Physics 1012  
Spring 2017

Lectures: Stadler 104: Tuesday & Thursday, 9:30 to 10:45AM  
Labs: Benton 336: Tuesday: 12:30 – 2:20PM or 2:30 – 4:20PM  
            Thursday: 12:30 – 2:20PM or 2:30 – 4:20PM  
There are 4 possible Lab sections. You can ONLY attend the lab section that you are officially enrolled in. You cannot change section without obtaining official permission and reregistering in that new section.

Prerequisites: MATH 1030 (Algebra)  
              MATH 1035 (Trigonometry)  
              PHYS 1011 (Basic Physics)  
              Calculus (MATH 1100 or 1800) strongly recommended  
If you have less than a grade of C- in ANY of these prerequisites then you are ineligible to take this course and will be withdrawn.

Course Instructor: Dr. David Horne  
Email: horneda@umsl.edu  
The best way to contact me is by email.  
Emails deemed abusive and/or inappropriate/unprofessional in content will not be responded to.  
Office B503b, Tel: 314-516-7471  
Office Hours: Monday & Wednesday 12pm - 2 pm (Benton 503b)  
(Contact me to schedule an appointment for another time.)

Grading Scheme (for PHYS 1012, 4.0 credit class with lab):  
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm I</td>
<td>20%</td>
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<tr>
<td>Midterm II</td>
<td>20%</td>
</tr>
<tr>
<td>Final (NOT comprehensive)</td>
<td>20%</td>
</tr>
<tr>
<td>Homework Problems</td>
<td>20%</td>
</tr>
<tr>
<td>Lab</td>
<td>20%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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Grading Scheme (for PHYS 1012A, 3.0 credit class w/out lab):  
<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Midterm I</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm II</td>
<td>25%</td>
</tr>
<tr>
<td>Final (NOT comprehensive)</td>
<td>25%</td>
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<tr>
<td>Homework Problems</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
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</tbody>
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Grade scale:  
92-100: A  
90-91.99: A-  
88-89.99: B+  
82-87.99: B  
80-81.99: B-  
78-79.99: C+  
72-77.99: C  
70-71.99: C-  
68-69.99: D+  
62-67.99: D  
60-61.99: D-  
below 60: Fail
There will be no curving of grades, extra credit or dropping of a bad grade or lab. Do not ask for alteration of final grades after they have been posted
Refusal of the above often offends.

Exam Format: Exams will generally be comprised of 5-6 short answer questions

Makeup exams: A clear and verifiable reason (illness or valid emergency) must be given for a makeup exam, to be conducted. Bear in mind that any makeup exam will be different in content to the original exam. The testing center may only be used for those people with registered disabilities or due to extenuating circumstances. This facility does not exist for the convenience of taking an exam at a time of your choosing.

Homework and Homework Policy: There will be homework assignments at regular intervals throughout the class. Homework problems should be looked on as learning tool, you will not be given ANY ‘busy work’ or irrelevant material in this class.

You will be given a clear deadline for each assignment and you are expected to adhere to this deadline. There will be no warnings given for failure to turn in an assignment and I will NOT chase you for work not turned in, you will simply receive a grade of 0 for that assignment. If you cannot turn in homework on the correct date due to a verifiable, extenuating circumstance then make sure you contact your instructor BEFORE the deadline. Failure to provide an adequate name/identification on a submitted exam, homework or lab will result in an immediate grade of 0.

Exam/Homework Receipt System

You will receive a receipt stamp for homework and exams at the time of submission. Your student ID # and name should be completed in ink at the beginning of the semester. In the event that any issue should arise with a submitted homework you will be required to produce your receipt document. Failure to produce a valid homework receipt will result in dismissal of your inquiry and possible forfeit of grade for that assignment. It is the individual students’ responsibility to obtain a stamp for each and every homework and exam submitted.

You are encouraged to work together on assignments, however the key idea of homework is to learn from it and understand the material. Any work submitted must be your own, in your own words / mathematical reasoning. Copying of another student’s work may be construed as academic dishonesty. Feel free to contact your instructor if you have any questions about homework assignments.

Late Homework: Homework deadlines are assigned to keep the course moving along at a steady pace. Late homework submission will result in poor organization of the course for both instructor and students and ultimately student dissatisfaction. Late homework will not be accepted without a clear and verifiable legitimate reason such as illness.
Exams: Exams are designed to take 1 complete class period. Exams will not be cumulative, however each exam will build on material covered previously you should not forget prior material. If you are witnessed cheating on an exam by any means you will not be challenged during the exam period and no verbal warnings will be given out of respect for others taking the exam. Your exam will simply be returned to you with a grade of 0. You may only take an exam in the testing center if you have pre-approval from your professor and an appointment with made at the testing center. Students are responsible for making arrangements and contacting both the professor and the testing center. Any attempt to defraud your professor or the testing center into taking an exam without permission will result in an immediate grade of 0 for that exam.

A formula sheet will be provided on the day of your exam, this sheet will contain all formulae and constants needed for the exam. You cannot bring your own version and the formula sheet should not be viewed as a security blanket for the exam or a substitute for learning. You cannot pass by simply choosing formulae from a sheet. The formula sheet will NOT be distributed prior to the exam.

Lab: Your instructor will not be responsible for the day to day running of the lab. The lab Teaching Assistant (TA), will teach and grade all labs. DO NOT turn lab reports in to your professor unless specifically instructed to. Your TA will report the final lab grade to the class instructor at the conclusion of the semester and is your point of contact for all lab activities.

- Lab reports must be typed.
- Lab reports are subject to the same academic dishonesty regulations as homework assignments and as such must be your own original work. Even if you have the same data from an experiment as your lab partner, your interpretation of that information must be your own. A simple copy of your lab-mates reports will be interpreted as copying and both parties will receive an automatic zero for their work. The final decision as to the definition of copying/dishonesty lies with the instructor who is subject to university regulations regarding academic dishonesty.
- Each lab will be graded out of 100 points. Your average lab grade will make up the final grade for the lab portion of the class.
- Labs will be due the next time your lab section meets after the experiment. As with homework there is a zero tolerance policy for late submissions.
- NO makeup labs will be given. A student missing lab because of a serious, documentable illness or family emergency should see the instructor to receive an alternate assignment in place of lab. Remember a verifiable reason for absence is required to take advantage of this exception.
- Moving lab sections: If you know that you will have to miss a lab or have a documentable emergency leading to missing lab on your assigned day but are available during an alternate lab section, it MAY be possible to attend another section. If you need to do this contact the instructor first, for approval before discussing with your regular TA for final confirmation. Do not depend on this action as some lab sections are very full and you cannot ‘pick and choose’ sections to attend on a weekly basis.

Homework, Lab and Exam Grading: Unless exceptional circumstances apply, homework, lab reports and exams will be returned within 1 week of their submission. If you are found indulging in plagiarism on homework, labs and/or cheating during an exam, in addition to a grade of 0
being awarded your academic misconduct will be reported to the appropriate University Offices.

Homework deadlines are NOT arbitrary times chosen to make work difficult, deadlines are chosen to keep the course flowing smoothly and to make sure that coursework gets to and from your grader without confusion and/or loss of work.

Attempting to turn work in late or outside of class period and/or the established channels may result in loss or misplacement of your work. Your Professor and TA are NOT responsible for any missing homework or resulting loss of credit in this case. See previous section regarding the receipt system operating for this course.

Academic Integrity/Plagiarism: You are responsible for being attentive to and observant of University policies about academic honesty as stated in the University’s Campus Policies and Procedures in the Triton Manual (p. 30)

Academic dishonesty is a serious offense that may lead to probation, suspension, or dismissal from the University. One form of academic dishonesty is plagiarism – the use of an author's ideas, statements, or approaches without crediting the source. Academic dishonesty also includes such acts as cheating by copying information from another student. Plagiarism and cheating are not acceptable.

The definition of plagiarism or cheating is defined by the instructor Dr. Horne within the policies outlined by UMSL. The student will abide by any judgement or punitive action taken by Dr. Horne, up to and including an award of ‘0’ points for an exam or assignment and/or the submission of a report on this behavior to Office of Academic Affairs. STUDENTS COMMITTING AN INFRACTION OF THIS CODE HAVE AND WILL BE SANCTIONED TO THE FULL EXTENT OF THE UNIVERSITY’S POLICIES.

Academic dishonesty reported to the Office of Academic Affairs may result in punitive actions toward the student. The instructor will make an academic judgment about the student’s grade on that work and in that course. The campus process regarding academic dishonesty is described in the “Policies” section of the Academic Affairs website

Plagiarism is defined as the use of another person’s words or ideas without crediting that person.

Academic dishonesty consists of any deliberate attempt to falsify, fabricate or otherwise tamper with data, information, records, or any other material that is relevant to the student’s participation in any course, laboratory, or other academic exercise or function. The definition of cheating and/or plagiarism will be considered on a case by case basis and remains at the discretion of the instructor who will operate within the accepted UMSL rules. Cheating and or plagiarism includes consensual use of work done by another person. Your work MUST be your own and sufficiently different to your fellow students, the definition of cheating and/or plagiarism remains at the discretion of the instructor who will operate within the accepted UMSL guidelines.

Plagiarism and cheating will not be tolerated and may lead to failure on an assignment in the class, failure of the class, and dismissal from the University, per the UMSL academic dishonesty policy. Students are responsible for being attentive to and observant of campus policies about academic honesty as stated in the University’s Student Conduct Code.
**Class Attendance:** Your attendance is required in each class and you should be prepared to take notes, lecture slides will be placed online for you by the end of the week. These slides are for your reference and should not be used to replace class attendance. Much more is said in class than is included in the slides.

**Class Conduct:** While in class please do not talk unnecessarily, text or otherwise indulge in wireless communication of any sort. Use of **ANY** electronic devices including phones, computers, Google Glass and/or smart watches is prohibited. Only approved calculators will be permitted in exams. To prevent use of smart watches in class, **the use of ANY watches will be prohibited during exams.** A clock is provided in the exam room for you to track the time.

Students are expected to maintain a civil working environment and tone with one another, your professor and the TA. The university is a workplace and a professional demeanor is expected from all parties. **This behavior extends to phone calls and email. Any communication, electronic or direct of a combative or abusive tone will be ignored.**

**Book Usage:** The material covered in your class is also contained within the book. Explanations given in class will not be identical to those given in the book so you should still attend class. The book should be used as your main reference and to give you a ‘second source’ of information to that given in class.

**STUDENTS WITH DISABILITIES:** If you have any disability that might require extra accommodation during the course please come to my office to inform me of your needs and provide me with your official accommodation documentation from the Disability Office.

**Your instructor reserves the right to make changes to the content this syllabus and the structure/schedule including labs and assessment material stated in the syllabus while the course is in session.** Please pay attention to class announcements for updates.
Week 1 (Jan 17/19): Chapter 19 – Electric Charges, Forces & Fields
NO LAB THIS WEEK (Read Introduction to Statistics, Error and Measurement)
Lab manual is available on the course site by clicking the link: ‘Lab Manual’

Week 2 (Jan 24/26): Chapter 19 - Electric Charges, Forces & Fields
EXPERIMENT 1: Electrostatic Force (Coulomb's Law)

Week 3 (Jan 31/Feb 2): Chapter 20 – Electric Potential & Electric Potential Energy
EXPERIMENT 2: Electric Fields and Equipotential Surfaces

Week 4 (Feb 7/9): Chapter 20 – Electric Potential & Electric Potential Energy
NO LAB THIS WEEK

Week 5 (Feb 14/16): Chapter 21, Sections 21-1 and 21-2 (Current, Ohm’s Law)
NO LAB THIS WEEK

**Midterm I: Feb 16**

Week 6 (Feb 21/23): Chapter 21, Sections 21-3 to 21-5
(Resistors in Series and Parallel, Kirchhoff’s Rules)
EXPERIMENT 3: Ohm’s Law

Week 7 (Feb 28/Mar 2): Chapter 21, Sections 21-6, 21-7 (RC Circuits)
EXPERIMENT 4: Resistors in Series and Parallel

Week 8 (Mar 7/9): Chapter 22 -- Magnetism
EXPERIMENT 5: Kirchhoff’s Laws

Week 9 (Mar 14/16): Chapter 22 -- Magnetism
EXPERIMENT 7: AC Voltage, Frequency and the Oscilloscope

Week 10 (Mar 21/23): Chapter 23 – Magnetic Flux & Faraday’s Law
NO LAB THIS WEEK

**Midterm II: Mar 23**

Mar 28/30: Spring Break

Week 11 (Apr 4/6): Chapter 25 – Electromagnetic Waves
EXPERIMENT 8: Magnetic Field Induced by a Current-Carrying Wire

Week 12 (Apr 11/13): Chapter 14 – Waves & Sound
Chapter 14 – Waves & Sound
NO LAB THIS WEEK
Week 13 (Apr 18/20): Chapter 26 – Geometrical Optics
Chapter 26 – Geometrical Optics

EXPERIMENT 10: Reflection & Refraction

Week 14 (Apr 25/27): Chapter 28 – Interference and Diffraction
Chapter 28 – Interference and Diffraction

EXPERIMENT 10: Reflection & Refraction

Week 15 (May 2/4): Chapters 29/30 – Overview

EXPERIMENT 11: Diffraction, Wavelength, and Atomic Line Spectra

Final Exam – Thursday, May 11 7:45 – 9:45AM

Other important dates:

<table>
<thead>
<tr>
<th>Date</th>
<th>Weekday</th>
<th>Event</th>
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<tbody>
<tr>
<td>January 23</td>
<td>Monday</td>
<td>Last day any student may enroll (enter a course for credit)</td>
</tr>
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<td>Monday</td>
<td>Last day Registrar's Office will automatically move students from the wait list to open sections</td>
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<tr>
<td>February 13</td>
<td>Monday</td>
<td>Last day to drop a course or withdraw from school without receiving a grade</td>
</tr>
<tr>
<td>February 13</td>
<td>Monday</td>
<td>Last day any student may place a course on Satisfactory/Unsatisfactory basis</td>
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<tr>
<td>March 13</td>
<td>Monday</td>
<td>Last day to drop a course or withdraw from school without instructor approval. EX grade will be assigned.</td>
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<tr>
<td>April 17</td>
<td>Monday</td>
<td>Last day student may drop a course. Instructor's approval is required. A grade of EX or EX-F will be assigned.</td>
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<tr>
<td>April 17</td>
<td>Monday</td>
<td>Last day a student may withdraw from school. Instructors' and Deans' approvals are required. Grades of EX or EX-F will be assigned for each course.</td>
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