

UNDERGRADUATE HANDBOOK

Department of Resource Economics

Consumer and Family Economics
Food Marketing Economics
Managerial Economics
Natural Resource Economics

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September 2009

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Overview of Undergraduate Programs and Related Career Opportunities

The Department of Resource Economics is an academic unit within the College of Natural Resources and the Environment at the University of Massachusetts Amherst.

Students in the Department of Resource Economics choose among four options: Consumer and Family Economics, Food Marketing Economics, Managerial Economics in Food and Resource Industries, and Natural Resource Economics.

Students in all four options take a common core of 11 courses plus the junior-year writing course. Departmental core courses have been selected to provide the basic tools of economic theory and quantitative analysis and a perception of how our economic system works. They also provide a base of understanding on which to build an applied economics specialization. Ten additional courses are required for each option. Departmental option requirements enable students to focus course work on particular career specialties. Some major career opportunities in each option are identified below. Although most Department graduates accept jobs upon graduation, a substantial number continue their education in graduate school. Students who are considering going to graduate school in any field of economics should supplement Departmental requirements with additional math courses. Consult with your advisor and note section IIC on page 5 regarding additional recommended courses.

Career Opportunities

Consumer and Family Economics

The Consumer and Family Economics option focuses on the economic needs and functions of individuals and families. Students are prepared to mediate between the consumer and various financial and business institutions as financial counselors and consumer-affairs specialists. This option also provides students with a strong foundation in social and behavioral sciences that will prepare them for careers in the areas of family financial management and consumer policy. Graduates may also become Certified Financial Planners.

Food Marketing Economics

Food marketing employs more people than any other single industry in the nation. There are opportunities for careers in the procurement, processing, packaging, advertising, and retail merchandising of food. This expanding industry is becoming dependent upon professional management.

The Food Marketing Economics option provides students with a basic knowledge of economics, marketing, and business management and the skills required to apply that knowledge to food marketing situations. Career opportunities include sales, managerial, and research positions with consulting firms, food manufacturers, food brokers, food wholesalers, food retailers, and trade associations. There are also opportunities with government, research, and regulatory agencies serving the public.

Managerial Economics in Food and Resource Industries

The Managerial Economics option is intended for students who seek training in applied economics and quantitative methods for use in business decision making. Students acquire skills in linear programming, econometrics, forecasting, production economics, and market demand analysis. Computer applications are emphasized. Microeconomic models and case studies drawn from the natural resources and food distribution systems are used to demonstrate how the decision maker can operate effectively within a complex economy consisting of millions of businesses and thousands of markets. The influence of government and trade regulations and the role of risk and uncertainty receive special attention.

Career opportunities include research, planning, marketing, and managerial positions in a wide range of firms, especially in food and natural resource related industries. Typical job activities include: management, environmental consulting, energy demand analysis, market research, financial analysis, and strategic planning.

Natural Resource Economics

The Natural Resource Economics option prepares students for making public and private decisions about environmental and natural resource issues. Increasing human populations accompanied by expanding incomes worldwide are creating ever increasing pressures on land, water, atmosphere, and energy resources. Thus, allocation, management, and protection decisions are of paramount importance. We are observing increased public support, expanded governmental involvement, and a growing environmental industry to address issues related to natural resource depletion, global warming, and expanding human populations.

The fundamental resource problem is how the decisions of one individual or group affect others. Students study the problems and possible solutions in such areas as water quality and supply, air quality, land use, pesticide and other hazardous material policy, solid waste disposal, and fishery, forest and wildlife management. The training provides for careers in research, planning, education, and administration. Potential employers include federal, state, or community governments, consulting firms, and private business firms.

Summary of Undergraduate Requirements

I. University Requirements

A. University Graduation Requirements

1. 120 graduation credits.
2. Minimum cumulative average of 2.0.
3. Completion of General Education requirements as described below.
4. Completion of college requirements. The College of Natural Resources and the Environment has no college-wide graduation requirements.
5. Completion of the requirements of a major. RES-ECON major requirements are detailed below.

B. University General Education.

The General Education Requirements consist of courses with General Education designations in the following curriculum areas.

Writing – The Freshman Writing requirement is satisfied by College Writing (CW) taken during the freshman year or by exemption from the requirement through the Placement Exam, SAT/Achievement test scores, or Advanced Placement test score. The Junior Year Writing requirement (which does not carry a General Education designation) is part of the requirements for each student's major.

Six Social World Courses – Students are required to take two courses in the Arts (AT or AL), one of which must be in Literature (AL); one course in Historical Studies (HS); two courses in the Social and Behavioral Sciences (SB); and one additional course (beyond these requirements), which may be in any of the areas within the Social World (AL, AT, HS, or SB), or an Interdisciplinary (I) course.

Social and Cultural Diversity – Students must take two Diversity courses. One must focus on Global Diversity (designated G) and the other a U.S. Diversity (designated U). (This applies to all freshmen starting fall 2002 and all other students thereafter; continuing students can take any combination of G and U courses, provided they total to two courses.)

Three Biological and Physical World courses – This requires at least one course in each of the Biological Sciences (BS) and Physical Sciences (PS). The third course may be either BS or PS.

Basic Math Skills (Tier I) – A student can be exempted from the Basic Math Skills requirement by achieving a sufficiently high score on the Mathematics Placement Exam or the Basic Math Skills (Tier I) Exemption Exam. Students not exempted by examination or transferable credit must take one Basic Math Skills (R1) course.

Analytic Reasoning (Tier II) – This requirement is fulfilled by completion of one Analytic Reasoning (R2) course.

Interdisciplinary courses – A student may substitute up to three interdisciplinary courses (I) for some General Education requirements, except for CW, R1, and R2. Up to three ‘I’ courses may be substituted in the other areas, subject to the restriction that all students must take at least one course in each of AL, HS, SB, BS, and PS. An ‘I’ course which has a Social and Cultural Diversity designation (IG or IU) may also be used to fulfill a Diversity component.

IMPORTANT RESTRICTIONS CONCERNING GENERAL EDUCATION COURSES:

1. Only one course in the student’s major department may be counted toward satisfaction of the following General Education requirements: AL, AT, HS, SB, BS, PS, or R2. If the student uses one course in the department to fulfill one of these requirements, and that course does not have a Diversity designation (i.e., is not designated as G or U), the student may use a second course in the major department to fulfill one of the two Diversity requirements. However, the second departmental course may not fulfill any other requirement, such as the SB requirement. At least one Diversity requirement must be fulfilled outside the major department.
2. A General Education requirement will NOT be fulfilled by a course for which a “pass” grade (P) is recorded. If you have taken a General Education course on a pass/fail basis, and a P is recorded on your transcript, you need the permission of your Dean to have the P changed to a letter grade. Forms for this are available from the Undergraduate Deans. If you receive your Dean’s permission and have the P changed to a letter grade, the course will then count toward fulfilling your General Education requirements.

II. RES-ECON Departmental Requirements

NOTE: Most Resource Economics courses are taught either fall or spring AND all upper level Resource Economics courses carry prerequisites (sometimes several!). See page 6 for a summary. You must prepare a plan of study for all semesters through graduation to insure that you can meet departmental requirements.

A. RES-ECON Departmental Core Requirements – required by all options (11 courses plus the junior year writing course).

1. RES-ECON 102, Introduction to Resource Economics. ECON 103 may be substituted.
2. An introductory course in the department other than the requirement of the student’s option*. (See next pages.) Introductory courses are: RES-ECON 121, Hunger in a Global Economy; RES-ECON 140, Managing Your Own Business; RES-ECON 162, The Consumer in Our Society; RES-ECON 241, Introduction to Food Marketing Economics; RES-ECON 262, Environmental Economics; and RES-ECON 263, Natural Resource Economics.
3. RES-ECON 112, Computing: Foundations to Frontiers.
4. RES-ECON 211, Introductory Statistics for the Life Sciences or RES-ECON 212, Introductory Statistics for the Social Sciences. STATISTC 240 may be substituted.
5. One Calculus course – either MATH 127, Calculus for the Life and Social Sciences or MATH 131, Calculus I.
6. ECON 104, Introduction to Macroeconomics.
7. ECON 204, Intermediate Macroeconomic Theory.
8. RES-ECON 305, Price Theory (Intermediate Microeconomics). ECON 203 may be substituted.
9. RES-ECON 312, Introductory Econometrics.
10. RES-ECON 313, Quantitative Methods in Applied Economics.
11. COMM 260, Public Speaking.
12. SCH-MGMT 310, Management Communications (General Education junior year writing course).

* RES-ECON 162 is required in the Consumer and Family Economics option. Therefore, students in this option cannot use this course as a core requirement. Similar reasoning applies to RES-ECON 241 in the Food Marketing option and to RES-ECON 262 and RES-ECON 263 in the Natural Resource Economics option.

B. RES-ECON Departmental Option Requirements (10 courses). There are four options within the Department of Resource Economics: Consumer and Family Economics, Food Marketing Economics, Managerial Economics in Food and Resource Industries, and Natural Resource Economics. Each has its own set of ten specified courses in addition to the departmental core listed above. These requirements are identified on the following pages.

C. Additional Recommended Courses (not requirements)

1. For students considering graduate work, the following courses are strongly recommended:
 - a. MATH 128, Calculus (continuation of MATH 127) or MATH 132, Calculus II
 - b. MATH 233, Multivariate Calculus
 - c. MATH 235, Introduction to Linear Algebra

D. Other RES-ECON Departmental Requirements

1. Departmental requirements may not be taken pass/fail.
2. The grade point average of all courses taken to satisfy departmental requirements (in parts IIA and IIB above) must be 2.0 or better.
3. The student is responsible for following and completing department requirements.
4. Any exception to departmental requirements must be approved by the Academic Advisor and Undergraduate Program Director. A waiver form must be completed and filed in the student's academic folder.

III. Summary of Graduation Requirements for a Student Majoring in RES-ECON

1. University Requirements	36 Credits
2. Department Requirements	
a) Department Core	33
b) Junior Year Writing Course	3*
c) Option Requirements	30
Total Department Requirements	66
3. Free Electives	18**
Total Graduation Credits	120

* The Junior Year Writing course, shown as a department requirement, is also a University General Education requirement. Thus, in reality the University requires 39 credits.

**The number of free elective credits will usually be greater than 18 because some departmental requirements may also be counted toward University General Education requirements. These include MATH 127 or 131 (R2), ECON 104 (SB), and one department course: either RES-ECON 102 (SB) or 121 (SBG) or 211/212 (R2) or 262 (SB) or 263 (SB). (RES-ECON 121 may also be used additionally to fulfill a General Education Global Diversity requirement.) Typically, then, the number of free electives would be 29.

Resource Economics Courses: Semesters Offered & Prerequisites

Semester(s) Offered	Res-Econ Course #	Course Name	Prerequisites
Fall & Spring	102	Introduction to Resource Economics	
Fall	112	Computing: Foundations to Frontiers	
Fall	121	Hunger in a Global Economy	
Spring	140	Managing Your Own Business	
Spring	142	People In Organizations	
Fall (every year) & Spring (in odd-numbered years)	162	The Consumer in Our Society	
Fall & Spring	211	Introductory Statistics for the Life Sciences	
Fall & Spring	212	Introductory Statistics for the Social Sciences	
Spring	241	Introduction to Food Marketing Economics	RES-ECON 102 or ECON 103.
Spring	262	Environmental Economics	
Fall	263	Natural Resource Economics	
Fall & Spring	305	Price Theory	RES-ECON 102 or ECON 103; MATH 127 or MATH 131
Spring	312	Introductory Econometrics	RES-ECON 102 or ECON 103; RES-ECON 211 or 212 or STATISTC 240; RES-ECON 112 or consent of instructor
Fall	313	Quantitative Methods in Applied Economics	RES-ECON 211 or 212 or STATISTC 240
Spring	324	Small Business Finance	RES-ECON 102 or ECON 103
Fall	343	Food Merchandising	RES-ECON 102 or ECON 103; RES-ECON 241
Fall	360	Personal & Family Finance	RES-ECON 102 or ECON 103; MATH 127 or MATH 131 or consent of instructor
Spring (in even-numbered years)	362	Consumer Protection & Legislation	RES-ECON 162
Spring	397A	Economics of Contemporary Information Tech	RES-ECON 102 or ECON 103
Spring	428	Managerial Economics	ACCOUNTG 221 or RES-ECON 324 or FINOPMGT 301; RES-ECON 305 or ECON 203; RES-ECON 312; RES-ECON 313
Fall	452	Industrial Organization	RES-ECON 305 or ECON 203
Spring	453	Public Policy in Private Markets	RES-ECON 452 or consent of instructor
Spring (in odd-numbered years)	460	Family in Economic Systems	RES-ECON 305 or ECON 203 or consent of instructor
Spring	462	Experimental Economics	RES-ECON 305 or ECON 203
Spring (in even-numbered years)	470	Family Economic Policy: Issues & Implications	RES-ECON 162; RES-ECON 360 or consent of instructor
Spring	471	Benefit-Cost Analysis of Natural Res Programs	RES-ECON 305 or ECON 203
Fall	472	Advanced Topics in Res & Env Economics	RES-ECON 305 or ECON 203

Consumer and Family Economics Option Requirements

NOTE: Most Resource Economics courses are taught either fall or spring AND all upper level Resource Economics courses carry prerequisites (sometimes several!). See page 6 for a summary. You must prepare a plan of study for all semesters through graduation to insure that you can meet departmental requirements.

- Students in this option take the following four courses plus six courses selected from the list in Part 2, in addition to the 12 departmental core courses. Also, Part 3 indicates that an internship is required.

RES-ECON 162	The Consumer in Our Society
RES-ECON 360	Personal and Family Finance
RES-ECON 460	Family Economics
RES-ECON 470	Family Economic Policy: Issues and Implication
- Select six courses from the following course list. Other courses not on this list may be substituted with the approval of the advisor. Note: Prerequisites may be required in some cases. Students can refine their area of specialization by selecting all or most of these six courses according to the groups below:

For students who want to focus on Family Economics and Policy:

RES-ECON 428	Managerial Economics
SOCIOL 222	The Family
SOCIOL 327	Social Change
SOCIOL 341	Social Welfare
ECON 341	Labor Economics
ECON 348	Political Economy of Women
POLISCI 280	Public Policy
POLISCI 385	Comparative Public Policy

For students who want to focus on Family Financial Management:

RES-ECON 324	Small Business Finance
ECON 313	Public Finance
ACCOUNTG 221	Introduction to Accounting
FINOPMGT 301	Corporation Finance
FINOPMGT 310	Capital Markets and Institutions
FINOPMGT 320	Investments
FINOPMGT 330	Corporate Risk Management

For students who want to focus on Consumer Economics:

RES-ECON 343	Food Merchandising
RES-ECON 362	Consumer Protection and Legislation
RES-ECON 452	Industrial Organization
RES-ECON 453	Public Policy Affecting the Food Industry
ECON 308	Political Economy of the Environment
ECON 311	Money and Banking
POLISCI 280	Public Policy
MARKETNG 301	Fundamentals of Marketing
MARKETNG 410	Consumer Behavior

- Internship: An internship is required. (9-12 credits)

Food Marketing Economics Option Requirements

NOTE: Most Resource Economics courses are taught either fall or spring AND all upper level Resource Economics courses carry prerequisites (sometimes several!). See page 6 for a summary. You must prepare a plan of study for all semesters through graduation to insure that you can meet departmental requirements.

1. Students in this option take the following six courses plus four courses selected from the list in Part 2, in addition to the 12 departmental core courses.

RES-ECON 241	Introduction to Food Marketing Economics
RES-ECON 343	Food Merchandising
RES-ECON 452	Industrial Organization in Resource Economics
RES-ECON 453	Public Policy in Private Markets
MANAGMNT 301	Principles of Management
MARKETNG 301	Fundamentals of Marketing

2. Select four courses from the following course list. Students may wish to organize their choices to complete a career emphasis. The following guide shows possible career emphases and the letter used to identify appropriate courses for each. Students who are not specializing choose any four courses with the approval of their advisor. Other courses may be substituted with the approval of the advisor.

A. Management	C. Marketing	E. Public Policy
B. Labor Relations	D. Marketing Research	

School of Management Courses

(A,C)	ACCOUNTG 221	Introduction to Accounting I
(A,C)	ACCOUNTG 222	Introduction to Accounting II
(A)	FINOPMGT 301	Corporation Finance (or RES-ECON 324)
(A,E)	MANAGMNT 260	Introduction to Law
(A,B)	MANAGMNT 314	Human Resource Management
(A)	MANAGMNT 330	Organizational Behavior
(A)	MANAGMNT 365	Business and Its Environment
(B)	MANAGMNT 444	Management – Union Relations
(C,D)	MARKETNG 410	Consumer Behavior
(C,D)	MARKETNG 412	Marketing Research
(D)	MARKETNG 421	Product Strategy
(C,D)	MARKETNG 422	Promotional Strategy
(C)	MARKETNG 425	Sales and Distribution Strategy
(C)	MARKETNG 437	International Marketing
(A,C)	MARKETNG 441	Marketing Management

Social Science Courses

(C)	ECON 322	International Trade
(B)	ECON 330	Labor in the American Economy
(B)	ECON 341	Labor Economics
(E)	POLISCI 280	Public Policy
(C)	SOCIOL 327	Social Change
(A,B,E)	SOCIOL 386	Complex Organizations

Food and Natural Resources Courses

(A)	RES-ECON 324	Small Business Finance (or FINOPMGT 301)
(C,E)	RES-ECON 362	Consumer Protection and Legislation
(A,C,D)	RES-ECON 397A	Economics of Contemporary Information Technology
(A,E)	RES-ECON 428	Managerial Economics in Food and Resource Industries
(C,D)	RES-ECON 462	Experimental Economics
(A,B,C,D)	FOOD-SCI 265	Survey of Food Science

Managerial Economics in Food and Resource Industries Option Requirements

NOTE: Most Resource Economics courses are taught either fall or spring AND all upper level Resource Economics courses carry prerequisites (sometimes several!). See page 6 for a summary. You must prepare a plan of study for all semesters through graduation to insure that you can meet departmental requirements.

1. Students in this option take the following six courses plus four courses selected from the list in Part 2, in addition to the 12 departmental core courses.

RES-ECON 324	Small Business Finance (or FINOPMGT 301 Corporation Finance)
RES-ECON 428	Managerial Economics in Food and Resource Industries
RES-ECON 452	Industrial Organization in Resource Economics
RES-ECON 453	Public Policy in Private Markets
ACCOUNTG 221	Introduction to Accounting I
MANAGMNT 301	Principles of Management

2. Select four courses from the following course list. Other courses not on this list may be substituted with the approval of the advisor.

RES-ECON Courses

RES-ECON 343	Food Merchandising
RES-ECON 362	Consumer Protection and Legislation
RES-ECON 397A	Economics of Contemporary Information Technology
RES-ECON 462	Experimental Economics
RES-ECON 471	Benefit-Cost Analysis of Natural Resource Programs

SCH-MGMT Courses

ACCOUNTG 222	Introduction to Accounting II
FINOPMGT 310	Capital Markets and Institutions
MANAGMNT 314	Human Resource Management
MANAGMNT 444	Management-Union Relations
MARKETNG 301	Fundamentals of Marketing
MARKETNG 410	Consumer Behavior
MARKETNG 412	Marketing Research
MARKETNG 425	Sales and Distribution Strategy
MARKETNG 441	Marketing Management

Economics Courses

ECON 311	Money and Banking
ECON 321	International Monetary Theory
ECON 322	International Trade
ECON 330	Labor in the American Economy
ECON 341	Labor Economics

Other Courses

SOCIOL 327	Social Change
SOCIOL 386	Complex Organizations

Natural Resource Economics Option Requirements

NOTE: Most Resource Economics courses are taught either fall or spring AND all upper level Resource Economics courses carry prerequisites (sometimes several!). See page 6 for a summary. You must prepare a plan of study for all semesters through graduation to insure that you can meet departmental requirements.

1. Students in this option take the following five courses plus five courses selected from the list in Part 2, in addition to the 12 departmental core courses.

RES-ECON 262	Environmental Economics
RES-ECON 263	Natural Resource Economics
RES-ECON 471	Benefit-Cost Analysis of Natural Resource Programs
RES-ECON 472	Advanced Topics in Resource and Environmental Economics
One of:	ENVIRSCI 213, Introduction to Env. Policy or POLISCI 382, Env. Policy

2. Select five courses from the following course list. The following provides some suggestions although other courses may be chosen with approval of the advisor. Students who wish to organize their choices to complete a career emphasis should consult with their advisor to identify the appropriate courses.

Physical and Biological Science

BIOLOGY 524	Coastal Plant Ecology
ENVIRSCI 214	Principals of Environmental Biology
ENVIRSCI 315	Principals of Environmental Toxicology and Chemistry
<i>Other 300 – 500 level Environmental Science Courses</i>	
GEO-SCI 285	Environmental Geology
GEO-SCI 485	Applied Environmental Geology
ENV-HLTH 562	Air Quality Assessment

Forestry and Wildlife

FOREST 540	Forest Resources Management
FOREST 577	Ecosystem Modeling and Simulation
W&FCONSV 261	Wildlife Conservation
W&FCONSV 564	Wildlife Habitat Management
W&FCONSV 571	Fisheries Science and Management
W&FCONSV 577	Ecosystem Modeling and Simulation

Public Policy and Business

ECON 308	Political Economy of the Environment
ECON 313	Public Finance
ENVIRDES 547	Theory: Natural and Cultural Factors
ENVIRDES 577	Urban Policies
GEO-SCI 362	Land Use and Society
GEO-SCI 370	Urban Geography
HISTORY 383	American Environmental History
NRC 382	Human Dimensions of Natural Resource Management
NRC 409	Natural Resources Policy and Administration
NRC 549	Ecosystem Management
POLISCI 382	Environmental Policy
ENV-HLTH 567	Environmental Compliance Regulations
REGIONPL 553	Resource Policy and Planning
REGIONPL 558	Issues in Environmental Management
REGIONPL 575	Planning Law and Resource Management
RES-ECON 428	Managerial Economics in Food and Resource Industries
RES-ECON 452	Industrial Organization in Resource Economics
RES-ECON 453	Public Policy in Private Markets
RES-ECON 462	Experimental Economics

Suggested Sequence of Courses

Note Gen Ed = General Education Course

<i>Fall Semester</i>	<i>Credit</i>	<i>Spring Semester</i>	<i>Credit</i>
Freshman Year			
English Writing 111, 112, 113	3	ECON 104 Macroeconomics Gen Ed	
Gen Ed	3	(Social World)	3
Gen Ed	3	Gen Ed	3
Gen Ed (Basic Math Skills Tier 1) ¹	3	Gen Ed	3
RES-ECON 102 Intro. Resource Econ. ²	3	RES-ECON (100 or 200 level) ³	3
		MATH 127 or 131 (Gen Ed Analytic Reasoning Tier II)	3
Total	15	Total	15
Sophomore Year			
Gen Ed	3	ECON 204 Intermediate Macroeconomics	3
RES-ECON 305 Price Theory	3	Gen Ed	3
RES-ECON (100 or 200 level) ³	3	Option requirement in RES-ECON	3
RES-ECON 211/212 Introductory Statistics	3	Option requirement in RES-ECON	3
Free Elective	3	Free Elective	3
Total	15	Total	15
Junior Year			
SCH-MGMT 310 Junior Year Writing	3	RES-ECON 312 Econometrics	3
Gen Ed (Social World)	3	Option requirement in RES-ECON	3
RES-ECON 313 Quantitative Methods	3	Option requirement in RES-ECON	3
Option requirement in RES-ECON	3	Option requirement in RES-ECON	3
Free Elective	3	Free Elective	3
Total	15	Total	15
Senior Year			
COMM 260 Public Speaking	3	Option requirement in RES-ECON	3
Option requirement in RES-ECON	3	Option requirement in RES-ECON	3
Option requirement in RES-ECON	3	Free Elective	3
Free Elective	3	Free Elective	3
Free Elective	3	Free Elective	3
Total	15	Total	15

^{1.} Students who pass the Mathematics Placement Exam or Basic Math Skills Tier I Exemption Exam do not need to take a Basic Math Skills course. They may take calculus in the first semester and gain another free elective.

^{2.} Only one RES-ECON General Education course can be counted toward Gen Ed requirements (other than the diversity requirement) by students graduating as a major in Resource Economics. RES-ECON 102 is counted as this one course in the above plan. Other RES-ECON courses which could be counted toward Gen Ed requirements are 121, 211/212, 262 and 263. RES-ECON 121 is a global diversity course.

^{3.} Each option requires one or two courses at this level. The department also requires one course at this level other than the option requirement.

Undergraduate Course Descriptions

102 Introduction to Resource Economics (SB) (both semesters)

Stevens, 216 Stockbridge; Lavoie, 212D Stockbridge

Microeconomic theory for majors and non-majors. Concepts of supply, demand, markets, natural resource management, economic policy. Applications to business and government decision-making emphasized.

112 Computing: Foundations to Frontiers (fall semester)

Caffery, 220B Stockbridge

Hands-on lab environment to develop proficiency with information technology tools and concepts. Needs assessment and systems analysis; relational database applications; Web research and site development; on-line surveys and server-side processing of data; data manipulation and analysis with spread sheets and statistical software; presentation via paper, Web, and electronic slide shows.

121 Hunger in a Global Economy (SBG) (fall semester)

Caswell, 215 Stockbridge

The causes of hunger (chronic undernutrition) from an economic perspective. Focus on how population growth and economic development are increasing demand for food and on the prospects for food production to supply those needs at affordable prices, while sustaining the environment. Discussion in the context of the global economy in which increased trade links even the poorest urban and rural residents in developing countries to market forces.

140 Managing Your Own Business (spring semester)

Understanding the issues and challenges of running a small business and how to deal with them. The jobs of the manager: planning, organizing and monitoring. Marketing, production, financial and personnel management.

142 People in Organizations (spring semester)

Basic principles of organizational operation and personnel management with emphasis on human behavior.

162 The Consumer in Our Society (fall semester every year, spring semester in odd-numbered years)

Mammen, 303 Stockbridge

An introduction to Consumer Economics including an examination of a breadth of consumer problems and issues. Focus on the identification of the consumer interest, advertising, fraud, credit, consumer rights and responsibilities, and legal protection available to consumers.

211 Introductory Statistics for the Life Sciences (R2) (both semesters)

Lass, 211 Stockbridge; Morzuch, 213 Stockbridge

Designed for students in: ANIMLSCI, ENVIRSCI, FOREST, CIVIL-EN, NRC, PLNTSOIL, RES-ECON, W&FCONSV, and related majors. Introduction to basic statistical methods used to collect, summarize, and analyze numerical data. Emphasis on application to decision making; examples from the biological sciences. Topics include: common statistical notation, elementary probability theory, sampling, descriptive statistics, statistical estimation and hypothesis testing, and an introduction to analysis of variance. Basic algebra necessary.

212 Introductory Statistics for the Social Sciences (R2) (spring semester)

Designed for students in: RES-ECON, ECON, CSBS, CHFA, and related majors. Introduction to basic statistical methods used to collect, summarize, and analyze numerical data. Emphasis on application to decision making; examples from the social sciences. Topics include: common statistical notation, elementary probability theory, sampling, descriptive statistics, statistical estimation and hypothesis testing. Basic algebra necessary.

212 Introductory Statistics for the Social Sciences (R2) (fall semester)

Rogers, 218 Stockbridge

Designed for students in: ISENBERG SCHOOL OF MANAGEMENT. Introduction to basic statistical methods used to collect, summarize, and analyze numerical data. Emphasis on application to decision making; examples and applications from the business. Topics include: common statistical notation, elementary probability theory, sampling, descriptive statistics, statistical estimation and hypothesis testing. Basic algebra necessary and familiarity with accessing information via the Internet.

241 Introduction to Food Marketing Economics (spring semester)

Barstow

The role of economic markets in coordinating economic activity through the vertical system that connects consumers with the producers who supply the goods and services to satisfy their needs, wants, and whims. The agencies, functions, and practices involved in the movement of agricultural products from producer to consumer: characteristics of the production, processing and distribution of agricultural commodities; important changes in food consumption and current issues in food marketing. Prerequisite: RES-ECON 102 or ECON 103.

262 Environmental Economics (SB) (spring semester)

Stranlund, 214 Stockbridge

Economics of environmental issues stemming from land, energy, and water use. Emphasis on economic implications of alternative environmental policies including current legislation for the private and public sectors of the economy.

263 Natural Resource Economics (SB) (fall semester)

Stevens, 216 Stockbridge

Economic analyses of energy, water, the conservation of natural resources, recycling, and the management of land, forest, and mineral resources.

305 Price Theory (both semesters)

Alhabeeb, 202 Stockbridge; Spraggon, 212F Stockbridge

Intermediate level microeconomic theory. Consumer demand theory and economics of production. Geometric and mathematical approaches. Models of market behavior, related to example situations. Applications to business and government decision-making emphasized. Required theory course for more advanced departmental offerings. Prerequisites: RES-ECON 102 or ECON 103, MATH 127 or MATH 131.

310 SCH-MGMT

This course satisfies the Junior Year Writing requirement for students in ISOM and RES-ECON. The emphasis is on developing students' skills in critical thinking, writing, and effective communication. Prerequisite: English 112.

312 Introductory Econometrics (spring semester)*Lass, 211 Stockbridge*

Basic concepts in econometric methods: estimation of linear economic models and introduction to problems that arise. Application of methods to real world data; emphasis is on application through use of econometric software and microcomputers. Students undertake research projects. Prerequisites: RES-ECON 102 or ECON 103, RES-ECON 211 or RES-ECON 212 or STATISTIC 240, RES-ECON 112 or consent of the instructor.

313 Quantitative Methods in Applied Economics (fall semester)*Moffitt, 212B Stockbridge*

Introduction to contemporary quantitative methods as applied to production, marketing and resource management problems in both private and public settings. Topics include: linear programming and decision making under uncertainty. Prerequisite: RES-ECON 211 or RES-ECON 212 or STATISTIC 240.

324 Small Business Finance (spring semester)*Alhabeeb, 202 Stockbridge*

Focus on the planning function of financial management: capital budgeting (long term), proforma accounting statements and financial ratio analysis (intermediate term), and cash flow management (short term). Business plan project. Prerequisite: RES-ECON 102 or ECON 103.

343 Food Merchandising (fall semester)

Explores the development and implementation of merchandising strategies by food processors, wholesalers and retailers. Analysis of consumer demand for food, processors' branding and promotional strategies, and retail store formats. Emphasis on industry use of information technology, food distribution channels, mechanics of merchandising (buying, pricing, and display), and future trends. Homework stresses application. Prerequisites: RES-ECON 102 or ECON 103, RES-ECON 241.

360 Personal and Family Finance (fall semester)*Alhabeeb, 202 Stockbridge*

Economic analysis of the financial issues facing individuals and families. Topics include budgeting and cash management, credit, insurance, taxes, investment, retirement, and estate planning. Prerequisites: RES-ECON 102 or ECON 103, MATH 127 or MATH 131 or consent of instructor.

362 Consumer Protection and Legislation (spring semester in even-numbered years)*Mammen, 303 Stockbridge*

Basic issues in seller-consumer relationship. Analysis of consumer legislation; its economic and social impact. Prerequisite: RES-ECON 162

397A Economics of Contemporary Information Technology (spring semester)

Economic analysis of the role that information plays in the economy, and study of the contemporary problems in information production, distribution and consumption that stem from the widespread adoption of new information technologies. Will address both macro and micro implications of IT, and both efficiency and equity concerns at the local, national and international levels. Prerequisite: RES-ECON 102 or ECON 103.

428 Managerial Economics in Food and Resource Industries (spring semester)*Moffitt, 212B Stockbridge*

Application of economics, statistics, and computers to the decision-making process. Topics include: production economics, demand analysis, business forecasting, cost analysis, and pricing and promotional strategies. Prerequisites: ACCOUNTG 221 or RES-ECON 324 or FINOPMGT 301, RES-ECON 305 or ECON 203, RES-ECON 312, RES-ECON 313.

452 Industrial Organization in Resource Economics (fall semester)*Lavoie, 212D Stockbridge*

Market structure models with application to the food system, especially food processing, retailing, and service, and to natural resource industries. Firm behavioral strategies under various market structures. The role of advertising in the food system, and other issues related to consumer demand (e.g., green marketing). Market performance including prices, costs, profits, labor issues, and progressiveness. Other topics include market power, mergers, barriers to entry, pricing methods, coupons and new products. Prerequisite: RES-ECON 305 or ECON 203.

453 Public Policy in Private Markets (spring semester)*Rojas, 219B Stockbridge*

Rationale and structure of public policies that affect the operation of private markets in the U.S., with special emphasis on consumer goods industries. Focus on antitrust and competition policies (e.g., those covering collusive restraints of trade, monopolization, and mergers) and on policies that affect product quality and information (e.g., product standards, regulation of advertising and labeling). Prerequisite: RES-ECON 452 or consent of instructor.

460 Family in Economic Systems (spring semester in odd-numbered years)*Mammen, 303 Stockbridge*

Microeconomic analysis of the household decision-making and its activities. Topics include allocation of time, household production, sexual division of labor, investment in human capital, economics of fertility, marriage, and divorce. Prerequisites: RES-ECON 305 or ECON 203 or consent of instructor.

462 Experimental Economics (spring semester)*Spraggon, 212F Stockbridge*

Laboratory experimental studies of economic behavior; development of techniques of experimentation with application to monopoly, bilateral bargaining, and competitive markets under various exchange rules; public goods and common-pool resources. Prerequisite: RES-ECON 305 or ECON 203.

470 Family Economic Policy: Issues and Implications (spring semester in even-numbered years)*Mammen, 303 Stockbridge*

Analysis of public programs that affect economic well-being of families. Topics include poverty and measures of economic welfare, housing, health, taxes, transfer payments; underlying philosophies and policy alternatives. Prerequisites: RES-ECON 162; RES-ECON 360 or consent of the instructor.

471 Benefit-Cost Analysis of Natural Resource Programs (spring semester)*Stevens, 216 Stockbridge*

Theoretical foundations and practical procedures of benefit-cost analysis as applied to public natural resources and environmental projects, programs and regulations. Critical discussion of strengths and weaknesses of this tool. Topics from water resources, land use, outdoor recreation, air quality, coastal zone management, and other natural resources and environmental areas. Prerequisite: RES-ECON 305 or ECON 203.

472 Advanced Topics in Resource and Environmental Economics (fall semester)*Brandt, 219A Stockbridge*

Topics may include: the design of environmental and natural resource policies, particularly incentive-based policies; the analysis and control of environmental risks; cost-benefit analyses of specific environmental policies; critiques of cost-benefit analysis, international environmental cooperation; environmental and natural resource policy in the developing world; sustainability, and the conservation of biodiversity.

Prerequisite: RES-ECON 305 or ECON 203

196H, 296H, 396H, 496H Honors Independent Study

These courses require a faculty sponsor. Contact Commonwealth College Office—304 Goodell—to add these courses.

496 Independent Study

Independent Study courses are available to students who wish to pursue a particular topic in depth. They generally take the form of a reading course with weekly one-on-one discussions with the professor about the reading, a research experience with completion of a written mini-thesis report involving regular consultation with the professor, or a combination of these two formats. Other formats are possible with the approval of the professor selected by the student to direct the course. Independent study courses do not count toward any departmental requirements.

298, 398, 498 Practicum (Semester Long Courses)**298Y, 398Y, 498Y Practicum (Year Long Courses)**

Under the University Internship Program students may work in a professional environment and earn academic credit. The program integrates practical professional experience with the student's prior and future course of study. Eligible students, working with a faculty sponsor, can earn up to 15 credits for a full semester internship. Typically, a student in a full-semester internship would register for 9 credits of 298 or 498 Practicum (mandatory pass-fail) for the field experience, and 6 credits of 398 Practicum (letter graded) for the associated paper. Students doing internships in summer register through Continuing Education for credits. For more information see "Searching for Internships, Coops, and Employment" in this handbook and see Julie Caswell (in 215 Stockbridge) or Sheila Mammen (in 303 Stockbridge), departmental Internship Coordinators, for more details about internships.

499P Honors Project

See Departmental Honors Program page for details. Contact Commonwealth College Office—304 Goodell—to add this course.

499T Honors Thesis

See Departmental Honors Program page for details. Contact Commonwealth College Office—304 Godell—to add this course.

Departmental Honors Program

The Departmental honors program is intended to provide learning opportunities on a more advanced scale for motivated students and to give formal recognition to students who produce exceptionally high quality work. Note that the *cum laude* (with honors) distinction may be granted to all students graduating with a 3.2 GPA who complete 45 graded credits in residence at UMass Amherst. Only students who are admitted to the Commonwealth College and complete its requirements may graduate as Commonwealth College Scholars and be eligible for higher Latin honors (*magna cum laude* and *summa cum laude*) upon graduation. The Commonwealth College has three honors tracks—Commonwealth College Honors, Commonwealth College Departmental Honors, and Commonwealth College Interdisciplinary Honors. Please see the Commonwealth College website (<http://www.comcol.umass.edu/academics/requirements/index.html>) and meet with your Commonwealth College advisor to discuss these three tracks and their requirements. Below are the requirements for the Commonwealth College Departmental Honors track. Please talk with your academic advisor if you would like to pursue this track.

DEPARTMENTAL HONORS IN RESOURCE ECONOMICS

Admission Requirements:

- To participate in Departmental Honors, students must be members in good standing of Commonwealth College with the ability to complete 45 graded (not pass/fail) credits in residence (registered at UMass Amherst, not transferred);
- Students must meet with the Departmental Honors Coordinator (Dr. Bernie Morzuch, 213 Stockbridge) to discuss requirements and departmental opportunities. The Coordinator will sign a *Change of Major* form initiating a change to **Resource Economics Departmental Honors (RES-ECON HN-CCDEPT)** to indicate an intention to admit the students to the RES-ECON DH track;
- Finally, the *Change of Major* form must be co-signed at the Commonwealth College Office to finalize admission to the track.

Course requirements:

Completion of Commonwealth College honors course requirements as specified on the student's Commonwealth College contract. The following honors courses are required unless accommodations are contracted in the student's Commonwealth College file:

- ENGLWP 112H or approved substitution with grade of B or better (or exemption)
- GenEd honors course with grade of B or better
- GenEd "I" honors course with grade of B or better
- Deans Book Series with grades of B or better
- 1 RES-ECON honors course any level with grade of B or better
- 1 RES-ECON honors course 300-level or higher with grade of B or better
- Capstone Experience
 - RES-ECON 499Y "Honors Research" with grade of B+, A- or A for Magna; A- or A for Summa*
 - RES-ECON 499T "Honors Thesis" or RES-ECON 499P "Honors Project" with grade of B+, A- or A for Magna; A- or A for Summa*

*The minimum grade requirement applies to each 499 course used to satisfy the Capstone Experience requirement, as well as the archives manuscript produced for the Capstone Experience. Document archiving guidelines and GPA requirements (3.500 or higher for Magna, 3.800 or higher for Summa) also apply for Latin high honors candidates.

Searching for Internships, Coops, & Employment

The University and the Department can be helpful to you in finding internships, coops, and employment opportunities and in taking full advantage of the opportunities you discover. Nonetheless, much of the responsibility rests with the individual student. As an individual you must take the initiative to act on this information and these opportunities. Establish a relationship with the campus's Career Services during your sophomore or junior year. Build a network of contacts and use creative methods to identify additional opportunities. Active participation in the Department's Undergraduate Club, the Resource Economics Society, will prove helpful.

Internships and Coops

Internships and cooperative placements in the summer months between academic years or within a semester are excellent ways to use the knowledge and skills learned in your courses, develop new skills, and start to build your career network. To get started, attend a workshop offered by the Field Experience Office (see <http://www.umass.edu/careers/internships/>) and then meet with your academic advisor or a department internship coordinator (Dr. Sheila Mammen or Dr. Julie Caswell) to discuss opportunities.

Finding a Job after Graduation

The greatest amount of employment assistance available through the University is that offered by Career Services. To learn of the assistance available there and establish your credentials file, you should visit Career Services well in advance of graduation, certainly during your junior year. To keep informed of events/programs offered, maintain contact with the Career Services, watch the Collegian regularly for announcements, and also, the 2nd floor Stockbridge Hall "Undergraduate News" bulletin board. Assistance offered by Career Services includes:

- Self-assessment and career exploration
- Pre-graduation professional level work experience through coops or internship opportunities available through Field Experience placement.
- On-campus interviews
- Electronic resume referral to employers not interviewing on campus
- Workshops for resume and cover letter preparation, professional presentation techniques, and job-search strategies.
- Individual career/job search counseling appointments, including mock interviews
- Sponsorship of numerous major fairs, including Graduate and Professional School Information Day each October, and campus-wide career and co-op job fairs.

Who to contact:

The Career Services liaison for Resource Economics is Ginger Goldsbury, 511 Goodell; 545.6011; email: ggoldsbury@acad.umass.edu.

Self Help

Most students are quite resourceful. Searching for employment opportunities is an occasion where you can help yourself considerably. Developing a network of contacts and information is one very useful step you can take for yourself. Contacts can be developed by attending events such as meetings and conferences, involving persons from the industry or occupational area of greatest interest to you. They can also be made through internships and coops, part-time jobs, guest speakers or seminars at school career or internship fairs, or through friends, acquaintances, and alumni in the field. In addition, opportunities to make use of resumes may occur at any time. Be sure that you are prepared.

Requirements for Undergraduate Minor

1. Introductory Calculus: MATH 127 or MATH 131
2. Introductory Statistics: RES-ECON 211 or RES-ECON 212 or STATISTICS 240
3. Introductory Microeconomics: RES-ECON 102 or ECON 103
4. Four Departmental courses as specified by option (see below)
5. A grade point average of 2.0 or better on all courses that count towards the minor; courses may not be taken Pass/Fail

Note: Transfer credits will be evaluated on an individual basis. No courses taken for the minor may be taken on a pass/fail basis. Independent study and practicum courses will not be counted toward the minor. ECON 203 may be substituted for RES-ECON 305 as a prerequisite for other courses, but ECON 203 cannot be counted as one of the four departmental courses students must take under each option. Other equivalent courses from other departments will be evaluated on an individual basis by the minor advisor.

Consumer and Family Economics

Required:

- 162 The Consumer in Our Society
- 360 Personal and Family Finance (prerequisites RES-ECON 102 or ECON 103, MATH 127 or MATH 131 or consent of instructor)

Elect Two:

- 362 Consumer Protection and Legislation (prerequisite: RES-ECON 162)
- 460 Family Economics (prerequisites: RES-ECON 305 or ECON 203 or consent of instructor)
- 470 Family Economic Policy: Issues and Implications (prerequisites: RES-ECON 162, RES-ECON 360 or consent of the instructor)

Food Marketing Economics Option

Required:

- 241 Introduction to Food Marketing Economics (prerequisite: RES-ECON 102 or ECON 103)
- 343 Food Merchandising (prerequisites: RES-ECON 102 or ECON 103, RES-ECON 241)

Elect Two:

- 305 Price Theory (Intermediate Microeconomics) (prerequisites: RES-ECON 102 or ECON 103, MATH 127 or MATH 131)
- 312 Introductory Econometrics (prerequisites: RES-ECON 102 or ECON 103, RES-ECON 211 or RES-ECON 212 or STATISTICS 240, RES-ECON 112 or consent of the instructor)
- 313 Quantitative Methods in Applied Economics (prerequisite: RES-ECON 211 or RES-ECON 212 or STATISTICS 240)
- 452 Industrial Organization in Resource Economics (prerequisite RES-ECON 305 or ECON 203)
- 453 Public Policy in Private Markets (prerequisite RES-ECON 452 or consent of instructor)

Managerial Economics Option*Required:*

- 428 Managerial Economics in Food and Resource Industries (prerequisites: ACCOUNTG 221 or RES-ECON 324 or FINOPMGT 301, RES-ECON 305 or ECON 203, RES-ECON 312, RES-ECON 313)

Elect Three

- 305 Price Theory (Intermediate Microeconomics) (prerequisites: RES-ECON 102 or ECON 103, MATH 127 or MATH 131)
- 312 Introductory Econometrics (prerequisites: RES-ECON 102 or ECON 103, RES-ECON 211 or RES-ECON 212 or STATISTIC 240, RES-ECON 112 or consent of the instructor)
- 313 Quantitative Methods in Applied Economics (prerequisite: RES-ECON 211 or RES-ECON 212 or STATISTIC 240)
- 324 Small Business Finance (prerequisite: RES-ECON 102 or ECON 103)
- 452 Industrial Organization in Resource Economics (prerequisite RES-ECON 305 or ECON 203)
- 453 Public Policy in Private Markets (prerequisite RES-ECON 452 or consent of instructor)
- 471 Benefit-Cost Analysis of Natural Resource Programs (prerequisite RES-ECON 305 or ECON 203)

Natural Resource Economics Option*Required:*

- 262 Environmental Economics or 263 Natural Resource Economics

Elect Three:

- 263 Natural Resource Economics or 262 Environmental Economics
- 305 Price Theory (Intermediate Microeconomics) (prerequisites: RES-ECON 102 or ECON 103, MATH 127 or MATH 131)
- 312 Introductory Econometrics (prerequisites: RES-ECON 102 or ECON 103, RES-ECON 211 or RES-ECON 212 or STATISTIC 240, RES-ECON 112 or consent of the instructor)
- 313 Quantitative Methods in Applied Economics (prerequisite: RES-ECON 211 or RES-ECON 212 or STATISTIC 240)
- 471 Benefit-Cost Analysis of Natural Resource Programs (prerequisite RES-ECON 305)
- 472 Advanced Topics in Resource and Environmental Economics (prerequisites RES-ECON 305 or ECON 203)

Faculty

Bernard J. Morzuch, Professor and <i>Undergraduate Program Director</i> Production and Managerial Economics 213 Stockbridge Hall.....	545.5718
Julie A. Caswell, Professor and <i>Chair of the Department</i> Food Marketing and Managerial Economics 215 Stockbridge Hall.....	545.5735
Musaddak J. Alhabeeb, Professor Consumer and Family Economics 202 Stockbridge Hall.....	545.5010
P. Geoffrey Allen, Professor Emeritus Production and Managerial Economics 201A Stockbridge Hall.....	545.5715
Sylvia Brandt, Assistant Professor Natural Resource Economics and Public Policy 219A Stockbridge Hall.....	545.5722
Barry C. Field, Professor Emeritus Environmental and Institutional Economics 201A Stockbridge Hall.....	545.5709
Daniel A. Lass, Professor Production Economics and Econometrics 211 Stockbridge Hall.....	545.1501
Nathalie Lavoie, Assistant Professor Industrial Organization 212D Stockbridge Hall.....	545.5713
Sheila Mammen, Associate Professor Consumer and Family Economics 300 Stockbridge Hall.....	545.2470
L. Joe Moffitt, Professor Agricultural Production Economics 212B Stockbridge Hall.....	545.5719
Richard T. Rogers, Professor Food Marketing and Managerial Economics 218 Stockbridge Hall.....	545.5741
Christian Rojas, Assistant Professor Industrial Organization and Experimental Economics 219B Stockbridge Hall.....	545.2496
John Spraggon, Associate Professor Experimental and Environmental Economics 212F Stockbridge Hall.....	545.6651
Thomas H. Stevens, Professor Natural Resource Economics 216 Stockbridge Hall.....	545.5714
John Stranlund, Professor Natural Resource and Environmental Economics 214 Stockbridge Hall.....	545.6328