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The University of Sydney

Welcome

ENVX2001 Applied Statistical Methods

Feb 2024



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Acknowledgement to Country

The University of Sydney is on Gadigal Country. We acknowledge their ongoing connection to and ownership of this land and pay our respects to past, present and emerging leaders.

About

Staff | Structure | Attendance

Staff



Aaron Greenville



Liana Pozza



Januar Harianto



Mathew Crowther



Structure

Lectures

Tue 10 AM – Chemistry Lecture Theatre 1

Wed 11 AM – Chemistry Lecture Theatre 3

Tutorials

Self-guided sessions (1 hour), to be completed before the week's lab.

Labs

All labs are held in the **South Eveleigh Precinct** (more on this later):

- Thursday 9 am 12 pm
- Friday 10 am 1 pm, 2 pm 5 pm

Attendance

- Mandatory for labs, **80%** minimum required.
- Lecture attendance is highly recommended, but not compulsory.
- Lecture recordings capture slides and audio *only*. You will miss out on important discussions and informal feedback.

Assessments

► Code

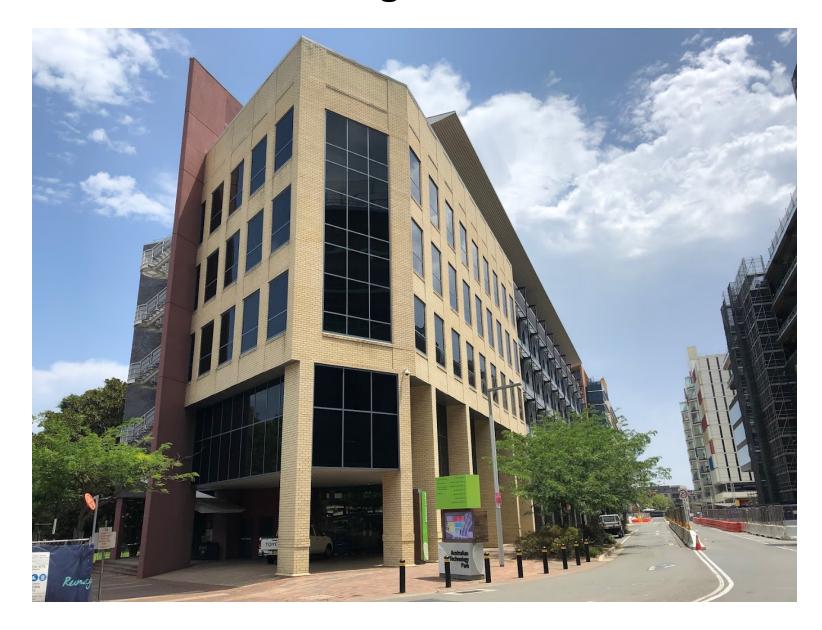
Assessment	Weight	Due	Description
Project 1	10	Week 5	Report Describing data
Project 2	20	Week 10	Report Analysing experimental data
Project 3	20	Week 13	Presentation Modeling multivariate data (Topics 7 to 12)
Canvas Quizzes	5	Weekly	Weekly quizzes
Final exam	45	TBA	2 hours, Multiple Choice Questions + Short Answers



South Eveleigh Precinct

Used to be known as the Australian Techonlogy Park (ATP). Still is, but it used to, too.

Biomedical Building



Credit: Michael Wheatland



Directions

Buses

Courtesy buses are available:

- Best option is to take the bus from **Fisher Library** to **Redfern Station**, then walk to the precinct (through the new station platform as "local traffic").
- Alternatively, direct buses are available but less frequent.

Driving

Free parking is available around Henderson Road, but it is extremely crowded. We do *not* recommend driving to the precinct.



Walking

Why study statistics?

Why would it be relevant to my (non-statistical) career?

Learn, so you can...

- Conduct effective **research**; but if you are not a researcher, you can still...
- Critically evaluate research findings; but if you don't plan to read scientific literature, you can still...
- Make informed **decisions** based on evidence and know the signs when someone is trying to mislead you.



Source: Anchorman (2004)



Doing well **T**

Attend lectures | Put in the hours | Ask questions

Attend lectures

Attending a lecture is *not* the same as watching a recording...

- You can ask questions and interact with your peers.
- Your **lecturer** actively adjusts the pace/conten based on your *informal* feedback (e.g. confused looks, Google polls).
- If you don't *understand* something, there is a *good* chance that you can address it *before* the next lecture or lab.



Put in the hours

- This is a **6 credit point** unit, which means that you are expected to spend **120 150 hours** in total, including exam prep time (~10 h per week)!
- **Practice makes perfect**. Tutorials and Labs help you apply the concepts you learn in lectures complete all the exercises, and practice with the bonus questions provided.





† Ask questions

- Ed is the best place to ask questions. We are way more responsive on Ed than on email.
- We are *open* to the use of AI tools (including LLMs like ChatGPT) to help you answer questions about code... but don't use them to cheat *yourself* out of learning.
- We have drop-in sessions, where you can jump in and have a chat on Zoom. We will announce the schedule on Ed.

Learning outcomes

By the end of this course, we want you to be able to:

- LO1 demonstrate proficiency in designing sample schemes and analysing data from them using R.
- LO2 describe and identify the basic features of an **experimental design**: replicate, treatment structure and blocking structure.
- LO3 demonstrate proficiency in the use or the statistical programming language R to apply an ANOVA and fit regression models to experimental data.
- LO4 demonstrate proficiency in the use or the statistical programming language R to use multivariate methods to find patterns in data.
- **LO5** interpret the output and understand conceptually how its derived of a regression, ANOVA and multivariate analysis that have been calculated by R.
- **LO6** write statistical and modelling results as part of a scientific report.
- LO7 appraise the validity of statistical analyses used publications.



Thanks!

Questions?

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