Lyon College Course Syllabus

Course Number and Section: phy390.01DS

Course Title: Physics Seminar

Course Meeting Days/Times: M 2-2:50

Semester FALL
Year: 2020

Professor's Information

Name: Stuart Hutton
Office Location: Derby 248

Office Hours:
MWF 10-10:50

E-mail Address: Stuart.Hutton@lyon.edu

Phone Number: 870-307-7560

STANDARD POLICIES

Honor Code

All graded work in this class is to be pledged in accordance with the Lyon College Honor Code. The use of a phone for any reason during the course of an exam is considered an honor code violation.

Class Attendance Policy

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, except that a student may make up work missed during an excused absence. 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 Students who are administratively withdrawn from more than one course will be placed on probation or suspended.

Disabilities

If a student has a disability that qualifies under the American with Disabilities Act (ADA) and requires accommodations, they should contact the Office of Disability Services in the Morrow Academic Center for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, and/or chronic health disorders. Students can contact Office of Disability Services if they are not certain whether a medical condition/disability qualifies.

Location: Morrow Academic Center
Staff: Danell Hetrick, Director of Academic Support
Email: danell.hetrick@lyon.edu
Telephone: 870-307-7021

Harassment, Discrimination, and Sexual Misconduct

Title IX and Lyon's policy prohibit harassment, discrimination and sexual misconduct. Lyon encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to Dr. Patrick Mulick, Dean of Students and Title IX Coordinator, 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 incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident.

Tentative Syllabus for Physics 390.01: Fall 2020

Professor: Dr. Stuart Hutton
Office: Derby Center: 248 Research Lab: Derby 219: General Physics lab: 148
SMS: 307.***.8765 / lab email: lyonphysics@<*****.com> web: physics.lyon.edu
Phone: *.307.7560 Email: stuart.hutton@lyon.edu**

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

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

180-162]	(161-144]	(143-126]	(125-108]	<(107
A	B	C	D	F

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 is a for a 2 student schedule.
This may require adjustment if class size changes.

This class will consist of several **{15}** minute timed presentations of which **{12}** minutes are devoted to presentation and ≈ **{3}** minutes is devoted to question and answer sessions (**{2}** 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 5 minutes will be devoted to question and answer sessions. A formal paper covering the formal presentation will be due November 09.

Grades will be obtained as follows:
Each **{15}** 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 {15} 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 formal presentation will provide you with an additional **40 points**.

Total maximum course points: (200/2)+18+22+40=180

Presentations will be graded for preparedness and correctness. Refer to the rubric for more information here.
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 **{15}** 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.

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.

An important note about the unexpected

An event such as a thunderstorm at my or your house or internet difficulties may mean that we will need to reschedule talks for a particular date. We have enough room to do this so we will take advantage of that if the need arises. Doing virtual presentations is going to be new ground for everyone in this course, and we will modify as necessary. I fully expect that there will be technical difficulties that will arise.

CLASS SCHEDULE / OFFICE HOURS Fall 2020

Pandemic Version

Professor: Stuart Hutton

Monday	Tuesday	Wednesday	Thursday	Friday
8:00-8:50 PHY240.01 Fundamentals of Physics I	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I
9:00-9:50 PHY210.01 General Physics 1	9:30-10:00	9:00-9:50 PHY210.01 General Physics 1 Derby 011	9:30-10:00	9:00-9:50 PHY210.01 General Physics 1
10:10-10:50 Office Hours	10:00 - 10:50	10:10-10:50 Office Hours	10:00 - 10:50	10:10-10:50 Office Hours
11:00-11:50 PHY335.01 Modern Physics	11:00-11:50 Lunch	11:00-11:50 PHY335.01 Modern Physics	11:00-11:50 Lunch	11:00-11:50 PHY335.01 Modern Physics
12:00-12:50	12:00-12:50	12:00 - 12:50	12:00 - 12:50	12:00 - 12:50 SGA
13:00-13:30 Phy390.01DS Physics Seminar	13:00-14:50	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
	4-4:50 FPC			

Tentative Schedule for Physics 390DS.01: Fall 2020			
Date	**Events**	**Topics (presented on dates shown)**	**who presents what**
August 24, 2020	Organizational meeting	Assignment of topics for next classes	
P1:August 31, 2020	**15 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 7, 2020	**15 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 14, 2020	**15 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 21, 2020	**15 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 28, 2020	**15 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 5, 2020	**15 minute presentations 06** **Update 06**	**Magnetism** Ampere's law Law of Biot-Savert Solenoid magnetization Inductance Displacement current Electrostatic and magnetostatic energy density **Formal Progress Update 02**	ALL
P7:October 12, 2020	**15 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 19, 2020	**15 minute presentations 08** **Update 08**	**Misc. Physics Topics I** (Student Selected) **Formal Progress Update 04**	ALL
P9:October 26, 2020	**15 minute presentations 09**	**Misc. Physics Topics II** (Student Selected)	ALL

	Update 09	**Formal Progress Update 05**	
P10:November 2, 2020	**14 minute presentations** **10** **Update 10**	**Misc. Physics Topics III** (Student Selected) **All Formal Paper Rough Drafts Due**	ALL
FP01:November 9, 2020	**1 20 minute presentation**	**All Formal Topic Papers Due**	
FP02:November 16,2020	**1 20 minute presentation**		

Physics 390: Seminar Presentation Rubric Fall 2020

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 2020

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.