MULTI-SCALE ANALYSIS OF SUSTAINABILITY

SIMPLE-G SHORT COURSE

MARCH 14-18, 2022

KRANNERT 758
PURDUE UNIVERSITY
WEST LAFAYETTE, INDIANA

COURSE OVERVIEW

The security of food, energy and water is interwoven with human, economic and environmental sustainability. This recognition suggests that decision making for sustainability could benefit from a nexus approach that integrates resources across sectors and scales. The short course is designed to provide students comprehensive training in the equilibrium modeling tools for economic as well as interdisciplinary analysis of sustainability issues across local, national and global scales.

The training modules are designed to provide an immersive experience that spans geo-spatial data, model code, and software structures to allow participants to examine real policy problems and synthesize quantitative results while enhancing their own intuition.

NEW THIS YEAR!

There will be two scholarships available to cover travel costs. To be eligible, applications must include a brief statement of interest, and how the applicant intends to use the model in their research.

- Improved teaching materials (more diversified SIMPLE-G applications, a flexible SIMPLE-G mini model, etc.)
- COVID safety plan required by CoA

COURSE PHASES AND OBJECTIVES

PHASE 1: ONLINE COURSEWORK (4 WEEKS)

FEBRUARY 14, 2022 - MARCH 11, 2022

- Understand the microeconomic underpinnings of computable equilibrium models
- Learn SIMPLE applications implemented via the GEMPACK software suite

PHASE 2: IN-PERSON COURSE (5 DAYS)

MARCH 14 - 18, 2022

- Introduce the gridded version of the SIMPLE model
- Intensive mix of lecture and hands-on sessions designed to develop the economic intuition required to develop more complex policy analyses

COURSE INFO

APPLICATION & SCHOLARSHIPS

All participants need to apply for the course by visiting: https://bit.ly/simpleg21app

PUBLICATIONS

Review publications on SIMPLE-G and SIMPLE here

COURSE WEBSITE

Learn more about the course and register at: https://bit.ly/simplegcourse

LODGING

- A reservation block is available at: Purdue University Union Club Hotel
- Use code "103121SIMPLEG"

COSTS

- No registration fee but donations are welcome.
- Participants are responsible for their own travel and lodging expenses.

APPLY NOW

APPLICATION DEADLINE: JAN. 21, 2022

https://bit.ly/simpleg21app

CONTACT

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COURSE SCHEDULE

PHASE 1: ONLINE COURSEWORK (4 WEEKS)

Each weekly module is estimated to take 5 hours and is comprised of book chapters (theory focused), lab exercises and discussion (implementation focused) to highlight major learning objectives.

WK1 — **FEB. 14-18, 2022**
- Introduction to the SIMPLE framework: Assessing the impacts of population & income growth on global land use

WK 2 — **FEB. 21-25, 2022**
- Assessing the impact of climate change on global agriculture

WK 3 — **FEB. 28-MARCH 4, 2022**
- Technological progress and food security

WK 4 — **MARCH 7-MARCH 11, 2022**
- Preparing for in-person course

PHASE 2: IN-PERSON COURSE (5 DAYS AT PURDUE UNIVERSITY

DAY 01
- *Recap of theory in SIMPLE*
- *Introduce segmented and integrated market of the SIMPLE model*
- *Introduce gridded model: theory and gridded indexing*
- *Nested production function*
- *Hands-on lab: Replicate and discuss SIMPLE application (Hertel & Baldos, 2016)*

DAY 02
- *Rainfed/irrigated split*
- *Water supply and demand*
- *Hands-on lab: Replicate and discuss SIMPLE-G-US application (Haqiqi et al. 2018)*
- *SIMPLE-G Data*
- *SIMPLE-G Parameters: emulators and elasticities*
- *Hands-on lab: Replicate and discuss SIMPLE-G-US application (Liu et al. 2018)*

DAY 03
- *Mapping and analysis of SIMPLE-G results*
- *Parameter sensitivity analysis and model uncertainty*
- *Critique of existing applications*
- *Small group breakout: develop extension ideas*
- *Small group breakout: Experiment with ideas/change direction as needed*

DAY 04
- *Hands-on lab: Replicate and discuss SIMPLE-G-global application (Liu et al, 2017)*
- *Small group breakout: modification, experiment and analysis*

DAY 05
- *Presentations*