May 2015 Progress Report

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Research Interests and Contact Information

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Description: This project creates a 4 credit hour elective course on energy sustainability offered by the Public Utility Research Center to be taught in the Warrington College of Business Administration (WCBA), a non-credit course offered online, and a video archive that can be used for multiple purposes, including allowing future UF students to access the course online if there are sufficient resources.

Project Start Date: 1/1/2014

Project Development Period: 8/1/2015

Summary
The 4 credit hour economics elective course on the economics of energy sustainability (GEB 4930) was taught in the Fall 2014 and Spring 2015 terms. The course was offered by the Warrington College of Business at the University of Florida. The last offering of the course was recorded so that a non-credit course can be offered online, and a video archive can be used for multiple purposes, including allowing future UF students to access the course online if there are sufficient resources. One of the benefits to the state of the video archive, is that Florida citizens will be able to become better informed about topics related to the economics of energy sustainability.

The course was targeted to upper level undergraduates who had taken Principles of Microeconomics. Most students who registered were Economics majors, but the course also attracted students from the following majors: Marketing, Psychology, Sustainability and the Built Environment, Political Science, Telecommunications, Information Systems, General Business Administration, and Sustainability Studies. Enrollment consisted of 23 students in the Fall term, and 28 in the Spring term.

The course had two exams and a 12-15 page final student project. The project consisted on having students research a sustainability topic and present their results in 10 minute presentations to the class. Students chose to cover a wide ranging set of topics which included: Solar power, Wind power, Sustainability of electrified rail transport in Florida, Nuclear power, Sustainability of agriculture in Florida, Carbon tax, Bioenergy, Biofuel, Energy Reform, EPA's clean power plan, Electric cars, Green Roofs, Natural Gas use in Florida, Ocean Current potential in Florida, Waste Heat Recovery, Natural Gas use in Fleet Transportation, Water Scarcity and Agricultural Irrigation issues in Florida, Sustainability in Urban Environments, Ramifications of Animal Agriculture, Sustainability in the Supply Chain, Biogas, Florida's Coral Reef, Sustainable Architecture, and Sustainability in Aquaculture/Aquaponics.

After all the presentations were completed in the Fall term, four students were selected for a panel on Energy Sustainability at the Bob Graham Center for Public Service which took place on January 15th, 2015. The event was publicized via email to various departments and had relatively high attendance (roughly 50 attendees), it lasted for 2 hours. Attendees included professors and staff members from several departments, parents and family members of the presenters, the general public and students. The event was open to the general public. One of the benefits of this public event to the general Florida public was that people from outside of the University of Florida had access to free presentations on topics of energy sustainability. Attendees asked questions and seemed engaged with the topics.

Picture taken from the Bob Graham Website showing the Bob Graham Center Energy Sustainability Panel.

The course was taught without a textbook. Instead, journal articles and other electronic sources were used in addition to a few book chapters. PURC's Body of Knowledge on Infrastructure Regulation was made available for background reading.

The following topics were covered in the lectures: Infrastructure Utility Market Structure, Energy Sustainability, Electricity Mix, Cost Benefit Analysis, Environmental Policies, Coal, Taxes and Subsidies, Energy Efficiency, Off Grid Solar (applied to poor rural areas), Economics of Climate Change, Renewable Energy Generation, Biofuels, Value of Solar, Transportation, Pollution Abatement, Environmental Law, Public Economics aspects of sustainability issues, Nuclear power, Political Economy aspects of sustainability issues, Intermittency and its Economic Implications, and Cap and Trade.

The course also had several guess lecturers present topics related to sustainability. The topics covered in these guest lectures were (note: only the Challenges in CO_2 abatement lecture was recorded): Clean Air Act Legislation (from an environmental engineering perspective), Challenges in CO_2 Abatement, and the use of Climatology models in hydroelectric dam storage use. The Spring 2015 also attended a public lecture on Smart Grids.