# High Performance Computing Workshops for the Central Bank of Chile

# Course 2: High Performance Computing and Macroeconomic Modeling with Julia

# Provider: QuantEcon

March 9, 2022

Course 2 will provide

1. A total of 16 hours of remote or in person teaching, by mutual agreement, with an approximately even split between lectures and tutorials.
2. Non-graded tutorial and homework exercises.
3. Accompaning Jupyter notebooks containing both code and theory.
4. Access to a cloud computing option for all workshop participants.

Instructors:

1. John Stachurski (Australian National University, Co-founder of QuantEcon)
2. Pablo Winant (CREST and ESCP Business School, lead developer of `dolo`)

Dates:

- During 2022 with exact dates to be determined by mutual agreement.

Price: 5000 dollars.

Topics:

- Parallel computing.

- Perturbation methods.
- Fixed point methods and financial networks.
- Global solution techniques and occasionally binding constraints models.
  - ”improved” algorithms
  - multistep problems and endogenous grids
  - dimensionality reduction
- Heterogeneous agent models.
- Performance optimization.
- Structural modeling with Dolo.
- Introduction to deep learning methods.