

## **Graduate Curriculum Committee (GCC)**

Meeting Minutes

Wednesday, November 16, 2011

### **Regular Members Present:**

Rose Allen (Chair)  
Jim Decker (Vice-Chair)  
Carol Brown  
Hamid Fonooni  
Will Forsythe  
Ravi Paul  
Bob Thompson

### **Regular Members Absent/Excused:**

None

### **Ex-Officio Members Present:**

Linner Griffin

### **Ex-Officio Members Absent/Excused:**

Graduate and Professional Student Senate (GPSS) Representative

### **Academic Program Planning and Development:**

Kimberly Nicholson

### **Guests:**

College of Allied Health Sciences: Lloyd Goodwin  
College of Technology and Computer Science: Evelyn Brown and Nasseh Tabrizi  
Thomas Harriot College of Arts and Sciences: Richard Ericson, Jamie Kruse, and Heather Ries

### **Actions of Committee:**

#### **I. Call to Order**

##### **1. Report on Graduate Council Actions**

Dr. Decker provided the GCC members with a handout regarding the review and discussion of the GCC minutes process for presenting the minutes to the Graduate Council. The charges and functional overlap of the committees involved in the curriculum and/or program development process (ex: Graduate Council, GCC, EPPC) were discussed. Feedback and recommendations regarding the process were provided to Dr. Decker. Committee members wanted to ensure that curriculum and/or program development items were thoroughly vetted at each level of review while taking into account the need for time constraints. It was noted that the same volume of material from

the GCC will now need to be reviewed in fewer meetings by the Graduate Council, as the GSAB met twice per month and through the summer. The Graduate Council is scheduled to meet once per month during the Fall and Spring semesters.

**2. The 11-02-11 GCC minutes will be distributed via e-mail for an electronic vote then forwarded to the Graduate Council for agenda placement.**

The minutes were approved by the GCC pending finalization of the LEED package. Dr. Allen will contact the unit with the remaining recommendations for the LEED 6904 and LEED 6926 proposal forms.

**II. College of Technology and Computer Science, Department of Computer Science**

The unit was asked to revise the formatting of their memorandum of request and resubmit.

**Proposal of New Courses: SENG 6247, 6285**

Approved as amended

- (1.) Revise justification (SENG 6247, 6285)
- (2.) Revise course description (SENG 6247, 6285)
- (3.) Revise affected degrees or academic programs (SENG 6247, 6285)
- (4.) Revise textbooks (SENG 6247)
- (5.) Revise course objectives (SENG 6247, 6285)
- (6.) Revise marked catalog copy (SENG 6247, 6285)

**Title Revision Only of Existing Course: SENG 6255**

Approved as amended

- (1.) Revise grading scale

**Revision of Existing Degrees: MS in Computer Sciences, MS in Software Engineering**

Approved as amended

- (1.) Match course descriptions to text approved in proposal forms (SENG 6247, 6285)
- (2.) Remove SENG prefix from descriptions in course list and fix punctuation

**III. College of Allied Health Sciences – postponed to the 12-07-11 GCC meeting (unit will resubmit by 11-23-11)**

**Proposal of New Course: REHB 6340**

Postponed to 12-07-11 meeting

- (1.) Revise course objectives
- (2.) Revise marked catalog copy

**Revision of Existing Course: REHB 6300**

Postponed to 12-07-11 meeting

- (1.) Revise course description
- (2.) Revise marked catalog copy

**Revision of Existing Degree: MS in Substance Abuse and Clinical Counseling**

Postponed to 12-07-11 meeting

- (1.) Remove extra set of required courses and verify the courses and electives identified
- (2.) Match course descriptions to proposal forms

**IV. Thomas Harriot College of Arts and Sciences, Department of Economics**

**Revision to Request for Authorization to Plan PhD in Economics approved at 10-05-11 GCC meeting**

Approved as amended

- (1.) Unit has returned with a request to add an additional field in public health economics with two new courses
- (2.) GCC approval is contingent upon receipt of a more comprehensive letter of support from Dr. Lloyd Novick, Department of Public Health
- (3.) A submission deadline extension has been granted of 12-02-11, as economics and public health are scheduled to meet on 11-29-11 and the communication from Dr. Novick currently on file indicates the anticipation of a favorable outcome

**Proposal of New Courses: ECON 8660, 8670**

Approved as amended

- (1.) Revise affected degrees or programs (ECON 8660)
- (2.) Revise course description (ECON 8670)
- (3.) Revise affected degrees or programs (ECON 8660, 8670)
- (4.) Revise overlapping or duplication with affected units or programs (ECON 8660, 8670)
- (5.) Revise staff statements of support (ECON 8670)

**Revision of Departmental Text: Department of Economics - added**

Approved as amended

- (1.) Replace “a PhD program in economics with a concentration in risk analysis” with “a PhD in economics with a focus on risk analysis”

**Revision of Proposed Degree: PhD in Economics**

Approved as amended

**V. Old Business**

**1. Proposal justifications – draft text for manual and/or proposal form.**

Approved as amended

- (1.) New descriptive text regarding the justification on the proposal form, and the form completion instruction section of the manual, was drafted and approved by the committee (see pg. 17)

(2.) Approved text will be incorporated into the proposal form and manual when they are posted in the fall of 2012

**2. Implement any actions recommended by the Academic Council relative to 5000-level courses.**

No discussion

**3. Send forward a motion to the Graduate Council for a policy on deleting courses that have not been offered, or had no enrollment, for a specific time period.**

GCC members discussed the spreadsheet and feedback from faculty who reviewed the data posted to the agenda. It was determined that the data did not accurately represent active courses not offered in 10+ years. Dr. Griffin confirmed that updated data will be requested. The draft action plan and spreadsheet links will be deactivated. This item will be addressed at a future GCC meeting. Dr. Griffin shared that the Office of Academic Program Planning and Development is coordinating review by a university task force of different academic catalog management systems. Obtaining and utilizing a catalog management system potentially can improve the quality of available university data and provide increased functionality within many processes at ECU. The university is seeking a catalog management system that can migrate information to Banner and ultimately provide more accurate course information.

**4. Vice Chair Decker recommended the GCC continue their work with the Graduate Working Group on 3.6.2 Graduate Curriculum.**

Dr. Decker shared that there has been discussion regarding the exam process. There is no action required of the GCC at this time.

**5. Develop training modules utilizing Media site technology with topics to include: Pieces in a Curriculum Development Package, Completion of the Course Proposal Form, and Tips for Certificate Planners. Recordings will be posted on the GCC Web site.**

No discussion

**6. SACS Principle 4.9 – awaiting definition of credit hour from GA.**

Dr. Allen shared she worked with Dr. Joy Phillips on a project regarding rigor for the SACS report.

**7. Annual graduate banked courses process – response from units due 11-15-11**

Only four units provided requests to retain banked courses. The memoranda submitted by faculty requesting retention of courses will be reviewed at the 12-07-11 GCC meeting. All courses for which no request was received will be considered for deletion from the catalog. A total of 89 banked graduate-level courses will be reviewed for retention and/or deletion.

## **VIII. New Business**



## Marked Catalog Copy:

### II. College of Technology and Computer Science

#### Department of Computer Science

<http://www.ecu.edu/cs-acad/grcat/programCSCI.cfm>

#### Department of Computer Science

*Karl Abrahamson, Interim Chairperson, Suite C-113, Science and Technology Building*

### MS IN COMPUTER SCIENCE

Applicants to the master of science degree in computer science must meet the admission requirements of the Graduate School, have an undergraduate degree in computer science or a related field, be able to demonstrate significant study in computer science, including a study of computer architecture and software design, be proficient programmers in at least one high-level programming language, submit three letters of recommendation, and have satisfactory scores on the general portion of the Graduate Record Examinations. Applicants whose native language is not English must additionally submit a satisfactory score on the Test of English as a Second Language (TOEFL).

Each applicant's credentials will be reviewed by the director of graduate studies, who will determine if undergraduate deficiencies are present and, if so, will prescribe a method for their removal and determine a precondition for admission.

Minimum degree requirement is 30 s.h. of credit as follows:

1. Core courses (12 s.h.): CSCI 6120, 6230, 6420, and one of 5210 or 5220; an additional 18 s.h. selected from CSCI courses numbered 5000 or above, including 3-6 s.h. of thesis or research project. At least 15 s.h. must be in courses numbered 6000 or above. Up to 6 s.h. of the following courses can count toward the 18 hours of CSCI elective courses:

SENG 6240. Software Architecture and Design (3) (P/C: SENG 6230 or consent of instructor)

**[SENG 6247. Software Security Engineering \(3\) \(P: Consent of instructor\)](#)**

SENG 6250. Software Systems Modeling and Analysis (3) (P/C: SENG 6230 or consent of instructor)

**[SENG 6255. Software Requirements Engineering \(3\) \(P: Consent of instructor\)](#)**

SENG 6270. Software Verification and Validation (3) (P/C: SENG 6230 or consent of instructor)

2. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.
3. Satisfactory score on a comprehensive examination covering 12 s.h. of course work.

4. Following successful completion of the comprehensive examination, the student must design and complete CSCI 6995 or 7000 under the direction of an advisor. The project or thesis must be successfully defended before the student's examination committee.
5. Students must attend at least five research seminars and present at least one research seminar during the course of study.
6. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.

Minimum degree requirement is **30 s.h.** of credit as follows:

1. Core courses (12 s.h.): CSCI 6120, 6230, 6420, and one of 5210 or 5220; an additional 18 s.h. selected from CSCI courses numbered 5000 or above, including 3-6 s.h. of thesis or research project. At least 15 s.h. must be in courses numbered 6000 or above. Up to 6 s.h. of the following courses can count toward the 18 hours of CSCI elective courses:  
     SENG 6240. Software Architecture and Design (3) (P/C: SENG 6230)  
     SENG 6250. Software Systems Modeling and Analysis (3) (P/C: SENG 6230)  
     SENG 6270. Software Verification and Validation (3) (P/C: SENG 6230)
2. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.
3. Satisfactory score on a comprehensive examination covering 12 s.h. of course work.
4. Following successful completion of the comprehensive examination, the student must design and complete CSCI 6995 or 7000 under the direction of an advisor. The project or thesis must be successfully defended before the student's examination committee.
5. Students must attend at least five research seminars and present at least one research seminar during the course of study.
6. A minimum cumulative GPA of 3.0 must be submitted for all graduate courses. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.

<http://www.ecu.edu/cs-acad/great/coursesCSCI.cfm>

### **CSCI: Computer Science**

**5002. Logic for Mathematics and Computer Science (3) Same as MATH 5002** P: CSCI 3310 or CSCI 3510 or MATE 3223 or 2775 or MATH 2427 or 2775 or 3256 or PHIL 3580 or equivalent. Methods of mathematical logic important in mathematics and computer science applications.

**5210. Operating Systems II (3)** P: CSCI 4630 or consent of instructor. Theory and practice of concurrent processes in computer operating systems. Process scheduling. Memory and auxiliary storage management.

**5220. Program Translation (3)** P: CSCI 4627 or consent of instructor. Formal language specification for programming languages. Advanced parsing techniques. Code generation and optimization.

**5501, 5502, 5503. Independent Study (1,2,3)** Minimum of 3-6 hours per week depending on nature of work assigned. P: CSCI 3601 or equivalent or consent of instructor. Advanced computer science students study topics that supplement regular curriculum.

**5774. Programming for Research (3) Same as MATH 5774** For graduate student who wishes to use computer science to meet required research skills in his or her dept. May not count toward MATH major or minor. P: General statistics course or consent of instructor. Emphasis on minimum-level programming skill and use of statistical packages.

**5800. Artificial Intelligence (3)** P: CSCI 3310 or CSCI 3510 or consent of instructor. Fundamental problems and techniques of artificial intelligence. Heuristic search. Concepts of expert systems.

**6100. Cryptography and Information Security (3)** P: Consent of instructor. Cryptographic techniques to provide secrecy and authenticity of information communicated over an insecure channel; private-key cryptography, public-key cryptography and deployed cryptography.

**6120. Computer Systems Architecture (3)** P: CSCI 4520 or consent of instructor. Sequential architectures, instruction sets, addressing modes, and control structures. Introduces parallel architectures.

**6130. Networking and Telecommunication (3)** P: CSCI 6120 or consent of instructor. Theory and case studies of modern networking protocols and telecommunication methods. Local area and long-haul networks.

**6140. Mobile Communications and Wireless Security (3)** P: CSCI 6130; or consent of instructor. Signals, access protocols, application requirements, and security issues with a focus on digital data transfer.

**6220. Topics in Language Design (3)** P: CSCI 3675 or consent of instructor. Semantics and implementation characteristics of languages supporting modern computing paradigms such as functional programming, logic programming, constraint programming, and object-oriented programming.

**6230. Software Engineering Foundations (3) Same as SENG 6230** P: Consent of instructor. Software project development using software engineering principles and current software development techniques.

**6300. Cryptographic Protocols (3)** P: CSCI 6100; or consent of instructor. Design and analysis of cryptographic protocols for various tasks; emphasis on applications beyond providing secrecy and authenticity of messages.

**6410. Design and Analysis of Algorithms (3)** P: CSCI 3650 or consent of instructor. Methods of designing efficient algorithms, case studies. Analysis of complexity of algorithm.



**6420. Computability and Complexity (3) P:** CSCI 4602 or consent of instructor. Computability, Church's thesis, formal models of computation. Introduces complexity theory.

**6600. Data Base Management Systems (3) P:** CSCI 3700 or consent of instructor. Theory and techniques of data base management systems. Examines implementations of DBMS.

**6710. Developing e-Commerce Systems (3) P:** CSCI 6230; or consent of instructor. Introduces use of concepts, technologies, and building blocks from computer science, practical software engineering, and business development in building e-Commerce systems. Systematic life-cycle approach to developing successful e-Commerce systems essential to wide range of organization and software developers.

**6810. Topics in Artificial Intelligence (3) P:** CSCI 5800 or consent of instructor. Study of state of the art in selected topic on artificial intelligence.

**6820. Computer Graphics (3) P:** CSCI 3800 or consent of instructor. Principles and techniques of image rendering. Use of image rendering software.

**6840. Data Mining (3) P:** Consent of instructor. Data mining concepts and techniques and state of the art in data mining, including association rule mining, classification, clustering, data mining on complex type of data, and other data mining algorithms and applications.

**6905. Topics in Computer Science (3)** May be repeated once with change of topic. P: Consent of instructor. Current topic in computer science.

**6995. Research Project (3) P:** Approval of director of graduate studies. Student selects, investigates, and reports to faculty on challenging research project.

**7000. Thesis (3)** May be repeated. May count maximum of 3 s.h.

**7001. Thesis: Summer Research (1)** May be repeated. No credit may count toward degree. Students conducting thesis research may only register for this course during the summer.

### **CSCI Banked Courses**

**5726. Scientific Programming (1)  
(3)**

**6603. Microcomputer Programming (3)**

**6605. Data Structure and Algorithm Design**

<http://www.ecu.edu/cs-acad/grcat/programCSCI.cfm>

### **MS IN SOFTWARE ENGINEERING**

The College of Technology and Computer Science offers a master's of science in software engineering that is available online and on campus. The program prepares students to be able to specify, implement, and manage large software system projects from initial concept to the end of product life that are on-time, on-budget, and meet functional requirements.

### **Admission Requirements**

Applicants must meet the admission requirements of the Graduate School. Acceptance to the master of science degree in software engineering is based on satisfactory undergraduate grades, scores on either the Miller Analogies Test or the Graduate Record Examinations, and letters of reference. Applicants whose native language is not English must additionally submit a satisfactory score on the Test of English as a Foreign Language. Completion of an undergraduate degree in computer science, software engineering, computer engineering, electrical engineering, information systems or a related discipline is recommended for admission. Students from other disciplines or applicants with limited technical expertise are evaluated on a case-by-case basis by the program admissions committee. In some cases, remedial undergraduate courses or additional graduate courses are required as a precondition for admission. Students in the program are required to have fully functional computer hardware and full Internet connectivity. Requirements for completing the master of science in software engineering are described below.

Minimum degree requirement is 30 s.h. of credit as follows:

1. Core - 9-12 s.h.

SENG 6230, 6235 and SENG 6290 (3 s.h.) or 7000 (6 s.h.)

2. Concentration area (choose one) - 12 s.h.

Software Design and Development

SENG 6240. Software Architecture and Design

SENG 6247. Security Engineering

SENG 6250. Software Systems Modeling and Analysis

SENG 6270. Software Verification and Validation

Software Project Management and Quality Assurance

SENG 6255. [Software Requirement Analysis and Management](#) [Software Requirements Engineering](#)

SENG 6260. Software Metrics and Quality Management

SENG 6265. Foundation of Software Testing

SENG 6280. Process Management and Life Cycle Modeling

Software Testing

SENG 6250. Software Modeling and Analysis

SENG 6265. Foundation of Software Testing

SENG 6270. Software Verification and Validation

SENG 6275. Dependable Systems and Software Reliability

3. Electives (Choose any two) - 6-9 s.h.

Electives must come from outside concentrations

CSCI 5220, 6130, 6140, 6600, 6710, SENG 6240, 6245, [6247](#), 6250, 6255, 6260, 6265, 6270, 6275, 6280, [6285](#)

Three s.h. from the following list:

CSCI 5210, 5800, 6100, 6120, 6410, 6420, 6840

A minimum cumulative GPA of 3.0 must be earned for the degree. No more than 6 s.h. of course work evaluated as C may be counted toward the degree.

<http://www.ecu.edu/cs-acad/grcat/coursesCSCI.cfm>

### **SENG: SOFTWARE ENGINEERING**

**6230. Software Engineering Foundations (3)** Same as **CSCI 6230** P: CSCI 4200 or consent of instructor. Software project development using software engineering principles and current software development techniques.

**6235. Software Project Management (3)** P/C: SENG 6230 or consent of instructor. Advanced methods and techniques to initiate, plan, and control large and complex software development projects.

**6240. Software Architecture and Design (3)** P/C: SENG 6230 or consent of instructor. Software development issues related to software architecture and design. Examines software development and implementation.

**6245. Software Construction (3)** P: Consent of instructor. Software development environments, data structures and algorithms, object-oriented techniques, and object-oriented programming.

**[6247. Software Security Engineering \(3\) P: Consent of instructor. Practical and theoretical knowledge in relation to design of secure software systems.](#)**

**6250. Software Systems Modeling and Analysis (3)** P/C: SENG 6230 or consent of instructor. Methods for the construction of software including formal notation language and its application to the analysis and specification of software system requirements.

**6255. Software Requirements Analysis and Management [Software Requirements Engineering](#) (3)** P: Consent of instructor. Methods and processes for managing, analyzing and specifying requirements; use-case modeling; systems for requirements analysis and management.

**6260. Software Metrics and Quality Management (3)** P/C: SENG 6230 or consent of instructor. Software quality metrics associated with process and product metrics. Examines

development of software using various types of metrics and models employed in the field of software quality engineering.

**6265. Foundations of Software Testing (3) P:** Consent of instructor. Fundamentals of software testing, test management, testing tools, test planning approaches, and basic static and dynamic testing methods.

**6270. Software Verification and Validation (3) P/C:** SENG 6230 or consent of instructor. Verification and validation strategies and techniques throughout the software life-cycle, including processes that assure the desired software and documentation are developed and maintained.

**6275. Dependable Systems and Software Reliability (3) P:** Consent of instructor. Analysis, modeling, and development of dependable systems. Foundations of software reliability.

**6280. Process Management and Lifecycle Modeling (3) P/C:** SENG 6230 or consent of instructor. Foundations of software management and support over the complete life cycle including maturity models, change management, and optimization.

**6285. Cloud Computing (3) P:** [Consent of instructor. Techniques for developing applications and services to run on distributed networks using virtualized resources accessed over the Internet.](#)

**6290. Software Engineering Project (3) P/C:** SENG 6230 or consent of instructor. Practical process-based and industry-oriented view of software engineering practices. Exposure to research, software development, and implementation of professional level software.

**7000. Thesis (3) P:** SENG 6230 or consent of instructor. May be repeated. May count maximum of 6 s.h.

#### **IV. Thomas Harriot College of Arts and Sciences**

##### **Department of Economics**

<http://www.ecu.edu/cs-acad/grcat/programECON.cfm>

##### **Department of Economics**

*Richard E. Ericson, Chair, A-428 Brewster Building*

*John A. Bishop, Director of Graduate Studies, A-436 Brewster Building*

The Department of Economics offers a master's degree in applied and resource economics and a PhD program in economics with a [focus on concentration in risk analysis](#). The MS program requires completion of a research skills course and written comprehensive examinations. The PhD program requires the defense of a dissertation as well as written core qualifying and field examinations. It is important to note that requirements of both the Graduate School and the Department of Economics must be met before a degree is awarded.

### MS in Applied and Resource Economics

Applicants to the MS in applied and resource economics must meet the admissions requirements of the Graduate School, submit three letters of recommendation, make an acceptable score on the general portion of the Graduate Record Examinations, and have had at least one undergraduate course each in introductory statistics and differential calculus. Non-native speakers must make an acceptable score on the TOEFL. Undergraduate courses in intermediate microeconomics and macroeconomics are strongly recommended.

Students in this degree program must complete a minimum of 33 s.h. of course work. Core requirements in economics theory, econometric technique, and research methodology constitute 21 s.h. with the remaining 12 s.h. being electives. Up to 6 s.h. of electives may be taken outside the department with the approval of the graduate director.

1. Core courses: ECON 5360, 5501, 6301, 6302, 6390, 6401, 6402.
2. A comprehensive examination is administered after completion of ECON 5360, 5501, 6301, 6302, 6401, 6402. The examination will test skills in applied theory and econometrics. Successful performance on this examination is necessary to continue in program.

**Research skills:** Four of the core courses listed above constitute 12 s.h. of research skills in quantitative methods and research methodology: ECON 5360, 6301, 6302, 6390.

**Research project:** The final component, ECON 6390 (research project) is the culmination of student's analytical work and is designed to demonstrate applied research skills.

### PhD in Economics

The PhD in economics is a post-baccalaureate and post-masters program with fields in applied microeconomics, [public health economics](#), applied macroeconomics, and risk analysis (82 post-baccalaureate or 52 post-masters graduate semester credit hours). Students can choose between applied microeconomics, [public health economics](#), and applied macroeconomics; however, a risk analysis field is required of all students. Qualifying exams are required in economic theory and econometrics; field exams are required in risk analysis and in either applied micro or [public health economics or](#) applied macro. The primary objective of the PhD program is to prepare economists who can apply the tools and concepts of economics to solve significant problems relating to risk and uncertainty in areas such as environmental risk, public sector risk [and in particular public health risk](#), risk and decision making, and analytical/econometric risk evaluation.

Program requirements include:

Preparatory Courses – 30 s.h.

ECON 5360. Mathematical Economics (3)  
ECON 5501. Macroeconomic Theory (3)  
ECON 6301. Econometrics I (3)  
ECON 6302. Econometrics II (3)  
ECON 6401. Microeconomic Theory I (3)  
ECON 6402. Microeconomic Theory II (3)  
MATH 5801. Probability Theory (3)  
MATH 6001. Matrix Algebra(3)  
MATH 5101. Advanced Calculus I (3)  
MATH 5102. Advanced Calculus II (3)

Economic Theory Core – 15 s.h.

ECON 8111. Economic Theory I (4)  
ECON 8112. Economic Theory II (4)  
ECON 8211. Macroeconomic Theory (4)  
ECON 8411. Risk Analysis I (3)

Econometric Theory Core – 7 s.h.

MATH 6802 Statistical Inference (3)  
ECON 8310 Advanced Econometrics (4)

Research – 8-11 s.h.

GRAD 7004. Research Ethics for a Complex World (2)  
ECON 8350. Applied Research Methods (3)  
ECON 8901. Research Workshop – (1-6)

Risk Analysis Field (required) – 6 s.h.

ECON 8412. Risk Analysis II (3)  
ECON 8413. Risk Analysis III (3)

(Choose one) – 6 s.h.

Applied Microeconomics Field

ECON 8510. Applied Welfare Analysis (3)  
ECON 8540. Environmental and Resource Economics (3)  
ECON 8620. Labor Economics (3)  
ECON 8650. Health Economics (3)  
ECON 8720. Industrial Organization (3)

Applied Macroeconomics Field

ECON 8212. Macroeconomic Theory II (3)  
ECON 8241. Applied Macro I (3)  
ECON 8242. Applied Macro II (3)

Public Health Economics Field

ECON 8660. Public Health Economics I (3)  
ECON 8670. Public Health Economics II (3)

Seminars – 1-4 s.h.

ECON 8951. Doctoral Seminar (1)

Dissertation Research – 9-18 s.h.

ECON 9000. Dissertation Research (3-9)

ECON 9001. Dissertation: Summer Research (1)

<http://www.ecu.edu/cs-acad/grcat/coursesECON.cfm>

### **ECON: Economics**

5000. General Topics (3)

May be repeated for credit with change of topic. P for undergraduate students: ECON 3144, 3244. Considers new or advanced topics in economics.

5150. Development (3)

P for undergraduate students: ECON 3144. Application of microeconomic analysis to investments in human resources, efficient organization of rural economics, intersectoral and international exchange, and interaction between politics and markets, especially in less developed countries.

5170. Resources I (3)

P for undergraduate students: ECON 3144. Applies microeconomic analysis to allocation of natural resources.

5360. Mathematical Economics (3)

P for undergraduate students: MATH 2171 or equivalent. Mathematical analysis applied to economic theory. Structure and specification of quantitative models.

5501. Macroeconomic Theory (3)

P for undergraduate students: ECON 3244; ECON 5360 or MATH 2172. Business cycle fluctuations. Emphasis on determinants of consumption and investment and effectiveness of monetary and fiscal policy.

5800. Public Economics (3)

P for undergraduate students: ECON 3144. Applies microeconomic analysis to collective choice in democratic societies, government expenditure programs, and taxation.

5910. Health Economics (3)

P for undergraduate students: ECON 3144, 3244. Organizational structure, financing, and regulation of health care delivery and economic measurement of performance.

6000. Advanced Topics (3)

May be repeated for credit. Current advanced-level topics in economics.

6102. Labor Supply (3)

P: ECON 6301, 6401. Theory and estimation of static labor supply models and general theory of allocation of time.

6125. Regulation (3)

P: ECON 6401. Market failure rationale for non-market allocation. Causes and effects of regulatory action. Behavior of regulatory agencies and regulated firms.

6172. Resources II (3)

Applies microeconomic analysis to environmental problems, such as air and water pollution and formation of environmental policy.

6300. Economics of Coastal Populations (3)

- Advanced introduction to application of microeconomic analysis of coastal environmental problems and issues and economic basis for formation of coastal and marine policies.
6301. Econometrics I (3)  
Statistical theory and its basic applications to analysis of economic data.
6302. Econometrics II (3)  
P: ECON 6301, 6401. Development of general linear model and its extensions for analysis of economic data.
6335. Discrete Choice Econometrics (3)  
P: ECON 6301, 6401. Advanced course in econometric. Focus on regression techniques for analysis of qualitative and limited dependent variables.
6353. Forecasting (3)  
P: ECON 5501, 6301, 6401. Advanced course in econometrics. Focus on regression and time series techniques for forecasting of economic variables.
6390. Research (3)  
May be repeated. May count a maximum of 6 s.h. P: ECON 6301, 6401; consent of graduate director. Objectives and structure of methodologies for formulation. Conduct empirical research in economics.
6401. Microeconomic Theory I (3)  
Economic theory of behavior of households and firms in market economy.
6402. Microeconomic Theory II (3)  
P: ECON 6401. Extensions of choice theory. Efficiency and equilibrium under conditions of uncertainty and imperfect information. Welfare under second-best constraints.
6910. Quantitative Methods in Health Economics (3)  
Applications of quantitative methods to selected health economics topics of current policy relevance.
8111. Economic Theory I (4)  
Fundamental models and methods of economic analysis: theory of choice; consumer and producer behavior; behavior under uncertainty; general competitive equilibrium, welfare, and efficiency; equilibrium with uncertainty.
8112. Economic Theory II (4)  
P: ECON 8111. Fundamental models and methods of economic analysis: elements of game theory; imperfect competition; analysis of market failure; problems of incomplete and asymmetric information; welfare economics, social choice and incentives, and mechanism design.
8211. Macroeconomic Theory I (4)  
P: ECON 5501 or equivalent. Foundations of macroeconomic behavior and analysis: household's choice problem, growth models, and real business cycle models.
8212. Macroeconomic Theory II (3)  
P: ECON 8211. Analysis of business cycles using canonic positive macroeconomic models; disequilibrium macroeconomic dynamics; normative analysis of monetary and fiscal policy using macroeconomic models.
8241. Applied Macro I (3)  
P: ECON 8211. Development of the models and statistical techniques used to study time series data with a special emphasis to applications in macroeconomics.
8242. Applied Macro II (3)  
P: ECON 8241. Development of the econometric tools necessary for advanced research in financial risk analysis.
8310. Advanced Econometrics (4)  
P: ECON 6302; MATH 5102, 6802; or consent of graduate director. Development of asymptotics and advanced estimation techniques.
8350. Applied Research Methods (3)



- P: ECON 8310. Application of econometric techniques including limited dependent variable models, panel data estimators, instrumental variables estimators, and spatial econometric models.
8411. Risk Analysis I (3)  
P: ECON 8011, 8012; MATH 5102, 5801. Analysis of risk and uncertainty.
8412. Risk Analysis II (3)  
P: ECON 8411. Analysis of models relevant to natural hazards risks.
8413. Risk Analysis III (3)  
P: ECON 8412. Explores frontiers of theoretical and applied research particularly with regard to market and regulatory risk.
8510. Applied Welfare Analysis (3)  
P: ECON 8112. Theory of normative models for applied welfare economics and their application to public policy.
8540. Environmental and Resource Economics (3)  
P: ECON 8112, 8310. Advanced economic theory of environmental management and policy, treatment of externalities, market and non-market approaches to environmental improvement, sustainable use of resources and non-renewable resources, and economics of climate change.
8620. Labor Economics (3)  
P: ECON 8112, 8350. Modern economic theories and applied methodology on topics related to labor supply, human capital, distribution of earnings, policy, and program evaluation.
8650. Health Economics (3)  
P: ECON 8112, 8350, 8411. Economic analysis of the health production model and the delivery of health care.
- [8660. Public Health Economics I \(3\)](#)  
[P: ECON 8112, 8350, 8411. Economic analysis of models of health production and the delivery of health care within a public health context.](#)
- [8670. Public Health Economics II \(3\)](#)  
[P: ECON 8660. Empirical analysis of public health policy issues pertaining to delivery and utilization of health care and their effects on population health and well-being.](#)
8720. Industrial Organization (3)  
P: ECON 8112. Combines the latest theories with empirical evidence about the organization of firms and industries.
8901. Research Workshop (1)  
May be repeated for a maximum of 6 s.h. P: Consent of director of graduate studies. Present and discuss research methodologies as well as new results in the literature.
8951. Doctoral Seminar (1)  
May be repeated for a maximum of 4 s.h. P: Consent of director of graduate studies. Students present work in progress to faculty and peers.
9000. Dissertation Research (3-9)  
May be repeated for a maximum of 18 s.h. P: Consent of advisor and director of graduate studies. This course is graded S or U and is not included in meeting the cumulative "B" average required for graduation.
9001. Dissertation: Summer Research (1)  
May be repeated. No credit may count toward degree. P: Consent of advisor and director of graduate studies.

New text for the manual (current pg. 6):

5. **Justification.** Identify the committee or group (e.g., Graduate faculty of the Department of English) that conducted the assessment of curriculum and student learning. Explain why the unit wishes to offer or revise the course. Include specific results from the unit assessment that led to the development or modification of the course. If applicable, cite any accrediting agency/ies and reference the specific standard/s.

New text for proposal form:

5. **Justification.** Identify the committee or group (e.g., Graduate faculty of the Department of English) that conducted the assessment of curriculum and student learning. Explain why the unit wishes to offer or revise the course. Include specific results from the unit assessment that led to the development or modification of the course. If applicable, cite any accrediting agency/ies and reference the specific standard/s.

Justification provided by unit...

This new text will be incorporated into the proposal form and manual when they are posted in the fall of 2012.