

**NEW COURSE PROPOSAL**

PROGRAM: BUSINESS AND ECONOMICS

**1. Catalog Description of the Course.** *[Include the course prefix, number, full title, and units. Provide a course narrative including prerequisites and corequisites. If any of the following apply, include in the description: Repeatability (May be repeated to a maximum of \_\_\_ units); time distribution (Lecture \_\_\_ hours, laboratory \_\_\_ hours); non-traditional grading system (Graded CR/NC, ABC/NC). Follow accepted catalog format.]*

**ECON 464. NATURAL RESOURCE ECONOMICS (3)**

Three hours of lecture per week.

Prerequisite: ECON 310 or 329

Microeconomics and capital theory applied to problems of conserving and managing natural resources. Analysis of public policies affecting renewable and nonrenewable resources including price controls, taxation and leasing. Representative topics include: forestry, fishery, energy, water and mineral economics.

**2. Mode of Instruction.**

	Units	Hours per Unit	Benchmark Enrollment
Lecture	<u>3</u>	<u>1</u>	<u>25</u>
Seminar			
Laboratory			
Activity			

**3. Justification and Learning Objectives for the Course.** (Indicate whether required or elective, and whether it meets University Writing, and/or Language requirements) *[Use as much space as necessary]*

Natural Resource Economics is a survey course that examines the use of natural resources within our economic system. It examines both renewable (for example, water, renewable energy, forestry and fisheries) and non-renewable resources (coal, crude oil, natural gas and metals). It is an applied intermediate level microeconomics course. It is an elective course in both the Environmental Science and Resource Management major and the Economics minor.

Students who successfully complete this course will be able to:

- Use the three components of an economic optimization problem to define economic optimization problems involving natural resources.
- Solve economic optimization problems using the technique of marginalist decision-making.
- Perform calculations using the mathematics of finance including compounding (compound interest and future value) and discounting (present value).
- Use the tools from the mathematics of finance and economic optimization to determine the optimal usage of natural resources across time.
- Use the model of markets (supply and demand) to predict natural resource pricing and usage.
- Use the model of markets to predict the effects of government policy on natural resource pricing and usage.

**4. Is this a General Education Course**                      **NO**

**5. Course Content in Outline Form.** *[Be as brief as possible, but use as much space as necessary]*

*Introduction to Economic Optimizat*on

The three components of economic optimization problems

Marginalist decision-making

Applications involving the use of natural resources

*Introduction to the Mathmatics of Finance*

Compounding and discounting  
 Applications involving the timing of natural resource usage  
*The Model of Markets (Supply and Demand)*  
 The nature of demand  
 The nature of supply  
 Price and output determination using supply and demand  
 Analysis of government natural resource policy using supply and demand  
*Analysis of Natural Resources (topics may vary, examples listed below)*  
 Renewable resources  
   Water  
   Renewable energy- Solar power, wind power, tidal power and the like  
   Forestry  
   Fisheries  
 Non renewable resources  
   Onshore and offshore oil and natural gas  
   Coal  
   Metals

**6. References.** [Provide 3 - 5 references on which this course is based and/or support it.]

Clark, Colin. *Mathematical Bioeconomics*, 2<sup>nd</sup> edition. Wiley. 1990. (classic reference, advanced)  
 Howe, Charles. *Natural Resource Economics*. Wiley. 1979. (classic reference)  
 Muraoka, Dennis. "A Student's Guide to Economic Optimization." 2002.  
 Muraoka, Dennis. "A Student's Guide to Capital Theory and Intertemporal Choice." 2002.  
 Nicholson, Walter. *Intermediate Microeconomics and Its Application, 8th Edition*. Harcourt. 1999.  
 Thomas H. Tientenberg, *Environmental and Natural Resource Economics*, 6<sup>th</sup> edition, Addison- Wesley, 2002.

**7. List Faculty Qualified to Teach This Course.**

Professor Dennis Muraoka

**8. Frequency.**

a. Projected semesters to be offered: Fall   x   Spring        Summer       

**9. New Resources Required.**

None.

**10. Consultation.**

Attach consultation sheet from all program areas, Library, and others (if necessary)

**11.** If this new course will alter any degree, credential, certificate, or minor in your program, attach a program modification.

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Proposer of Course

Date