

# ECON 1088-100 – MATH TOOLS FOR ECONOMISTS II

Summer 2021, Term A

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<b>Instructor:</b>	James Flynn	<b>Time:</b>	M-F: 1:15pm – 2:50pm
<b>Email:</b>	<a href="mailto:james.flynn@colorado.edu">james.flynn@colorado.edu</a>	<b>Room:</b>	Duane Physics G1B30
<b>Office Hours:</b>	M-F: 11:30am–12:30pm	<b>Office:</b>	ECON 401

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## 1 Course Information

**Course Website:** <https://canvas.colorado.edu/>

**Office Hours Zoom Link:** <https://cuboulder.zoom.us/j/7328000832>

**Required Textbook:** Knut Sydsaeter, Peter Hammond, Arne Strom and Andres Carvajal, *Essential Mathematics for Economic Analysis*, Pearson, 5th ed., 2016 (3rd or 4th edition are also acceptable).

**Prerequisites:** ECON 1078 or equivalent.

**Course Description:** This class is the second of a two course sequence, building upon the basic foundation developed in ECON 1078. We will study derivatives, optimization, and integrals (chapters 6, 7, 8, 9 and 11 in the textbook). These tools will help you understand the mathematical structure of modern economics and the models used to explain human behavior. A strong grasp of these concepts is **necessary** (but not sufficient) to succeed in later economics courses.

## 2 Course Policies

### General policies

- Class periods will be devoted to lecture and practice, which means that participation is important and will be part of your grade.
- Please allow 24 hours for me to respond to emails. This means that if you email me with a question the night before an exam, I may not be able to respond until after the exam has been administered, so please ask questions early and often. I will not discuss grades over email per FERPA guidelines.
- As the class meets daily and the topics build on each other sequentially, attendance is vital to your success in this class. Therefore, attendance is mandatory and will be recorded daily.
  - COVID exception: If you are experiencing any COVID-19 symptoms, please let me know as soon as possible and do not return to class until you have received a negative test. Once you have done this, we will make a schedule to get you caught up.

- Each student is allowed one unexcused absence for any reason that will not count against you. Therefore, you do not need to let me know you are missing class unless something comes up that will cause you to miss multiple days.
- If you have any conflicts with any of the exam dates, let me know ASAP and I will try to accommodate. If you have a job, make sure you request the exam dates off now so that you will not have a conflict.
- If you do not attend the first three class meetings and do not contact me, I will administratively drop you according to departmental procedure.
- *No makeup assignments will be given.*

## Grades

- **Distribution:** Below is the weight given to each of the assignments you are expected to complete:

Pre-test	2%	Homework	10%	Midterm	20%
Participation	3%	Midterm	20%	Final	20%
Attendance	5%	Midterm	20%		

For students who perform better on the final than on the midterms, I will re-weight the exams such that:

Midterm	15%	Midterm	15%	Midterm	15%	Final Exam	35%
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- **Reporting:** Grades will be uploaded to Canvas as assignments are graded.
- **Curving:** Midterms *may* be curved individually, and a curve *may* be applied to the overall course grade to conform to departmental standards. I will automatically increase final course grades that are 0.5% below any grade cutoff after any final grading curve has been applied.
- **Letter Grade Cutoffs:** Below is the letter grade you will receive for the final score given in the class:

$\geq 93$	A	87-89.9	B+	77-79.9	C+	67-69.9	D+	$\leq 59.9$	F
90-92.9	A-	83-86.9	B	73-76.9	C	63-66.9	D		
		80-82.9	B-	70-72.9	C-	60-62.9	D-		

- **Grade Adjustments:** Other than the 0.5% bump discussed above, *I will not grant any request to increase your grade to meet a certain cutoff.* You will receive the grade that *you* earned throughout the course. If you are concerned about your grade(s) you should immediately come talk to me. I will do everything I can to help you be successful in this course.

## Homework

- A pre-test assignment due **June 4 at the start of class** will check your ability to use the prerequisite material. This assignment is graded only for completion.
- Recommended practice problems from your textbook will be assigned during class. These problems will not be graded, but they will benefit your exam preparation.
- You will submit one graded homework assignment at the start of class the day before each exam (for a total of 4). Late assignments will receive a score of 0. The problems will mirror the types of questions appearing on the exams. Working in groups is encouraged, however each student must turn in an individual assignment with the names of group members written at the top of the page. Groups may have at most 3 members.
- I will periodically recommend videos from [3Blue1Brown's](#) YouTube series *Essence of Calculus* to supplement the material covered. Each video is an excellent presentation of the deep intuition behind calculus and will help answer the question “What am I even doing?”.
- [Khan Academy](#) is another great supplementary resource which has videos on nearly every topic we cover in this course.

## Exams

- **Midterms:** Three midterms will be given during lecture time on the fixed dates in the schedule given in this syllabus. **No makeup or separate time exams will be given** (except for students with documented accommodations). You must notify me with documentation of your accommodation at least one week before the first exam in order for it to apply.
- **Final Exam:** The final exam is cumulative. The exam is held in our regular classroom on the last day of class, July 2, 1:15pm – 2:50pm. This date is non-negotiable.
- Partial credit will be awarded on all graded assignments.

## Cheating

If you are caught cheating in any fashion (on exams or homework) you will be given an  $F$  for the semester and your case will be reported to the Honor Code Council for review. Please consult the University policies below for more detail.

## Expectations

You can expect me to:

- Be prepared for the day's lecture and do my best to assist you in your course work.
- Work hard to return graded work promptly.
- Treat everyone equally and respectfully at all times.

- Be available in my office hours and via email to help you be successful in this course.
- Make mistakes.

You will be expected to:

- Regularly attend class, arrive on time, and silence your phone.
- Complete all assignments and turn in homework on time.
- Be respectful to others and cooperate with your cohorts.
- Ask and answer questions and take co-responsibility for creating a meaningful class.

### 3 University Policies

- **DISABILITY POLICY:** I am committed to providing everyone the support and services needed to participate in this course. If you qualify for accommodations because of a disability, please submit to your instructor a letter from Disability Services in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities. Contact Disability Services at 303-492-8671 or by e-mail at dsinfo@colorado.edu.
- **HONOR CODE:** Students of the University of Colorado at Boulder are responsible for knowing and adhering to the academic integrity policy of this institution. Violations of this policy may include: cheating, plagiarism, aid of academic dishonesty, fabrication, lying, bribery, and threatening behavior. Incidents of academic misconduct will be reported to the Honor Code Council (honor@colorado.edu; 303-725-2273). Students who are found to be in violation of the academic integrity policy will be subject to both academic sanctions from myself and non-academic sanctions (including but not limited to university probation, suspension, or expulsion).
- **RELIGIOUS OBSERVATION POLICY:** Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments, or required attendance. If you have a conflict, please make arrangements with me no later than the first week of the semester.
- **CODE OF BEHAVIOR POLICY:** Students and faculty each have responsibility for maintaining an appropriate learning environment. Students who fail to adhere to such behavioral standards may be subject to discipline. Faculty has the professional responsibility to treat all students with understanding, dignity and respect, to guide classroom discussion and to set reasonable limits on the manner in which we express opinions. Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences or race, culture, religion, politics, sexual orientation, gender variance and nationalities.
- **DISCRIMINATION AND HARASSMENT POLICY:** CU Boulder's policy on Discrimination and Harassment can be found on the university website. The policy on Sexual Harassment and on Amorous Relationships applies to all students, staff and faculty. Any student, staff or faculty member who believes s/he has been the subject of discrimination or harassment based upon race, color, national origin, sex, age, disability, religion, sexual orientation, or veteran status should contact the Office of Discrimination and Harassment (ODH) at 303-492-2127 or the Office of Judicial Affairs at 303-492-5550. Information about the ODH and the campus discrimination and harassment resources can be obtained at <http://www.colorado.edu/odh>.

## 4 Tentative Schedule

The daily coverage might change as it depends on the progress of the class. The sections listed below denote the topics to be covered and their associated textbook sections. *EC* denotes the relevant *Essence of Calculus* video.

Dates	Content
June 1	<ul style="list-style-type: none"> <li>• Topics: Administration, Introducing Derivatives</li> <li>• Sections: 6.1, 6.2, 6.5; <i>EC</i> Ch. 1, Ch. 2</li> </ul>
June 2	<ul style="list-style-type: none"> <li>• Topics: Uses of Derivatives;</li> <li>• Sections: 6.3, 6.4, 6.6; <i>EC</i> Ch. 3</li> </ul>
June 3	<ul style="list-style-type: none"> <li>• Topics: Rules of Derivatives</li> <li>• Sections: 6.7, 6.8; <i>EC</i> Ch. 4</li> </ul>
June 4-7	<ul style="list-style-type: none"> <li>• Topics: More Rules of Derivatives; <b>Pre-test due 6/4 Homework 1 due 6/7</b></li> <li>• Sections: 6.9, 6.10, 6.11 ; <i>EC</i> Footnote, Ch. 5</li> </ul>
June 8	<ul style="list-style-type: none"> <li>• Topics: Review; <b>Midterm 1</b></li> <li>• Sections: Ch. 6 review</li> </ul>
June 9-10	<ul style="list-style-type: none"> <li>• Topics: Using Derivatives</li> <li>• Sections: 7.1, 7.2, 7.7, 7.8; <i>EC</i> Ch. 6, Ch. 7</li> </ul>
June 11-14	<ul style="list-style-type: none"> <li>• Topics: Introduction to Optimization</li> <li>• Sections: 8.1, 8.2, 8.3</li> </ul>
June 15	<ul style="list-style-type: none"> <li>• Topics: Tools for Optimization in Economics</li> <li>• Sections: 8.6, 8.7</li> </ul>
June 16-17	<ul style="list-style-type: none"> <li>• Topics: Review; <b>Homework 2 due 6/16, Midterm 2 6/17</b></li> <li>• Sections: Ch. 7/8 review</li> </ul>
June 18	<ul style="list-style-type: none"> <li>• Topics: Multivariable Functions</li> <li>• Sections: 11.1, 11.5</li> </ul>
June 21	<ul style="list-style-type: none"> <li>• Topics: Partial Derivatives</li> <li>• Sections: 11.2, 11.6</li> </ul>
June 22-23	<ul style="list-style-type: none"> <li>• Topics: Using Partial Derivatives, Review</li> <li>• Sections: 11.7, 11.8, 14.1, Ch. 11 Review</li> </ul>
June 24-25	<ul style="list-style-type: none"> <li>• Topics: Review; <b>Homework 3 due 6/24, Midterm 3 6/25</b></li> <li>• Sections: Ch. 11 Review</li> </ul>
June 28	<ul style="list-style-type: none"> <li>• Topics: Introduction to Integrals</li> <li>• Sections: 9.1, 9.2; <i>EC</i> Ch. 8</li> </ul>
June 29	<ul style="list-style-type: none"> <li>• Topics: Anti-derivatives and Their Interpretations, Intro to Definite Integrals</li> <li>• Sections: 9.3, 9.4; <i>EC</i> Ch. 9</li> </ul>
June 30-July 1	<ul style="list-style-type: none"> <li>• Topics: Definite Integrals, Review, <b>Homework 4 due 7/1</b></li> <li>• Sections: 9.3,9.6, Ch. 9 Review, Semester Review</li> </ul>
July 2	<ul style="list-style-type: none"> <li>• <b>Final Exam: Fri., June 2 1:15pm – 2:50pm</b></li> </ul>