

**Instructor:** Dr. W.J. Llope, Associate Professor

**Office:** 347 Physics

**E-mail:** [wjlope@wayne.edu](mailto:wjlope@wayne.edu) (please put "**PHY1020**" in the Subject line!)

**Office Hours:** W 11-12 am or by appointment (subject to change).

**Class Details:** 08/31/16 - 12/20/16

**Location & Time:** 2025 Science Hall, MWF 9:35 - 10:30 AM

**Text:** Ostdiek & Bord: "Inquiry into Physics", 7th edition

**Final Exam:** Friday, 12/16/2016, 8:00am-10:30am, 2025 SCI

If you do not need a bound textbook, you can get a free ebook with the enrollment to WebAssign. We will also be using clicker (iClicker-2) for reading quizzes and other assignments.

### Assignments and Exams:

Physics can only be learned working at it. Read the text *before each lecture*. Complete the regular assignments. These assignments will be accessible via the WebAssign and the Blackboard systems. You therefore need access to a computer. If you do not own a computer, the undergraduate library has a computer lab for your use or you can use computers available at every public library.

- Assignments:
  - Web-based: Need to register for WebAssign, Wayne State ID, access to Blackboard.
- In class: Reading, quizzes and other assignments (need to activate iClicker-2)
- Exams: 3 midterm exams (two best count towards grade), one final exam
- Additional homework: Not counted for grade, but necessary preparation for exams

Grading schedule:	With lab	No lab	Grade determination: A: 90+ %, A-: 85-89% B+: 80-84%, B: 75-79%, B-: 70-74% C+: 65-69%, C: 60-64%, C-: 55-59% D+: 50-54%, D: 40-49% F: below 40%
WebAssign	16%	20%	
Two best midterm exams	44%	50%	
Final Exam	30%	30%	
Lab	10%	N/A	
Clicker questions	15%	15%	
<b>TOTAL</b>	<b>115%</b>	<b>115%</b>	
<b>OTHER BONUS</b>			
Third hourly exam	4%	4%	
Planetarium	1%	1%	

Hints for getting a good grade:

- Come to class. Pay attention (put phone away!). Ask questions if you do not understand.
- Do the reading assignments, quizzes, and homework.
- *You* are responsible for your grade. You will get a good grade if you come to class and do your work diligently. No excuses will be accepted at the end of the semester. Your grade will be determined fairly by your grades on the assignments and exams and *nothing else*.

### WEBASSIGN:

Weekly to bi-weekly assignments will be posted on WebAssign. (<http://webassign.net>), which 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 acquired separately from WebAssign; *in this case you will have access to a free interactive ebook*. Once you have the code, you should enroll in WebAssign. This class is called PHY1020 and the class key is:

**wayne 3213 2517**

Please also enter your student ID when registering to WebAssign.

### **CLICKERS:**

If you don't have i>Clicker2, it can be purchased at the University bookstore. You need i>Clicker-2 to be able to enter numeric characters for the questions asked during the lectures.

### **PLANETARIUM SESSION:**

Your instructor, along with the Department of Physics and Astronomy, is offering you a chance to learn more about the night sky and earn a bit of extra credit in the process. During the semester several 55 minute sessions will be held in the Wayne State University planetarium (in 0209 Old Main) for which you can earn 1% extra credit. For more information go to

<http://planetarium.wayne.edu/shows/index.php>

### **LABS:**

The lab portion of this class (if you signed up for it) is handled completely separately from this (lecture) portion. Any questions regarding the lab portion should be directed to your lab instructor. There are no lab meetings in the first ~2 weeks of the semester.

### **PHYSICS RESOURCE CENTER:**

If you need extra help, please visit the Physics Resource Center (Physics 172). At many times during the week, there are TAs sitting there that will help you for free. Come there with specific questions. The schedule for when there will be TAs at the PRC will be posted as soon as it is available.

### **THE RULES**

1. **Make-up midterm exams:** There will be **no make-up** midterm exams for any reason. Since we count the best two out of three midterms, if you have to miss one, we will just count that one as the one that will not enter your main grade. If you miss more than two midterms, you should consider dropping the class.
2. **Make-up final exam:** There will be **no make-up** or **early** final exam and it cannot be dropped. The date & time of the final exam is published in this syllabus and it is your responsibility to arrange work schedules, vacations etc., in such a way that you can take the final. If that is not possible, consider taking this class at a later date when you have sufficient time.
3. **Laboratory credit:** If you sign up for the 4 credit version of this class you are expected to participate in the laboratory. If you are signed up for the lab, you **MUST** complete all your lab assignments. You can drop two lowest scored lab reports, i.e. to have 10 out of 12 labs. However, if you miss more than 3 lab reports (i.e. submit less than seven reports altogether), you will receive a FAIL (F) for the entire course, even the lecture portion.
4. **Incomplete:** As a rule I will not hand out any incomplete grades. Make sure to complete all necessary work during the semester or, if that is not possible, drop the class.
5. **Non-participating students:** If you are enrolled in this class, but do not show up or produce insufficient work, you will receive a Fail grade (F). This grade is final and will not be changed at a later date. So, if you decide to not show up to class anymore make sure to drop the class!!
6. **Grades:** Grades will be determined by the scheme in this syllabus on a numerical basis only. I will not accept any special pleading at the end of the semester. You know what grade you need, so work for it!
7. **Bonus:** There will be no extra bonus beyond what is published in this syllabus.
8. **Mathematics:** This course expects that you can do arithmetic and simple algebra roughly at the level of high school that is required by the university for you to graduate. If you are not able to do algebra on this level, please consult a book, such as Schaum's outline "Beginning Algebra".
9. **Cheating:** Any actual or attempted cheating will automatically result in a Fail grade (F) for the entire course, and a report to the university for further disciplinary action.

**SCHEDULE: This schedule is subject to change, except for the holidays and the final exam.**

#	DAY	TOPICS	READING:
1	W 8/31	<i>Intro, Math, Physics, The "Scientific method", Syllabus</i>	2 - 9
2	F 9/2	<i>Units, conversions, time, frequency, period, position</i>	9 - 18
	M 9/5	<i>NO CLASS</i>	
3	W 9/7	<i>Speed, velocity, direction, vectors</i>	18 - 22
4	F 9/9	<i>Vectors, vector addition</i>	23 - 25
5	M 9/12	<i>Acceleration, free fall,</i>	25- 30
6	W 9/14	<i>Types of motion</i>	26 - 40
7	F 9/16	<i>Force, Newton's first law, mass</i>	46 - 57
8	M 9/19	<i>Newton's first law demonstration. Newton's second law.</i>	57 - 59
9	W 9/21	<i>Motions &amp; forces. Examples.</i>	60 - 66
10	F 9/23	<i>Newton's third law. Examples.</i>	67 - 69
11	M 9/26	<i>The law of universal gravitation.</i>	70 - 73
12	W 9/28	<i>Planetary orbits, tides</i>	73 - 79
13	<b>F 9/30</b>	<b>EXAM 1</b>	<b>Chapters 0-2</b>
14	M 10/3	<i>Conservation laws, linear momentum, impulse</i>	86 - 93
15	W 10/5	<i>Work, energy, potential &amp; kinetic energy, E conservation</i>	99 - 110
16	F 10/7	<i>Collisions, power</i>	111- 117
17	M 10/10	<i>Rotation and angular momentum</i>	118 - 121
18	W 10/12	<i>Matter, atoms, molecules, density, pressure</i>	128 - 146
19	F 10/14	<i>Fluid pressure, Archimedes Pascal Bernoulli principles</i>	147 - 163
20	M 10/17	<i>Temperature, thermal expansion, 1st law</i>	174 - 187
21	W 10/19	<i>Heat transfer, specific heat</i>	188 - 197
22	F 10/21	<i>Phase transitions, humidity, heat engines, 2nd law</i>	198 - 210
23	M 10/24	<i>Waves: amplitude, frequency, wavelength, reflection</i>	216 - 229
24	W 10/26	<i>Doppler effect, diffraction, interference,</i>	230 - 237
25	<b>F 10/28</b>	<b>EXAM 2</b>	<b>Chapters 3 - 6</b>
26	M 10/31	<i>Electricity, charge, Coulomb's law, electric field</i>	260 - 269
27	W 11/2	<i>Electric currents, Ohm's law, superconductivity</i>	271 - 275
28	F 11/4	<i>Circuits, power, AC, DC currents</i>	274 - 285
29	M 11/7	<i>Magnetism, electromagnetism, transformers</i>	292 - 305
30	W 11/9	<i>EM waves, blackbody radiation</i>	310 - 323
31	F 11/11	<i>Light, optics, polarization, diffraction, interference</i>	336 - 343
32	M 11/14	<i>Reflection, refraction, mirrors</i>	345 - 355
33	W 11/16	<i>Total internal reflection, lenses, image formation,</i>	356 - 364
34	F 11/18	<i>Lens formula, magnification, aberrations, dispersion, color</i>	364-367, 373-375
35	M 11/21	<b>EXAM 3</b>	<b>Chapters 7 - 9</b>
	W 11/23	<i>NO CLASS</i>	
	F 11/25	<i>NO CLASS</i>	
36	M 11/28	<i>Atomic physics, photons, blackbodies, photoelectric effect</i>	390 - 398
37	W 11/30	<i>Atomic spectra, Bohr model</i>	
38	F 12/2	<i>Quantum Mechanics, Atomic Structure</i>	405-415
39	M 12/5	<i>X-ray spectra, lasers, nuclear physics</i>	428-439, 439-458
40	W 12/7	<i>Special Relativity 1</i>	468-475
41	F 12/9	<i>Special Relativity 2</i>	468-475
42	M 12/12	<i>TBD</i>	
	T 12/13	<i>Study Day</i>	
	F 12/16	<b>FINAL EXAM (2025 SCI, 8:00-10:30am)</b>	<b>EVERYTHING</b>

**ACADEMIC CALENDER: Please review important dates below!**

**Academic and Registration Calendar 2016-2017** last revised 8/11/16

2016-2017 Academic Year	FALL 2016
Schedule of Classes Online	Mon Feb 29
Priority Registration	Mon Mar 28 - Sun Aug 21
Open Registration (Add'l \$35 Fee for Initial Registration)	Mon Aug 22 - Tue Aug 30
University Year Appointments Begin/End	Thu Aug 18
Classes Begin	Wed Aug 31
Holiday - University Closed	Mon Sep 5
Late Registration (Add'l \$70 for Initial Reg. only), and 1st Week Late Adds	Wed Aug 31 - Wed Sep 7
Late Registration (Add'l \$70 for Initial Reg. only), and 2nd Week Late Adds	Thu Sep 8 - Wed Sep 14
Last Day for Tuition Cancellation Full Term Courses/Census Date	Wed Sep 14
Early Academic Assessment	Wed Sep 14 - Tue Oct 11
Classes Dropped will not Appear on your Academic Record. You are Contractually Liable for Tuition of Dropped Classes During this Period.	Thu Sep 15 - Wed Sep 28
Instructor Approval Required to Withdraw from Classes. Select "Withdraw from a Class" on the Pipeline/Academica Student Menu; ***SMART Check*** is required.	Thu Sep 29 - Sun Nov 13
Degree Applications Due	Fri Sep 30
Last Day to Request Course Withdrawal	Sun Nov 13
Holiday - No Classes	Wed Nov 23
Holiday - University Closed	Thu Nov 24 - Sat Nov 26
Commencement	Sat Dec 10
Classes End	Mon Dec 12
Study Day	Tue Dec 13
Final Exams	Wed Dec 14 - Tue Dec 20