Inseikai Bootcamp Spring 2025 Computation Camp

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In this course, we will be studying some core models commonly used in economics, such as the Real Business Cycle (RBC) model, Overlapping Generations (OLG), and New Keynesian (NK). Each session will introduce the model, derive the main results, and then use MATLAB and Dynare to solve the model and simulate some shocks.

1 Syllabus

- March 19, 2025 (Wednesday): Brief review of optimization techniques
- March 21, 2025 (Friday): Modeling a 6-period OLG with Dynare
- March 24, 2025 (Monday): Modeling RBC with Matlab and Dynare
- March 25, 2025 (Tuesday): Modeling an NK model with Dynare
- March 26, 2025 (Wednesday): Practical coding session

There is no class on March 20, 22, and 23. You will be given a small homework. There is also a project at the end of the course where you will choose a model of your choice, code, run simulations, and present what you find. We will give you more details in class.

2 Logistics

- Location: Room 401, 4F, C-14 Building (North lab), Kita-kawauchi campus.
- Time: 13:00 – 16:00 (with a break after 90 minutes)
- Materials: available here

  `https://github.com/thanhqtran/tohoku_bootcamp/tree/main/2025_spring/computation`.

3 Requirements

- Basic calculus (derivatives and integration) is required, but we can review it if necessary.
- Software: You need to install MATLAB on your computer. This is proprietary software, but you can use a Tohoku account to download and use it for free. Visit this link: `https://www.mathworks.com/academia/tah-portal/tohoku-university-31485743.html`.

  During the installation, please choose the following **toolboxes**: Econometrics Toolbox, Statistics, Optimization Toolbox, Symbolic Math, Control System, and Matlab SDK.
- Dynare package: download and configure here: `https://www.dynare.org/`