SAMPLE COURSE OUTLINE

Course Code, Number, and Title:

PHYS 1124: Energy and Environment

Course Format:
[Course format may vary by instructor. The typical course format would be:]

Lecture 4 h + Seminar 0 h + Lab 2 h

Credits: 4 **Transfer credit:** For information, visit bctransferguide.ca

Course Description, Prerequisites, Corequisites:

This course is a quantitative examination of current energy use, resource limitations and environmental impacts, and possible future energy scenarios. The course examines the global energy context, energy fundamentals, current major energy sources such as fossil fuels, hydroelectricity, and nuclear energy, as well as rapidly developing sustainable energy sources such as solar, wind, tidal, ocean thermal, biomass, and geothermal. Energy conservation, individual actions, and energy plans and policies are also examined. Quantitative labs and field trips support the development of the concepts.

Prerequisites: Phys 12 with a minimum "B" grade or PHYS 1118 with a minimum "C" grade or a score of "80" on the Physics Diagnostic Test or permission of the department.

Corequisites: None

Learning Outcomes:
Upon successful completion of this course, students will be able to:

- Write short answers to quantitative questions about energy supply and use, including existing sources such as fossil fuels and hydro-electricity, as well as a range of renewable sources.
- Do calculations relating to energy supply and use.
- Complete measurements and calculations in the lab relating to energy supply and use.

Instructor(s): TBA
Office: TBA **Phone: 604 323 XXXX** **Email: TBA**

Office Hours: TBA

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Textbook and Course Materials:
[Textbook selection may vary by instructor. An example of texts and course materials for this course might be:}

Ristinen, R.A. & J.J. Kraushaar. “Energy and the Environment”. Wiley, NJ. 2006. Chapter 1-8, 10.

Mackay, D. J. C. “Sustainable Energy- without the hot air”. UIT, Cambridge, UK
(also available free on the web). 2009. Sections 1, 2, some of 3.

Note: *This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.*

Assessments and Weighting:
Final Exam 35%
Other Assessments %
(An example of other assessments might be:) %

Midterm Exam: 20%
Assignments: 15%
Lab work: 20%
Project: 10%

Additional Information:

Number of assignments: 10

Proportion of individual and group work:
Individual: 70%
Group: 30%

Grading System: Letter grade
Specific grading schemes will be detailed in each course section outline.

Topics Covered:
[Topics covered may vary by instructor. An example of topics covered might be:]

- Global and BC energy context: climate change; peak oil; the 100% renewable world: is it possible?
- Energy fundamentals; energy consumption in industrial societies; access to energy in the developing world
- Fossil fuels
- Electric power generation and transmission: hydro, coal, natural gas; smart electrical grid
- Solar energy: photovoltaic, solar thermal
- Wind energy
- Water energy: hydro, tidal, wave, ocean thermal
- Biomass, geothermal, geoexchange
- Nuclear energy
- Energy conservation; co-generation; Jevons paradox
- Energy for transportation: land, water, air
- Individual energy actions: home heating; electrical; transportation; leisure
- Energy plans and policies

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

E1003 - Student Code of Conduct
F1004 - Code of Academic Conduct
E2008 - Academic Standing - Academic Probation and Academic Suspension
E2006 - Appeal of Final Grade
F1002 - Concerns about Instruction
E2011 - Withdrawal from Courses

Departmental/Course Policies: