

# Physics 1020: Conceptual Physics

**T Th: 6pm -7:20pm, 1109 Science Hall**

This is a three or four credit course depending on whether the lab is taken or not. Survey of physics concepts with minimal quantitative effort. Students will be able to demonstrate knowledge of physics concepts starting from the foundations of measurements, describing motion, and Newton's Laws. Building on these foundations they will be able to explore the concepts of conserved quantities, states of matter, temperature and heat, waves and sound, electricity and magnetism, optics, atomic physics, nuclear physics, relativity, elementary particles, and cosmology.

The plan is to spend about three fourths of the class giving a standard lecture and the other fourth of the class in a discussion of the key points of daily material. These will almost always be variants of Questions and Problems that are given at the end of each chapter. These are also the basis of what appears on the exams.

**Withdrawal Deadline:** This semester it is Saturday 22 March.

**Students with Disabilities:** If you have a documented disability that requires accommodations, you will need to register with Student Disability Services for coordination of your academic accommodations. The Student Disability Services (SDS) office is located at 1600 David Adamany Undergraduate Library in the Student Academic Success Services department. SDS telephone number is 313-577-1851 or 313-577-3365 (TTY: telecommunication device for the deaf; phone for hearing impaired students only). Once you have your accommodations in place, I

will be glad to meet with you privately during my office hours to discuss your special needs. Student Disability Services' mission is to assist the university in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at Wayne State University.

I do not intend to make paper copies of this syllabus available. Please print it for yourself or reference the electronic copy.

**Professor:** Abhijit Majumder (316 Physics, 313-577-4569,  
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<http://physics.wayne.edu/~amajumder>)

**Office Hours:** 4:30-6:30 W or by appointment

**Texts:** *Inquiry Into Physics*, Seventh Edition, Ostdiek and Bord.  
ISBN: 978-1-133-10468-1 (1-133-10468-1)

### **Midterms:**

Two in class, short answer, exams. Note that these take awhile to grade. Please be patient. There are no make-up exams; please do not ask.

### **Final:**

Thursday 24th April 6pm-7:20pm (in class).

**THE FINAL CANNOT BE DROPPED** even if you took both of the in class exams. Please do not ask about taking the final at some other time. Short answer format.

**Breakdown of Grade:** Quiz 10%, Midterm-I 20%, Midterm-II 20%, Assignment 20%, Final 30%.

For those taking the lab, the total out of 100% will be scaled to 85%, to allow for a 15% Lab credit.

### **Labs(15% - 4 Credit)**

Labs are in 142 Physics. The lab manual will be available on Blackboard to download. **It is essential that you print a copy of the lab manual and bring it to every meeting of the lab.** The lab score is based on the best 10 of the 12 lab reports that are turned in. If you have to miss a scheduled lab, you can attend another meeting of the lab scheduled in the same week.

### **i>clicker quizzes**

Extra credit will be given for in class quizzes using the i>clicker system. In general there will be 2-3 questions asked during the course of the in class lectures with students responses recorded with the i>clicker system. For each class, students earn one point for answering a question correctly. There is an overall point for attendance in classes with quizzes. I will let you know in advance when there will be a quiz in class.

The i>clicker2 has been adopted campus wide and is being used for many classes at Wayne State. You can purchase or rent one at the Wayne State Bookstore or elsewhere. Unfortunately the i>clicker app for smart phones is not supported, the wifi network is not reliable enough for many simultaneous users in a single class, and you need to obtain the dedicated i>clicker device. Once you have the i>clicker you have to register it for this class. Find the link to do so on Blackboard in Tools. You will not get extra credit for the in class quizzes unless you do this.

**Assignments:** Weekly to bi-weekly assignments will be posted on web-assign. The WebAssign online testing system (<http://webassign.net>) provides online homework submission and grading. If you buy the textbook in the campus store, it should include a WebAssign access card valid for two semesters. Access codes can also be purchased separately. More information is available on the WebAssign website. You should already be

enrolled for the course in WebAssign with your username and initial password set to your six character WSU ID (e.g. ab1234) unless you already had a WebAssign account. You should change your password after you first login. In case you need to register manually, this class is called "PHY 1020 section 02". Additional information is available in your WebAssign Student Guide."

### **Wayne State Planetarium Shows**

Two shows will be offered during the course of the semester for viewing by Physics 1020 students. They are over a two-week period. Attendance at a show (you can only see each of the two shows once) is worth 1% of your final total. These are a great way to get extra credit, and are highly recommended. Sign up will be off the planetarium homepage: <http://planetarium.wayne.edu/> and follow the WSU Students link. Further details will be given later in the semester.

### **Grade Scale**

The entire aggregate of points from the assignments, quizzes, exams, planetarium credit will be used to determine your final grade. I will announce the breakdown in class, once the clicker and webassign systems get going.

### **Advice**

While this is not a particularly difficult class, there is a large amount of material. Get the text, read it before class, go to class, do well on the i>clicker quizzes, take notes, listen to and participate in the discussion. This is the opportunity to ask about things that are either interesting or not clear to you. Do so often. To make things easier, I do post the lectures in blackboard after I give them in class. They can be found in the "Content" link on the class blackboard page. These are valuable for going over your notes. Do not ignore the class until just before exams. Spending

some time on it regularly is the best way to stay on top of the material.

Often I may go too fast in lecture. Do not hesitate to ask me to go over something again, slow down, or simply to leave a slide up for you write something down.

**Tentative Day by Day Schedule: This will change as we progress through the semester. I will let you know what to read a few days before each class.**

**1) Jan 9<sup>th</sup>**            Introductions and Prologue

**2) Jan 14<sup>th</sup>**           Sections 1.1 – 1.4

**3) Jan 16<sup>th</sup>**           Sections 2.1 – 2.4

**4) Jan 21<sup>st</sup>**           Sections 2.5 – 2.9

**5) Jan 23<sup>rd</sup>**           Sections 3.1 – 3.4

**6) Jan 28<sup>th</sup>**           Sections 3.5 – 3.8

**7) Jan 30<sup>th</sup>**           Sections 4.1 – 4.4

**8) Feb. 4<sup>th</sup>**           Sections 4.5 – 4.7

**9) Feb. 6<sup>th</sup> Midterm 1**

**10) Feb. 11<sup>th</sup>**        Sections 5.1 – 5.4

**11) Feb. 13<sup>th</sup>**        Sections 5.5 – 5.7

**12) Feb. 18<sup>th</sup>**        Sections 6.1 – 6.3

**13) Feb. 20<sup>th</sup>**        Sections 6.4 – 6.6

**14) Feb 25<sup>th</sup>**        Sections 7.1 – 7.3

- 15) Feb. 27<sup>th</sup> Sections 7.4—7.6
- 16) Mar 4<sup>th</sup> Sections 8.1—8.3
- 17) Mar 6<sup>th</sup> Sections 8.4—8.7
- 18) Mar. 11<sup>th</sup> **SPRING**
- 19) Mar. 13<sup>th</sup> **BREAK !!**
- 20) Mar. 18<sup>th</sup> **Midterm 2**
- 21) Mar. 20<sup>th</sup> Sections 9.1—9.3
- 22) Mar. 25<sup>th</sup> Sections 9.4—9.7
- 23) Mar. 27<sup>th</sup> Sections 10.1—10.4
- 24) Apr. 1<sup>st</sup> Sections 10.5—10.8
- 25) Apr. 3<sup>rd</sup> Sections 11.1—11.3
- 26) Apr. 8<sup>th</sup> Sections 11.4—11.7
- 27) Apr. 10<sup>th</sup> Sections 12.1—12.2
- 28) Apr. 15<sup>th</sup> Sections 12.3—12.5
- 29) Apr 17<sup>th</sup> Epilogue and review
- 30) Apr. 22<sup>nd</sup> **Study day**
- 31) Apr. 24<sup>th</sup> **FINAL EXAM**