

Lyon College Course Syllabus		
Course: Cor100.16/FA19	Cor 100.16	T:11:00 - 11:50/Derby 148
Professor: Stuart Hutton	Office: Derby 248	Office Phone: ***.307.7560
Email: stuart.hutton@lyon.edu	Office Hours: MWF 10:00-10:50/AR	
Physics Email: lyonphysics@*****.***	Physics Web Gateway: physics.lyon.edu	Physics SMS: 307.***.8765

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 Students who are administratively withdrawn from more than one course will be placed on probation or suspended.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 Donald Taylor, Title IX Coordinator, or Patrick Mulick, Dean of Students and Title IX Deputy 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.

Withdrawal Deadlines

Last day to drop with no record of the course is **Tuesday September 03, 2019.**

Last day to drop with a W is Wednesday October 23, 2019.

Tentative Syllabus for Physics cor100.16: Fall 2019

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

Grading

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

360-325] A	(324-289] B	(288-253] C	(252-217] D	<(216 F
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The class will consist of instruction, hands on work, brief written reports, and some numerical and graphical analysis electronically.

Grades will be obtained as follows:

During each class period, you can obtain a maximum of 24 points with 15 class periods total.

A general approach to the grades provided in each class period are as follows:

6 points for completing the reading assignment.

6 points for an accepted electronic writing assignment.

6 points for in positive in class participation and teamwork.

6 points for items such as :

experimental participation, data analysis, completion of out of class research.

In the event that one of the areas does not occur during a given class period, the points for that event will be distributed to the other areas. In the event that one topic requires two class periods, the allocation will be combined between the two periods (for a total of 48 points). In the event that exceptional circumstances happen so that, for example, a week is missed due to flooding, the final grades will be prorated points total.

Course Description
Renewable Energy through Solar Thermal Physics
Stuart Hutton assisted by John Pruden

We will examine the physics of collection and conversion of solar radiation for thermal applications. We will examine this from the basis of fundamental physics and we will use the tools of physics. We will also be conducting lab experiments including the construction of the necessary components for thermal collection together with other fundamental experiments. Prerequisite: bring your interest. A desire to dominate the world while saving it is helpful. We will help you with the rest.

Course Objectives

Upon completion of this course, students should be able to:

SLO1: Demonstrate an understanding of the reality of the workload, in and out of the classroom.

SLO2: Establish the need for scholastic skills that may not have been employed in high school.

SLO3: Demonstrate an increase in motivation to become more self-led in their college learning.

We will be doing this in the context of learning about renewable energy through solar thermal applications.

Course Prerequisites

Bring your interest. A desire to dominate the world while saving it is helpful. We will help you with the rest. The materials we will be needing to use will be provided or you will need to research particular topics usually online.

Text Book:

There is no required text for this course.

Maturity Expectations

Bathroom breaks: Bathroom breaks are sometimes necessary. However, you are not permitted to use class time **repeatedly** for bathroom breaks. Without an accommodation from ODS, you are expected to be in class and not on a bathroom break. After several events of this nature, you will be considered as having an unexcused absence for the entire day and for each following event. In short: get your bathroom needs taken care of 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 text during this class, you will not do particularly well. In short, you will lose 6 points for that period.

Late Arrivals: Students arriving after the lecture has started except in exceptional circumstances are automatically considered as having an unexcused absence for the entire day and your grade will automatically be lowered. In short, you will lose 6 points for that period.

Other disruptive behavior: Students that are disruptive will be asked to leave and you will not receive any credit for that day. Disruptive behavior includes tearing paper, constant texting, making inappropriate noise, conversations and other disruptive behaviors. Additionally do not type on computers while I am speaking except as necessary to obtain materials from the internet.

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.

Note that missing 1 Cor100 class in a week is equivalent to a 1 week absence from a course. After 4 weeks of absences, you will be administratively dropped from the course.

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. There is zero tolerance for this policy.

Occasionally (as in usually) equipment may be present on the lab tables for the general physics labs. Do not molest this equipment!!! Additionally, the physics computers are to be used only for accessing material related to this course.

Academic Honesty

If you use reference work, **be sure to include proper references and these references must be visible at the end of your work.** 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. You are, of course, permitted to ask me, your student mentor and your colleagues questions In this context, presentation refers to electronically typed submissions. All the submissions must be completed in the class period, so it is extremely important to maintain concentration and efficiency in your work.

CLASS SCHEDULE / OFFICE HOURS Fall 2019

Office Derby 248		General Lab Derby 148		Research Lab Derby 219
PROFESSOR Stuart Hutton				
Monday	Tuesday	Wednesday	Thursday	Friday
8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 011	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 011	8:00-9:15	8:00-8:50 PHY240.01 Fundamentals of Physics I Derby 011
9:00-9:50 PHY210.01 General Physics 1 Derby 011	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 Derby 011
10:10-10:50 Office Hours Derby 248	10:00 - 10:50	10:10-10:50 Office Hours Derby 248	10:00 - 10:50	10:10-10:50 Office Hours Derby 248
11:00-11:50 Lunch	11:00 - 11:50 Cor100.16 Derby 148	11:00-11:50 Lunch	11:00-11:50 Lunch	11:00-11:50 Lunch
12:00 - 12:50 Phy390.01 Physics Seminar Derby 021	12:00-12:50 Lunch	12:00 - 12:50	12:00 - 12:50	12:00 - 12:50 SGA Derby 016
13:00-15:30 Phy335.01 Modern Physics Derby 021	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
16:00-16:50 FPC Derby 021				

Schedule for Cor100.16: Fall 2019: Revision 01

Standing homework assignment to be completed before the next meeting

For the following class period:

1. Read lab instructions for next class period.
2. Research and record at least one (online references are ok) source with scientific validity on next topic. You will use this (URL) as a reference in your weekly paragraph.

Week	Class events	Date	Cor100 topic	Solar Thermal Physics Topic
1	Class Initialization Credit for raft race	T August 20	Honor Code Writing Rubric	Computer usage Open Office usage Safety Regulations Lab Rubric What not to do in lab
2	Lab 01 black vs white temperature vs time for heating and cooling	T August 27		
	Labor Day Holiday	M September 02		
3	Lab 02 blackbody radiation Newton's law of cooling Evaporation as cooling	T September 03		
4	Lab 03 Greenhouse Effect (lab 04 if not rainy)	T September 10		
5	Lab 04 Measurement of motion of the Sun. (Lab 03 if lab 04 done)	T September 17		
6	Lab 05 What is energy? Solar constant	T September 24		
7	Lab 06 What is heat? 1 st law of thermodynamics	T October 01		
8	Lab 07 Density of water as a function of temperature	T October 08		
	Fall Break	October 14 - October 15		
9	Lab 08 Thermocline persistence	T October 22		
	Service Day	W October 23		
10	Lab 09 Thermosphon speed measurement (If rainy, then lab 10)	T October 29		
11	Lab 10 Which works better? A shiny back or a black back? Lab 09 if not done	T November 05		
12	Lab 11 Calculation of the efficiency of our solar panel heat engine	T November 12		
13	Lab 12 Putting it all together The elements of a functioning thermal solar system	T November 19		
14	Lab 13 Extensions to home pressurized water heating	T November 26		
	Thanksgiving	November 27-December 01		
15	Lab 14 Extensions to home heating	T December 03		

General Cor100 Writing Rubric

Purpose or Main Idea				
5 Purpose for the document is clear from the beginning and maintained throughout the paper.	4 Communicates a purpose for the paper but may not make it perfectly clear to the reader from the very beginning.	3 Shows some awareness of a purpose for the paper but may not effectively communicate that purpose to the reader.	2 Purpose/main idea for the paper that is identifiable but is not communicated in the most effective manner.	1 Vague idea of a purpose/main idea for the paper that is only marginally communicated.
Organization				
5 Well planned out and thought out. Organized in a way that keeps the reader engaged and ideas are linked together with proper transitions between paragraphs/sections of the paper.	4 Mostly well planned out and thought out. Shows competent organization but lacks some effective transitions and other means of organizing ideas so the main idea is fully supported.	3 Limited attempts to organize paper around a main idea/purpose. Paragraphs mostly stand alone and links among ideas are primarily absent.	2 Organization, while attempted, was unsuccessful. Paragraphs were simple in structure and missing transitions among ideas.	1 Attempts at organization, if evident, are confusing and disjointed. Links among ideas are absent entirely or misused in a way that creates confusion for the reader.
Content: Ideas, support, and evidence				
5 Exceptionally well supported main idea/purpose. Ideas are well defined and a variety of appropriate details are included to flesh out the argument/purpose of the paper. The support for the main idea/purpose is valid and specific.	4 Well supported main idea/purpose. Ideas are mostly well defined with some details used to support for the main idea/purpose. Supporting evidence is chosen with sufficient care.	3 Content is primarily sound but supporting evidence is not well integrated. Main idea/purpose is indirectly supported and the evidence provided is not specific enough to be a strong support for the stated argument.	2 A central idea is expressed, although it may be vague and include a few pieces of direct support and a great number of broad generalizations.	1 Lacks support for main idea/purpose. Includes a great many illogical generalizations for which no evidence is given.
Grammar and mechanics				
5 Excellent grammar, spelling, syntax and punctuation.	4 Very good grammar, spelling, syntax and punctuation; very few mistakes.	3 Adequate use of correct grammar, spelling, syntax and punctuation but more than a few mistakes.	2 Contains some serious errors in grammar, spelling, syntax and punctuation which may get in the way of fully understanding the paper.	1 Contains many serious errors in grammar, spelling, and punctuation that get in the way of fully understanding the paper.
presentation				
5 Obvious care was taken in preparing the document to fit the specifications of the assignment. Appropriate format was followed throughout the paper and is completely devoid of typing mistakes. The paper is also pledged.	4 Care was taken in preparing the document to fit the specifications of the assignment. Appropriate format was followed throughout most of the paper. There are one or two careless formatting/typing errors. The paper is also pledged.	3 Contains several (mostly common) typos/careless formatting errors OR formatting that is inconsistent across the paper. Paper does not show a pattern of mistakes or evidence of not following directions for the assignment. The paper is pledged.	2 Contains many typos/careless formatting errors OR formatting that is inconsistent across the paper. Paper shows a pattern of mistakes or evidence of not following directions for the assignment. The paper is pledged.	1 Shows little to no care for following the directions of the assignment with many careless mistakes and formatting errors. The paper is pledged.

Comments

Total Points 25 max

Grade=roundup(6/(total points))

Physics Lab Grading Rubric Fall 2019

Note: Each student has the opportunity to revise deficient portions of the lab report during the lab period except for teamwork, arrival and departure.

	1	0.5	0
Scientific Thought	Hypothesis in abstract and introduction. Supporting evidence (or non-supporting) discussed in conclusion.	Hypothesis in abstract and introduction but not relevant and supporting evidence (or non-supporting) not discussed in conclusion.	Hypothesis absent in abstract and introduction; Supporting evidence (or non-supporting) not discussed in conclusion
Critical thinking	Correct discussion of experiment, and how results relate to hypothesis.	Incomplete discussion of experiment and how results relate to hypothesis	poor or absent discussion of experiment, and how results relate to hypothesis.
Inquiry and Analysis	Complete discussion of experimental technique and data results	incomplete discussion of experimental technique and data results	poor or absent discussion of experimental technique and data results
Informational Literacy	Correct physical terminology contained in report. At least one reference present.	incomplete physical terminology contained in report. Reference present but not correct.	incorrect or absence of physical terminology contained in report. Reference not present.
Quantitative Literacy	Correct usage of calculations including spreadsheets	correct usage of calculations including spreadsheets but something significant missing	Absent or incorrect usage of calculations including spreadsheets
Teamwork	Successful team completion of lab		Unsuccessful team completion of lab
Arrival	on time		tardy or absent
Departure	Work space returned as it was when arriving		Workspace left in disorder upon departure
Overall report	All required elements present		Required elements missing.
Quality	experimental results presented without obvious errors		experimental results presented with obvious errors

Student Learning Outcomes for Cor100
In the context of Cor100.16:
Renewable Energy through Solar Thermal Physics

SLO1: Demonstrate an understanding of the reality of the workload, in and out of the classroom.

SLO2: Establish the need for scholastic skills that may not have been employed in high school.

SLO3: Demonstrate an increase in motivation to become more self-led in their college learning.

We will be doing this in the context of learning about renewable energy through solar thermal applications.

Safety regulations for General Physics Labs

- (1) Anytime springs are used in lab, safety goggles must be worn.
- (2) Anytime boiling water is used in lab, safety goggles must be worn.
- (3) You should not look at laser light or point it towards other people.
- (4) In the event of a spill (which will be water), dispense a towel from the spill kit (aka towel dispenser) and wipe up the spill.
- (5) The sink in the physics prep room is not a sink and should not be used as one.
- (6) Food and drink are not permitted in lab.
- (7) Appropriate clothing is required in lab although lab aprons are not required.

Attach this form to your email (as an extra attachment today) when you send in your introductory lab report. In your lab report, right below your name, you should say this:
I have read the safety regulations attached to this email.