Quantitative International Trade — ECON 70566
University of Notre Dame

Course Syllabus

Professor: Heitor S. Pellegrina

Office Hours: TH from 9-11 am Jenkins Hall Office 3042

Location: Main Campus - Haggar Hall 212

Days and times: TT from 2-3:15 pm

Course Description and Learning Outcomes The goal of this course is to put students at the frontier of modern quantitative trade models. It will cover theoretical and quantitative aspects of canonical trade models, including recent and traditional models, which form the foundation of much of the current literature. The course will have a strong computational focus, ensuring that by the end, students will be equipped to quantify trade models and use them for counterfactual analysis. Topics include migration, climate change, economic development, industrialization, globalization, and economic geography.

Material Lectures and Papers

Grade determination Students will be graded based on following weighted combination:

1) **Problem Sets (50%)** The plan is to have 3 problem sets. They will focus on computational methods. The tentative plan is for the first one to be due on February 07th , the second one on March 07th, and the third one on April 04th.

2) **Presentation (10%)** In the end of the course, there will be presentations about recent papers. I will give more specific guidelines in a separate document.

3) **Final Project (40%)** This will be a research project. The project should have approximately 10 pages with an introduction, a data description, a simple presentation of a model, and a proof-of-concept quantification.

Attendance

I expect regular attendance. I do not require you to send me excuses in case you miss a class. I might check in with you if you miss deadlines or several consecutive classes. I strongly encourage you to reach out to your classmates for class notes, as the course will be based on class material. In my experience, attendance correlates very strongly with grades and being actively participating in the course.

Policy on Late Assignments

Without a valid excuse, I will deduct 5% from an assignment for every day an assignment is late.

Honor Code

You are expected to adhere to the Academic Code of Honor Pledge: "As a member of the Notre Dame community, I will not participate in or tolerate academic dishonesty." The full Code and a Student Guide to the Academic code of Honor are available at: http://honorcode.nd.edu.

Grade Distribution

The final grade will be as follows:

- A: 93-100

- A-: 90-92.9

- B+: 87-89.9

- B: 83-86.9

- B-: 80-82.9

- C+: 77-79.9

- C: 73-76.9

- C-: 70-72.9

- D: 60-60.9

- F: Less than 59.9

CONTENT

Required readings are highlighted with *

BASIC STRUCTURE OF QUANTITATIVE TRADE MODELS

- Lecture 1   - Introduction
- Lecture 2   - CES and gravity (**Armington, EK, ACR, Hat algebra**)
- Lecture 3   - Trade cost estimation, model inversion, Head-Ries and hat-algebra
- Lecture 4   - *Computation*

  References

- **Eaton and Kortum (ECTA 2002) ***
- Dekle, Eaton and Kortum (AER P&P 2007)
- Allen and Arkolakis (QJE 2014)
- Waugh (AER 2010)
- Barjamovi, Chaney, Cosar and Hortacsu (QJE, 2019)
- Donaldson (AER 2020)
- Chipman (ECTA, 1965) Parts 1, 2 and 3

MULTIPLE SECTORS

- Lecture 5   - Multiple sectors (**HO**, **I-O structure**)
- Lecture 6   - *Computation*

Readings

- **Caliendo and Parro (RESTUD 2015) ***
- Costinot and Rodriguez-Clare (Handbook 2014)
- Costinot and Vogel (JPE 2010)
- Costinot, Donaldson and Komunjer (RESTUD 2012)

FIRMS

- Lecture 7   - Firm heterogeneity (**Melitz**)
- Lecture 8   - Multinational firms

Readings

- **Chaney (AER 2018) ***
- Arkolakis, Ramondo, Rodriguez-Clare and Yeaple (AER 2019)
- Eaton, Kortum and Kramarz (ECTA 2011)
- Antras, Fort and Tintelnot (AER 2017)

ECONOMIC GEOGRAPHY

- Lecture 9   - Commuting and labor mobility
- Lecture 10   - Agglomeration vs congestion
- Lecture 11   - Migration
- Lecture 12   - *Computation*

Readings

- **Ahlfeldt, Redding, Sturm, and Wolf (ECTA 2015) ***
- **Allen and Arkolakis (QJE 2014) ***
- **Pellegrina and Sotelo (JPE forthcoming)***
- Caliendo, Dvorkin and Parro (ECTA 2019)

TRADE AND DEVELOPMENT

- Lecture 13   - Non-homothetic preferences, technology and structural change (**Development I**)
- Lecture 14   - Non-homothetic preferences, technology and structural change (**Development II**)
- Lecture 15   - Heterogeneous factors (land and labor) (**Development III**)
- Lecture 16   - *Computation*

Readings

- Comin, Laskhari, and Mestieri (ECTA 2021)
- Matsuyama (JET 1992)
- Costinot, Donaldson and Smith (JPE 2016)
- Sotelo (JPE 2020)
- Farrokhi and Pellegrina (JPE 2023)
- Correa, Norris and Pellegrina (WP 2024)
- Sposi, Yi, and Zhang (WP 2024)
- Fajgelbaum and Redding (JPE XXX)
- Matsuyama (JET 1992)
- Peters (ECTA 2022)
- Gaubert and Faber (AER 2019)

DYNAMIC MODELS

- Lecture 17   - Dynamic models I (DNR)
- Lecture 18   - Dynamic models II (CDP)
- Lecture 19   - Dynamic models III (PS)
- Lecture 20   - *Computation*

Readings

- **Desmet, Nagy, and Rossi-Hansberg (JPE 2018) ***
- **Caliendo, Dvorkin and Parro (ECTA 2019) ***
- **Pellegrina and Sotelo (JPE forthcoming) ***
- Artuc, Chaudhuri and McLaren (AER 2010)
- Allen and Donaldson (WP 2024)
- Bilal and Rossi-Hansberg (WP 2023)
- Eaton, Kortum, Neiman and Romalis (AER 2016)

APPLICATIONS (PRESENTATIONS)

- Lecture 21 and 22
  - Climate change
  - Development
  - Economic history

Readings

- Conte, Desmet, and Rossi-Hansberg (JEG 2021)
- Balboni (AER Forthcoming)
- Farrokhi, Kang, Pellegrina and Sotelo (WP 2023)
- Hsiao (WP 2024)
- Kleinman, Liu and Redding (ECTA 2023)
- Lashkaripour and Farrokhi (WP 2024)
- Dominguez-Iino (WP 2024)