NorthWest Arkansas Community College

COURSE GUIDE FOR PHYSICS 1064

INTRODUCTION TO PHYSICS

Fall 2004

Instructor
Mrs. Melody Thomas

Northwest Arkansas Community College
One College Drive
Bentonville, AR  72712
(479) 636-9222
Office Phone: (479) 619-2269
Home Phone: (479) 787-7089
Email: mthomas@nwacc.edu
INTRODUCTION

The purpose of this course guide is to provide you with the information that you will need to successfully meet the requirements for Introduction to Physics, PHY 1064. It is designed to serve as your reference to course topics that have direct application to you.

GENERAL INFORMATION

Course Title: Introduction to Physics
Course Number: PHYS 1064
Credit Hours: 4
Days & Time: Lecture: Monday & Wednesday, 8:45 - 10:15 a.m.
Lab: Friday, 8:45 a.m. - 11:45 p.m.
Prerequisites: MATH 1003 or MATH 1204

Course Description: A survey of the principles of physics primarily focusing on Newtonian Mechanics, Fluids & Heat, Electricity & Magnetism, and Wave Motion & Simple Geometric Optics. Time permitting; various aspects of Modern Physics will be presented. This course integrates lecture, classroom discussion, and a hands-on laboratory, in order to promote scientific awareness, while developing critical thinking and problem solving skills.


Resources: In addition to the text, which can be purchased at the Woods Lane Facility & Bookstore, the following supplies are recommended:

1. 3-ring Binder.
2. 3×5-index cards.
3. Scientific Calculator

Course Rationale: Today we find ourselves being part of a rapidly evolving technological society. As a result, to be successful in whichever area of endeavor we have chosen to pursue, it has become increasingly important that all of us possess a higher level of understanding of basic scientific principles and terminology. This course provides the opportunity to develop this basic understanding and apply it to our everyday experience.

Course Goals

- To understand how the scientific method can be used to increase our knowledge of workings of the world and the universe.
- To describe basic physical processes and relationships.
- To learn and develop problem solving strategies.
- To be able to communicate this information to others.

Conduct of the Course: The material that we will cover in this course is divided into four units as outlined below. You will be turning in end of chapter homework that demonstrates both your
conceptual understanding and problem solving skills. This course also includes a laboratory portion that develops your understanding of how you can use self-discovery and the scientific method to increase your understanding of the physical world you live in. Two methods will be presented in this course. One will be a hands-on activity, which guides you through an observation /discovery process. This allows you to draw conclusions based on experience in order to develop your understanding of a particular physical phenomenon. The other method uses an experimental approach to test physical laws and theories through data collection and analysis. This allows you to develop your understanding by testing, analyzing, and verifying the validity of these theories.

Course Units:

Unit 1: Motion & Newton’s Laws - Ch. 1-5
Unit 2: Energy, & Momentum - Ch. 6-8
Unit 3: Fluids, Heat, & Electrostatics – Ch. 9-12
Unit 4: Electricity, Magnetism, Waves, & Light - Ch.13-17

COURSE REQUIREMENTS AND GRADING

Course Requirements:

1. **Performance:** You start out with **100 performance points.** Your attendance is required for all scheduled **class sessions.** If you miss a lecture, **1.5 points** will be subtracted from your attendance points. If you miss a lab, **3 points** will be subtracted from your attendance points (1 point for each hour). If you are late or leave early, I will subtract from your performance points in 0.25 increments. If you call or email me and let me know that you will not be attending and have a legitimate excuse, I will only subtract 1 point for lecture or 2 points for lab. **THIS MEANS THAT YOUR PRESENCE IS REQUIRED TO RETAIN YOUR PERFORMANCE POINTS.** There is a corresponding Unit Review for each unit. I will be going over these as a review session prior to each of your exams. If you do not attempt these **Unit Reviews** before the review session, **1 point** will be subtracted from your performance points. These will be checked prior to the review and assessed as to whether or not an attempt was made to work through the unit review. **THIS MEANS THAT YOU MUST WORK THROUGH THE UNIT REVIEW BEFORE THE REVIEW SESSION TO RETAIN YOUR PERFORMANCE POINTS.** Doing so before the review session provides you with the maximum learning benefit. Any corrections should be made during the review session so you can use them as a study guide for the unit test. I, as well as other students, have found that excessive talking, whispering, laughing, and carrying on during my lecture is very disruptive. Such **conduct** will result in the loss of **1 performance point** per participant per occurrence at my discretion. **THIS MEANS THAT YOU MUST NOT BE DISRUPTIVE IN CLASS TO RETAIN YOUR PERFORMANCE POINTS.**

2. **Questions:** You will be assigned end of chapter questions that you will respond to. Several questions will be randomly selected to represent **10 points** per set for a total of **170 points.** Answers to the questions will be placed in the **Library Folder.** You can make use of these to check those responses to the questions that I have chose not to grade. Half credit will be given
for those question sets turned in on the day that I return the questions. No questions will be accepted once the answers have been placed in the Library Folder.

3. **Problem Sets:** You will also be assigned end of chapter exercises and challenge problems constituting a Problem Set. As with the questions, several Exercises and/or Challenge Problems will be randomly selected to represent 10 points per set for a total of 170 points. Solutions to the problems will also be placed in the Library Folder in order for you to check those problems that I do not grade. Problem sets for each chapter will be due on the day indicated on the calendar. Again, half credit will be given for those sets turned in on the day that I return the questions. No questions will be accepted once the answers have been placed in the Library Folder. Any work that is illegible or NOT presented in a clear, understandable form will not be graded. So, BE NEAT and ORGANIZED! Due dates for homework are in red on the schedule.

4. **Labs:** Eight Labs are required for this course for a total of 160 points (20 each). You are allowed to work together as a group and turn in one lab form for your group. Each receives the same score so make sure that all are equally contributing to the group effort. The labs are designed to give you experience with the subject matter you are learning in connection with each unit. You are required to make up any lab missed before the equipment for the lab is disassembled, and not during class time. Thereafter, you lose the opportunity to earn those points. ANY WORK THAT IS ILLEGIBLE WILL NOT BE GRADED. SLOPPY GRAPHS WILL NOT BE GRADED. So again, BE NEAT!

5. **Unit Tests:** You will be taking 4 two-hour unit tests throughout the semester. Each is worth 100 points for a total of 400 points and covers the topics presented in each unit. You will be allowed to develop one 5×8 index card as a personal note card for each test. Each note card can be used for any subsequent test. THERE WILL BE NO MAKEUP TESTS GIVEN WITHOUT PRIOR ARRANGEMENTS OR NOTIFICATION. Corrections will be allowed for addition points.

**Grading:**

<table>
<thead>
<tr>
<th>Contribution</th>
<th>Total Points Possible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance</td>
<td>100</td>
</tr>
<tr>
<td>Questions</td>
<td>170</td>
</tr>
<tr>
<td>Problem Sets</td>
<td>170</td>
</tr>
<tr>
<td>Labs</td>
<td>160</td>
</tr>
<tr>
<td>Unit Tests (4)</td>
<td>400</td>
</tr>
<tr>
<td><strong>Total:</strong></td>
<td><strong>1000</strong></td>
</tr>
</tbody>
</table>

Provided the required criteria for receiving a passing grade are met, a letter grade will be assign on the basis of where your points accumulation falls within the following scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900 - 1000</td>
</tr>
<tr>
<td>B</td>
<td>800 - 899</td>
</tr>
<tr>
<td>C</td>
<td>700 - 799</td>
</tr>
<tr>
<td>D</td>
<td>600 - 699</td>
</tr>
<tr>
<td>F</td>
<td>Below 600</td>
</tr>
</tbody>
</table>
OTHER INFORMATION

**Attendance:** As described in the Student Handbook pg. 40, “Students are expected to attend all classes.” In accordance with this policy, attendance is required and is incorporated into the grading system. In the event that an unavoidable circumstance occurs which necessitates that you miss a class session, you are responsible for:
1. Contacting me by phone or e-mail and letting me know.
2. Obtaining class notes from a fellow student.
3. Making prior arrangements to turn in any work due for that day.
4. Arranging to make up any labs or tests that are missed.

**Conferences with Instructor:** I will be available on Tuesday and Thursday from 4:30 to 8:00 in the MAT computer lab. Any other conference time will be by arrangement.

**Academic Dishonesty:** According to the STUDENT HANDBOOK:

“Academic dishonest involves acts which may subvert or compromise the integrity of the educational process at NWACC. Included is any act by which students gain or attempt to gain an academic advantage for themselves or another by misrepresenting their or another’s work or by interfering with the completion, submission, or evaluation of another’s work.”

Acts constituting academic dishonesty are listed in the STUDENT HANDBOOK, p. 174. Any student involved in an act of academic dishonesty is in violation of the Student Code of Conduct and may face sanctions as prescribed in the STUDENT HANDBOOK.

**Inclement Weather Policy:** It will be the general policy that if the school does not close, we will be meeting for class. The decision to close the school due to bad weather and/or emergency situations is made by the President of NWACC. Usually, this information is available by 6:00 a.m. for day activities and 3:00 p.m. for evening activities. Information regarding school closing can be obtained through the College Hotline, 619-4377, or through broadcast by KURM 790AM in Rogers.

**Caveat:** This syllabus represents my intent for the course at the time of planning. In the event that I find it necessary to make any changes, you will be notified.