The Master of Science in Applied Economics and Statistics:  
Graduate Student Handbook for 2013-2014

I. Overview

Students who earn a Master of Science (MS) in Applied Economics and Statistics (AES) learn to apply economic theory, design experiments or surveys, estimate econometric models, and test hypotheses with inferential statistics to analyze human behavior, business practice, or government policy. The behavior, practice, or policy might relate to agriculture, credit markets, environmental or natural resource management, forestry, health care, insurance, marketing, property rights, regional economic growth, regulation, stock markets, sports businesses, or sustainable development.

Faculty from the John E. Walker Department of Economics, applied economists in the School of Agricultural, Forest, and Environmental Sciences, and statisticians from the Dept. of Mathematical Sciences teach the required and most of the elective courses. The John E. Walker Department of Economics is the administrative home of the program. Raymond Sauer is the Chair of the Department. The graduate coordinator of the program is Scott Templeton, who can be reached at stemple@clemson.edu (email) or 864-656-6680 (office). The program is coordinated in cooperation with the School of Agricultural, Forest, and Environmental Sciences.

Graduates of the MS in AES program have used their skills to fill an increasingly valuable niche in public and private sectors. Employers of recent graduates include these: AgSouth Farm Credit, Archer Daniels Midland, BB&T Bank, BBDO Atlanta, Cardno Entrix, Florida Farm Bureau, Fractal Analytics, Impact DataSource, Ipsos, Greenville Technical College, Medical University of South Carolina, National Golf Foundation, Orangeburg-Calhoun Technical College, Resurgent Capital Services, Town of Caswell Beach in North Carolina, Tri-County Technical College, U.S. Forest Service, USAA Federal Savings Bank, and Vision Recycling. Other graduates subsequently earn doctorates at Clemson or elsewhere in economics, agricultural and applied economics, or statistics.

II. Curriculum

The curriculum of the MS in AES program is relatively flexible. There is a thesis option and a non-thesis option. Regardless of option, students must earn 12 credits in four core graduate courses that cover applied microeconomics, macroeconomics or public-policy economics, econometrics or regression analysis, and a statistics or second econometrics course.

Students also must earn at least 18 additional graduate credits from elective courses. Elective courses cover these topics: 1) anti-trust policy and regulation, 2) benefit-cost analysis, 3) economic or regional development, 4) environmental economics, 5) experimental design, 6) financial economics, 7) international economics, 8) industrial organization, 9) labor economics, 10) mathematical economics, 11) monetary economics, 12) multivariate statistics, 13) natural resource economics, 14) public finance, 15) sampling, 16) spatial statistics, and 17) sports economics.

Students may take, with approval of their advisory committee, at most two non-economic or non-statistical but relevant elective courses, such as Geographical Information Systems (GIS) or financial mathematics, as part of the 18-credit minimum. Students must maintain a Grade Point Ratio of 3.0 or better, on a scale of 0 to 4, in order to earn a graduate degree from Clemson University.
A. Required Core Courses

1. Microeconomics for Public Policy (ECON 8230) or, if the instructor and departmental Chair permit, Microeconomic Theory (ECON 8010), both of which are offered in the fall.

2. Public Policy Economics (APEC 8220) or Macroeconomic Theory (ECON 8050), both of which are offered in the spring semester.

3. Introduction to Econometrics (ECON 6050) or Regression and Least Squares Analysis (EXST 8030).

4. Advanced Econometrics (ECON 6060), Sampling (EXST 8040), Design and Analysis of Experiments (EXST 8050), Multivariate Statistics (EXST 8170), or Time-Series Econometrics (ECON 9090)

Applied Mathematics for Economics (APEC 8040) or its equivalent is a co-requisite or prerequisite for ECON 8010. ECON 8010 and ECON 8050 are recommended for students who choose the thesis option or plan to pursue a PhD in economics or applied economics.

Intermediate microeconomics (ECON 3140) or Microeconomics of Public Policy (ECON 8230) or its equivalent is a prerequisite for ECON 8010 and APEC 8220. Intermediate macroeconomics (ECON 3150) or its equivalent is a prerequisite for ECON 8050.

Statistical Methods (EXST 8010), an equivalent graduate course, or an undergraduate introduction to probability and statistics, is a prerequisite for ECON 6050, EXST 8030, EXST 8040, EXST 8050, and EXST 8170. EXST 8010 is usually offered during a summer session, in addition to being offered in the fall and spring semesters.

One core course in econometrics, which integrates economic theory and statistics, is highly recommended.

B. Thesis Option

The thesis option provides training in economic theory, econometrics, statistics, and their application for empirical research. Students who choose this option plan to pursue a PhD degree or a career that requires a high level of research competence. An acceptable Master’s thesis is ready without substantial revision for peer-reviewed publication.

Students who choose the thesis option must take at least 24 credit hours of course work and, thus, may take 6 units of thesis research (APEC 8910 or ECON 8910) to earn the minimum 30 credits. A student must earn at least 12 of the 24 credits in 8000-level or 9000-level courses for this option. Well-prepared, full-time students in this option can earn their degree in one calendar year but may take 1.5 to two years to finish the course and thesis requirements.

C. Non-Thesis Option

The non-thesis option provides practical training in applied economics, econometrics, and data analysis for business or government. The program provides additional technical skills for business- or public-service-oriented students. A technical, or professional, paper is required. An acceptable technical paper is similar to a project report or paper for a capstone course and could be used as the basis for a grant proposal or, with substantial extra work, could be publishable.

Students who choose the non-thesis option must earn at least 30 credit hours of course work. A student must earn at least 15 of the 30 credits in 8000-level or 9000-level courses for this option. Well-prepared, full-time students in this option can earn their degree in one calendar year or
even two semesters, but may also take longer to finish.

D. One-Year Schedule of Courses for MS in Applied Economics and Statistics

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>Fall</td>
<td>Microeconomics of Public Policy (ECON 8230) or Microeconomic Theory (ECON 8010)</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td>Introduction to Econometrics (ECON 6050), if Regression and Least Squares Analysis (EX ST 8030) will not be taken in Spring, or an elective 6000- or 8000-level APEC, ECON, or EXST course</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td>An elective 6000- or 8000-level APEC, ECON, or EXST course</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td>An elective 6000- or 8000-level APEC, ECON, or EXST course</td>
<td>3</td>
</tr>
<tr>
<td>Fall</td>
<td>An elective 6000- or 8000-level APEC, ECON, EXST, or other approved course</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal for Fall</strong></td>
<td><strong>15</strong></td>
</tr>
<tr>
<td>Spring</td>
<td>Public Policy Economics (APEC 8220) or Macroeconomic Theory (ECON 8050)</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>Regression and Least Squares Analysis (EX ST 8030), if ECON 6050 was not taken in the Fall, or a second econometrics or statistics course, if the core requirement has not yet been met, or an elective 6000- or 8000-level APEC, ECON, or EXST course</td>
<td>3</td>
</tr>
<tr>
<td>Spring</td>
<td>An elective 6000- or 8000-level APEC, ECON, or EXST course</td>
<td>3</td>
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<tr>
<td>Spring</td>
<td>An elective 6000- or 8000-level APEC, ECON, or EXST course</td>
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</tr>
<tr>
<td></td>
<td><strong>Subtotal for Spring</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
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Check course availability at soc.clemson.edu/ or through iRoar at https://casauth.clemson.edu/.

III. Administrative Requirements: Procedures and Forms

The Graduate School has many procedures to follow and forms to be filled out and filed in a timely fashion to ensure that an applicant is considered for admission and a student graduates on time. Some of the procedures and forms are discussed in this section. However, students are responsible for meeting administrative requirements and also keeping track of any subsequent changes. Students must consult the Graduate School Announcements and updates on the Graduate School’s website. Forms for enrolled students are available at www.grad.clemson.edu/forms/index.php.

A. Application and Admission to Program

To apply to the MS in Applied Economics and Statistics program follow the instructions at www.grad.clemson.edu/admission/index.php and complete the online application. Applications should be completed by February 1 to guarantee a decision and notification before April 15 for the fall. Applications submitted after Feb. 1 will be reviewed as time permits. Students with inadequate or exceptional economic-statistical backgrounds may apply for the spring semester.

An applicant’s grades, GRE scores, statement of purpose, two letters of recommendation, reputation of his or her alma mater, academic background, and relevant work or personal experience are the criteria for an admission decision. There is no minimum grade point average or minimum GRE score. However, admitted students usually have earned an A or B, or
equivalent scores, for their courses, particularly those in economics, statistics, and other mathematics. The respective median scores of recently enrolled students on the verbal, quantitative, and analytical writing parts of the GRE are approximately 154, 152, and 4.0.

Admitted international students have a cumulative TOEFL iBT score in the range of at least 90 to 100 with a minimum of 20 for listening and 20 for speaking. Reading and writing scores of admitted applicants are usually higher than 20. Otherwise, the successful applicant has earned at least 7.0 on the IELTS, if she did not take the TOEFL. An applicant with a low TOEFL or IELTS score can be admitted conditional on completing level 112 of an ELS course and, if necessary, retaking the GRE.

Admitted students should have studied at least one semester of calculus, introductory probability and statistics, and intermediate microeconomics. Intermediate macroeconomics is highly recommended. Students who majored in economics or agricultural economics and took econometrics or who majored in statistics but took intermediate microeconomics typically have adequate backgrounds. Exceptional students with inadequate backgrounds may be admitted but required to take extra, co-requisite courses during their first semester. Domestic students with inadequate backgrounds may apply as non-degree seekers, take co-requisite courses, and then apply to the program.

The number of applicants accepted each year varies. Seven students enrolled for 2011-2012 and nine did for 2012-2013. If applicant qualifications permit, we could admit and enroll two times as many students for 2013-2014.

B. Tuition and Fees

Tuition and fees are set by Board of Trustees during their July meeting for the upcoming academic year. Thus, tuition and fees for 2013-2014 are not yet available but will probably be similar to those for 2012-2103. Check www.grad.clemson.edu/programs/tuition.php for updates. In 2012-2013 full-time graduate students paid $3,672 per semester if they were residents and $7,310 per semester if they were non-residents. A student must take at least nine-credit hours per semester in the fall and spring to be full time. Part-time students paid $404 per credit hour if they were residents and $810 per credit hour if they were non-residents. Teaching or research assistantships are typically not offered to students in the program.

All graduate students are required to have health insurance. Students who are already covered by policies that meet the University’s requirements are eligible for waivers. All others are covered by the Clemson University Student Insurance Plan. Fees are included with tuition and fees for Fall and Spring semesters (summer premium is included in the Spring semester) and students are automatically enrolled. Fees for the Clemson University Student Insurance are subsidized by the Graduate School.

C. Plan of Study, Major Advisor, and the Advisory Committee

The courses that a student chooses and whether to write a thesis are important choices because they can impact opportunities for employment or doctoral education. Core courses, elective courses, any undergraduate, co-requisite course that addresses a deficiency in background are listed in a form called the GS2. The student must file the GS2 before the start of the second semester. The exact date by when the GS2 must be filed is specified by Enrolled Services and can be found at www.grad.clemson.edu/deadlines.php.
Another important decision for a student is the choice of a major advisor. A faculty member from the Department of Economics, an applied economist in the College of Agriculture, Forestry, and Life Sciences, or a statistician from the Department of Mathematical Sciences may serve as the major advisor. The major advisor assists the student in course selection, supervises research, chairs the student's advisory committee, and writes letters of recommendation. The student should choose a major advisor as soon as possible but before the start of the final semester. Students should meet with their major advisor regularly. The graduate program coordinator serves as the interim advisor until the student selects one.

The student and major advisor choose at least two other members of the advisory committee before the start of the student's final semester. Members of the advisory committee recommend elective courses, sign the GS2, review the thesis or technical paper, and participate in a final oral examination, if the advisor requires one.

D. Final Examination: Thesis or Technical Paper and Oral Examination

The final examination of a student in the MS in Applied Economics and Statistics typically consists of two parts: 1) the thesis or technical paper and 2) an oral examination. The oral examination primarily is a student’s defense of her thesis or technical paper but might also include questions that any member of the advisory committee might ask to ascertain that the student can competently use applied economics and statistics. The thesis or technical paper must be successfully defended at least three to four weeks prior to graduation. Written notification of the defense is due in Enrolled Services at least 10 days prior to the defense. The information must include the student’s name, program of study, title of thesis or technical paper, major advisor, date, time, and location. The student arranges the date, time, and place for the defense in consultation with the major advisor and other members of the advisory committee. Copies of the thesis or technical paper must be delivered to the student's advisory committee at least two weeks before the defense. The student's major professor and advisory committee conduct the oral examination, but all faculty members are invited to attend. After the defense, revisions in the thesis or technical paper by the student must be approved by the major advisor and committee members. Students may have two attempts to pass the exam. A GS7 must be signed and submitted no later than the end of the penultimate week of the fall or spring semester to indicate passage of the final examination. The exact date by when the GS7 must be filed is specified by Enrolled Services and can be found at www.grad.clemson.edu/deadlines.php. The defense must be scheduled early enough to allow time for committee-required revisions to the thesis or technical paper before the GS7 deadline. Each student selects one of two colleges—Agriculture, Forestry, and Life Sciences (CAFLS) or Business and Behavioral Science (CBBS)—under which his or her name will be listed in the Graduation Announcements.