Research School: The Design, Solution and Estimation of Dynamic Economic Models

Description: JDI Summer Research School 2014

COURSE ANNOUNCEMENT
The Design, Solution and Estimation of Dynamic Economic Models

The JDI Research School is intended for PhD students who have completed all degree requirements except their dissertation within the last year. Students at an earlier stage or young post-degree researchers are also welcome to apply.

The 2014 JDI Summer Research School consists of a preliminary remote/online session followed by a 5 day onsite session.

OVERVIEW

1. Preliminary Course: April-May, 2014, Online

Completion of the preliminary course assignments is required to attend part 2. The preliminary course covers a common set of (free and portable) tools used during the course. The amount of time required to complete part 1 will depend on the student's background.

2. Research School, June 15* - 19*, 2014 (* dates are still tentative), Queen's University, Kingston, ON CANADA

The Research School builds on the preliminary material to study the design, solution and estimation of dynamic programs. Students work with software that eliminates the need for deep recoding of programs normally required to make even modest changes in the model or solution method. Leading estimation strategies are explained, compared and applied. The roles played by expected and unexpected policy variation and equilibrium restrictions in identifying policy-invariant parameters is discussed.
3. Research Workshop and Follow Up

Students are welcome to attend the JDI Summer Research Workshop, Theory + Data + Policy, to begin immediately after the Research School. This workshop will showcase young researchers in the area in a collaborative environment. Ongoing support and discussion of research among participants will be encouraged after the session ends.

OUTLINE

1. Computational Methods (covered in part 1)

2. Discrete Dynamic Programming (parts 1 and 2)

3. Consistent Parameter Estimation (parts 1 and 2)

4. Equilibrium Restrictions and Policy Experiments (part 2)

5. Replication of Existing Models (part 2)

6. Current work and ongoing applications (part 3)

SELECTED REFERENCES
As a benchmark, work which will be discussed, replicated or applied includes:

- Rust, Econometrica 1987
- Hotz and Miller, Review of Economic Studies 1992
- Imai, Jain and Ching, Econometrica 2009
- Ferrall, Review of Economic Studies, 2012

A detailed syllabus and reference list will be posted in early 2014 at the website below.

INSTRUCTOR AND PARTNERS

The 2014 course is coordinated by Christopher Ferrall with assistance of students and faculty at Queen's.

SHARCNET will provide students access to a high performance computer cluster. Since free and portable
software is used in the course, this access is not required to continue using the material.

**APPLICATION**

To promote extensive interaction among participants, the number of attendants will be limited and based on background preparation and intended research projects.


Application Deadline: **March 1, 2014**.

**COSTS**

Travel to/from Kingston is the responsibility of the student or their home institution. Some assistance for travel costs may be available.

For attendees currently enrolled as students: lodging and some meals while in Kingston will be covered by the JDI.

Post-doctoral attendees will be assessed a fee to cover costs of the course. The fee structure will be announced later.

**FURTHER INFORMATION**

More information on all aspects of the program is available at [http://jdi.econ.queensu.ca/summer-2014](http://jdi.econ.queensu.ca/summer-2014)

General inquiries can also be made to jdi-summer@econ.queensu.ca.

**Outline**

Here is an outline of where we are heading. It is adapted from my regular PhD class.

It will be augmented as we proceed.

The order may not follow this sequence because some topics are easier to work on from a distance than others.

details follow

1. Econometric Precursors
Discrete Choice

   Binary, Multinomial, Panel

Simulation and Estimation

Selection

Finite Mixture Heterogeneity

2. High Performance Computing

   Compiled and Interpreted Languages

External resources

   static and dynamic linking

Parallel Execution

   Multi-threading, message passing

3. Dynamic Programming

   Model Elements

Early Estimated Models


Storage and representation

Solution algorithms, part A


4. niqlow

   Design
Solve

Estimate

5. Data Driven Solution Methods part B

Hotz and Miller (1993), Aguirreabiria and Mira (2001)

Imai, Ching and Jain (2009)

6. Extensions

Experimental Variation: Ferrall (2012)

Equilibrium restrictions: references to be added

Apply to Attend

Deadline: Saturday March 1, 2014