Cognitive modeling

Joachim Vandekerckhove

Spring 2025

Course Description

Topics in quantitative methods used in cognitive sciences research focusing on process models, model building, parameter estimation, and model evaluation.

Examples drawn from models and methods used in cognitive sciences research with practical examples.

Tools

Tools and Environment:

- Docker Desktop

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- Docker Desktop
- Ubuntu Linux environment

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Docker containers are safe sandboxes in which you can screw up your code or even your operating system. Get in the habit of starting, stopping, destroying, and rebuilding them.

Flipped Lectures

Recorded Lectures:

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- Published Monday afternoons

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In-Person Meetings:

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In-Person Meetings:

- Wednesdays, 4:00 PM–4:50 PM

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Virtual Meetings (Optional):

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- Wednesdays, 4:00 PM–4:50 PM

Virtual Meetings (Optional):

- Fridays, 4:00 PM–4:50 PM

Assessment

Approximately Weekly Assignments (50%)

- Mostly technical, implementations of models in python, etc.

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- You will need all the skills from the hurdle assignments to complete the project assignments

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Submission Policy:

- No late submissions (assignments due at noon on the due date)

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- Recommendation: Set an internal deadline a day earlier than the due date

Key Philosophies: Collaboration and Figuring Stuff Out

Hurdle assignments and collaboration

When you're stuck on something (e.g., getting a script to run), you have to try to solve the problem all by yourself for an hour, but then when the hour is up you have to ask for help. Failure to try wastes other people's time, failure to ask wastes your time.

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Finding partial solutions from unverified sources, implementing them, and then conducting rigorous tests is a highly generalizable coding paradigm.

Academic Dishonesty & Resources

Academic dishonesty policy

There is no tolerance for academic dishonesty or fraud. Any form of fraud designed to circumvent course policies will result in a failing grade. The professor makes no judgment calls regarding academic dishonesty. Any academic dishonesty, no matter how small, will be escalated to academic authorities.

Resources

- **Disability Services**: https://dsc.uci.edu/
- **Academic Dishonesty**: https://aisc.uci.edu/students/academic-integrity/index.php
- **Copyright Policy**: http://copyright.universityofcalifornia.edu/use/teaching.html

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2. Acknowledge use of reference works, websites, and AI tools in comments.

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