Welcome to the
2019 Boot Camp of the
Open Source Macroeconomics Laboratory
University of Chicago

Dr. Richard W. Evans

July 1, 2019

Today's Schedule

Time	Description
8:00–8:15am	OSE Lab Intro, Evans
8:15–9:50am	Numerical integrations and derivatives, Ertl
10:00–11:50am	Dynamic programming, DeBacker
12:15–1:00pm	Lunch and safety briefing
1:15–2:00pm	Walking tour of UChicago, Evans

Introduce Me, Staff, and Instructors

- Richard Evans, Director (@RickEcon, @OSE_Lab, #OSEbootcamp2019)

- Simon Scheidegger, Co-organizer (@comp_simon)

- Marty Evans, OSE Lab Administrative Director

- OSE Lab GitHub repo, List of instructors

Funding

Generous 5-year grant (this is year 3)

Students

- 250 applicants from best universities in world

- Admitted 25

- Some others auditing

- Mix of PhD, masters, and advanced undergraduate

Introduce
Have students introduce selves

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory
   - I was on IMPACT faculty advisory, Co-PI on NSF curriculum grant, taught classes.

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory
   - I was on IMPACT faculty advisory, Co-PI on NSF curriculum grant, taught classes.
   - 2011-2013 Funded by individual donor

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory
   - I was on IMPACT faculty advisory, Co-PI on NSF curriculum grant, taught classes.
   - 2011-2013 Funded by individual donor

2. End of 2011: IMPACT turning into a degree program

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory
   - I was on IMPACT faculty advisory, Co-PI on NSF curriculum grant, taught classes.
   - 2011-2013 Funded by individual donor

2. End of 2011: IMPACT turning into a degree program
   - IMPACT to go away by end of 2013
   - Return in 2015 as Applied and Computational Math Emphasis (ACME)

Lineage of OSE Lab

1. 2007-2013, Humpherys, BYU IMPACT, NSF Grant
   - Interdisciplinary Mentoring Program in Analysis, Computation, and Theory
   - I was on IMPACT faculty advisory, Co-PI on NSF curriculum grant, taught classes.
   - 2011-2013 Funded by individual donor

2. End of 2011: IMPACT turning into a degree program
   - IMPACT to go away by end of 2013
   - Return in 2015 as Applied and Computational Math Emphasis (ACME)

3. As IMPACT phase out, my research increasing

Lineage of OSE Lab

4. 2012: IMPACT donor came to me to start BYU Macroeconomics and Computational Laboratory

Lineage of OSE Lab

4. 2012: IMPACT donor came to me to start BYU Macroeconomics and Computational Laboratory

5. BYU MCL runs from 2012 to 2016
   - Undergrads become coauthors on many papers
   - Excellent graduate placement
   - One is mentioned in Tom Sargent's talk

Lineage of OSE Lab

4. 2012: IMPACT donor came to me to start BYU Macroeconomics and Computational Laboratory

5. BYU MCL runs from 2012 to 2016
   - Undergrads become coauthors on many papers
   - Excellent graduate placement
   - One is mentioned in Tom Sargent's talk

6. Summer 2016: Evans to Univ. of Chicago

Lineage of OSE Lab

4. 2012: IMPACT donor came to me to start BYU Macroeconomics and Computational Laboratory

5. BYU MCL runs from 2012 to 2016
   - Undergrads become coauthors on many papers
   - Excellent graduate placement
   - One is mentioned in Tom Sargent's talk

6. Summer 2016: Evans to Univ. of Chicago

7. Dec. 2016: OSE Lab funded by large 5-year grant

Lineage of OSE Lab

4. 2012: IMPACT donor came to me to start BYU Macroeconomics and Computational Laboratory

5. BYU MCL runs from 2012 to 2016
   - Undergrads become coauthors on many papers
   - Excellent graduate placement
   - One is mentioned in Tom Sargent's talk

6. Summer 2016: Evans to Univ. of Chicago

7. Dec. 2016: OSE Lab funded by large 5-year grant

8. June 2017: Begin first OSE Lab Boot Camp

Mission of OSM Lab

Boot Camp Mission

Train students with modern theoretical and computational tools with an emphasis on open source methods. Support students in mentored research.

- Mathematics
- Economics
- Computational Methods

OSE Lab Mission

Provide open source training and support economic research using open source tools.

OSE Lab Culture

- Casual in dress, formal in effort and analysis

- Instructors are mentors, approachable

- Premium on collaboration, helping fellow students

- Entrepreneurial approach to research

OSE Lab GitHub Repo

- All detail on Boot Camp GitHub Repo

- Tutorials, schedule, source material, problem sets

- Each student should set up own GitHub account at github.com
  - You will turn in your problem sets via your GitHub accounts
  - Grading results in 0, 1, 2 on prob sets $\Rightarrow$ [blank], distinction, high distinction on certificate

- Probably want to select "Watch" on this repo

Collaboration

- Collaboration is essential skill

- Boot camp format enables effective collaboration

- Curriculum is designed to be too hard to do alone

- Mature research requires this kind of collaboration

Collaboration

- Collaboration is essential skill

- Boot camp format enables effective collaboration

- Curriculum is designed to be too hard to do alone

- Mature research requires this kind of collaboration

WARNING
- Please do NOT spend majority of time working by self
- Work with others

Short-term goals

- Curriculum should be hard, great

- Modern tools in econ, computation (require math)

- Object oriented programming in open source language (Python)

- Get best advanced students

Long-term goals

- Place students in the best graduate programs

- Modular, open source curriculum that others can use

- Create "research monster" students who become next gen researchers (pipeline)

- Support research using economic/computational methods

- Support research using open source methods