

AEB 3510—Quantitative Methods in Food and Resource Economics

Spring 2015

Section:2149 (3 credit hours)

Time: M 4:05-4:55 pm (9th period)
W 4:05-6:00 pm (9-10th period)

Location: McCarty Hall B G106

Instructor and Contact Information:

Instructor: Maria Bampasidou
Office: 1179 McCarty Hall A

I have an open door policy but I may not be able to accommodate you without an appointment.

Office Hours: M-T-W 10:40-11:30 (walk-ins),
R by appointment

Additional office hours can be scheduled by appointment. Feel free to e-mail me to schedule one especially should you want to discuss your class performance.

E-mail: mabampasidou@ufl.edu

Please **check my schedule** prior emailing me to schedule a meeting.

Communication: E-mail is a preferable way to communicate with me outside office hours.

When e-mailing me, please **start the subject line with AEB 3510**.

Courteous and professional e-mails can expect a prompt reply.

I reserve every right not to respond to unprofessional emails, and text-format emails.

Please keep in mind that it takes at least a day to answer e-mails so send yours in a timely fashion.

FRE Program Assistant: Kathy Green; 1170 McCarty Hall A; (352) 294-7640
Email: kagreen1@ufl.edu

Undergraduate Adviser: Anne Marie Mattison; McCarty Hall A; (352) 294-7638
Email: mattison@ufl.edu

Teaching Assistant: TBA
Email:

General Course Information:

Course description: This course is designed to develop the student's understanding of finite mathematical tools used in economics and business decision-making. Emphasis will be given on **mathematical reasoning and methodology**. We will draw topics from algebra, differential and integral calculus, statistics and matrix algebra. Advanced topics include multivariate calculus, Lagrange multipliers and optimization techniques.

Prerequisites: **MAC2233 or MAC2311** or the equivalent. It is further assumed that students have had at least one economics course (i.e., ECO 2013 or ECO 2023 or the equivalent). Should you have any concerns please see me as soon as possible.

Course objectives: More and more economic courses are employing heavily mathematical analysis. This course will sharpen your knowledge of simple analytical tools learned through business calculus or calculus and will relate economic applications encountered in a number of disciplines, some of which are listed below:

- Agricultural microeconomics
- Macroeconomics
- Financial and Managerial economics
- Environmental, and Labor economics

The purpose of this class is to facilitate the understanding of techniques used in applied economics. Students are expected to be familiar with main mathematical functions, since we will build on these and focus on economic applications.

Learning Objectives: After successful completion of this course, students should

- Have a proper understanding of quantitative tools and methodologies employed in modern economic analysis
- Be able to understand and interpret graphs associated with economic analysis using quantitative tools and marginal analysis:
 - Linear form; e.g. demand and supply curves, IS-LM model
 - Quadratic form; e.g. marginal productivity curves, MC, ATC, AVC curves
 - Cubic form; e.g. production and cost curves
- Be able to understand and use differential techniques and calculus employed in production and managerial economics
 - Optimization techniques (Constrained and unconstrained optimization)
 - profit maximization, cost minimization
 - pricing techniques (uniform price, price discrimination)
 - Demand analysis
 - Complements, substitutes
- Be able to understand and use integral calculus (e.g. Consumer and Producer surplus, deadweight loss)
- Be able to associate main mathematical functions and economic applications (e.g. growth rates and exponential functions)

Course Material:

Required Book: Mathematical Methods for Business and Economics, Schaum's Outlines, by Edward T. Dowling. McGraw Hill/Irwin Publishers, 1993. ISBN: 0-07-017697-3

Lecture notes

- Reading the lecture notes and related handouts is imperative to benefit the most out of the course.

iClicker 2: ISBN 1464194556

Supplemental book: Introductory Mathematical Analysis: For Business, Economics, and the Life and Social Sciences, Haeussler, Paul, and Wood, Pearson. ISBN: 0321643720. (any edition)

Canvas

- Canvas is used for emails, announcements, course discussions, posted lecture notes, assignments, suggested exercises and solutions to assignments, quizzes, and exams.
- To access Canvas you will need your Gatorlink username and password. Canvas can be accessed via <https://lss.at.ufl.edu/>. Should you have difficulties accessing Canvas, please contact UF Computing Help Desk directly by calling (352)-392 HELP or via e-mail helpdesk@ufl.edu

Note that: Reading your book, lecture notes, and related handouts is imperative to benefit the most out of the course. You should expect to study a minimum of 3 hours/week to cover and comprehend course material. During exam weeks the time-commitment will be significantly higher.

Course Modules and Outline:

1. PreCalculus

Here we will review topics covered in previous calculus courses and see a first link to economic modeling.

Introduction

Topic 1: Back to Basics: Equations and Graphs

- Linear equations
- Quadratic equations
- Slopes and Intercepts

Topic 2: Functions

- Definition of a function
- Applications of Linear functions
- Quadratic functions
- Economic functions

Topic 3: System of Equations

- Definition
- Break-even analysis
- Supply and Demand
- IS-LM model

2. Differential Calculus

This is a core module. The rest of the course material is building upon this module.

Topic 4: Differential Calculus

- An Introduction
- Slopes and Tangency conditions
- Limits
- Continuity
- Rules of differentiation

Topic 5: The derivative and its uses

- Monotonicity
- Concavity
- Optimization of single-variable functions
- Marginal Analysis

Topic 6: Exponential and Logarithmic Functions

- The exponential function
- Inverse functions
- The logarithmic function
- Derivatives and properties
- Economic Applications

3. Advanced Topics in Calculus

Topic 7: Calculus of Multivariable Functions

- Functions of several dependent variables
- Partial derivatives (1st and 2nd order)
- Constraint optimization: Lagrange multipliers
- Economic Applications

Topic 8: Integral Calculus

- The antiderivative
- Integration theorems
- Approximation of areas
- Definite integral and Indefinite integral
- Economic Applications

4. Extra Topics (pending time).

Topic 9: Matrix Algebra

The instructor reserves the right to change the material, the chapters, and the respective sequence as appropriate. Any changes will be communicated timely in class, via the UF e-mail list serve, and via E-learning. It is the student's responsibility to stay informed and updated of any changes.

Evaluation of Performance and Grading:

Grades: Your grade will be determined based on your performance on the exams administered during the course. Your final grade for AEB 3510 will be based on the following:

Grade components		
Exams/Quizzes:	Sum of highest two in-class exams	
	(@75 points each)	<i>max</i> 150 points
	Final exam (mandatory)	75 points
	Quizzes (3 out of 5)	30 points
Course Activities:	Assignments (4 out of 5)	
	(@ 20 points each)	80 points
	Attendance Quizzes	<i>max</i> 20 points
	Class-activities	<i>max</i> 45 points
Maximum Points		400 points

Final course grade will have the following benchmarks out of 400 possible grade points:

Letter	Course Equivalent	Notes
A	≥375	<ul style="list-style-type: none"> For general information about grading and grading policy at the University of Florida, please refer to: http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html Please note that grades are not “adjusted” in any way at the end of the term. A completion grade for this course is a D but you are highly advised to target for at least a C passing grade.
A-	360-374	
B+	348-359	
B	332-347	
B-	320-331	
C+	308-319	
C	292-307	
C-	280-291	
D+	268-279	
D	252-267	
D-	240-251	
E	Below 239	

Exams and Quizzes

Exams: Three (3) in-class exams starting at 4:05pm

Points: 75 potential points per exam

Format: Multiple-choice, T-F, problem-solving and short-answer questions.

Content: Material covered in class, from the book, or concepts implied by the material covered. Each exam will be based on specific sections covered in class within the respective time-period (i.e. no cumulative, though concepts are transferable and more than one ways to approach exam questions may be possible).

Missed exam policy: There are NO “excused” exams. It is expected that you adequately and thoroughly prepare for each one of them since they are counting towards your course grade. **Should you miss any of the in-class exams**, you will receive a zero for that exam score and it can count as the one you drop.

Exam day policy:

- It is expected that all students are on-time to exams. Please arrive early, if possible, to get seated and get your books/bags stowed away so that the exam can start on the stated-time.
- You may leave the class after 30 minutes.
- NO ONE WILL BE ALLOWED TO ENTER THE CLASSROOM TO BEGIN THE EXAM AFTER THE FIRST STUDENT HAS TURNED IN THEIR FINISHED EXAM**
- Exams are closed book and closed notes.
- A simple calculator may be used. **Not acceptable** are the following items: graphing calculators and calculators with more than one display rows, cell phones, touch-screen devices, or other devices with the capability of storing formulae.

Exceptions (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>)

1. UF's 12 day rule

If you are participating in a University of Florida sponsored event, you may make up a class exam only if you bring your documentation to your instructor **PRIOR to the event (at least 7 days prior to a scheduled exam)**. Email documentation is **NO LONGER** enough. You need to bring a printed mail from the corresponding event organizers or association.

2. Illness

Should you miss an exam due to a serious, physician documented illness please contact the instructor by email prior to attending the next class period if a medical excuse will be used to take a makeup exam. The physician's medical excuse on office letter-head must be received by the instructor prior to the student attending the next class period so that a makeup date can be arranged. Failure to follow this policy will terminate any opportunity to take a makeup exam.

3. Religious Holiday Observance

Any student who must miss any regularly scheduled exam due to religious holiday observance need to inform the instructor within the first three days after the drop/add period ends.

Automobile problems, family obligations, alarm clock malfunctioning, a sore throat, a severe cold, work requirements, vacation trips, job interviews, etc. do not warrant an excused absence.

The Final exam is mandatory and comprehensive

- Points:** 75 potential points
- Format:** Multiple-choice questions. Scantrons will be provided
- Content:** Cumulative. Material covered throughout the semester.
- Exam day policy:** Same with In-class exams.
- Exam Date:** **Friday, May 1st 2015 @ 10:00-12:00pm**

**The Final Exam is scheduled by the registrar's office and no early or late Final exams will be administered.
Failure to take the Final Exam will result automatically in an incomplete grade for AEB3510.**

Quizzes: There will be 5 quizzes administered. Three out of five quizzes will count towards your grade, each out of 10 points. Each quiz is scheduled for 10-15 minutes and it will be administered at the beginning of the class. Format will be in a multiple-choice, T-F, and/or short answer questions. Students will be notified at least a week before a quiz through class announcements, and canvas announcements and calendar feature.

Course Activities

Homework problems: Homework problems will be assigned at a regular basis throughout the semester. There will be 5 assignments turned in for credit each worth 20 points. They are assigned to assist you in learning the material and are highly related to exam questions and hence to your performance in the course. The lowest score will be dropped, so a total of 80 possible points will count towards your course grade. These are **individual** assignments and will be treated as such!

Assignments are due before class starts. Since you are allowed to drop one assignment, late submission is not accepted though early submission is encouraged.

Homework Problems	Assigned Date	Due Date (before class begins)
HW1	January 12 th	January 26 th
HW2	January 26 th	February 9 th
HW3	February 18 th	March 11 th
HW4	March 23 rd	April 1 st
HW5	April 1 st	April 15 th

Note that the due dates may change depending on the material covered in class.

Attendance (max 20 points):

Students are expected to attend class and to be in class on-time. Given the nature and the quantity of material covered in class, regular attendance is a pre-requisite for performing well in this course.

Attendance will be taken **each time the class meets** through clicker questions.

- If you arrive late and attendance has been taken you cannot receive attendance credit.
- Three attendances will be excused (i.e., you can miss a total of 3 hour-long class periods without penalty; however, double-block periods count for two absences).
- If you forget to submit your attendance problems during the period in which attendance is taken, you will not receive attendance credit.
- It is your responsibility to ensure that you are in your seat no later than 5 minutes after class has begun; please discuss any circumstances with Dr. Bampasidou if this is not possible.
- Extra credit points may be offered during class periods; you must be present to earn any extra credit points offered.
- Students who expect some conflict with their ability to be present in class should contact the instructor immediately prior to the drop/add period.

Class Activities (max 45 points):

Students can earn up to 45 points through class activities. That includes but is not limited to:

- discussion sessions
- exit quizzes through clickers
- problem solving handouts
- exam reviews.

Based on the nature of the activity students may be given prior notification. As always, attendance is essential.

Grading Policy

Note that: Assignments, and Exams will be returned to you in class and grades will be posted in a timely-fashion on Canvas. You must retain all returned papers in case on any discrepancy with your course grade. We cannot correct any mistakes in grading or recording of scores without the original document.

IMPORTANTLY! You have 7 days after the grade has been posted to voice your concern. Should you believe that your exam/assignment is incorrectly graded or that your grade is incorrectly posted, please contact your TA as soon as possible. After the 7 days have passed, your posted grade will be assumed to be correct and accurate. Should you ask for a re-grade, please note that the **entire** assignment/exam will be reviewed for accuracy.

Professional Etiquette

The following guidelines are expected to be followed in order to have a productive classroom environment.

- CELLULAR PHONES are expected to be turned off. No texting or any other use of cellular phones is permitted or tolerated in class. So please take a moment to turn-off your devices before the class begins.
- You should also discontinue the use of any iPods, and tablets or similar devices unless indicated by the class activity of the day. Previous notification will be given to you in that event.
- Students are expected to be on-time for class.
- You should avoid talking amongst each other once the lecture begins unless otherwise stated (i.e. part of a classroom-activity/assignment). If you have any questions during class, please raise your hand and I will be happy to address any concerns you may have.
- You should avoid reading other course material or any type of newspaper during the class.

Failure to abide by these simple courtesy rules is considered disrespectful to me and your fellow student and you may be asked to leave the classroom. In that event Dr. Bampasidou reserves the right to account the student as absent.

Supplemental Information:

Students requesting classroom accommodation: The Disability Resource Center (DRC) coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Please contact office 0020 Reid Hall (tel: (352) 392-8565), www.dso.ufl.edu/drc . Any student requesting accommodation will have to provide documentation from the DRC.

"Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation."
Request for academic accommodations need to be made during the first week of the semester, except for unusual circumstance, so please arrange to meet with me as soon as possible.

Course Evaluation Process:

"Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu> Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>."

Software Use:

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

UF Supporting Services: College life can sometimes being overwhelming. Resources are available on-campus to help students manage personal issues or gain insight into career and academic goals. Some of them are:

- Counseling and Wellness Center : <http://www.counseling.ufl.edu/cwc/>
- Student Health Care Center: <http://shcc.ufl.edu/>
- Career Resource Center: <http://www.crc.ufl.edu/>
- Dean of Students Office: <http://www.dso.ufl.edu/>
- For a full list of services please see <https://catalog.ufl.edu/ugrad/current/support/info/student-services.aspx#SA>

Academic Honesty: Academic dishonesty is defined as any behavior, active or passive, which attempts to subvert the legitimate teaching, learning, or testing of a subject. It includes, but is not limited to the following:

- cheating on an examination, using notes or other methods;
- assisting or allowing another student to cheat on an examination;
- submission of work that is not the authentic creation of the student (plagiarism, use of purchased term papers, etc.);
- providing false excuses for missing a scheduled examination;
- enabling the cheating or other academic dishonesty of another student;
- altering an examination after it has been graded to claim a better grade is deserved;
- obtaining examinations in advance of the scheduled exam, unless offered by the professor;

Please remember that you committed yourself to academic honesty when you registered at the University of Florida by signing the statement:

"I understand that the University of Florida expects its students to be honest in all of their academic work. I agree to adhere to this commitment to academic honesty and understand that my failure to comply with the commitment may result in disciplinary action, up to and including expulsion from the University."

The penalty for any incidence of academic dishonesty is, as a minimum, a failing grade on the examination or assignment. If, in the professor’s opinion, the offense deserves a more severe penalty, failure in the course may be the imposed penalty. In particularly egregious cases, the professor may ask the College to dismiss the student and refuse the student further enrollment rights at the College.

It is in your best interests to avoid even the *appearance* of any questionable behavior.

<p>Important Dates:</p>	<p>January 6 January 12 January 19th January 30th February 11 February 28-March 7 March 18 April 20 April 22 May 1</p>	<p>Classes Begin Drop/Add deadline Martin Luther King Day Degree Applications Exam 1 Spring Break Exam 2 Exam 3 Classes End Final Exam (mandatory)</p>
--------------------------------	---	---

By enrolling in this course you are agreeing to the terms outlined in this syllabus. Please see me should you have any questions.

Disclaimer: The instructor reserves the right to update/change the syllabus provided I notify you for the changes well in advance. Adequate accommodations will be provided should a conflict arise.

Advising Notes:

- **Work in groups with caution.** Avoid relying too heavily on group efforts as it typically leads to a false sense of security and may result in poor exam performance.
- **Keep pace with class material.** We will cover a lot of material in just a semester so attendance is crucial for a good performance in the course and understanding of the material.
- **Ask questions.** Be sure that if you have a question related to class material, most likely another of your fellow students will have a question. Some of the best lecture sessions start with a question.
- **Take advantage of instructor and TA office hours.** We are there to help you!
- **Worry about your grade during the semester not at the end of the semester,** after all your performance during the whole semester is reported in your grade. Proper time management is key in college.

Let’s experience a rewarding and productive semester!

Additional information for a BETTER course performance

Suggested Exercises

The following suggested exercises are from **Mathematical Methods for Business and Economics**, (Schaum’s Outlines, by Edward T. Dowling) and can be found at the end of the specified chapter.

- Students are advised to work on these problems and also use them as a review of the respective chapter. Note that this is a self-study book and problems/exercises could be easier than the ones covered in class.
- These assignments will not be collected for credit.

Chapter	Supplementary Exercises
Equations and Graphs	2.35,2.36,2.37,2.38,2.40,2.41,2.42,2.43,2.51,2.52,2.53
Functions	3.33,3.34,3.41,3.42,3.43,3.44,3.47,3.48,3.50,3.51
Systems of Equations	4.33,4.34,4.35,4.36,4.37
Differential Calculus	9.26, 9.29,9.30,9.31,9.32,9.33,9.34,9.35
Differential Calculus: Uses of Derivatives	10.28, 10.29,10.31,10.32,10.33,10.34,10.35,10.36
Exponential and Logarithmic Functions	11.49,11.50
Calculus of Multivariable Functions	13.46,13.47,13.49,13.50,13.51,13.53,13.54,13.55,13.56,13.57,13.58,13.59,13.60
Integral Calculus	12.42,12.43,12.44,12.45,12.49,12.50,12.51,12.52,12.53
Linear Algebra	5.40,5.41,5.42,5.44,5.45,5.46
Solving Equations with Matrix Algebra	6.16,6.17,6.18,6.19,6.22

The course materials are uploaded on Canvas under the specified chapters. There you can find:

- A brief **introduction** to each chapter as well as **learning objectives**.
- **Lecture notes**. We will be using the lecture notes so please bring a copy in class.
- **Practice Quizzes**

- **Type I: Entry quiz**

These quizzes will test for prerequisite knowledge depending on the chapter to be covered.

Students are expected to take these quizzes individually and score at least 80% so as to secure a better understanding of the material.

These quizzes will not count towards your grade.

- **Type II: Exit quiz**

These quizzes will test important concepts for each chapter. They will be similar or the same as class activities and participation quizzes allowing you to review key concepts covered in class.

These quizzes will not count towards your grade.