

Formalities

If you'll just add the following text at the beginning of all your syllabi, you'll be good to go (this is the PREFERRED method so that any updates propagate to all syllabi:

Standard Lyon College Policies are incorporated into this syllabus and can be found at the following link: <http://www.lyon.edu/standard-course-policies>.

If you really just want to copy and paste all the policies into your syllabi instead (NOT preferred), you can, *but be sure and use the exact wording found at the link above and include all of it.*

Tentative Syllabus for Physics 390.01: Fall 2024

Professor: Dr. Stuart Hutton

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Phone: *.307.7560 Email: stuart.hutton@lyon.edu**

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

Class Meeting Details: [Location:Time] Derby 148:W 12:00-12:50

Grading

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

200-180] A	(180-160] B	(160-140] C	(140-120] D	<(120 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 is a for a 3 student schedule.
This may require adjustment if class size changes.

This class will consist of several **{10}** minute timed presentations of which **{8}** minutes are devoted to presentation and \approx **{2}** minutes is devoted to question and answer sessions (**{4}** presentations for each class period). There will also be a formal presentation consisting of a total of 20 minutes and: 18 minutes will be devoted to a formal presentation based upon independent research on an approved physics topic and 2 minutes will be devoted to a question and answer session. A formal paper covering the formal presentation will be due November 06. **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 **{10}** minute presentation period provides a (final) maximum of 10 points: 8 points total for a presentation and 2 points total for active class discussion.

Total for {10} minute presentations=(200/2) or 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 30 minute formal presentation will provide you with an additional **40 points**. The properly indexed compendium of your presentations is due on December 4, 2024 will provide you with 20 additional points.

Total maximum course points: (200/2)+18+22+40+20=200

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 (and practice) your presentations each week.

Your topics for the **{10}** 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, 9 and 10 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 or have credit for the following:

- (1) either Physics 210 or 240 (2) Physics 241
- (3) either Physics 220 or 250 (4) Physics 251
or permission of the professor.

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 and required.

Punctual and complete class attendance is expected. Absences will negatively impact your final grade. Use of a networked device to communicate (aside from downloading class materials) during class will be considered equivalent to an unexcused absence. Tardiness is considered to be an unexcused absence and will negatively impact your final grade. In general you do not have permission to enter the classroom after class has started. At no time during this class will you be permitted to text or access network infrastructure except when presenting. There is zero tolerance for this policy. If you violate this policy, you will be asked to leave and that day's presentation and credit will be considered to be an unexcused absence.

Academic Honesty

If you use reference work, **be sure to include proper references and these references must be visible during your presentation.** Your presentations must represent your unique work and thus simple copy and paste from sources is not permitted. Under the educational single use provision of copyright laws, you may at times use external material which is properly referenced in your presentation. Additionally you are expected to provide presentations that are unique; you may not simply replay presentations that you have previously presented. Practice talks in preparation for the weekly presentations is exempt from this requirement. You are, of course, permitted to ask me and your colleagues questions about presentations in their preparation. However the end result must represent your unique effort. Presentations must be unique for the particular presentation; this means you can not replay a previous presentation.

Maturity Expectations

Bathroom breaks: Bathroom breaks are sometimes necessary. In seminar, however, you are expected to be in the class for the entire period unless you have an accommodation from ODS. As a result, you are required to get your bathroom needs completed before or after class.

Texting/game playing: Students who text/game play during class are considered to have an unexcused absence, which will automatically lower your grade. If you are texting during physics seminar, you will be asked to leave.

Late Arrivals: Students arriving after the lecture has started are automatically considered as having an unexcused absence except in exceptional circumstances, and your grade will automatically be lowered. You will not be permitted to do a presentation on that day. Especially in seminar, you are absolutely required to arrive on time.

Other disruptive behavior: Students that are disruptive during other student presentations will be asked to leave and you will not receive credit for that day even if you have already given a presentation. Disruptive behavior includes tearing paper, texting, making noise, conversations and other inappropriate behaviors.

CLASS SCHEDULE / OFFICE HOURS Fall 2024

Professor: Stuart Hutton

Monday	Tuesday	Wednesday	Thursday	Friday
8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 007	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 007	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 007
9:00-9:50 PHY210.01 General Physics 1 Derby 007		9:00-9:50 PHY210.01 General Physics 1 Derby 007		9:00-9:50 PHY210.01 General Physics 1 Derby 007
10:00-10:50 Phy335.01 Modern Physics Derby 148	10:00 - 10:50	10:10-10:50 Office Hours	10:00 - 10:50	10:10-10:50 Office Hours
11:00-11:50 Office Hours	11:00-11:50 Phy335.01 Modern Physics Derby 148	11:00-11:50 Phy390.01 Seminar Derby 148	11-11:50	11:00-11:50
12:00-12:50	12:00-12:50	12:00 - 12:50	12:00 - 12:50 Phy321.01 Astrophotography Derby 148	12:00 - 12:50 SGA
	13:00-14:50	13:00-15:50 PHY241.01 Fundamentals of Physics Lab 1 Derby 148	13:00-15:50 PHY241.02 Fundamentals of Physics Lab 1 Derby 148	13:00-15:50 PHY241.03 Fundamentals of Physics Lab 1 Derby 148
14:00-14:50 Phy335.01 Modern Physics Derby 148				
	16:00-16:50 Div Meetings	16:00-16:50 P&T <u>Worthington</u>		

Tentative Schedule for Physics 390.01: Fall 2024

Date	Events	Topics (presented on dates shown)	who presents what
W August 21, 2024	Organizational meeting	Assignment of topics for next classes	
P1:August 28, 2024	8 minute presentations 01 Update 01	Mechanics I Statics Kinematics Motion Conservation of energy Conservation of momentum Uniform circular motion Newton's laws Preliminary topic submission	ALL
P2:September 04, 2024	8 minute presentations 02 Update 02	Mechanics II Torque and Equilibrium Rolling motion Gravity Non-uniform circular motion Simple harmonic oscillation Conservation of angular momentum Rigid body rotational motion Revised prelim topic submission	ALL
P3:September 11, 2024	8 minute presentations 03 Update 03	Waves Traveling pulses Standing waves Transverse waves on strings Sound TEM waves Longitudinal waves Energy and power transmission by waves Revised prelim topic submission	ALL
P4:September 18, 2024	8 minute presentations 04 Update 04	Thermodynamics Calorimetry linear expansion ideal gas internal energy entropy adiabatic ideal gas Carnot Cycle and heat engine Formal topics submission for approval	ALL
P5:September 25, 2024	8 minute presentations 05 Update 05	Electrostatics Coulomb's law Electric dipole Gauss's Law Electrostatic Field Electrostatic Potential Capacitance and energy density Resistance and current Formal Progress Update 01	ALL
P6:October 02, 2024	8 minute presentations 06 Update 06	Magnetism Ampere's law Law of Biot-Savart Solenoid magnetization Inductance Displacement current Electrostatic and magnetostatic energy density Formal Progress Update 02	ALL
P7:October 09, 2024	8 minute presentations 07 Update 07	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 Multiple reflections from plane mirrors Formal Progress Update 03	ALL
P8:October 16, 2024	8 minute presentations 08 Update 08	Misc. Physics Topics I (Student Selected) Formal Progress Update 04	ALL

P9:October 23, 2024	8 minute presentations 09 Update 09	Misc. Physics Topics II (Student Selected) Formal Progress Update 05:09	ALL
P10:October 30, 2024	8 minute presentations Update 10	Misc. Physics Topics III (Student Selected) All Formal Paper Rough Drafts Due	ALL
FP01:November 06, 2024	30 minute presentation	All Formal Topic Papers Due	tbd
FP02:November 13, 2024	30 minute presentation		tbd
FP03:November 20, 2024	30 minute presentation		tbd
Makeups: December 04	makeups		ALL

Physics 390: Seminar Presentation Rubric Fall 2024

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.	

Note that the maximum score per shorter presentation is 20 points. In the final grade calculation, the sum from all shorter presentations is scaled to give 10 points per shorter presentation in the final grade.

Student Learning Outcomes for the Physics Program at Lyon College Fall 2024

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.