

MAR 26 2007

OFFICE OF THE
SENATE COUNCIL

APPLICATION FOR NEW COURSE

1. Submitted by College of AGRICULTURE Date March 7, 2006
 Department/Division offering course Agricultural Economics

2. Proposed designation and Bulletin description of this course

a. Prefix and Number AEC 503 b. Title* Price Theory and Applications

*NOTE: If the title is longer than 24 characters (including spaces), write
 A sensible title (not exceeding 24 characters) for use on transcripts _____

c. Lecture/Discussion hours per week 3 d. Laboratory hours per week 0

e. Studio hours per week _____ f. Credits 3

g. Course description

This course uses calculus to develop core concepts in microeconomics and show how they can be applied to agricultural and natural resource issues. A central objective of this course is to link mathematical techniques with economic analysis to show students that calculus provides an efficient way to study producer and consumer behavior.

h. Prerequisites (if any)

ECO 201 and MA 113

i. May be repeated to a maximum of _____ (if applicable)

4. To be cross-listed as

 Prefix and Number

 Signature, Chairman, cross-listing department

5. Effective Date _____ (semester and year)

6. Course to be offered Fall Spring Summer

7. Will the course be offered each year? Yes No
 (Explain if not annually)

8. Why is this course needed?

Undergraduate in AEC who intend to go on to graduate school need a more rigorous microeconomics course than is currently available in either Ag Econ or Economics. In addition, a significant number of our incoming Masters students will benefit from taking the course prior to enrolling in the required ECO 601 - Advanced Microeconomics class.

9. a. By whom will the course be taught? Dr. David Freshwater

b. Are facilities for teaching the course now available? Yes No
 If not, what plans have been made for providing them?

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10. What enrollment may be reasonably anticipated? 10-12

11. Will this course serve students in the Department primarily? Yes No

Will it be of service to a significant number of students outside the Department?
If so, explain. Yes No

Students in Economics who wish to take a more rigorous intermediate microeconomics course are welcome.
Economics has been contacted about this.

Will the course serve as a University Studies Program course? Yes No

If yes, under what Area? _____

12. Check the category most applicable to this course

traditional; offered in corresponding departments elsewhere;

relatively new, now being widely established

not yet to be found in many (or any) other universities

13. Is this course applicable to the requirements for at least one degree or certificate at the University of Kentucky? Yes No

14. Is this course part of a proposed new program:
If yes, which? Yes No

15. Will adding this course change the degree requirements in one or more programs?
If yes, explain the change(s) below (NOTE -- If "yes," a program change form must also be submitted.) Yes No

16. Attach a list of the major teaching objectives of the proposed course and outline and/or reference list to be used.

18. If the course is 400G or 500 level, include syllabi or course statement showing differentiation for undergraduate and graduate students in assignments, grading criteria, and grading scales. Check here if 400G-500.

19. Within the Department, who should be contacted for further information about the proposed course?

Name David Freshwater Phone Extension 7-1872

APPLICATION FOR NEW COURSE

Signatures of Approval:

[Signature]
Department Chair

3-7-06
Date

[Signature]
Dean of the College

11/30/06
Date

[Signature]
*Undergraduate Council

11/2/06
Date of Notice to the Faculty
3/20/07
Date

[Signature]
*Graduate Council

Date
Date

*Academic Council for the Medical Center

Date

*Senate Council (Chair)

Date of Notice to University Senate

*If applicable, as provided by the Rules of the University Senate

ACTION OTHER THAN APPROVAL

**AEC 503 Price Theory and Applications in Agricultural Economics
Fall 2007**

Instructor: David Freshwater
409 C. E. Barnhart
257-1872
dfresh@uky.edu

Class Meeting Times: MWF 11:00 - 11:50 227 C.E. Barnhart

Course Description:

This course uses calculus to develop core concepts in microeconomics and show how they can be applied to agricultural and natural resource issues. A central objective of this course is to link mathematical techniques with economic analysis to show students that calculus provides an efficient way to study producer and consumer behavior.

Prerequisites: ECO 201 and MA 113.

Course Objectives:

This course has three main objectives:

The first is to provide a bridge for first year graduate students who have only been exposed to a low level algebra-based undergraduate intermediate micro theory course, such as AEC 303 or ECO 401, to an advanced micro class like ECO 601, which is the first graduate course in micro theory. If you are a graduate student who has recently taken at least a full year of calculus and did very well in intermediate micro you should probably not be in this course since you already have the technical skills to master ECO 601.

The second objective is to provide advanced undergraduate students with a more mathematically rigorous, intermediate microeconomics course that is calculus based as an alternative to the standard algebra based course. This will provide undergraduates who intend to proceed to a graduate degree with the ability to master an advanced microeconomics course, such as ECO 601.

In addition to covering microeconomic theory a third objective of the course is to provide an introduction to computational economics using *Mathematica*. *Mathematica* is one of a number of programs that provide analytical or numerical solutions to economic problems. These programs are useful ways to see how changes in various parameters affect outcomes, as well as providing rapid solutions that can avoid often tedious, mathematical calculations. The only way to learn *Mathematica* is by using it. The internal logic of the program is not very hard, but it is also not very intuitive at first. Do the tutorials and try to solve problems. If you fall behind you will not catch up. On most Fridays we will have a "lab session" where we solve problems using *Mathematica*.

Student Learning Outcomes

Students completing this course will

- have a solid understanding of core microeconomic theory
- be able to use mathematical forms to represent key microeconomic concepts
- have mastered skills in the use of Mathematica
- be able to apply microeconomic concepts to issues in agriculture

In addition, Graduate Students completing this course will

- have enhanced their skills to the level required for advanced graduate level microeconomics courses
- be able to identify appropriate applications of micro-theory in agricultural economics

Texts:

There is one required book for the course and a required computer program. I know this is a financial burden but please buy both. Since there are no other readings you will have to read the book to master the material. Binger and Hoffman is a good advanced undergraduate text that uses calculus and will provide you with a useful tool when you take an advanced micro course.

Brian Binger & Elizabeth Hoffman
Microeconomics With Calculus 2nd edition
Addison Wesley, 1998

Wolfram Research is a classic example of a price discriminating firm. *Mathematica* is sold at very different prices to different people and you can decide how much you want to pay. The student version is reasonably priced, but the cheapest option is to buy a 6 month license. There is no good reason to buy the program unless you think you will use it later. Go to www.wolfram.com to investigate their pricing structure. Note price discrimination is a topic we will discuss in the class. Also note Wolfram makes it tempting to buy instead of lease because the price is close enough to the rental fee to encourage ownership.

There are a number of resources that can be consulted for additional information. For more help with the mathematical review a good book is

M. Pemberton and N. Rau
Mathematics for Economists
Manchester University Press: Manchester UK 2001

For those who want to look at a different way of organizing microeconomics *Quantum Microeconomics with Calculus* offers a downloadable exhaustive review of micro concepts using calculus. It is a big file and the organization of the book is unusual, but the ideas are clearly developed – and it is free. www.smallparty.org/yoram/quantum

A more traditional approach is found in the book is R. Preston McAfee, *Introduction to Economic Analysis*. As McAfee notes there are no pictures in the book but there are lots of equations with good explanations. This is not the principles book you remember. McAfee's book is used in a number of graduate micro courses around the country.
<http://www.hss.caltech.edu/~mcafee/Classes/Intro/IEA.pdf>

Grading:

Since this is a 500 level course it is available to undergraduate and graduate students. University regulations require that different grading procedures be used for each group. This will be accomplished by graduate students being assigned additional questions on homework assignments and different sections on tests. Lectures will be common to both groups.

There will be two tests and a final exam. There will also be eight assignments. Each assignment will be given to you on a Friday and is due at the beginning of class on the following Monday. Late assignments will receive a 30% grade reduction, i.e. I will subtract 30% from the grade assigned.

Tests 15% each	30%
Assignments 5% each	40%
Final	30%

Grading Scale:

Undergraduates	Graduate Students
A 86-100%	A 90-100%
B 76-85%	B 80-89%
C 65-75%	C 65-79%
D 50-64%	E less than 65%
E less than 50%	

All the usual University regulations for student conduct apply in this class, as do University penalties. It is your responsibility to learn these regulations and follow them.

Topics and Timing:

Week 1 & 2	Mathematical Review and <i>Mathematica</i> - Chapters 1-3
Week 3	Consumer Preference Theory – Chapter 5
Week 4 & 5	Individual and Market Demand – Chapter 6 and 7
Week 6	Compensated Demand – Chapter 8 and first midterm
Week 7	Production Theory – Chapter 10
Week 8	Cost Functions – Chapter 11
Week 9	Profit Maximization and the Competitive Firm – Chapter 12 & 13
Week 10	General Equilibrium with Competitive Markets – Chapter 14
Week 11	Monopoly – Chapter 15 and second midterm
Week 12	Oligopoly – Chapter 16
Week 13	Time Allocation and Labor Supply – Chapter 17
Week 14	Intertemporal Decisions – Chapter 18
Week 15 & 16	Uncertainty – Chapter 19 and 20

RECEIVED

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UNIVERSITY SENATE ROUTING LOG

Proposal Title: New Course – Agricultural Economics 503: Price Theory and Applications

Name/email/phone for proposal contact: Dr. David Freshwater; dfresh@uky.edu;

Instruction: To facilitate the processing of this proposal please identify the groups or individuals reviewing the proposal, identify a contact person for each entry, provide the consequences of the review (specifically, approval, rejection, no decision and vote outcome, if any) and please attach a copy of any report or memorandum developed with comments on this proposal.

Reviewed by: (Chairs, Directors, Faculty Groups, Faculty Councils, Committees, etc)	Contact person Name (phone/email)	Consequences of review:	Date of Proposal Review:	Review Summary Attached? (Yes/No)
Dept of Agricultural Economics	Dr. Lynn Robbins 257-5762 lrobbins@uky.edu	Approved	3/7/2006	No
College of Agriculture Undergraduate Curriculum Committee	Dr. Mike Mullen 257-3430 Mike.mullen@uky.edu	Approved	Oct 24, 2006	Minutes included.
College of Agriculture Graduate Curriculum Committee	Dr. Mike Mullen 257-3430 Mike.mullen@uky.edu	Approved	Oct 24, 2006	Comments and vote included.
College of Agriculture Faculty Approval	Dr. Mike Mullen 257-3430 Mike.mullen@uky.edu	Approved. Very few faculty responded.	Nov. 8 th , 2006	Yes, copy of comments and vote included.

UG Curriculum Committee Meeting
October 24, 2006
3:30 PM
341 CEBA

Members Present: Carl Dillon, Roberta Dwyer, Charles Fox, Louise Gladstone, Michael Mullen, Todd Pfeiffer, Horst Schach, Herb Strobel (representing Mark Williams), Myrna Wesley, Deborah Witham

Members Absent: Larry Grabau, Clair Hicks, Susan Skees, Donna Smith, Mark Williams

Mike Mullen called the meeting to order. Discussion began regarding the proposed new course AEC 503. The changes that were requested by the committee at the September 26th meeting have been made. In addition, the prerequisite has been changed to MA 113 as suggested by Roberta Dwyer. The committee approved the revised proposal.

Discussion began regarding the proposed new degree program in Sustainable Agriculture (SAG). Mike Mullen spoke with the SAG committee and it was decided to first offer SAG as an individualized curriculum under the Bachelor of Science in Agriculture. In doing this, the SAG prefix for the new courses will first be established then a move will be made towards establishing the new degree program. The revised proposal requests approval for new courses SAG 101, 201, 395, 397, and 490; approval of Cross-listing of PLS 386 as SAG 386; approval of a new interdisciplinary minor in Sustainable Agriculture; approval of SAG 201 as Writing Intensive Course to satisfy Graduation Writing Requirement; and approval of SAG 101 as a USP course.

Horst Schach expressed concern that a lot of energy will be going into a minor instead of a major which may result in a dilution of the program. Herb Strobel stated that having a minor makes the program more accessible to students in non-agriculture majors. Roberta Dwyer expressed concern that in dropping the Chemistry labs and adding the Biology labs, students will be graduating with this degree without knowing how to use a microscope. Mike Mullen stated that ENT 300 and the PPA class will give students this exposure. Deborah Witham expressed concern about recruitment of students into the program. She is concerned that high school student will not know about the program. Mike Mullen stated that the Office of Academic Programs is committed to this program and has already begun distribution of recruitment materials. Todd Pfeiffer suggested that SAG 395 include the language that it is a variable hour course and can be repeatable up to a maximum number of hours. Horst Schach questioned when the degree program is anticipated to be proposed and that we may want to investigate having the program included in the Academic Common Market. The committee approved the revised proposal with changes to the language associated with SAG 395.

The ASC/FSC 395 proposal that requested the credit hours for be changed from 1-2 to 1-4 was approved.

Mike Mullen discussed the new web system that is available now for curriculum reviews. He is anticipating using this mechanism for voting purposes in the future for minor issues. He will not be sending emails with the proposals as attachments any longer.

The next meeting will be November 7th at 3:30 in 341 CEBA if needed.

Meeting adjourned.