Meeting time:
M/W/F: 9:00am – 9:50am

Room:
Physics 127

Textbook:
“Modern Physics for Scientists and Engineers”
Occasionally, additional reading materials may be distributed

Instructor:
Dr. A. Yamilov, Email: yamilov@mst.edu Tel: x6793 Office: Physics 116
Office hours: Monday 3:00-5:00pm or by appointment in Phys 116 or 127

Topics to be covered in the course:

Chapter 1: The birth of modern physics
Chapter 2: Special theory of relativity
Chapter 3: The experimental basis of quantum theory
Chapter 4: Structure of the atom
Chapter 5: Wave properties of matter and quantum mechanics
Chapter 6: Quantum mechanics
Chapter 7: The hydrogen atom
Chapter 8: Atomic physics
Chapter 9: Statistical physics
Chapter 10: Molecules and solids
Chapter 11: Semiconductor theory and devices

Final grade makeup:

<table>
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<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Homework</td>
<td>40% (Two lowest out of the total twelve will be dropped)</td>
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<tr>
<td>Presentation</td>
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<td>Presentation review</td>
<td>5%</td>
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<td>Two midterm exams</td>
<td>15% each</td>
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<td>Final exam</td>
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Course policies

Lectures:
• All lectures will be broadcast live online via BlackBoard Tegrity – navigate to Tegrity Classes/ Live Now to participate remotely.
• Recordings of all lectures will be posted on BlackBoard – navigate to Tegrity Classes to re-watch a lecture.
• You can choose to attend a lecture (i) in person at our meeting room Physics 127 or (ii) watch the lecture live online from any location on your computer or (iii) watch the recording at a later time.
• Certain lectures can only be watched online (I will not be physically present at the classroom). For list of the online-only lectures, see Class Schedule below.

Homework:
• During each Friday class (excluding the weeks before the midterms and the final exam) you will be assigned a problem set, which will consist of the end-of-the-chapter problem(s), and questions based on the chapter objectives.
• Neatly handwritten or typed solutions are due on Wednesday of the following week.
• Homework will be accepted only until the end of the class on the Friday of the due week (with 20% penalty for turning the assignment after the deadline).
• There will be twelve homework assignments during semester.
• At the end of the course two lowest homework grades will be dropped.

Presentation:
• Every student will be asked to prepare one 15 minute narrated PowerPoint presentation about a scientist who made a significant contribution to the development of modern physics, see e.g. http://nobelprize.org/nobel_prizes/physics/laureates/
• You are free to suggest a name based on your interest. Your presentation should be related to the material discussed in this course and it has to be approved by me before you start preparing it.
• If you cannot make a selection by Wednesday of the second week of classes, I will make an assignment
• If you have not made your presentation by then, you will be notified by Wednesday of the second week of classes when your presentation is due.
• Narrated (after composing the slides, practice your narrative and then choose Slide Show/Record Narration) PowerPoint presentations will be made available to all students via Blackboard.
• Your presentation should contain the following parts:
  (i) Brief biography of the researcher: when and where (s)he was born; what kind of education/training (s)he received.
  (ii) What made this researcher famous? Describe one (or more) of his/her discoveries that are relevant to this course.
  (iii) How the above discoveries contributed to the advancements in physics/science?
  (iv) Bibliography used in preparing your presentation.
• You may use Internet as a helpful source of information.
• You are encouraged to consult with me before finalizing your presentation.
• Your grade for the presentation will be determined based on:
  (i) Quality of your PowerPoint presentation. Correctness, completeness and appearance will be considered – 50% of the grade
  (ii) Your oral presentation – 30% of the grade
  (iii) Your ability to answer questions related to the topic of your discussion – 20% of the grade
Presentation review:
• For every presentation two student reviewers will be assigned.
• Within three days after the presentation has been made available, each reviewer is expected to listen carefully the presentation being reviewed and make a comment/addition/question through Blackboard discussion board.
• The student in charge of the presentation will have additional four days to post his/her replies.
• Your grade for the presentation review will be determined by your participation in the discussion board.
• Each student is expected to participate in two reviews.

Midterm and final exams:
• Midterm exams will be given on Monday, February 23 and April 6 during a regular class.
• Final exam will be given on Tuesday, May 12, 10:30-12:30pm in our regular room.
• Final exam will only include the material covered after the second midterm.
• Both the midterms and the final will consist of one homework problem and three questions based on the chapter objectives.
• Tests are in closed-booked, closed-notes format. Equation sheet will be provided.

Test makeup policy:
• In exceptional cases of documented medical or personal emergencies, a makeup test will be provided.
• I have to be notified of such an emergency prior to the test.
• A makeup test will be composed using the same guidelines as the test missed.

Final grade:
• The letter grades will be assigned according to the following rules:
  A – 89.5% of total possible points
  B – 79.5% of total possible points
  C – 69.5% of total possible points
  D – 59.5% of total possible points
  F – below 59.5% of total possible points

Disability:
• If you have a documented disability, please, provide me with the letter from Disability Support Services by the end of the second week of classes.
• I will be happy to work with DSS to accommodate you in this course.
• More resources for students with disabilities are available at http://dss.mst.edu

Academic Dishonesty:
• Academic dishonesty will be dealt with according the Student Academic Regulations guidelines found at http://registrar.mst.edu/academicregs/index.html

Excessive absence:
• If you miss 3 assignments of any kind, I will issue an academic alert
• If you miss 5 assignments and/or 1 exam you will be dropped from the course for excessive absence
## Class Schedule

### January (5 lectures)

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Homework #1 is due on **Wednesday** in class

### February (11 lectures)

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Homework #2 is due on **Wednesday** in class  
Homework #3 is due on **Wednesday** in class  
Homework #4 is due on **Wednesday** in class  
Midterm #1 (14 Lectures)

### March (9 lectures)

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Homework #5 is due on **Wednesday** in class  
Homework #6 is due on **Wednesday** in class  
Homework #7 is due on **Wednesday** in class

### April (12 lectures)

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Homework #8 is due on **Wednesday** in class  
Midterm #2 (13 Lectures)  
Homework #9 is due on **Wednesday** in class  
Homework #10 is due on **Wednesday** in class  
Homework #11 is due on **Wednesday** in class

### May (4 lectures)

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Homework #12 is due on **Wednesday** in class  
**Final (14 Lectures) @10:30am**

**Key:** Hybrid lectures, Online-only lectures, Tests, Homworks