Course Name:  
AGEC 654, Agricultural Economics 654, Economic Dynamics

Course Website:  
Gradebook and all other course information/material will be available via Blackboard Vista.

Instructor: Juan Sesmero  
Office: Krannert 591A  
Phone: (765) 494-7545  
email: jsesmero@purdue.edu

Secretary: Linda Klotz  
Office: Krannert 631  
Phone: (765) 494-4208  
email: lirklotz@purdue.edu

Sesmero Office Hours: Student’s request

Meeting Times:  
Lecture: TH 1:30-2:20PM Jerry S Rawls Hall 1071

Required Text

There will be no official textbook for AGEC 654 this semester. The course will be based on lecture notes by the instructor. There are, however, many books that could provide significant support in terms of understanding and broadening of concepts. Many lectures will be based on Stokey, Nancy L., and Robert E. Lucas, Jr., with Edward C. Prescott. Recursive Methods in Economic Dynamics. Cambridge, MA: Harvard University Press, 1989. ISBN: 9780674750968 and Miranda, Mario J., and Paul L. Fackler. Applied computational economics and finance. MIT press, 2004. I suggest these books as good combinations of theory and practice. These books can be useful for the students beyond the requirements of the course.

Other Recommended Readings


Course Objectives

The course is intended to train students to be able to conceptualize, model, and solve dynamic economic problems. Many economic problems cannot be examined (or would be inadequately examined) without an explicit recognition of their dynamic nature. Consequently, the objective of this class is to learn: how to identify the dynamic dimension of economic problems, the appropriate conceptual framework to analyze them, and computational techniques that can provide quantitative solutions to those problems.

By the end of the course, the student should have acquired the following skills:
1. Identify the need for dynamic optimization.
2. Identify the mathematical structure of the problem.
3. Identify solution strategies.
4. Implement solution strategies.

Course Schedule

The following lists topics covered in each class in the course. Exams and homeworks will be based heavily on lectures so it is important to attend all lectures to stay on pace in the course.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dynamic problems and structure</td>
</tr>
<tr>
<td>2-5</td>
<td>Existence of Solutions and Strategies</td>
</tr>
<tr>
<td>6</td>
<td>Dynamic Games</td>
</tr>
<tr>
<td>7</td>
<td>Review and Test</td>
</tr>
<tr>
<td>8-9</td>
<td>Differential Equations</td>
</tr>
<tr>
<td>10-13</td>
<td>Numerical Methods</td>
</tr>
<tr>
<td>14-15</td>
<td>Readings</td>
</tr>
<tr>
<td></td>
<td>Exam Week – Final Project due / Based on readings</td>
</tr>
</tbody>
</table>

Course Grading

Homeworks                                                                 33.3%
Midterm Exam                                                              33.3%
Final Team Project                                                        33.3%

The course grade will be determined from performance on the midterm exam, homeworks, and a final team project. Makeup assignments, quizzes, and exams are allowed for University excused absences; please contact the instructor in advance if possible to make arrangements.

Homework Assignments

Homework assignments will be posted on Blackboard. These assignments will include detailed questions where students are required to analyze concepts learned in class. Assignments are to be turned in a week after they are distributed to the class. While students are encouraged to discuss ideas or proposed solutions with others, the assignments are to be submitted individually.
Mid-Term Exam

A midterm exam will be given. The exam format is multiple choice, true or false, or short answer questions. They may or may not include derivations. Exams are given during lecture periods and are intended to be completed during the 50 minutes lecture window.

Final Team Project

The final assignment is intended to unify some of the most important components of this course and serves as your final exam. It is expected to solidify the concepts covered during the course. Each team of 2-4 people will identify a problem requiring dynamic optimization for solution, and apply the methods and tools learned in the course (Notice: If you are unwilling or unable to serve on a team, then you may write an individual project. You will, however, be held to the same standards that a group project will be held to). While team projects may result in uneven distribution of efforts, I intend to discourage free riders by requiring each team member to submit a score (1-4, 4 being highest effort) reflecting their perception of their teammates’ effort.

A description of the project is as follows:

Tasks involved in analyzing the issue
About 15 pages long with a 12-size font, 1-inch margins. The paper should include (at the very least), the following sections:
   1) The dynamic nature of the problem.
   2) The key parts of the mathematical structure of the problem.
   3) The mathematical representation of the optimization problem.
   4) A description of the solution strategy.
   5) An outline of a code to solve it in Matlab.

Assistance Outside Class

Class time is limited, so it may not be possible to answer all of your questions during class. If you have questions that you would like to discuss outside class time and the reserved office hours, you are encouraged to contact my secretary Linda (lrklotz@purdue.edu) or me (jesmero@purdue.edu) for an appointment. In discussing your questions, please come prepared. Our discussion will be more productive if you have thought about your question(s) and written them out.

It is especially important to hear from you when you are frustrated with this class. If you are frustrated or unhappy with the course for any reason, contacting me will indicate concern and hopefully will result in some relief.

Attendance and Classroom Etiquette Policy

AGEC 654 has as its formal attendance policy that you are expected to attend class. If you contract an illness and have to miss class, you are responsible for the work missed. Accommodations (such as extended due dates) will be handled on a case-by-case basis.
Cellphone use is prohibited in the classroom. Turn them off and keep them out-of-sight. I will not confiscate cellphones but I reserve the right to, if used during exams, penalize its use through grades. Laptop use for note-taking is accepted but they have to be turned off during exams. Texting and email use during class time are usually a big distraction. Students are expected to be respectful of others in the classroom.

**Academic Integrity**

Each student enrolled in AGEC 654 is encouraged to study and work exercises with others. That said, this class abides by the University policy on academic integrity as embodied in the following statement:

University policy on academic misconduct is clear - academic dishonesty in any form is strictly prohibited. Instances of academic dishonesty will be referred to the Dean of Students for disciplinary action. Penalties are severe and may include failure on the exam, quiz, paper, or project, failure in the course, and/or expulsion from the University. The risks associated with academic dishonesty far outweigh the perceived benefits. Academic dishonesty includes citing someone else's work as your own, using unauthorized "crib sheets" during exams, or sharing your answers with someone else. If you are unsure whether an action you are considering constitutes academic dishonesty, seek clarification from your instructor.

**Students with Disabilities**

If you have a disability that requires special academic accommodation, please make an appointment to speak with me within the first three weeks of the semester in order to discuss any adjustments. It is important that we talk about this at the beginning of the semester. Please note that university policy requires all students with disabilities to be registered with Adaptive Programs in the Office of the Dean of Students before classroom accommodations can be provided.

**Score Revisions**

The instructor grades all of your work and sometimes makes errors. If the error lowers your grade it is your responsibility to inform the instructor of the mistake. This can be done by checking your work against that of classmates, posted answer keys, or discussion with the instructor. Scores will be posted on Blackboard upon grading. If your score for an assignment is not posted after two weeks from the due date, it is your responsibility to notify the instructor or teaching assistant. Failure to report a missing grade within three weeks from the due date will result in an incomplete score.

**Campus Emergency**

In the unusual event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances. To get information about changes in this course visit the course home page, contact me by email, or call me at my office (494-7545).
To report an emergency, call 911. To obtain updates regarding an ongoing emergency, sign up for Purdue Alert text messages, view [www.purdue.edu/ea](http://www.purdue.edu/ea). There are nearly 300 Emergency Telephones outdoors across campus and in parking garages that connect directly to the PUPD. If you feel threatened or need help, push the button and you will be connected immediately. If we hear a fire alarm during class we will immediately suspend class, evacuate the building, and proceed outdoors. Do not use the elevator. If we are notified during class of a Shelter in Place requirement for a tornado warning, we will suspend class and shelter in the basement. If we are notified during class of a Shelter in Place requirement for a hazardous material release, or a civil disturbance, including a shooting or other use of weapons, we will suspend class and shelter in the classroom, shutting the door and turning off the lights. Please review the Emergency Preparedness website for additional information. [http://www.purdue.edu/ehps/emergency_preparedness/index.html](http://www.purdue.edu/ehps/emergency_preparedness/index.html)