

PHS 505/CHM 594: ENERGY AND THE ENVIRONMENT (3 credits)

June 13-July 1, 2005. 8:00-12:00 M-F

ASU Main campus, Physical Sciences Center, room H-563.

schedule line #: 66563 / 69564

INSTRUCTOR: PROFESSOR WILLIAM GLAUNSINGER

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TEACHING ASSOCIATE: LORNA STULEN-GLAUNSINGER

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COURSE DESCRIPTION: This course provides a unique integrated approach to energy and its environmental impact that will help people make intelligent choices regarding the development of a more sustainable lifestyle. Course materials are custom-designed to benefit *all* high school science teachers. This class includes in-depth discussions of energy resources, production and use and their environmental consequences. Special features are presentations from experts, group research projects and class presentations, web resources, solar car project, interactive computer activities, and lesson plan development. Teachers are given the opportunity to pursue a topic of most interest to them.

COURSE TOPICS:

I. INTRODUCTION AND GLOBAL POPULATION ISSUES

II. FOSSIL FUELS & ENVIRONMENTAL IMPACT

III. NUCLEAR ENERGY & ENVIRONMENTAL IMPACT

IV. RENEWABLE ENERGY & ENVIRONMENTAL IMPACT

V. ENERGY USE

Question: obviously this course is valuable for chemistry and physics teachers, but why should biology and earth science teachers take it?

Answer: Biology and earth science teachers will benefit from this class, because every topic to be discussed involves principles from these two fields. For example, fossil fuels provide more than 2/3 of our current energy use. These fuels are derived from previously living plants and undergo a metamorphosis caused by extreme pressure and temperature differences within the earth. The understanding of this process has engaged many of the best minds in biology and earth science worldwide.

No math or physics prerequisites; however, a college chemistry course is strongly recommended as preparation.

Required materials: ring-binder notebook, blank CD. (No textbook)

Instructor profiles:

The Energy and the Environment class is taught by a husband and wife team, Dr. William Glaunsinger and Lorna Stulen-Glaunsinger. They reside in a small mountain community of Bonita Creek near Payson, Arizona. They have designed and constructed an energy-efficient Santa Fe style home that uses passive solar heating and innovations in water collection and conservation. They have several organic vegetable gardens that are nourished from compost. They are currently constructing a greenhouse to extend the growing season.

Bill is an Emeritus Professor of chemistry and biochemistry at ASU; and he has received numerous awards and honors, including distinguished teaching and research awards. In 2004 he received the International Scientist of the Year Award and the American Medal of Science. Lorna has been a middle school science teacher and Department Chair and has received district teaching awards as well as an Intel Technology Innovation Grant for the integration and use of computers in science laboratory experiments. In 2004-05 Bill and Lorna served as Judging Chairs for the Arizona 2005 Intel International Science and Engineering Fair.

Teachers' comments about "Energy & the Environment":

- *Your course was, for me, the most worthwhile course I took in the entire MNS program ... the content was in my opinion the most relevant to what should be core applications of ideas presented in a high school science program.*
- *I enjoyed the Energy and Environment course immensely. I will be doing the solar car activity we did last summer with my elective science class soon. I have also reinforced energy concepts throughout the curriculum. We now have a recycling program at the school. I am in the planning stages of revamping the life science program to center around the environment. Needless to say, *this course had a tremendous impact on me.**