

Quantitative Methods in Food and Resource Economics

Fall 2016

Period 7, Monday, Wednesday & Friday 1:55 pm – 2:45 pm

Classroom: Computer Science and Engineering (CSE) E121

Instructor and Contact Information

Instructor: Dr. Misti Sharp
Office: 1193 McCarty Hall A
Office Hours: M, Tu, Wed, & Th 8:30 am –
10:30 am and Fridays by appointment
Email: mistisharp@ufl.edu (preferred)
Phone: 352-294-7633

Teaching Assistant: Zahra Tayebi
Office: 2120 McCarty Hall B, cubicle C
Office Hours: Tuesday 2:00 pm - 4:00 pm,
Thursday 10:30 am - 12:30 pm
Email: ztayebi@ufl.edu

Course Description: Mathematical theory and concepts related to linear, non-linear and logarithmic functions, calculus, optimization and matrix algebra will be introduced. These mathematical tools will then be applied to common economic models such as market equilibrium and welfare, resource management, constrained optimization, etc.

Expected Student Learning Outcomes: After the successful completion of AEB 3510, a typical student should be able to:

- Demonstrate an understanding of basic mathematical concepts, including algebra, functions, differentiation, integration and multivariate calculus;
- Apply mathematical tools in a variety of economic decision making contexts;
- Conceptualize and solve economic problems using quantitative and analytical models and frameworks;
- Communicate the result of the application of mathematical tools in non-mathematical, professional terms;
- Have basic knowledge of how to develop mathematical models for economic problems using excel;
- Succeed in the senior-level coursework in the Food and Resource Economics Curriculum as they will have acquired the necessary mathematical background and foundations.

Prerequisites: MAC 2233 or MAC 2311 or the equivalent. It is further assumed that all students have had at least one economics course (either ECO 2013, ECO 2023 or the equivalent).

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Required Course Materials:

E-learning: There is an E-Learning Canvas webpage for this course. E-learning can be accessed via <http://elearning.ufl.edu> using your Gatorlink username and password. If you are having difficulties accessing E-learning, please contact the UF Computing Help Desk by calling (352)-392-HELP or via email helpdes@ufl.edu.

Text: *Mathematical Methods for Business and Economics*, Schaum's Outlines, by Edward T. Dowling. McGraw Hill/Irwin Publishers. 2009. ISBN: 0071635327.

i-Clicker2: these are available in the bookstore. Get the REEF 6 Month Polling Access Card as well. ISBN 9781498601634

Other: This course combines mathematical concepts with practical application and as such, students are required to have a basic knowledge of rudimentary applications of both. If you feel like you do not have an adequate background in math or the use of excel, please use resources such as Kahn Academy (<https://www.khanacademy.org/>) or Lynda.com (available from <http://elearning.ufl.edu>) to supplement the classroom materials.

Academic Integrity: <https://www.dso.ufl.edu/sccr/honorcodes/conductcode.php>

This course will adhere to the Academic Integrity Honor Code of the University of Florida: *We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.* I expect all work that you do in the course to be your own. For group projects, it must be clear the contribution of each student to the project. Cases of plagiarism in written work will be taken seriously, so please familiarize yourself with different forms of plagiarism (<http://www.plagiarism.org/plagiarism-101/types-of-plagiarism>) and avoid doing these things! Violations of the Academic Honesty Guidelines will result in judicial action.

Expectations and feedback:

I expect students to attend every class having done the assigned readings and assignments so that you are prepared to contribute. It is also my expectation that you will be open-minded and considerate of the thoughts and ideas of all of your fellow classmates. Clickers will be used and in-class participation will count as bonus points at the end of the semester. I will do my best to conduct organized and insightful class sessions and to treat your intellectual work with fairness and impartiality.

It is your choice to succeed or not succeed in my class and "success" means different things to different students. From my perspective, successful students are those who 1) do the readings, 2) do the assignments including non-graded assignments, 3) attend class and participate in application Fridays, and 4) study for exams. If you begin to struggle, it is your responsibility to come see me to determine which of these four items you are struggling with and what steps should be taken on your part to ensure your success in the class.

Resources for disabled students:

If you have a documented disability and wish to discuss academic accommodations, please contact me as soon as possible to set up the appropriate arrangements. Please do not wait until the day before an exam to request accommodations. Further information can be found at <http://www.dso.ufl.edu/drc/>.

Class Structure: My intention is to lecture on Monday and Wednesday and reserve Fridays for application and exams. You are expected to read the textbook, work through study problems, and complete assignments PRIOR to Friday of each week.

Course Assignments:

Weekly assignments (best 10 of 13): Each week with the exception of exam weeks, there will be review problems and exercises related to the course material that will be due on Friday. These may be written or typed. Late submissions will receive a grade of 0. This is an attendance metric and therefore credit will not be given for those who are not present to turn in their homework.

Application projects (best 2 of 3): There will be 3 assignments that will require the use of excel to apply mathematical methods to economic problems. These should be typed and thorough. A rubric will be provided for these assignments. Although the best 2 of 3 will count towards your overall points, there is potential to use the lowest scoring assignment as bonus points.

Midterm exams (best 2 out of 3): Each exam will include multiple choice, short answer and mathematical application questions related to assignments, readings and lectures. There will be no makeup exams offered. The lowest midterm exam will be dropped.

Final Exam: A cumulative final will be given on Wednesday, December 14th at 10 am.

Course Assignments	Total Points	% of Total Grade
Weekly assignments (best 10 of 13)	100 points (10 points each)	20%
Application project(s) (best 2 of 3)	150 points (75 points each)	30%
Midterm exams (best 2 of 3)	150 (75 points each)	30%
Final Exam (comprehensive)	100 points	20%
Total	500 points	100%

Student Evaluation: Grades will be assigned as follows (note no minuses will be awarded)

Grade	Percentage	Total Points	Grade Points
A	90.0% or more	≥ 450	4.00
B+	86.0 – 89.9%	430 – 449	3.33
B	80.0 – 85.9%	400 – 429	3.00
C+	76.0 – 79.9%	380 – 399	2.33
D+	70.0 – 75.9%	350 – 379	2.00
D	66.0 – 69.9%	330 – 349	1.33
D	60.0 – 65.9%	300 – 329	1.00
E	≤ 59.9%	≤ 299	0.00

Course Syllabus: AEB 3510

Course Schedule

Topic	Week	Dates	Book Assignments	Lecture Material
Equations and Graphs	1	Aug 22, 24, & 26	2.35, 2.36, 2.37, 2.39, 2.43, 2.50 - 2.54	Dowling: Ch. 2
Functions	2	Aug 29, 31 & Sept 2	3.33, 3.41 - 3.45, 3.47, 3.48, 3.50, 3.51	Dowling: Ch. 3
System of Equations	3	Sept 7 & 9 (no class 9/5)	4.33 - 4.37, <i>Project 1 assigned 9/7</i>	Dowling: Ch. 4
Review	4	Sept 12, 14 & 16	<i>Project 1 due 9/14,</i> Midterm1 : 9/16	Catch-up
Exponential and Logarithmic Functions	5	Sept 19, 21 & 23	11.52, 11.56, 11.58, 11.60, 11.62	Dowling: Ch. 11
Matrix Algebra	6	Sept 26, 28 & 30	5.40 – 5.55	Dowling: Ch. 5
Solving Linear Equations	7	Oct 3, 5 & 7	6.16 – 6.18, 6.22 <i>Project 2 assigned 10/5</i>	Dowling: Ch. 6
Linear Programming	8	Oct 10 & 12 (no class 10/14)	7.24, 7.28, 7.29, 7.36, <i>Project 2 due 10/12</i>	Dowling: Ch. 7
Review	9	Oct 17, 19 & 21	Midterm 2: 10-21	Catch-up
Differential Calculus	10	Oct 24, 26 & 28	9.29-9.35	Dowling: Ch. 9
Uses of the Derivative	11	Oct 31 & Nov 2 & 4	10.28, 10.29, 10.31 – 10.36	Dowling: Ch. 10
Multivariate Calculus	12	Nov 7 & 9 (no class 11/11)	13.46, 13.50, 13.56 – 13.60	Dowling: Ch. 13
Multivariate Calculus	13	Nov 14, 16 & 18	Handout, <i>Project 3 assigned 11/14</i>	Dowling: Ch. 13
Multivariate Calculus	14	Nov 21 (no class 11/23 & 11/25)	<i>Project 3 due 11/21</i>	Dowling: Ch. 13
Integral Calculus	15	Nov 28, 30 & Dec 2	12.42 - 12.45, 12.49 – 12.55,	Dowling: Ch. 12
Review	16	Dec 5 & 7	Midterm 3: Dec 5, final review 12/7	Review
Final		Dec 14 th at 10:00 am	Comprehensive Final	

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