chs 23 – 26), 2.00 p.m. – 4.00 p.m. in JFB 103

Monday 26 June: Chapter 29  
Wednesday 28 June: Chapter 30  
Friday 30 June: Chapters 30 and 31

Monday 3 July: Chapter 31  
Wednesday 5 July: Chapter 32  
Friday 7 July: Chapters 32 and 33; **Second Exam** (Chs 27 – 30), 2.00 p.m. – 4.00 p.m. in JFB 103

Monday 10 July: Chapter 34  
Wednesday 12 July: Chapter 34  
Friday 14 July: Chapters 34 and 35

Monday 17 July: Chapters 35 and 36  
Wednesday 19 July: Chapter 36  
Friday 21 July: **Third Exam** (Chs 31 – 34), 7.30 – 9.50 a.m. in JFB 103

Monday 24 July: Holiday (no classes held today)  
Wednesday 26 July: Chapter 37  
Friday 28 July: Chapters 37 and 38

Monday 31 July: Chapter 38  
Wednesday 2 August: Revision for Final Exam

**Thursday** 3 August: **Final Exam** (comprehensive), 7.30 – 9.50 a.m. in JFB 103

Beginning Tuesday 8 August, you may pick up your Final Exam paper from Mary Ann Woolf in 205 JFB (801–581–4246). Be prepared to show some form of picture identification.
Homework Problems from *Physics* (sixth edition) by Serway and Jewett (on WebAssign):

<table>
<thead>
<tr>
<th>HW Set</th>
<th>Problems</th>
<th>Date Due</th>
</tr>
</thead>
</table>
| 1      | Ch. 23: 9, 10, 19, 32, 33, 46, 62  
         | Ch. 24: 4, 11, 16               | Tuesday 13 June |
| 2      | Ch. 24: 21, 57, 70, 72  
         | Ch. 25: 9, 14, 17, 28, 34, 38   | Thursday 15 June |
| 3      | Ch. 25: 39, 43, 46  
         | Ch. 26: 5, 7, 11, 16, 17, 19, 27 | Tuesday 20 June |
| 4      | Ch. 26: 28, 50, 57, 61, 69  
         | Ch. 27: 6, 17, 20, 35, 36       | Thursday 22 June |
| 5      | Ch. 27: 55, 63, 68, 75  
         | Ch. 28: 4, 15, 16, 24, 36, 47   | Tuesday 27 June |
| 6      | Ch. 28: 57  
         | Ch. 29: 10, 14, 22, 30, 45, 50  
         | Ch. 30: 12, 15, 19               | Thursday 29 June |
| 7      | Ch. 30: 22, 26, 29, 33, 38  
         | Ch. 31: 9, 10, 22, 28, 32       | Thursday 6 July  |
| 8      | Ch. 31: 44, 66               | Tuesday 11 July |
| 9      | Ch. 32: 51, 64  
         | Ch. 33: 6, 44, 46               | Thursday 13 July |
| 10     | Ch. 32: 51, 64  
         | Ch. 34: 1, 5, 7, 12, 14         | Thursday 13 July |
| 11     | Ch. 34: 24, 25, 28, 31  
         | Ch. 35: 2, 9, 18, 20, 21, 30    | Tuesday 18 July  |
| 12     | Ch. 35: 40, 59, 63, 67  
         | Ch. 36: 5, 13, 14, 16, 23, 38   | Thursday 20 July |
| 13     | Ch. 36: 41, 62, 67, 72  
         | Ch. 37: 6, 13, 19, 31, 35, 37   | Thursday 27 July |
|        | Ch. 37: 40, 52              | Tuesday 1 August  |
|        | Ch. 38: 2, 9, 22, 24, 25, 41, 42, 46 |                |
Additional Practice Problems

Each of the WebAssign homework sets comprises ten problems. To help you understand the material even more thoroughly, I suggest that you also do as many additional problems as you have time for. Here is a list of extra problems I especially recommend, and they will be available for you in WebAssign:

**Chapter 23**: 7, 11, 12, 17, 21, 22, 28, 29, 31, 34, 35, 45, 49, 52, 63

**Chapter 24**: 13, 19, 24, 26, 29, 37, 43, 45, 47, 51, 64, 67, 69

**Chapter 25**: 18, 23, 35, 36, 41, 44, 47, 58, 67, 68, 71, 72

**Chapter 26**: 12, 14, 23, 29, 30, 34, 37, 41, 42, 47, 54, 64, 67, 75

**Chapter 27**: 3, 4, 7, 11, 21, 31, 72

**Chapter 28**: 1, 2, 6, 9, 19, 21, 25, 37, 42, 43

**Chapter 29**: 1, 2, 4, 5, 17, 23, 28, 36, 40, 41, 43, 48, 49, 55, 63

**Chapter 30**: 5, 6, 17, 21, 36, 37, 55, 71, 72, 73

**Chapter 31**: 3, 5, 6, 11, 13, 17, 18, 21, 24, 29, 34, 50, 52, 53, 58, 63, 64

**Chapter 32**: 5, 7, 12, 19, 26, 27, 36, 39, 43, 48, 52, 53, 69, 71

**Chapter 33**: 1, 2, 3, 7, 45, 47, 49, 56

**Chapter 34**: 3, 6, 13, 15, 17, 19, 26, 27, 55, 66

**Chapter 35**: 10, 12, 14, 33, 35, 38, 47, 49, 61, 66, 70, 71

**Chapter 36**: 3, 12, 17, 26, 27, 29, 31, 32, 63, 65, 68, 74, 77

**Chapter 37**: 1, 2, 5, 7, 17, 21, 22, 23, 32, 33, 34, 39, 48, 61, 65, 66

**Chapter 38**: 1, 3, 18, 23, 26, 27, 29, 31, 40, 43, 45, 49, 55, 64, 68