

PASSED 11/19/99

## Writing Across the Curriculum (WAC) component of General Education Applied Mathematical Economics Program Plan

### I. Goals

The departments of economics and mathematics have designed the applied mathematical economics major to provide students with a firm grounding in modern economic theory, a solid foundation in mathematical analysis, and the capability to engage in quantitative research and independent thought. A large proportion of majors in this program choose to pursue graduate study in economics, law, applied mathematics, and related disciplines. Written work by students provides an essential component of the training required to meet these goals.

The goal of the applied mathematical economics program's writing program is to ensure that our students have the ability to express their thoughts clearly and effectively in written forms of expression. It is expected that this writing plan will allow students to develop effective writing skills that will allow them to synthesize, compare, and analyze alternative theoretical explanations for real-world outcomes. An additional goal is to encourage the development of writing skills that allow students to express their thoughts clearly, completely, and concisely.

### II. Objectives

Applied Mathematical Economics majors will be required to complete five approved writing courses. At least four of these courses will be completed as core requirements of the major program: ECO 300 - Intermediate Macroeconomics, ECO 301 - Intermediate Microeconomics, ECO 312 - Introduction to Econometrics, and MAT/ECO 409 - Applied Mathematical Economics Seminar. The fifth course may be an economics elective (a list of allowed electives follows) or may be an approved upper-division writing course in a related discipline (Mathematics, Computer Science, Information Science, Political Science, History, Psychology, Sociology, or Anthropology).

The WAC guidelines suggest that departments should develop a lower-division writing experience course and a "capstone writing course" for their majors. The capstone writing course for this program is the required seminar course (ECO/MAT 409). A specific lower-division writing requirement is not practical given the large enrollments in the introductory courses required by the program. As one of their five writing classes, students will be encouraged to complete a Basic Skills Critical Thinking course that provides a lower-division writing experience related to the major program. This course must be included in the writing plan of the department that offers the course. At this time, courses that meet these criteria are ECO 111, POL 203, MGT 210, PHL 101, and HIS 200. As other critical thinking courses that meet these criteria are approved by the General Education board they can be added to the program's writing plan.

## Appendix: Courses

The following list contains the writing courses offered by the participating departments along with the writing requirements for those courses.

### ECO 111: Critical Thinking in Economics

Because writing is central to the development of critical thinking skills, students will be required to complete frequent essay assignments either critically evaluating another writer's work or developing their own argumentation. Essay lengths will vary according to the demands of the topic, as will the frequency of assigned essays. It is safe to assume that students will be writing on a weekly basis. At least 30% of the grade in this course will be based upon student performance in written assignments. Conceivably, that weight could be much higher.

### ECO 300: Intermediate Macroeconomic Theory

This course will have 3 to 5 writing assignments based on current issues in the United States economy that deal with course topics. Assignments will be 3 to 6 typewritten pages. Grading will be based on basic composition skills, structure, and organization, and the student's command of economic analysis. All assignments will include the opportunity for feedback and revision. Writing assignments will constitute a minimum of 30% of the total course grade.

A sample semester might include a first paper summarizing and analyzing an article about the current state of the United States economy, including a discussion of current inflation, unemployment, and growth rates and possible factors responsible for the state of the U.S. economy. A second paper could discuss issues surrounding economic growth, such as the role of population changes and technological innovation. A third paper could discuss the globalization of the U.S. economy and the impact of fluctuations of currency values on imports and exports.

Individual instructors may vary the writing component of this course within the confines of these parameters. Topics may vary on the interests and expertise of the instructor.

### ECO 301: Intermediate Microeconomic Theory

This course will have 3 to 5 writing assignments based on current issues in the United States economy that deal with course topics. Assignments will be 3 to 6 typewritten pages. Grading will be based on basic composition skills, structure, and organization, and the student's command of economic analysis. All assignments will include the opportunity for feedback and revision. Writing assignments will constitute a minimum of 30% of the total course grade.

A sample semester might include a first paper summarizing and analyzing an article that illustrates the problem of scarcity and the tradeoffs that result. A second paper could

III. Criteria for writing courses

All writing courses must involve writing assignments with timely feedback and the opportunity for revision. When applicable, writing assignments should conform to some accepted style guide, such as those provided by the MLA or the Chicago Manual of Style.

The frequency, length, and weighting of writing assignments shall be left to the discretion of the instructor provided that they maintain the following requirements:

- writing assignments must constitute at least 20% of all graded material, and
- there must be the possibility of revision in the writing assignments.

IV. Timetable for student completion.

Because writing skills are subject to atrophy, the applied mathematical economics writing plan attempts to create a continuum of writing opportunities. In their first year, students should take ENG 102 and a writing-intensive critical thinking course. In addition, they should complete ECO 101 - Principles of Microeconomics, ECO 200 - Principles of Macroeconomics, MAT 210 - Calculus I, and MAT 220 - Calculus II. While these courses typically do not have a significant writing component, they will prepare students to take intermediate-level writing courses in economics (Eco 300 and 301) in their second year. These intermediate-level classes provide students with an opportunity to use writing to express concepts related to the theory and practice of economic analysis. It is expected that Eco 312 would generally be completed during the student's junior year. This course provides students with an opportunity to provide written summaries of statistical and econometric analyses. The capstone writing experience (MAT/ECO 409) would generally be completed during the spring semester of the student's senior year.

In addition to the courses taken as part of the program's writing plan, we anticipate that most of our majors will take additional upper-division writing courses outside of the major. Many of our students have either minors or second majors in other departments, and will thus have additional opportunities to write in related fields.

V. Summary

The applied mathematical economic program's writing plan is designed to provide our majors with the opportunity to continuously improve their writing skills by engaging in different types of writing throughout their program. Students will take one lower-division writing course either within or outside the major. This course should also fill the Basic Skills Critical Thinking component of the general education program. Following the lower-division writing class our majors will take four upper-division writing courses offered within the program. These courses include ECO 300, ECO 301, ECO 312, and MAT/ECO 409, which are part of the program's core requirements. Under the plan, students will be encouraged to avoid significant hiatuses between writing courses.

involve identifying and describing the key factors related to the demand and supply of a particular good or service. A third paper could compare and contrast different market structures and identify actual firms and markets that are competitive, oligopolies, and monopolies.

Individual instructors may vary the writing component of this course within the confines of these parameters. Topics may vary on the interests and expertise of the instructor.

### ECO 312: Econometrics

Students in this course are required to complete a term research project paper which should include a theoretical analysis and an empirical test derived from this analysis. Although there are no restrictions on length as long as the paper is self contained, a typical paper may be around 10 typed pages. Students should submit one- or two-page proposals for the paper to be approved. There will be interactions between students and the instructor regarding the feasibility and the progress of the project. The paper will carry approximately 30 % of the grade for the course.

### Eco 409: Applied Mathematical Economics Seminar

Students in this class are required to complete an econometrics research paper that provides a discussion of their original research and places this research in the context of prior theoretical and empirical work. The grades assigned on these papers are based upon the students' ability to effectively summarize the relevant literature and to provide a clear, and logically sound, discussion of their own analysis. Logical organization, basic composition skills, and grammatical structure will be evaluated in conjunction with the quality of the economic and econometric analysis. At least 1/3 of the course grade is based on the student's performance on this project. While there are no specific minimum or maximum page lengths or word counts, most completed papers are between 18 and 35 pages in length.

In completing these projects, students will have several opportunities for revisions. An initial project proposal is presented by the student in the early stage of the course. This proposal is returned to the student with suggestions for modification or revision. All students are required to submit a rough draft of the literature review portion of the paper by the middle of the semester. A rough draft of the entire paper is also required at a later stage in the course. Both drafts are evaluated and returned to the student with suggestions for revisions. Students are given the opportunity for subsequent drafts and revisions should this be necessary (provided that they complete the final draft by the scheduled due date).

This is the basic set of requirements that has been used when this course has been taught in the past. Different instructors may, in the future, require different numbers of term papers, or may modify the nature of the writing assignment. Should such modifications occur, however, one or more writing assignments will provide the basis for at least one-third of the course grade and a process of providing students with feedback and an opportunity for revision will be maintained.

## Mat 409: Applied Mathematical Economics Seminar

Students in MAT 409 are required to present, in a public forum, a prepared oral presentation. The presentation may take the form of either:

1. a report of the results of an in-depth application of statistical and/or econometric techniques to a nontrivial situation of real import.
2. demonstration of a statistical or econometric technique (presumably one not covered "in class"), with accompanying discussion of the theory behind the method and examples illustrating usage.

In either case it is assumed that students will prepare documents for distribution and (projected) viewing. Students will prepare a written outline for their presentations. Each presentation will be accompanied by a written abstract.