

Introduction

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Applied Quantitative Methods II

IC3JM, Spring 2026

Course overview

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- Focus on **applying** statistical tools in practice
- Less theory, more hands-on work with data
- Goal: go from research question to answer

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- How to interpret and visualize model results
- How to evaluate whether a model is appropriate
- How to work with different types of data (panel, spatial, etc.)
- Best practices in computing and reproducibility

Course structure

Feb 5	Introduction
Feb 12	2
Feb 19	3
Feb 26	4
Mar 5	5
Mar 12-19	6
Mar 26 & Apr 9	7
Apr 16	Other outcomes
Apr 23	Project presentations
Apr 30	Exam + Review

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Evaluation

- Problem sets (20%)
 - Started in class, finished at home
 - Short deadlines
- Proposal presentation and peer review (10% + 10%)
- Final essay (30%)
 - Small research note (max 3,000 words)
 - Original data analysis using R
- Exam (30%)

Roadmap

The Big Picture

The research process

Theory ←→ **Data Generating Process** ←→ **Data**

- Theories make claims about how the world works

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- We observe data and try to learn about the underlying process

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- We never observe the DGP directly
- We use statistical models to make inferences about it

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 - Statistical models help us deal with this noise

The logic of statistical inference

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- We're doing the reverse: from data back to process

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Version Control and Git

The problem: managing files over time

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- What changed between versions?
- Which version has the correct analysis?
- How do you collaborate without overwriting each other's work?

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- Multiple people can work simultaneously

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- Many journals now require or encourage sharing code via GitHub

Git and GitHub

Git

- A version control system
- Runs locally on your computer
- Tracks changes to files

GitHub

- A web platform that hosts Git repositories
- Stores your code online
- Enables sharing and collaboration

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4. **Push** your commits to GitHub
 - Upload your local changes to the cloud

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- All do the same thing—choose what works for you

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 - Detailed instructions in the assignment document

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- Right statistical model for the data
- Correct interpretation of results
- Honest about limitations and uncertainty

Looking ahead

- Next session: Applied regression

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- Multiple regression and control variables
- Interaction effects and presenting results

For next week

- Read Urdinez & Cruz (2020), chapters 1–5
- Read Gelman et al., chapters 6–7 and 10
- Read BdM & Fowler, chapters 5 and 10
- Review your notes on OLS from AQMSS-I
- Start Assignment 1

Questions?