

**SYLLABUS**

**Course Description:**

We economists traditionally divide the general field of International Economics into two subfields: International Finance and International Trade. In this course we will ignore this division. We will start by studying models from International Trade — the Ricardian model, the Heckscher-Ohlin model, and variants of the New Trade Theory model of increasing returns and monopolistic competition. By emphasizing dynamic general equilibrium versions of these models, we will develop tools compatible with modern, general equilibrium macroeconomics. We will then use these sorts of models to address a number of topics, some of which are typically studied in International Finance courses. Specifically, we will try to answer the questions: (1) Why did static applied general equilibrium models of the North American Free Trade Agreement do such a poor job in predicting its impact on trade flows? (2) How can we best model real exchange rate fluctuations and the relationship of these fluctuations to international capital flows? (3) How can we use dynamic general equilibrium models to analyze the causes and consequences of international financial crises like those that afflicted Mexico in 1994–1995 and Argentina in 2001–2002 and are have more recently occurred in the Eurozone? (4) How does trade liberalization affect a country’s growth rate?

**Office Hours:**

Tuesdays, 9:00 am – 10:00 am at 4-175 Herbert M. Hanson Jr. Hall, 612 625 1589. There is a sign-up sheet outside my door. Some weeks, office hours will be on a different day than Tuesday. Check on the sign-up sheet. If you need to meet at some other time, please do not call me at home; send me an e-mail message at [tkehoe@umn.edu](mailto:tkehoe@umn.edu).

**Assignments and Grading:**

There will be four or five problem sets, a group project, and a final exam. All assignments must be completed in order to receive a final grade for the course. The mark for each problem set will be counted once and the mark for the group project and the mark for the exam 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 grade is that of the group project or that of the exam, its weight will be halved, but it will not be completely dropped.

**Group Project:**

Students will form groups to work on projects. Each group will consist of two, three, or four students (but not one student). Topics for projects will be related to empirical issues in international economics, such as predictions of the gravity “model” for world trade flows, or to issues of current policy relevance, such as the modeling financial crises. Each group will make a 50 minute presentation of its research at the end of the course.

**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. No cooperation on the final is allowed.

**Readings:**

Copies of many of the readings will be available on the course web site.

There is no textbook for this course. A good textbook in international trade — which will be especially useful the first few weeks of the course for anyone who has not studied international trade previously — is

R. C. Feenstra, *Advanced International Trade: Theory and Evidence*. Princeton University Press, 2003.

Treb Allen and Costas Arkolakis has an excellent set of notes, some of which follow the approach here, but go far beyond them based on their own research:

T. Allen and C. Arkolakis, *Elements of Advanced International Trade*. Unpublished manuscript, Yale University, 2016.  
(<http://www.econ.yale.edu/~ka265/teaching/GradTrade/notes/ClassNotes.pdf>.)

The best textbook in open economy macroeconomics is

M. Obstfeld and K. Rogoff, *Foundations of International Macroeconomics*. MIT Press, 1996.

We will also spend time talking about depressions and crises. A useful reference is

T. J. Kehoe and E. C. Prescott, editors, *Great Depressions of the Twentieth Century*. Federal Reserve Bank of Minneapolis, 2007.

This book has a web page with data sets, computer programs, and a link to the book's web page at Amazon.com:

<http://www.greatdepressionsbook.com>.

## List of Topics and Readings

### 0. Traditional Trade Theory

R. Dornbusch, S. Fischer, and P. A. Samuelson, “Comparative Advantage, Trade, and Payments in a Ricardian Model with a Continuum of Goods,” *American Economic Review*, 67 (1977), 823–839.

R. Dornbusch, S. Fischer, and P. A. Samuelson, “Heckscher-Ohlin Trade Theory with a Continuum of Goods,” *Quarterly Journal of Economics*, 95 (1980), 203–224.

Feenstra, Chapters 1–3.

C. A. Wilson, “On the General Structure of Ricardian Models with a Continuum of Goods: Applications to Growth, Tariff Theory, and Technical Change,” *Econometrica*, 48 (1980), 1675–1702.

### 1. Increasing Returns and Imperfect Competition

Feenstra, Chapter 5.

E. Helpman, “Increasing Returns, Imperfect Markets, and Trade Theory,” in R. W. Jones and J. P. Neary, editors, *Handbook of International Economics*, vol. 1. Amsterdam: North-Holland, 1984, 325–365.

E. Helpman and P. R. Krugman, *Market Structure and Foreign Trade: Increasing Returns, Imperfect Competition, and the International Economy*. MIT Press, 1985.

P. R. Krugman, “Increasing Returns, Monopolistic Competition, and International Trade,” *Journal of International Economics*, 9 (1979), 469–479.

J. Markusen, “Explaining the Volume of Trade: An Eclectic Approach,” *American Economic Review*, 76 (1986), 1002–1011.

### 2. Dynamic Trade

J. Asturias, S. Hur, T. J. Kehoe, and K. J. Ruhl, “The Interaction and Sequencing of Policy Reform,” Federal Reserve Bank of Minneapolis Staff Report 521, 2016.

C. Bajona and T. J. Kehoe, “Demographics in Dynamic Heckscher-Ohlin Models: Overlapping Generations versus Infinitely Lived Consumers,” Federal Reserve Bank of Minneapolis Staff Report 377, 2006.

C. Bajona and T. J. Kehoe, “Trade, Growth, and Convergence in a Dynamic Heckscher-Ohlin Model,” *Review of Economic Dynamics*, 13 (2010), 487–513.

G. M. Grossman and E. Helpman, *Innovation and Growth in the Global Economy*. MIT Press, 1991.

R. E. Lucas, "Trade and the Diffusion of the Industrial Revolution," *American Economic Journal: Macroeconomics*, 1 (2009), 1–25.

E. R. McGrattan and E. C. Prescott, "Openness, Technology Capital, and Development," *Journal of Economic Theory*, 144 (2009), 2454–2476.

Obstfeld and Rogoff, Chapters 4 and 5.

H. Uzawa, "Optimal Growth in a Two-Sector Model of Capital Accumulation," *Review of Economic Studies*, 31 (1964), 1–24.

J. Ventura, "Growth and Interdependence," *Quarterly Journal of Economics*, 112 (1997), 57–84.

A. Young, "Learning by Doing and the Dynamic Effect of International Trade," *Quarterly Journal of Economics*, 106 (1991), 369–406.

### **3. Models with Heterogeneous Firms**

J. Asturias, S. Hur, T. J. Kehoe, and K. J. Ruhl, "Firm Entry and Exit and Aggregate Growth," Federal Reserve Bank of Minneapolis Research Department Staff Report 544, 2017.

J. Asturias, S. Hur, T. J. Kehoe, and K. J. Ruhl, "The Interaction and Sequencing of Policy Reforms," *Journal of Economic Dynamics and Control*, 72 (2016), 45–66.

C. Arkolakis, "Market Access Costs and the New Consumers Margin in International Trade," *Journal of Political Economy*, 118 (2010), 1151–1199.

T. Chaney, "Distorted Gravity: Heterogeneous Firms, Market Structure, and the Geography of International Trade," *American Economic Review*, 98 (2008), 1707–1721.

J. Eaton and S. Kortum, "Technology, Geography, and Trade," *Econometrica*, 70 (2002), 1741–1779.

J. Eaton, S. Kortum, and F. Kramarz, "An Anatomy of International Trade: Evidence from French Firms," *Econometrica*, 79 (2011), 1453–1498.

M. J. Gibson, "Trade Liberalization, Reallocation, and Productivity," University of Minnesota, 2006.

M. Melitz, "The Impact of Trade on Aggregate Industry Productivity and Intra-Industry Reallocations," *Econometrica*, 71 (2003), 1695–1725.

A. Ramanarayanan, "International Trade Dynamics with Intermediate Inputs," University of Minnesota, 2006.

K. J. Ruhl, “The Elasticity Puzzle in International Economics,” University of Texas at Austin, 2008.

#### **4. Empirical Evidence**

D. K. Backus, P. J. Kehoe and T. J. Kehoe, “In Search of Scale Effects in Trade and Growth,” *Journal of Economic Theory*, 58 (1992), 377–409.

S. L. Baier and J. H. Bergstrand, “The Growth of World Trade: Tariffs, Transport Costs, and Income Similarity,” *Journal of International Economics*, 53 (2001), 1–27.

R. Bergoeing and T. J. Kehoe, “Trade Theory and Trade Facts,” Federal Reserve Bank of Minneapolis, Staff Report 284, 2003.

C. Broda, J. Greenfield, and D. E. Weinstein, “From Groundnuts to Globalization: A Structural Estimate of Trade and Growth,” NBER Working Paper 12033, 2006

A. V. Deardorff, “Testing Trade Theories and Predicting Trade Flows,” in R. W. Jones and P. B. Kenen, editors, *Handbook of International Economics*, vol. 1, North-Holland, 1984, 467–517.

D. Hummels and P. J. Klenow, “The Variety and Quality of a Nation’s Exports,” *American Economic Review* 95 (2005), 704–723

D. Hummels and J. Levinsohn, “Monopolistic Competition and International Trade: Reconsidering the Evidence,” *Quarterly Journal of Economics*, 110 (1995), 799–836.

T. J. Kehoe, J. M. Rossbach, and K. J. Ruhl, “Using the New Products Margin to Predict the Industry-Level Impact of Trade Reform,” *Journal of International Economics*, 96 (2015), 289–297.

T. J. Kehoe and K. J. Ruhl, “How Important is the New Goods Margin in International Trade?” *Journal of Political Economy*, 121 (2013), 358–392.

K.-M. Yi, “Can Vertical Specialization Explain the Growth of World Trade?” *Journal of Political Economy*, 111 (2003), 52–102.

#### **5. Applied General Equilibrium Analysis of Trade Policy**

Feenstra, Chapter 6.

Francois, J. F. and C. R. Shiells, editors, *Modeling Trade Policy: Applied General Equilibrium Assessments of North American Free Trade*, New York: Cambridge University Press, 1994.

P. J. Kehoe and T. J. Kehoe, “Capturing NAFTA's Impact with Applied General Equilibrium Models,” *Federal Reserve Bank of Minneapolis Quarterly Review*, 18:2 (1994), 17–34.

P. J. Kehoe and T. J. Kehoe, “A Primer on Static Applied General Equilibrium Models,” *Federal Reserve Bank of Minneapolis Quarterly Review*, 18:2 (1994), 2–16.

T. J. Kehoe, “An Evaluation of the Performance of Applied General Equilibrium Models of the Impact of NAFTA,” in T. J. Kehoe, T. N. Srinivasan, and J. Whalley, editors, *Frontiers in Applied General Equilibrium Modeling: Essays in Honor of Herbert Scarf*, Cambridge University Press, 2005, 341–377.

T. J. Kehoe, P. S. Pujolàs, and J. Roszbach, “Quantitative Trade Models: Developments and Challenges,” *Annual Review of Economics*, 9 (2017), 295–325.

J. Romalis, “NAFTA’s and CUSFTA’s Impact on North American Trade,” University of Chicago, 2004.

D. Trefler, “The Long and Short of the Canada-U.S. Free Trade Agreement,” *American Economics Review*, 94 (2004), 870–895.

## **6. Real Exchange Rates**

R. Bems and K. Jönsson Hartelius, “Trade Deficits in the Baltic States: How Long Will the Party Last?” *Review of Economic Dynamics*, 9 (2006), 179–209.

C. M. Betts and M. B. Devereux, “Exchange Rate Dynamics in a Model of Pricing-to-Market,” *Journal of International Economics*, 50 (2000), 215–244.

C. M. Betts and T. J. Kehoe, “Real Exchange Rate Movements and the Relative Price of Nontraded Goods,” University of Minnesota and University of Southern California, 2002.

C. M. Betts and T. J. Kehoe, “Tradability of Goods and Real Exchange Rate Fluctuations,” University of Minnesota and University of Southern California, 2001.

C. M. Betts and T. J. Kehoe, “U.S. Real Exchange Rate Fluctuations and Relative Price Fluctuations,” *University Journal of Monetary Economics*, 53 (2006), 1297–326.

V. V. Chari, P. J. Kehoe, and E. R. McGrattan, “Can Sticky Price Models Generate Volatile and Persistent Real Exchange Rates?” *Review of Economic Studies*, 69 (2002), 533–563.

M. Crucini, C. Telmer, and M. Zachariadis “Understanding European Real Exchange Rates,” *American Economic Review*, 95 (2005), 724–738.

C. Engel, “Accounting for U.S. Real Exchange Rate Changes,” *Journal of Political Economy*, 107 (1999), 507–538.

G. Fernandez de Cordoba and T. J. Kehoe, “Capital Flows and Real Exchange Rate Fluctuations Following Spain's Entry into the European Community,” *Journal of International Economics*, 51 (2000), 49–78.

J. Imbs, H. Mumtaz, M. O. Ravn, and H. Rey, “PPP Strikes Back: Aggregation and the Real Exchange Rate,” *Quarterly Journal of Economics*, 120 (2005), 1–44.

Obstfeld and Rogoff, Chapters 8, 9, 10.

S. Rebelo and C. A. Vegh, “Real Effects of Exchange Rate-Based Stabilization: An Analysis of Competing Theories,” in B. S. Bernanke and J. J. Rotemberg, editors, *NBER Macroeconomics Annual 1995*. The MIT Press, 1995, 125–174.

A. C. Stockman and L. L. Tesar, “Tastes and Technology in a Two-Country Model of the Business Cycle: Explaining International Comovements,” *American Economic Review*, 85 (1995), 168–185.

## 7. Capital Flows and Crises

M. Aguiar, M. Amador, E. Farhi, and G. Gopinath, “Crisis and Commitment: Inflation Credibility and the Vulnerability to Sovereign Debt Crises,” Princeton University, 2012.

A. Araujo, M. Leon, and R. Santos, “Welfare Analysis of Currency Regimes with Defaultable Debts,” Banco Central do Brasil, 2012.

C. Chamley and B. Pinto, “Why Official Bailouts Tend Not to Work: An Example Motivated by Greece 2010,” *The Economists’ Voice*, 8 (2011).

H. L. Cole and T. J. Kehoe, “A Self-Fulfilling Model of Mexico's 1994-95 Debt Crisis,” *Journal of International Economics*, 41 (1996), 309–330.

H. L. Cole and T. J. Kehoe, “Self-Fulfilling Debt Crises,” *Review of Economic Studies*, 67 (2000), 91–116.

J. C. Conesa and T. J. Kehoe, “Gambling for Redemption and Self-Fulfilling Debt Crises,” Federal Reserve Bank of Minneapolis Research Department Staff Report 465, 2015.

J. M. Da Rocha, E. Gimenez, and F. Lores, “Self-Fulfilling Crises with Default and Devaluation,” *Economic Theory*, 53 (2013), 499–535.

T. J. Kehoe, “What Happened in Mexico in 1994–95?” in P. J. Kehoe and T. J. Kehoe, editors, *Modeling North American Economic Integration*, Kluwer Academic Publishers, 1995, 131–47.

T. J. Kehoe and K. J. Ruhl, “Sudden Stops, Sectoral Reallocations, and the Real Exchange Rate,” *Journal of Development Economics*, 89 (2009), 235–49.

T. J. Kehoe, K. J. Ruhl, and J. B. Steinberg, “Global Imbalances and Structural Change in the United States,” Federal Reserve Bank of Minneapolis Research Department Staff Report 489, 2017.

**Note:**

**We will take the material in topic 0 for granted, reviewing some of it selectively throughout the course. We will cover topics 1, 2, 3, and some of topic 4 for sure. We will not have time to do all of topics 5, 6, and 7. I hope to cover at least one of these three topics (probably 7).**

**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."*