

PHYS 350L: Energy Production Lab (Spring 2013)

Meeting Time and Place : Thursdays from 3:00 to 6:00 PM in room RHSC 304

Instructor: [James Neff](#) (SCIC 144; 953-5325; neffj@cofc.edu)

Office Hours: Mondays & Wednesdays: 3:00-3:45 PM ; Tuesdays: 12:15-1:00 PM

Course Objectives and Learning Outcomes: This is a 1-credit laboratory course to accompany PHYS350 Energy Production, so it shares the same set of goals, objectives, and learning outcomes. This is a new course and still under development, and Energy is a rapidly-changing field. So the specific topics to be covered will be selected both to supplement the lecture class and to best capture the interests and abilities of the students. About 1/3 of the semester will be devoted to "classical" lab experiments, 1/3 to activity-based experiments (e.g. tours of energy production facilities, group data gathering and calculation activities, etc.), and 1/3 to an individual project.

Individual Project and Presentation: You are required to design and develop a decent working experimental device based on alternative energy concepts. You may also design a device that saves conventional energy (e.g. electricity, heat, fuel, etc.). The final project is individual, so group work is not permitted. You are required to demonstrate a working device and make a formal PowerPoint presentation describing the working principles. The presentations will be scheduled near the end of the semester during the lecture period. Your presentation should be no less than 15 minutes (including a 2 or 3 minutes for questions and discussion). You will also submit (at the same time as your presentation) a formal write-up (5 to 10 pages) describing the motivation, working principles, design, and possible applications of your device.

Grading: Each of the classical labs will require a formal lab write-up (and possibly the submission of ancillary materials like spreadsheets). Each activity-based lab grade will be based on participation, effort, and in some cases on the quality of the group's overall product. Each week of classical labs and activity-based labs will be weighted equally in the final grade. The individual project will consume multiple lab periods and will be worth an equal proportion of your grade. It is especially important for the activities and individual project that you keep some appropriate form of "log book" fully documenting all of your efforts. I will scrutinize these in determining your final grade, so make sure they are legible and complete. If the final lab grade is included with the final grade from the lecture class, that grade will be weighted based on credit hours (i.e. 25% lab grade, 75% lecture grade).

Classical Labs; Based on Write-Up's	~ 30%
Activities (based on participation and log book)	~ 30%
Individual Project (based on product and log book)	~ 30%
Oral Presentation and Write-Up of Individual Project	10%

Special Needs: If you have any special needs or disabilities that might require special arrangements to be made for any aspect of this course, please let me know at the beginning of the semester.