Course Description: This course will enable students to become familiar with optics, electricity, magnetism, and selected topics from modern physics. This course is designed for students planning to study medicine, dentistry, veterinary medicine, optometry, biology, architecture, and the technical disciplines. A knowledge of algebra and elementary trigonometry is needed. Prerequisite: Physics 1401.

Text, References, and Supplies:


More than one student may share a lab book, so an individual copy is not essential; but most students will find it convenient to have their own copy. Books are discussed during the first class meeting.

Course Goals/Objectives: Upon successful completion of the course, the student will have a general knowledge of optics, electricity, magnetism, and selected topics from modern physics. The student will have developed a general analytical approach to problem solving commensurate with the material and mathematical level of the course.

Student Contributions and Class Policies: The student is expected to take a mature and active role in his/her educational development during lecture, during lab, and outside of class.

Midland College does not tolerate scholastic dishonesty or academic misconduct in any form. Please read the MC Student handbook on this subject.

- Tests will occur approximately once each week and will cover the material since the previous test. The Final Exam is comprehensive. One 3” x 5” card with any information the student wants on it may be brought to each test including the Final.
- The Final Exam grade will be used to replace one other test grade lower than the Final, if there is at least one test grade lower than the Final.
- Make-up tests can be arranged in extenuating circumstances with approval of the instructor. The make-up test must be completed prior to the return of the graded test to the class. Otherwise the missed test will count as a zero; and the final exam will be used to replace the missed test, as mentioned above.
- Regular homework problems will be recommended but not required or collected. Any special out-of-class assignments will count in addition to or in place of part or all of the class tests.
- Attendance in the lecture class will not count in the grade, but three consecutive classroom hours of unexcused absences or a total of six classroom hours of unexcused absences as reported by the instructor may result in a student being dropped from the rolls with a grade of “W”.
- One special rule: In order to pass this course, the student must pass both lecture and lab. For the lab this consists of a minimum 60% average.

Evaluation of Students: The course grade will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Lab</td>
<td>20%</td>
</tr>
<tr>
<td>5 Tests @ 14% each ....</td>
<td>70%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>10%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Course Schedule: The class meets for the regular summer session as published by Midland College. The material will cover classical mechanics, thermodynamics and wave motion, in that order.

Intellectual Competencies:

1. Reading - Understanding the material incorporated in the text used in this course will require the student to analyze and interpret various physical concepts.
2. Listening - The primary teaching methods used in this course are discussion and lecture. Understanding the oral presentation of material will require the student to analyze and interpret various physical concepts.
3. Critical Thinking - Critical thinking, as exemplified by problem solving, is inherent in the study of any scientific discipline. Physical problems will be considered, discussed, and analyzed in this course.
ADA Statement: Any student who, because of a disabling condition, may require some special arrangements in order to meet course requirements should contact the instructor as soon as possible. These conditions may include documented physical or educational disabilities. Please be aware that services or accommodations are not automatic. Each student must request them and secure the proper authorizations.

Exemplary Objectives:

<table>
<thead>
<tr>
<th>Competency</th>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>X</td>
<td>X</td>
<td>X</td>
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</tbody>
</table>

Competencies:

1. To understand and apply method and appropriate technology to the study of the natural sciences.

2. To recognize scientific and quantitative methods and the differences between these approaches and the other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.

3. To identify and recognize the differences among competing scientific theories.

Instructor Information: Instructor: Dr. Tom O'Hara

Office: 110 SF  Office Phone: 685-4617
Home Phone: 561-5789
tohara@midland.edu
tomohara@sbcglobal.net

Office Hours: M 8 – 9 am
T 8 – 9:30 am; 12:30 – 1 pm
W 8 – 9 am
Th 8 – 9:30 am; 12:30 – 1 pm
F 8 – 9 am; 11 am – 2 pm

Division Dean: Dr. Margaret Wade (125 SF)  Office Phone: 685-4615
Division Secretary: Ms. Norma Duran (124 SF)  Office Phone: 685-4612
Ms. Brenda Smith (108 SF)  Office Phone: 685-6413

Class Schedule: The following list comprises the Chapters and Sections which will probably be covered during the semester. Any changes in this list will be brought to your attention during the course of the semester.

Chapter 15  Sections 1 - 5
Chapter 16  Sections 1 – 3, 5
Chapter 17  All Sections
Chapter 18  All Sections
Chapter 19  All Sections
Chapter 20  All Sections
Chapter 21  All Sections
Chapter 22  All Sections
Chapter 23  All Sections
Chapter 24  Omit
Chapter 25  Sections 1 – 3, 5
Chapter 26  Sections 1 – 4, 6
Physics 1402 (Wilson 6th Ed) exercises

Chapter 15: 9, 13, 17, 21, 23, 25, 27, 35, 39, 41, 43, 51, 53, 61, 69, 91
Chapter 16: 3, 5, 11, 13, 15, 29, 31, 39, 49, 51, 57, 61, 63, 65, 69, 85, 89
Chapter 17: 1, 3, 5, 9, 17, 19, 21, 33, 35, 41, 45, 47, 57, 59, 63, 65, 69, 71, 73, 75, 83, 93
Chapter 18: 5, 11, 17, 19, 27, 31, 33, 39, 43, 53, 55, 57, 61, 69, 71, 73, 77, 79, 82 (shunt, 6.7 mΩ), 83, 91, 97
Chapter 19: 1, 3, 5, 7, 9, 15, 29, 35, 41, 43, 45, 47, 51, 61, 63, 69, 71, 91
Chapter 20: 3, 7, 14 (1.3 V), 17, 19, 21, 33, 39, 45, 49, 51, 59, 63, 71, 75, 79
Chapter 21: 1, 5, 11, 13, 15, 19, 25, 27, 31, 37, 39, 43, 47, 49, 51, 57, 59, 65, 71
Chapter 22: 3, 5, 23, 29, 33, 39, 41, 43, 53, 67
Chapter 23: 1, 9, 19, 21, 27, 29, 33, 39, 41, 43, 47, 61, 63, 65, 67, 77, 85, 93
Chapter 24: None
Chapter 25: 1, 3, 7, 9, 11, 13, 17, 19, 25, 27, 31, 33, 37, 39, 47, 51, 53, 55, 79
Chapter 26: 3, 7, 9, 15, 19, 25, 27, 31, 35, 47, 49, 53, 55, 71, 73