CONCEPTS IN MODERN PHYSICS II

PH4417

Instructor: M. Dingfelder
Office: E209
Howell Science Complex
Time: Monday Wednesday Friday 9:00-10:00 am
E213 Howell Science Complex
Extra Problems Class: TBA
Office Hours: Tuesday, Thursday 2:00 - 3:00 pm

Textbook


Course Web Page

• Additional information to the course and homework sheets can be found at http://core.ecu.edu/phys/dingfelderm

Supplemental Literature

• Other textbooks on Modern Physics, e.g.
• Kenneth Krane, Modern Physics, 2nd Ed., Wiley 1996.
• Charles Kittel, Introduction to Solid State Physics, Wiley 1996.
• Kenneth Krane, Introductory Nuclear Physics, Wiley 1987.
• and others as necessary and appropriate!

Contents and Schedule

• SCHEDULE IS APPROXIMATE!
• Dates for material to be covered can change on a day-by-day basis to conform to student interest and class dynamics.
• In total 42 classes each 50 minutes.
## Tentative Schedule and Contents

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Jan 6, Fri</td>
<td>1. Introduction, Summary Modern Physics I.</td>
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<tr>
<td>Jan 9,11,13,18</td>
<td>2. Many-Electron Atoms (Chapter 7).</td>
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<td>Jan 16, Mon</td>
<td><strong>NO CLASS</strong></td>
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<tr>
<td>Jan 20,23,25,27,30</td>
<td>3. Molecules (Chapter 8).</td>
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<tr>
<td>Feb 6, Mon</td>
<td><strong>TEST 1</strong> (Chapters 7-8).</td>
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<td>Feb 1,3,8,10,13,15</td>
<td>4. Statistical Mechanics (Chapter 9)</td>
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<td>Feb 17,20,22,24,27</td>
<td>5. The Solid State (Chapter 10)</td>
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<tr>
<td>Mar 03, Fri</td>
<td><strong>TEST 2</strong> (Chapters 9-10)</td>
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<td>Mar 1,6,8,10,20,22</td>
<td>6. Nuclear Structure (Chapter 11)</td>
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<tr>
<td>Mar 13,15,17</td>
<td><strong>Spring Break</strong></td>
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<td>Mar 24,27,29,31, Apr 3,5</td>
<td>7. Nuclear Transformations (Chapter 12)</td>
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<tr>
<td>Apr 10, Mon</td>
<td><strong>TEST 3</strong> (Chapters 11-12).</td>
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<td>Apr 7,10,12,17,19</td>
<td>8. Elementary Particles (Chapter 13)</td>
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<tr>
<td>Apr 21, Fri</td>
<td>9. Cosmology (Big Bang).</td>
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<tr>
<td>Apr 24, Mon</td>
<td><strong>Last class</strong>: Summary.</td>
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<tr>
<td>May 3, Wed</td>
<td><strong>Final Test 08:00 - 10:30</strong> (Chapters 7-13).</td>
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## Course Scoring

Scoring will be divided into three categories:

1. **Homework.** Homework will count 20% of the course grade.
   
   Each week a homework sheet with problems will be issued and has to be returned within a week (except in weeks with interim tests). Tentatively there will be 10 sheets with an ideal score of 10 points each.

2. **Interim tests.** There will be three interim tests during the semester. Each test will be weighted to count 17% of the course grade, thus the three tests will contribute a total of 51% of the course grade.

3. **Final Exam.** The final exam will count 29% of the course grade.
   
   Each test, the final exam and all homework sheets together will be designed to yield 100 points for a perfect score.