

Tentative Syllabus for Physics 390: Fall 2015

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**During class periods and during tests:
cell phones are to be switched off.**

Office Hours

I will schedule several office hour blocks. I will be very close to my office or research lab during these times. Otherwise, I will usually be close to my office or research lab. If you want to find me outside of office hours, make an appointment so that you will be sure to find me. My schedule is located on the physics home page which you may review to determine office hours.

Grading

As a general guide to grades, grades will be assigned as follows:

180-162] A	(161-144] B	(143-126] C	(125-108] D	<(107 F
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The final course grade may reflect subjective course aspects such as attendance and positive class participation.

In this course, you will have several grading opportunities. The various weight of each of these activities in your final point grade is shown below. You are required to attend each seminar session. If you miss a session, your grade will be reduced by 10 points.

Note: The timing is presented as {x:y} where x is for a 5 student schedule and y is a for a 6 student schedule. This may require adjustment if class size changes.

This class will consist of several {10:8} minute timed presentations of which {8:6} minutes is devoted to presentation and ≈ 2 minutes is devoted to question and answer sessions ({5:6} presentations for each class period). There will also be a formal presentation consisting of a total of 25 minutes and: 20 minutes will be devoted to a formal presentation based upon independent research on an approved physics topic and 4 minutes will be devoted to question and answer sessions. A formal paper covering the formal presentation will be due November 17. **As you can see, our time is tight so it is extremely important that you arrive on time and ready to begin. You must get your electronic presentations to me before class so that they can be ready to go at the correct time.**

Grades will be obtained as follows:

Each {8:6} minute presentation period provides a maximum of 10 points: 8 points total for a presentation and 2 points total for active class discussion.

Total for {10:8} minute presentations=100 points.

On the dates shown on the schedule, you will submit (electronically) required preliminary topics, updates or rough drafts. You will receive 2 points for each of these 9 submissions for a total **of 18 points**. The formal paper will provide you with an additional 22 **points**. The formal presentation will provide you with an additional **40 points**.

Total maximum course points: 100+18+22+40=180

Presentations will be graded for preparedness and correctness.

Do not try to give a presentation that you have not adequately prepared for! This means that you must normally set aside time to prepare your presentations each week.

Your topics for the {10:8} minute presentations will come from the areas of physics mentioned during the particular week. I will provide you with several topics within each area for your selection. Topics 8 and 9 will be self-chosen, subject to approval and must come from physics areas. The topic choice for the formal presentation is subject to professor approval and must come from physics areas.

Course Description

In this course, you will have an opportunity to gain experience with presentation of complex topics in physics. Topics will be at the level of each student's background in physics. Individually chosen topics may come from areas beyond general physics (such as modern physics), subject to approval.

Course Objectives

As a consequence of this course, you should obtain an enhanced understanding of the fundamentals of physics. In addition, you should come away from this course with an ability to discuss, among peers fundamental problems involving physical principles.

Course Prerequisites

Students in this course must have completed the following:

- (1) either Physics 210 or 240 (2) Physics 241
- (3) either Physics 220 or 250 (4) Physics 251

Text Book: There is no required text for this course.

You have many resources on the campus: the library, your colleagues and your professor. Your prime learning resource, however, must be considered to be the classroom: **punctual** and **complete** class attendance is expected. **Absences will negatively impact your final grade. Tardiness is considered to be an unexcused absence and will negatively impact your final grade.**

Attendance

The Lyon College Catalogue for 2015-2016 states:

Students are expected to attend all class periods for the courses in which they are enrolled. They are responsible for conferring with individual professors regarding any missed assignments. Faculty members are to notify the Registrar when a student misses the equivalent of one, two, three, and four weeks of class periods in a single course. Under this policy, there is no distinction between "excused" and "unexcused" absences. A reminder of the college's attendance policy will be issued to the student at one week, a second reminder at two weeks, a warning at three weeks, and notification of administrative withdrawal and the assigning of an "F" grade at four weeks. Students who are administratively withdrawn from more than one course will be placed on probation or suspended (see Academic Probation and Academic Suspension).

Academic Honesty

It is expected and encouraged that students in this class will work together on homework problems. If you use reference work, be sure to include proper references. On tests, students are required to keep notes and books closed except as instructed. **Your professor will supply all the paper needed for the tests.** Any questions during tests should be directed to the professor only. **CELL PHONES AND OTHER WIRELESS OR NETWORKED DEVICES (INCLUDING COMPUTERS) MAY NOT BE USED DURING class except as required for class participation, When you use references in your work, they must be properly referenced; both in talks and in written work.**

All graded work in this class is to be pledged in accordance with the Lyon College Honor Code.

"Students seeking reasonable accommodations based on documented learning disabilities must contact the Office of Academic Services at 307-7332."

Withdrawal Deadlines

Last day to drop with no record of the course is 31 August 2015.

Last day to drop with a W is 21 October 2015.

Syllabus statement recommended by the Office of Civil Rights

Title IX and Lyon's policy prohibit harassment, discrimination and sexual misconduct. Lyon encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to Clarinda Foote, Title IX Coordinator, or Patrick Mulick, Dean of Students and Title IX Investigator, about what happened so they can get the support they need and Lyon can respond appropriately. Lyon is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource (Chaplain, Counselor, or Nurse). As a faculty member, I am required to report possible Title IX violations and must provide our Title IX coordinator with all relevant details. I cannot, therefore, guarantee confidentiality.

CLASS SCHEDULE / OFFICE HOURS FALL 2015

**Office
Derby 248**

**General Lab
Derby 148**

**Research Lab
Derby 219**

PROFESSOR Stuart Hutton

Monday	Tuesday	Wednesday	Thursday	Friday
8:00-8:50 PHY250.01 Fundamentals of Physics I Derby 011	8:00-9:15	8:00-8:50 PHY250.01 Fundamentals of Physics I Derby 011	8:00-9:15	8:00-8:50 PHY250.01 Fundamentals of Physics I Derby 011
9:00-9:50 PHY220.01 Gen Physics I Derby 011	9:30-10:45	9:00-9:50 PHY220.01 Gen Physics I Derby 011	9:30-10:45	9:00-9:50 PHY220.01 Gen Physics I Derby 011
10:10-10:50 Office Hours Derby 248		10:10-10:50 Office Hours Derby 248		10:10-10:50 Office Hours Derby 248
11:00-11:50	10:50-11:50 PHY390.01 Physics Seminar Derby 021	11:00-11:50	11:00-11:50	11:00-11:50
12:00 - 12:50		12:00 - 12:50		12:00 - 12:50
1:00-1:50	1:00-2:15	1:00-1:50	1:00-3:50 PHY241.01 Fund Physics I Lab Derby 148	1:00-3:50 PHY241.02 Fund Physics I Lab Derby 148
2:00-2:50		2:00-2:50		
3:00-3:50	2:30-3:45			
4:00-4:50		4:00-4:50		

Tentative Schedule for Physics 390: Fall 2015 (Schedule for 5 or 6 students enrolled)			
Date	Events	Topics (presented on dates shown)	who presents what
August 18, 2015	Organizational meeting	Assignment of topics for next classes	
August 25, 2015	10 minute presentations 01	Mechanics I kinematics conservation of energy conservation of momentum uniform circular motion Newton's laws Statics Preliminary topic submission	ALL CD SG NW BL ML
September 1, 2015	10 minute presentations 01	Mechanics II Torque and Equilibrium vibrations gravity non-uniform circular motion simple harmonic oscillation rigid body rotational motion Revised prelim topic submission	ALL CD SG BL ML NW
September 8, 2015	10 minute presentations 02	Waves traveling pulses standing waves transverse waves on strings sound TEM waves longitudinal waves Revised prelim topic submission	ALL ML SG BL NW CD
September 15, 2015	10 minute presentations 03	Thermodynamics linear expansion ideal gas internal energy entropy adiabatic ideal gas Carnot Cycle and heat engine Formal topics submission for approval	ALL ML NW BL SG CD
September 22, 2015	10 minute presentations 04	Electrostatics Coulomb's law Electric dipole Gauss's Law Electrostatic Potential Capacitance and energy density Resistance and current Formal Progress Update 01	ALL SG BL ML CD NW
September 29, 2015	10 minute presentations 05	Magnetism Ampere's law Law of Biot-Savart Solenoid magnetization Inductance and energy density Displacement current Formal Progress Update 02	ALL SG BL CD ML NW
October 6, 2015	10 minute presentations 06	Optics Snell's Law images formed with thin lenses images formed with spherical mirrors dispersion and prisms polarization and Brewster's angle interference of light waves Formal Progress Update 03	ALL SG CD MW BL NW
October 27, 2015	10 minute presentations 07	Misc. Physics Topics I (Student Selected) Formal Progress Update 04	ALL NW:BL:ML:CD:SG
November 3, 2015	10 minute presentations 08	Misc. Physics Topics II (Student Selected)	ALL ML:CD:BI:SG:NW

		Formal Progress Update 05	
November 10, 2015	10 minute presentations 09	Misc. Physics Topics III Formal Paper Rough Draft Due	ALL CD:BL:SG:NW:ML
November 17, 2015	25 minute presentations	2x All Formal Topic Papers Due	ML:SG
November 24, 2015	25 minute presentations	2x	CD:BL:NW
December 1, 2015	25 minute presentations	2x	tbd

Student Learning Outcomes for the Physics Program at Lyon College

1. Students who complete physics seminar (Phy390) are able to:
 - 1a. give short technical presentations over topics from general physics.
 - 1b. investigate topics in other areas of general physics and provide short technical presentations over these areas.
 - 1c. investigate one topic in greater depth, providing a formal paper covering an in-depth presentation. The formal paper will consist largely of notes accompanying an in-depth 25 minute presentation.
 - 1d. experience being attentive listeners and to be able ask physically relevant questions in an audience of peers.
 - 1e. construct simple electronic presentations for a technical audience of peers.

Physics 390: Seminar Presentation Rubric

Category	3	2	1	0	Totals
Preparedness	Student completely prepared and has clearly rehearsed	Student is mostly prepared but could have rehearsed more	Student is somewhat prepared but should have rehearsed	Student is unprepared	
Speaks Clearly	Speaks clearly and distinctly during entire presentation. Makes good contact with audience.	Speaks clearly and distinctly most of the time, a few words poorly said or misused. Makes good contact with audience.	Difficult to hear and understand most of the time and little contact with audience	Mumbles and / or can not be understood. Avoided contact with audience.	
Visuals	Pdf, board work, and other props appropriate and correct.	Pdf, board work, and other props mostly appropriate with a few shortcomings including incorrect physics.	Pdf, board work, and other props relatively few and some may not represent correct physics.	Pdf, board work, and other props poorly done, with incorrect physics presented.	
Time Limits	Presentation of appropriate length, including time for questions.	Presentation too short or too long. time for questions ok.	Presentation way too short or way too long. time for questions ok.	Presentation way too short or way too long. time for questions not ok	
Comprehension	Student accurately answers all reasonable questions. Student shows full understanding of topic.	Student accurately answers most reasonable questions. Student shows good understanding of topic.	Student accurately answers some reasonable questions. Student understanding is shaky on parts of topic.	Student can not accurately answer reasonable questions. Student does not really understand topic.	
Participation	Listens intently, asks good, relevant questions pertaining to the presentation.	Does not always listen and/or may ask irrelevant questions.	Listens but did not ask required questions.	Does not listen, shows interruptive behavior (including late arrival). Questions not asked or are irrelevant.	
Attendance		Student arrives on time and is present throughout all presentations.		Student misses any portion of seminar.	