

Course Syllabus

Math tools for Economists II/ Econ 1088-001

Spring 2005

Classes: MWF 2:00 – 2:50, CLRE (Clare Small Arts and Sciences) 207

Instructor: Kiyoshi Yonemoto

Office: Econ 304

Office Hours: MW 3:00 – 4:00 and F 1:00-2:00

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(You will get a reply within 24hrs on weekdays and within 48hrs on a weekend.)

·Web page for this course:

<http://ucsub.colorado.edu/~yonemotk/>

·Textbook

(Required)

Essentials of College Mathematics (3rd ed.): Raymond A. Barnett and Michael R. Ziegler
Available at the CU bookstore (Note: It's the 3rd edition but not the 10th edition.)

(Optional)

Student Solutions Manual for Essentials of College Mathematics (3rd ed.): Richard N. Aufmann

·Exam Dates

First Midterm Exam: Feb 11 in class (2:00-)

Second Midterm Exam: Apr 1 in class (2:00-)

Final Exam: Tuesday May 3, 4:30-7:00 p.m. (the same room as usual.)

·Objectives

In this course, Math tools for Economists II, we study the mathematical tools of calculus, which are necessary to understand most of the advanced economic theories. Basic and applied methods of differentiation and integration will be covered.

Differentiation, or computing a derivative, is essential to any economic analyses based on microeconomic way of thinking. Noting the "marginal" variables determine most of the economic activities, we investigate the properties of corresponding mathematical expressions.

Integration is the reverse of differentiation. We can calculate the values of total variables from the marginal ones by using it. It is also useful if you are going to study dynamics or econometrics.

Before starting the study, please note that:

- 1) The instructor is a foreigner and a non-native speaker of English. If you are particular about such attributes, please consider taking other courses at the same level.
- 2) This course, ECON 1088, is the second course in a two-course sequence. ECON 1078 (or an equivalent academic experience) is prerequisite.

·Add/Drop

Add/drop can be requested using www.colorado.edu/plus

Admission will be granted according to the waitlist.

Jan 19. –Deadline to add a course without signature

Jan 26. –Deadline to drop a course without signature

In principle, an instructor cannot assign you additional seats when the class is full.

·Schedule

This course covers chapters 9-11 of the textbook. Since most of the 1078 courses may have covered chapter 9, we will spare most of the time for chapters 10 and 11.

Chapters will be covered in the following manner.

Chapter 9 → Section 10.1 → First Midterm → Sections 10.2-10.7 → Second Midterm →

Chapter 11 → Final

Monday	Wednesday	Friday
Jan 10 Introduction	Jan 12 Introduction	Jan 14 9-1
(Jan 17 MLK Day: no class)	Jan 19 9-2	Jan 21 9-3
Jan 24 9-4	Jan 26 9-5	Jan 28 9-6
Jan 31 9-7	Feb 2 9-7(2)	Feb 4 10-1
Feb 7 10-1(2)	Feb 9 general review	Feb 11 <u>MIDTERM 1 in class</u>
Feb 14 (comment on MT1)	Feb 16 10-2	Feb 18 10-2(2)
Feb 21 10-3	Feb 23 10-3(2)	Feb 25 10-4
Feb 28 10-4(2)	Mar 2 10-5	Mar 4 10-5(2)
Mar 7 10-6	Mar 9 10-6(2)	Mar 11 10-7
Mar 14 10-7(2)	Mar 16 introduction	Mar 18 11-1
(Mar 21, Mar 23, Mar 25 Spring Break: no class)		
Mar 28 11-1(2)	Mar 30 general review	Apr 1 <u>MIDTERM 2 in class</u>
Apr 4 (comment on MT2)	Apr 6 11-2	Apr 8 11-2(2)
Apr 11 11-3	Apr 13 11-3(2)	Apr 15 11-4
Apr 18 11-4(2)	Apr 20 11-5	Apr 22 11-5(2)
Apr 25 11-6	Apr 27 11-6(2)	Apr 29 general review
May 3 (Tue) <u>FINAL EXAM 7:30-</u>		

The schedule may be changed depending on the progress.

Chapter 9: Basic Algebraic Operations

- 9-1 Limits and Continuity
- 9-2 Computation of Limits
- 9-3 The Derivative
- 9-4 Derivatives of Constants, Power Forms, and Sums
- 9-5 Derivatives of Products and Quotients
- 9-6 Chain Rule: Power Form
- 9-7 Marginal Analysis in Business and Economics

Chapter 10: Additional Derivative Topics

- 10-1 First Derivative and Graphs

– Midterm 1 –

- 10-2 Second Derivative and Graphs
- 10-3 Curve Sketching Techniques: Unified and Extended
- 10-4 Optimization: Absolute Maxima and Minima
- 10-5 The Constant e and Continuous Compound Interest
- 10-6 Derivatives of Logarithmic and Exponential Functions
- 10-7 Chain Rule: General Form

– Midterm 2 –

Chapter 11: Integration

- 11-1 Antiderivatives and Indefinite Integrals
- 11-2 Integration by Substitution
- 11-3 Definite Integrals
- 11-4 Area and the Definite Integral
- 11-5 Definite Integral as a Limit of Sum
- 11-6 Consumer's and Producer's Surplus

– Final –

·Grading

Basic Rule

There are two midterm examinations before the final examination. All of the exams, including the final, are NOT cumulative. That is, only the topics after the previous exam are covered in each exam.

Each midterm exam contains 20 questions. In some questions, the derivation processes matter as well as the ultimate answers.

The final exam will contain 25 questions.

You can use a scientific calculator in the exam. You cannot see the textbook or notebooks.

All of the exams are out of 100 points.

Homework is assigned after every 3-4 sections are covered. There are 6 assignments in total. Each counts:

20 points - the ones for the latter halves of chapters 10 and 11.

15 points - the ones for all other sections.

In total, you will receive 100 points at maximum.

Hints for solving those assignments will be given in class. Therefore, if you attend the classes regularly, your score in “homework” should be very good.

Your highest two scores amongst midterm1, midterm 2, and homework (total) count for 70% of the final score (i.e. 35% each.) The lowest one is ignored. The final exam counts for 30%. The calculation is done as follows.

MIDTERM 1 (Feb 25): 35%

MIDTERM 2 (Apr 2): 35%

HOMEWORK (Total): 35%

Subtotal 70%

THE LOWEST SCORE AMONG THE ABOVE THREE IS DROPPED

For example,

Midterm 1 = 89 points (out of 100)

Midterm 2 = 75 points (out of 100)

Homework = 78 points (out of 105)

The score in midterm 2 is dropped. So $89 \text{ (MT1)} + 78 \text{ (HW)} = 167$ will be your score.

Then $167 \times 35\% = 58.45\%$, out of 70%, is your percentile score before the final.

FINAL 30%

TOTAL = subtotal + final = 70% + 30% = 100%

Curving

In case the average score of some exam (or homework) becomes less than 75, I will add points to the original scores so that the new average becomes more than 75.

Rounding

If your total score (not the raw score in each exam) has some fraction, it will be rounded up. For example, if your total score is 81.1, it will be regarded as 82.

Grade

Your total scores will be converted to the letter grades in the following way.

88-89: B+	92-100: A	90-91: A-
78-79: C+	82-87: B	80-81: B-
68-69: D+	72-77: C	70-71: C-
0-59: F	62-67: D	60-61: D-

Make-up (Exams)

There will be no make-up exams. If you cannot come to the exam for some official reason, you have to tell me in advance. To take the exam on a different day, you should bring a formal document to verify the reason. Reasons include the school's academic/sport events for which you have some official responsibility, but do not include your personal trip or unofficial participation in events. Sudden illness or minor traffic accident on the day of exam is not considered as such reasons if you are taking one of the two midterms and have another chance. In case of the final exam, I can take account of it only if you call me (or officers in the department) before the exam starts.

Make-up (Homework)

The following rules apply if you turn in later.

100% (15 points maximum): with an official proof of illness, events, etc.

80% (12 points maximum): without proofs (before the answers are posted*)

50% (7.5 points maximum): without proofs (after the answers are posted*)

*The answers are usually posted onto the web about a week after the due date.

Cheating

At least 30 points (out of 100) shall be subtracted from your score even in case of a trivial cheating. A premeditated cheating will be reported to the school and result in more serious outcome. Do not cheat.

Others

There will be no waiver of the final exam even if you get very high scores in the two mid-terms. Everybody has to take the final.

If you find any crucial mistake on my exam or answer sheet, you may receive 1-3 extra points. (Note that it must be a *crucial* one.)

Disabilities

If you have specific disabilities that require accommodation, please let me know early in the semester so that your learning needs may be appropriately met.