ECON 2041

Introductory Econometrics

Intro to unit

Outline

- Intro to teaching team
- Salary prediction game
- Technology and learning materials
- Assessment
- Learning outcomes
- Plan for the semester

Teaching team

Unit convenor: Associate Professor Emilia Tjernstrom

Email: emilia.tjernstrom@mq.edu.au

Consultation hours: Tuesdays 9 - 10 (both in-person and Zoom)

Tutors:

- Fazeel Jaleel
- Syed Atif
- Adithya Krishna

Yes, I know...

It's a beast!

~*churn*-strom

Tutorials start in week 2

Teaching team

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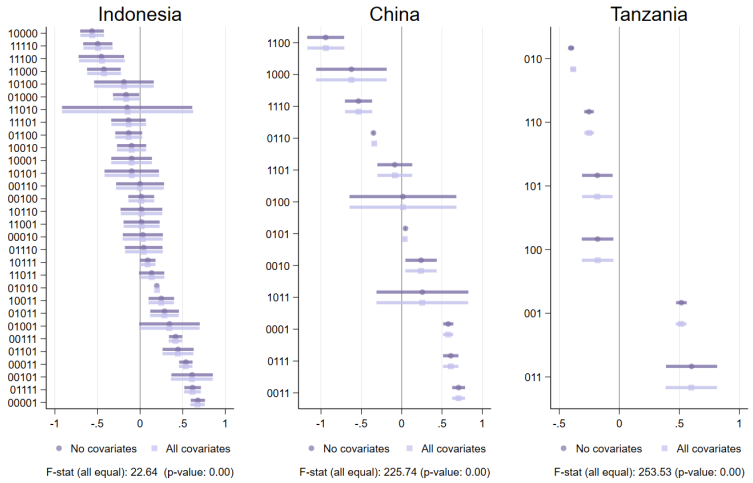
A little more about me:



I study how policies work & for whom

I apply and develop econometric tools to understand treatment effect heterogeneity

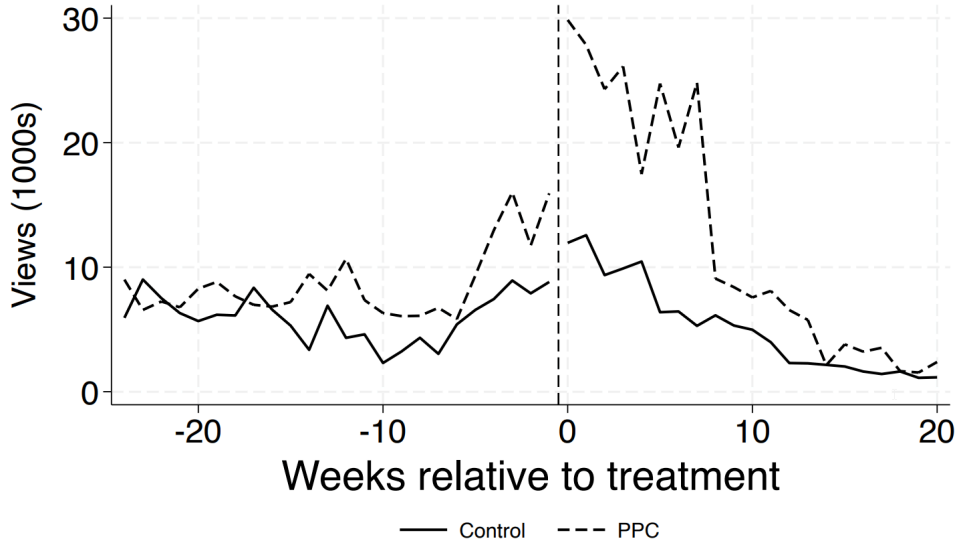
Teaching team

(a) Input selection

(b) Fertilizer application

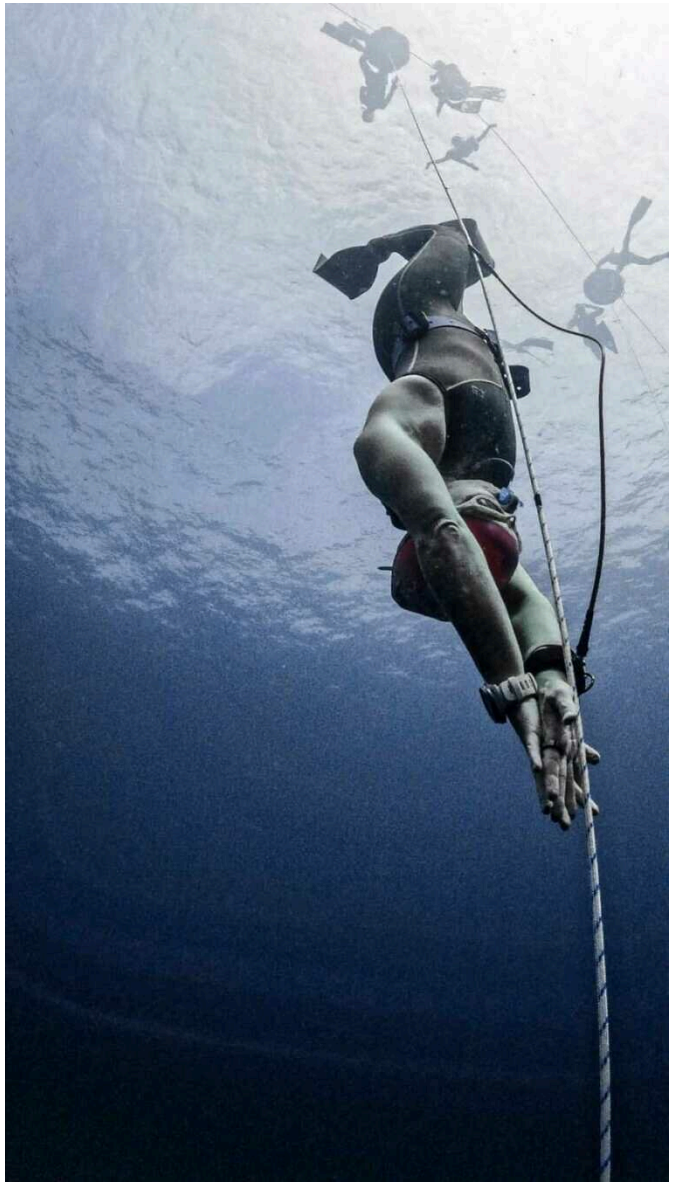
(c) Seed planting

(d) Harvest summary screen



I design & run large-scale RCTs in developing countries

A little more about me:



What will you earn when you graduate?

The Graduate Outcomes Survey (GOS)

Where I got the data:

- A national survey of new graduates, run every year since 2016
- In 2025: over 120,000 graduates from 136 institutions, including all 42 Australian unis
- Graduates respond 4--6 months after finishing, so these are first-job salaries
- We will look at the median annual salary of grads working full-time

Remember, the median tells you what the *typical* new graduate earns, not the average

Source: Social Research Centre (2026), 2025 Graduate Outcomes Survey: national report (QILT)

Salary prediction game

Ten fields of study, **guess** what you think the typical new graduate earns per year

1. Open your portal link (in welcome email)
   https://emiliatjernstrom.com/econ2041/portal.html
2. OR scan the QR code & enter your code
   (`happy-koala`)
3. Move the sliders to your best guess

Portal answers are anonymous & ungraded

Quantitative skills pay

Evidence from Texas: used AI to classify coursework for every public-university student, linked to their quarterly earnings after graduation

- +1 quant course: ca. 1.1% higher early-career earnings, roughly $150 more per quarter
- Writing-focused coursework: no detectable earnings return
- Largest gains where the skills are scarcest:
  - 10.6% vs 1.9% for students in less-quantitative majors
  - 9.8% vs 4% for URM students (per SD of quant coursework)

This unit is a great place to start building these skills...

By the end, you will have a portfolio of notebooks showing off the skills you've learned!

Source: Xu, Yaling (2026), "Does coursework matter? Uncovering the role of skills in the returns to college," EdWorkingPaper 26-1484

Logistics & plan

Software

Excel

You can get Excel & other MS Office products through your MQ account

Zoom

- How to use it (remember to test your mic)
- We expect people to have their cameras on when in Zoom meetings

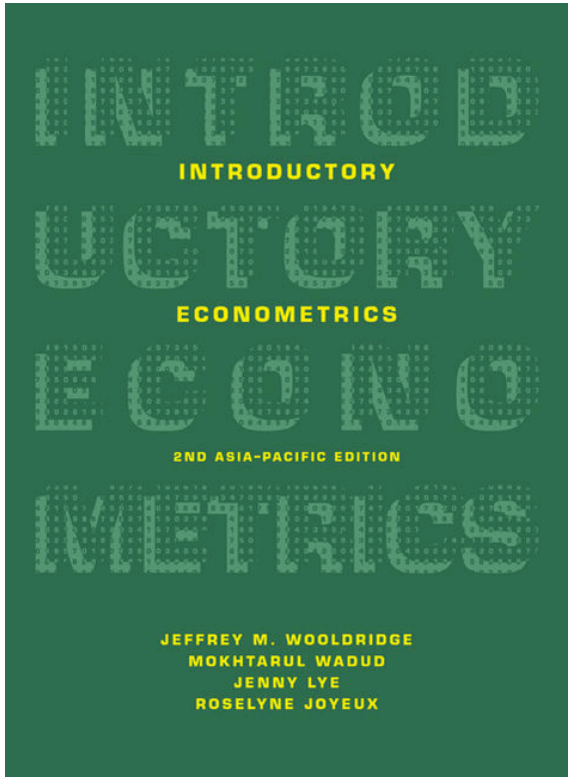
Python

- We'll cover using Python in next week's lecture (in Colab)
- Note: you'll need a google account

Textbook

Wooldridge et al. (2021)

Introductory Econometrics (2nd Asia-Pacific ed.)



What is our goal?

a.k.a. demystifying learning outcomes

Learning outcomes

1

Analyse & apply key statistical concepts:

- probability distributions
- parameters, estimators & sampling distributions
- point & interval estimation
- hypothesis testing

What does this mean in practice?

You should understand the building blocks of statistics as applied to economic questions:

- how we use samples to learn about a bigger group
- how confident we can be in our estimates
- how to tell if a result is real or just random

Learning outcomes

2

Specify, estimate & interpret a regression model

Learning outcomes

2

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Specify, estimate & interpret a regression model

Answer: Did it work?

	Yields, enrolled vs. control	Total maize output
	(1)	(2)
Enrolled	295.43***	264.90***
	(37.23)	(85.73)
Control group mean	1128.39	1082.38
Observations	682	682

Learning outcomes

3

Summarise and interpret the estimation results, and draw valid inferences using hypothesis tests

What does this mean in practice?

Make sense of your results! Basically, you should know...

- what the numbers mean
- how strong the evidence is
- whether your conclusions are "real" or could be due to chance

Move from output $\rightarrow$ insight

Learning outcomes

4

Critically evaluate standard regression model assumptions & the consequences of violations

What does this mean in practice?

You should know and understand...

- what can go wrong when the assumptions underlying a regression model don't hold up
- what such violations mean for your results

Become informed consumers

Learning outcomes

5

Use econometric software to solve econometric problems

What does this mean in practice?

Use software to run econometric analyses

Build practical skills!


How to do well in
ECON2041

Each week, you should...

1. Read the assigned textbook chapter + any other assigned readings

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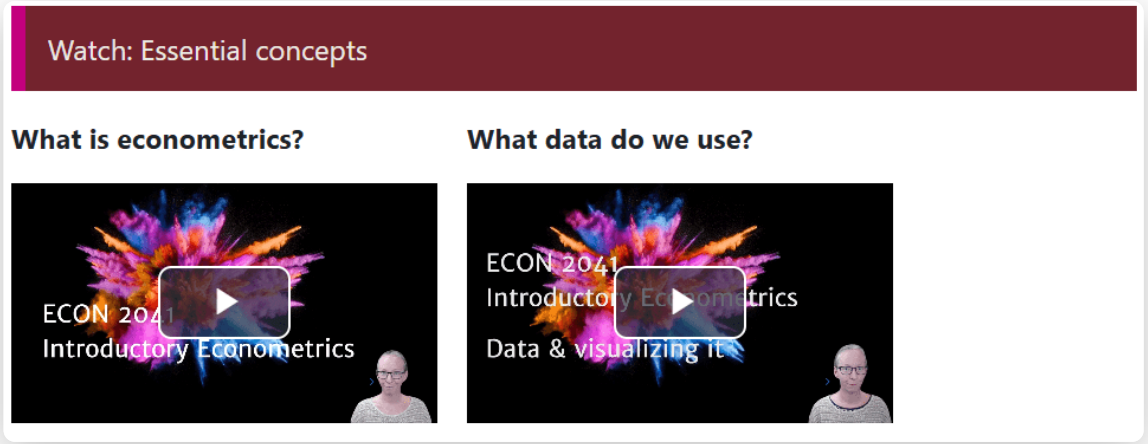
2 Watch the Essential Concepts videos (the lecture builds on them)



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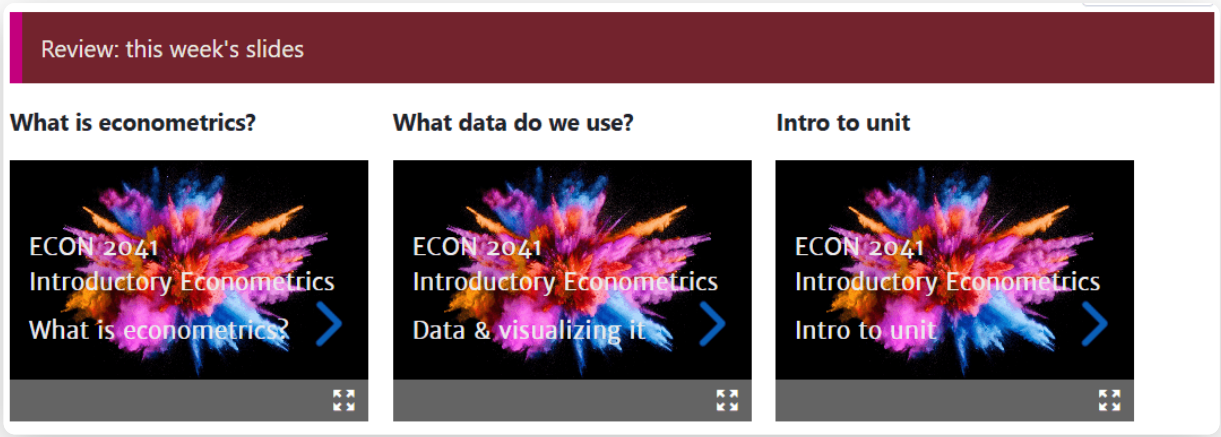
3. **Attend the live lecture**



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3. Attend the live lecture
4. **Attempt the tutorial questions**

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4. Attempt the tutorial questions
5. **Attend the tutorial!**

Each week, you should...

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3. Attend the live lecture
4. Attempt the tutorial questions
5. Attend the tutorial!
6. **Begin working on assessments**

Each week, you should...

1. Read the assigned textbook chapter + any other assigned readings
2. Watch the Essential Concepts videos (the lecture builds on them)
3. Attend the live lecture
4. Attempt the tutorial questions
5. Attend the tutorial!
6. Begin working on assessments
7. Ask for help if you need it!

Assessment

Quiz: 20%

Checks your grasp of core concepts and skills in applied econometrics, building on work from tutorials

Format: in-person quiz

Problem set: 30%

You'll draw on content from lectures & tutorials to apply econometrics to real problems

Format: short answer written submission

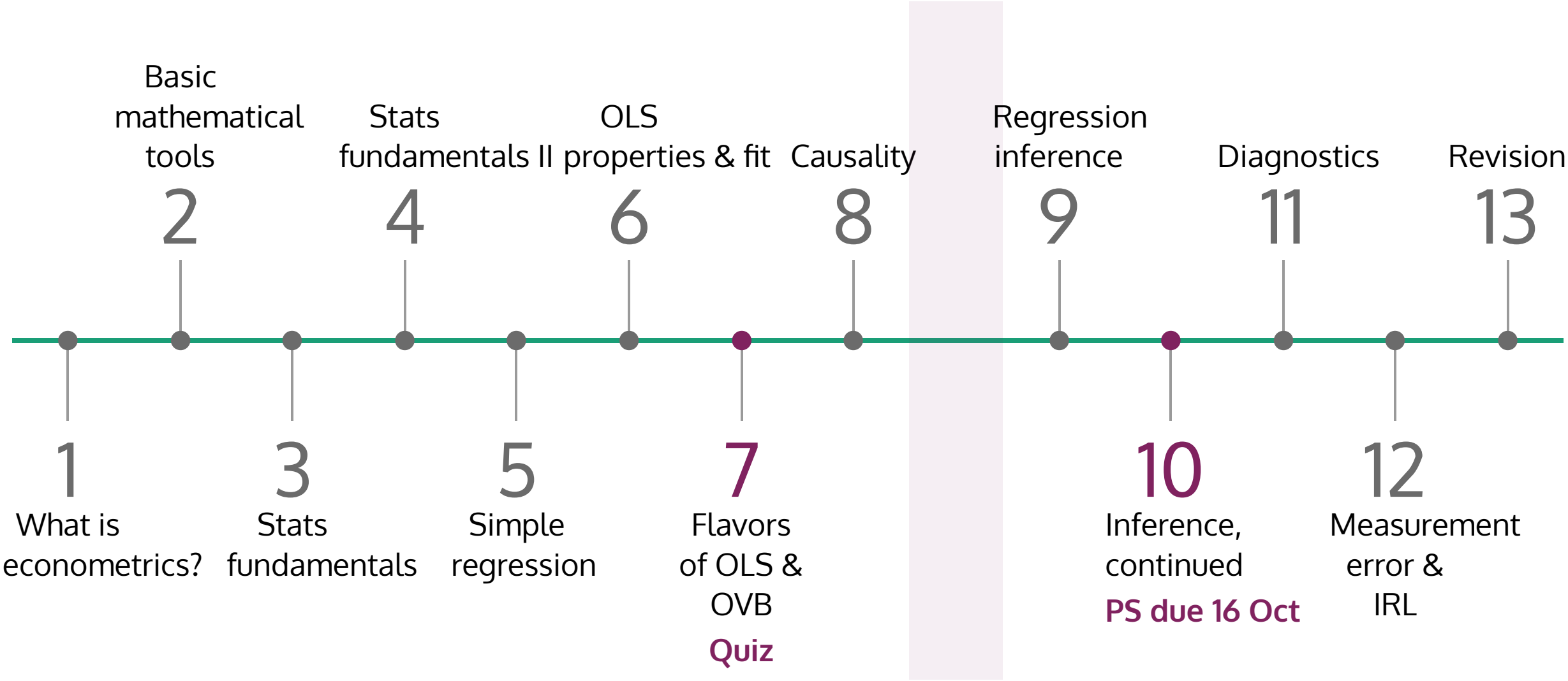
We're building something a little different: think choose-your-own-adventure, with data.
Watch this space!

Final exam: 50%

Format: 2-hour cumulative invigilated on-campus exam, held during Examination Period

The plan

Plan for the semester



Week 1

Essential concepts

- What is econometrics?
- What data do we use in econometrics?

Live lecture

- Intro to unit
- Salary prediction game

Tutorial

No tutorial in week 1

Week 2

Essential concepts

- Summation, proportions, percentages
- Partial derivatives, non-linear functions

Live lecture

- Intro to Python
- Write some code, bring laptops

Tutorial

- Get started with Python
- Understanding data types