

**SYLLABUS**

**Readings:**

The reference books for this course are

L. Ljungqvist and T. J. Sargent, *Recursive Macroeconomic Theory*. Third edition. The MIT Press, 2012.

N. L. Stokey and R. E. Lucas with E. C. Prescott, *Recursive Methods in Economic Dynamics*. Harvard University Press, 1989.

Both are important references and are probably worth buying now for future use. Do not worry if they seem very difficult to you at this stage. Copies of some of the other readings will be available on the course web site: <http://www.econ.umn.edu/~tkehoe/classesNew/8105-19.html>.

**Office Hours:**

Wednesdays, 9:00 am – 10:00 am by Zoom link. I will set up an electronic sign-up sheet. Some weeks, office hours may be on a different day than Tuesday. Check on the electronic sign-up sheet. If you need to talk at some other time, please send me an e-mail message at [tkehoe@umn.edu](mailto:tkehoe@umn.edu).

**Assignments:**

There will be five problem sets, a midterm, and a final. In addition to analytical work, some problem sets will require you to write a computer program in Matlab, Fortran, C++, Gauss, or some such language. All assignments must be completed in order to receive a final grade for the course.

**Teaching Assistant:**

The teaching assistant is Amol Amol. His e-mail address is [amol0002@umn.edu](mailto:amol0002@umn.edu). Amol is tentatively scheduling his office hours for Friday afternoons.

**Grading:**

Each problem set mark will be counted once and the final will be counted twice. The lowest of these marks will be dropped and the remaining marks averaged. Notice that this means that, if the lowest mark is that of the final, its weight will be halved, but it will not be completely dropped. The midterm will be counted only if doing so improves the overall grade.

**Late Policy:**

Any late assignment will be penalized 10 (out of 100) points for each class period it is late, up to a maximum of 40 points.

## **Cooperation on Assignments:**

Students are permitted (and encouraged) to discuss the answers to problem sets together. Copying from another student's answers is not allowed.

## **List of Topics:**

### **1. Introduction to Dynamic General Equilibrium**

T. J. Kehoe, "Intertemporal General Equilibrium Models," in F. H. Hahn, editor, *The Economics of Missing Markets, Information, and Games*. Claredon Press, 1989, 363–393.

Stokey-Lucas-Prescott, Chapters 2, 3, 4.

### **2. Overlapping Generations Economies**

P. A. Diamond, "National Debt in a Neo-Classical Growth Model," *American Economic Review*, 55 (1965), 1126–1150.

T. J. Kehoe, "Intertemporal General Equilibrium Models," in F. H. Hahn, editor, *The Economics of Missing Markets, Information, and Games*. Claredon Press, 1989, 363–393.

T. J. Kehoe and D. K. Levine, "Comparative Statics and Perfect Foresight in Infinite Horizon Economies," *Econometrica*, 53 (1985), 433–453.

T. J. Kehoe and D. K. Levine, "The Economics of Indeterminacy in Overlapping Generations Models," *Journal of Public Economics*, 42 (1990), 219–243.

D. Gale, "Pure Exchange Equilibrium of Dynamic Economic Models," *Journal of Economic Theory*, 6 (1973), 12–36.

G. D. Hansen, "The Cyclical and Secular Behaviour of the Labour Input: Comparing Efficiency Units and Hours Worked," *Journal of Applied Econometrics*, 8 (1993), 71–80.

Ljungqvist-Sargent, Chapter 9.

P. A. Samuelson, "An Exact Consumption Loan Model of Interest, With or Without the Social Contrivance of Money," *Journal of Political Economy*, 66 (1958), 467–482.

Stokey-Lucas-Prescott, Chapter 17.

N. Wallace, "The Overlapping Generations Model of Fiat Money," in J. H. Kareken and N. Wallace, editors, *Models of Monetary Economies*, Federal Reserve Bank of Minneapolis, 1980.

### **3. The Neoclassical Growth Model**

N. Kaldor, "Capital Accumulation and Economic Growth," in F. A. Lutz and D. C. Hague, editors, *The Theory of Capital*, St. Martin's Press, 1961, 177–222.

T. J. Kehoe, “Calibrating the Growth Model.”

T. J. Kehoe and Kim J. Ruhl, “Why Have Economic Reforms in Mexico Not Generated Growth?” *Journal of Economic Literature*, 48 (2010), 1005–1027.

R. E. Lucas, “On the Mechanics of Economic Development,” *Journal of Monetary Economics*, 22 (1988), 3–42.

R. M. Solow, *Growth Theory: An Exposition*. Oxford: Clarendon Press, 1970.

#### **4. Dynamic Programming**

Ljungqvist-Sargent, Chapters 1, 3, 4.

Stokey, Lucas, Prescott, Chapters 5, 6, 8, 9.

#### **5. Search, Matching, and Unemployment**

Ljungqvist-Sargent, Chapter 6.

Stokey-Lucas-Prescott, Chapter 10.

D. T. Mortensen and C. A. Pissarides “Job Creation and Job Destruction in the Theory of Unemployment,” *Review of Economic Studies*, 61 (1994), 397–415.

#### **6. Crises and Great Depressions**

R. Bergoeing, P. J. Kehoe, T. J. Kehoe, and R. Soto, “A Decade Lost and Found: Mexico and Chile in the 1980s,” in T. J. Kehoe and E. C. Prescott, editors, *Great Depressions of the Twentieth Century*, Federal Reserve Bank of Minneapolis, 2007, 217–256.

H. L. Cole and L. E. Ohanian, “A Second Look at the Great Depression in the United States From A Neoclassical Perspective,” in T. J. Kehoe and E. C. Prescott, editors, *Great Depressions of the Twentieth Century*, Federal Reserve Bank of Minneapolis, 2007, 21–58.

J. C. Conesa, T. J. Kehoe, and K. J. Ruhl, “Modeling Great Depressions: The Depression in Finland in the 1990s,” in T. J. Kehoe and E. C. Prescott, editors, *Great Depressions of the Twentieth Century*. Federal Reserve Bank of Minneapolis, 2007, 427–475.

T. J. Kehoe and E. C. Prescott, “Great Depressions of the Twentieth Century,” in T. J. Kehoe and E. C. Prescott, editors, *Great Depressions of the Twentieth Century*, Federal Reserve Bank of Minneapolis, 2007, 1–20.

T. J. Kehoe and K. J. Ruhl, “Sudden Stops, Sectoral Reallocations, and the Real Exchange Rate,” *Journal of Development Economics*, 89 (2009), 235–249.

T. J. Kehoe, K. J. Ruhl, and Joseph B. Steinberg, "Global Imbalances and Structural Change in the United States," *Journal of Political Economy*, 126 (2018), 761–796.

**Please note: We will cover topics 1-4 for sure. We will not have time to do both topic 5 and topic 6, but I hope to have time to do one of these topics.**

### **Student Conduct Code:**

The University seeks an environment that promotes academic achievement and integrity, that is protective of free inquiry, and that serves the educational mission of the University. Similarly, the University seeks a community that is free from violence, threats, and intimidation; that is respectful of the rights, opportunities, and welfare of students, faculty, staff, and guests of the University; and that does not threaten the physical or mental health or safety of members of the University community.

As a student at the University you are expected adhere to Board of Regents Policy: *Student Conduct Code*. To review the Student Conduct Code, please see:

[http://regents.umn.edu/sites/default/files/policies/Student\\_Conduct\\_Code.pdf](http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf).

Note that the conduct code specifically addresses disruptive classroom conduct, which means "engaging in behavior that substantially or repeatedly interrupts either the instructor's ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities."

### **Use of Personal Electronic Devices in the Classroom:**

Using personal electronic devices in the classroom setting can hinder instruction and learning, not only for the student using the device but also for other students in the class. To this end, the University establishes the right of each faculty member to determine if and how personal electronic devices are allowed to be used in the classroom. For complete information, please reference: <http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

### **Scholastic Dishonesty:**

You are expected to do your own academic work and cite sources as necessary. Failing to do so is scholastic dishonesty. Scholastic dishonesty means plagiarizing; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; altering, forging, or misusing a University academic record; or fabricating or falsifying data, research procedures, or data analysis. (Student Conduct Code:

[http://regents.umn.edu/sites/default/files/policies/Student\\_Conduct\\_Code.pdf](http://regents.umn.edu/sites/default/files/policies/Student_Conduct_Code.pdf)) If it is determined that a student has cheated, he or she may be given an "F" or an "N" for the course, and may face additional sanctions from the University. For additional information, please see: <http://policy.umn.edu/Policies/Education/Education/INSTRUCTORRESP.html>.

The Office for Student Conduct and Academic Integrity has compiled a useful list of Frequently Asked Questions pertaining to scholastic dishonesty:

<http://www1.umn.edu/oscai/integrity/student/index.html>. If you have additional questions, please clarify with your instructor for the course. Your instructor can respond to your specific questions regarding what would constitute scholastic dishonesty in the context of a particular class-e.g., whether collaboration on assignments is permitted, requirements and methods for citing sources, if electronic aids are permitted or prohibited during an exam.

### **Makeup Work for Legitimate Absences:**

Students will not be penalized for absence during the semester due to unavoidable or legitimate circumstances. Such circumstances include verified illness, participation in intercollegiate athletic events, subpoenas, jury duty, military service, bereavement, and religious observances. Such circumstances do not include voting in local, state, or national elections. For complete information, please see:

<http://policy.umn.edu/Policies/Education/Education/MAKEUPWORK.html>.

### **Appropriate Student Use of Class Notes and Course Materials:**

Taking notes is a means of recording information but more importantly of personally absorbing and integrating the educational experience. However, broadly disseminating class notes beyond the classroom community or accepting compensation for taking and distributing classroom notes undermines instructor interests in their intellectual work product while not substantially furthering instructor and student interests in effective learning. Such actions violate shared norms and standards of the academic community. For additional information, please see:

<http://policy.umn.edu/Policies/Education/Education/STUDENTRESP.html>.

### **Grading and Transcripts:**

The University utilizes plus and minus grading on a 4.000 cumulative grade point scale in accordance with the following:

- A 4.000 - Represents achievement that is outstanding relative to the level necessary to meet course requirements
- A- 3.667
- B+ 3.333
- B 3.000 - Represents achievement that is significantly above the level necessary to meet course requirements
- B- 2.667
- C+ 2.333
- C 2.000 - Represents achievement that meets the course requirements in every respect
- C- 1.667
- D+ 1.333
- D 1.000 - Represents achievement that is worthy of credit even though it fails to meet fully the course requirements
- S Represents achievement that is satisfactory, which is equivalent to a C- or better.

For additional information, please refer to:

<http://policy.umn.edu/Policies/Education/Education/GRADINGTRANSCRIPTS.html>.

### **Sexual Harassment**

"Sexual harassment" means unwelcome sexual advances, requests for sexual favors, and/or other verbal or physical conduct of a sexual nature. Such conduct has the purpose or effect of unreasonably interfering with an individual's work or academic performance or creating an intimidating, hostile, or offensive working or academic environment in any University activity or program. Such behavior is not acceptable in the University setting. For additional information, please consult Board of Regents Policy:

<http://regents.umn.edu/sites/default/files/policies/SexHarassment.pdf>

### **Equity, Diversity, Equal Opportunity, and Affirmative Action:**

The University will provide equal access to and opportunity in its programs and facilities, without regard to race, color, creed, religion, national origin, gender, age, marital status, disability, public assistance status, veteran status, sexual orientation, gender identity, or gender expression. For more information, please consult Board of Regents Policy:

[http://regents.umn.edu/sites/default/files/policies/Equity\\_Diversity\\_EO\\_AA.pdf](http://regents.umn.edu/sites/default/files/policies/Equity_Diversity_EO_AA.pdf).

### **Disability Accommodations:**

The University of Minnesota is committed to providing equitable access to learning opportunities for all students. Disability Services (DS) is the campus office that collaborates with students who have disabilities to provide and/or arrange reasonable accommodations.

If you have, or think you may have, a disability (e.g., mental health, attentional, learning, chronic health, sensory, or physical), please contact DS at 612-626-1333 to arrange a confidential discussion regarding equitable access and reasonable accommodations.

If you are registered with DS and have a current letter requesting reasonable accommodations, please contact your instructor as early in the semester as possible to discuss how the accommodations will be applied in the course.

For more information, please see the DS website, <https://diversity.umn.edu/disability/>.

### **Mental Health and Stress Management:**

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance and may reduce your ability to participate in daily activities. University of Minnesota services are available to assist you. You can learn more about the broad range of confidential mental health services available on campus via the Student Mental Health Website: <http://www.mentalhealth.umn.edu>.

### **Academic Freedom and Responsibility:**

Academic freedom is a cornerstone of the University. Within the scope and content of the course as defined by the instructor, it includes the freedom to discuss relevant matters in the classroom. Along with this freedom comes responsibility. Students are encouraged to develop the capacity for critical judgment and to engage in a sustained and independent search for truth. Students are

free to take reasoned exception to the views offered in any course of study and to reserve judgment about matters of opinion, but they are responsible for learning the content of any course of study for which they are enrolled.\*

Reports of concerns about academic freedom are taken seriously, and there are individuals and offices available for help. Contact the instructor, the Department Chair, your adviser, the associate dean of the college, or the Vice Provost for Faculty and Academic Affairs in the Office of the Provost.

*\* Language adapted from the American Association of University Professors "Joint Statement on Rights and Freedoms of Students."*