Course Introduction

Data Analysis for Psychology in R 1

DAPR1 Team

Department of Psychology
The University of Edinburgh

The DAPR1 Team

Course organisers

- Dr Patrick Sturt
- Dr Umberto Noe

Instructors

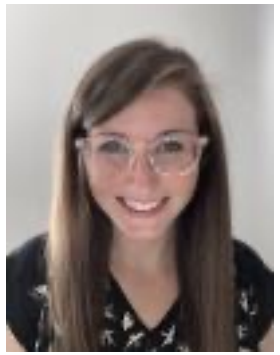
- Dr Patrick Sturt (in Block 1)
- Dr Monica Truelove-Hill (in Block 2)
- Dr Umberto Noe (in Block 3)
- Dr Emma Waterston (in Block 4)

Tutors

- Many knowledgeable and approachable tutors

Course administrator

- Georgiana Gherasim
- ppls.psych@ed.ac.uk

Office hours

Course LEARN page > Course information > Course contacts > Click on the instructor's name

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Office Hours information

DAPR1 and your degree

In DAPR1, we will teach you how to

- Deal with data in R
- Tidy, manipulate, and transform data
- Visualise data
- Using data to answer basic research questions.

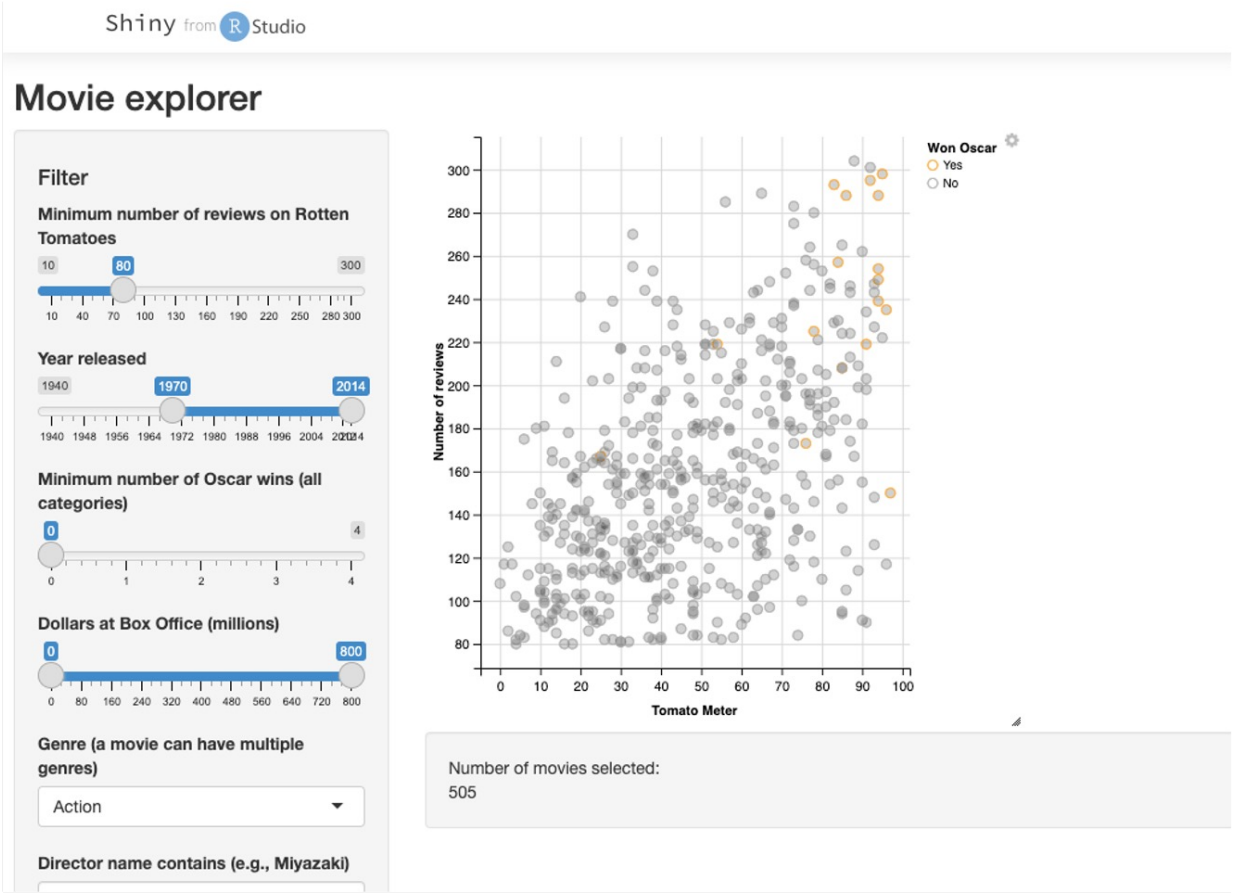
Course aims

- Build the core data and R skills at a slow and steady pace.
- Introduce key statistical concepts.
- Help you develop an effective approach to studying data analysis.
- Encourage you as a cohort to be collaborative, supportive peers.
- Integrate with Psychology 1A and 1B.

What is the R in DAPR1?

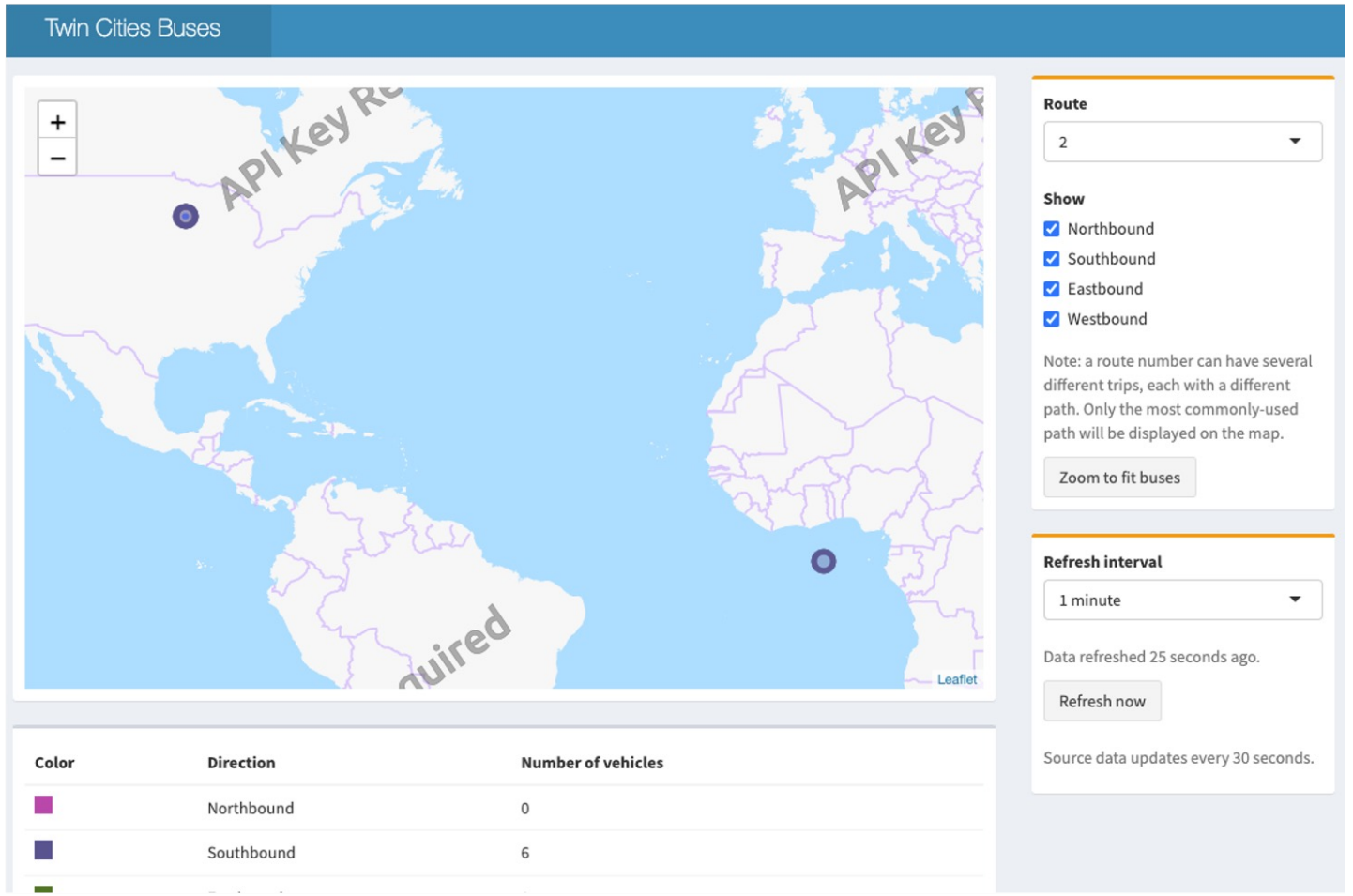
- **R** is the name of a very flexible and free programming language for working with data
  - It does pretty much any statistical analysis you can think of
  - But it does a lot more…

Interactive plots



For example: https://shiny.rstudio.com/gallery/movie-explorer.html

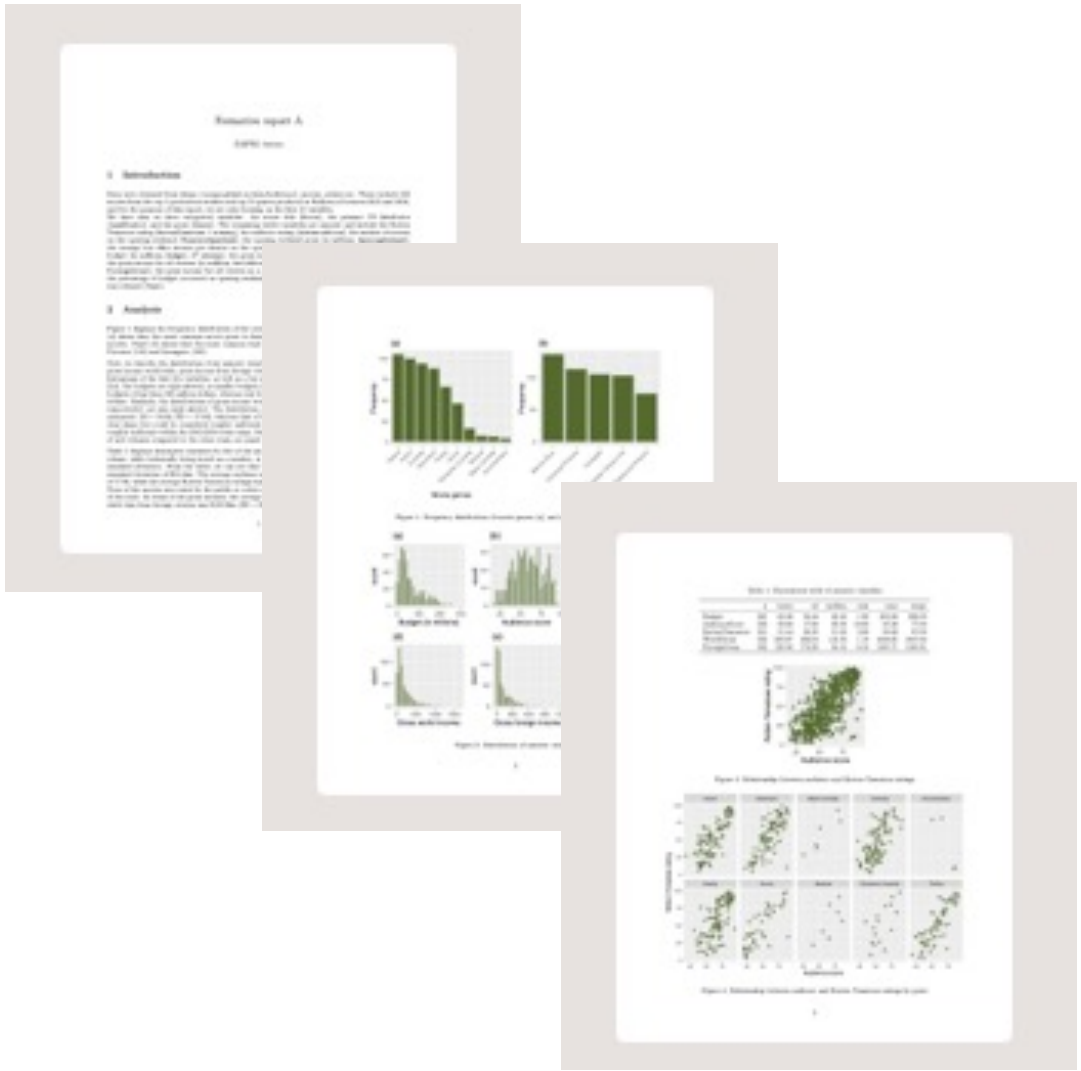
Interactive dashboards



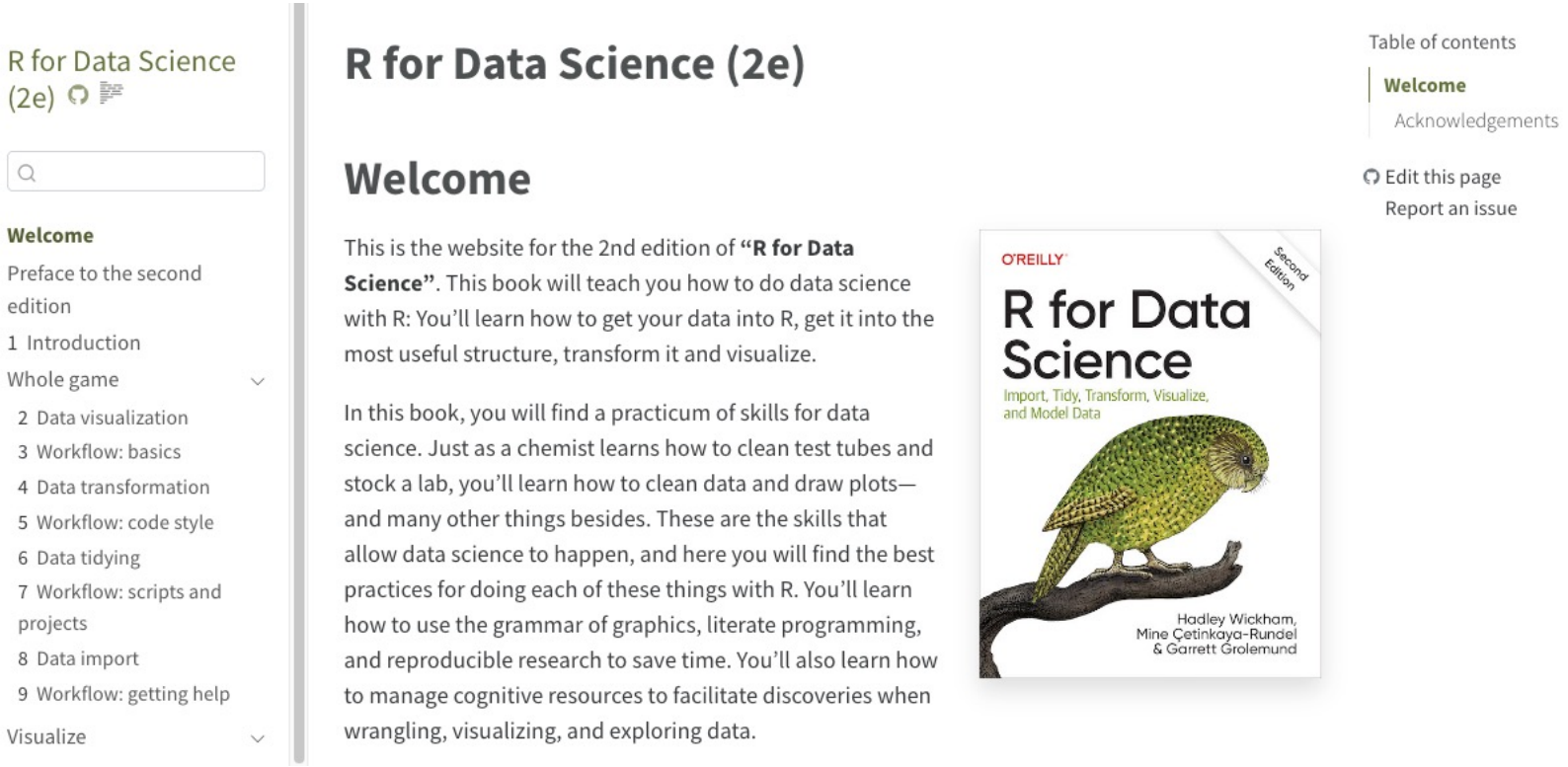
For example: https://gallery.shinyapps.io/086-bus-dashboard/

Reports

- Documents which automatically include results from analysis
- We will create these in the labs

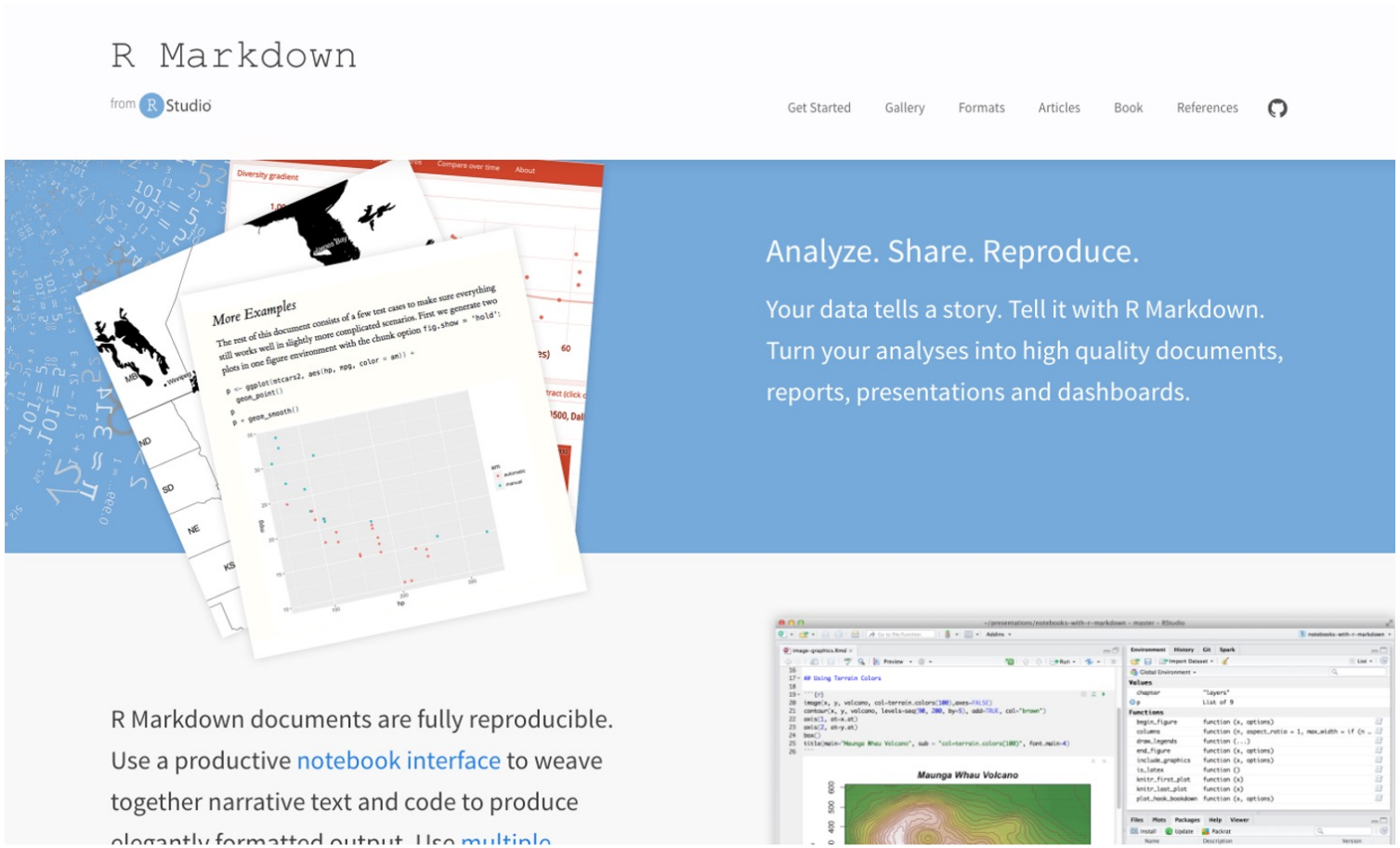


Books



For example: https://r4ds.hadley.nz/

Websites



For example: https://rmarkdown.rstudio.com/

Presentations

Course overview

- The course involves a mixture of conceptual and practical programming **lectures**.
- Each week, the first lecture will be more “conceptual” while the second more “practical”.
- Each week, go to your allocated **lab** session, where you will gain experience in applying those concepts

Expectations

1. Attendance (unless unwell)
2. Engagement
3. Respectful interactions

Expectations

- The course is delivered in person, and each week you are expected to attend both lectures and labs.
- **Two lectures each week**
  - The first is on Mondays, while the second is on Tuesdays.
- **Lecture activities or readings**
  - Each week you may be assigned activities or readings, and you are expected to complete those.
- **Labs with tutors**
  - Group-based practical sessions
  - Goal is preparing you to analyse real data and write up reports
  - They involve a set of structured tasks to be solved with the help of R
  - 1 hr per week
  - Will require you to produce and submit formative assessments as a group, in preparation for the assessed report

Course contents

- Year-long course which comprises four blocks of five weeks each:

Block 1: Exploratory data analysis (Sem 1, Weeks 1-5)

- Will focus on data collection and exploratory data analysis.

Labs: Formative report A

Block 2: Probability (Sem 1, Weeks 7-11)

- Will introduce probability theory and distributions, with particular attention to the normal probability distribution, which arises in many everyday situations. We will then build on those concepts to introduce sampling distributions, which show the variability of quantities like the mean from sample to sample.

Labs: Formative report B

DAPR1

Labs: Formative report C

Assessed report

Block 3: Inference (Sem 2 Weeks 1-5)

- Introduces the step-by-step process of testing a research hypothesis and focuses on explaining in depth the meaning of each component of a test of hypothesis.

Block 4: Common hypothesis tests (Sem 2 Weeks 6-10)

- Teaches widely used hypothesis testing procedures that are used in everyday research to answer questions about a population.

Help and support

- **Labs** (see your personal timetable for the time)
  - Ask tutors for help on R, lab materials, concepts from the lectures
- **Piazza Discussion forum** (see LEARN for link)
  - Write your questions to get answers from your peers and/or instructors
  - Advantage: you will also help peers with the same question!
- **Office hours** (see LEARN for details)
  - 1:1 support sessions with an instructor
  - LEARN > Course information > Course contacts > Click on the instructor's name for details
- **Student adviser**
  - Your student adviser (you can find their name on Euclid) can support you on anything that is not directly related to the course materials or can refer you to the other support services available.

Important

- The course requires you to work steadily and consistently across the year.
- Each week's content builds on the previous weeks, so it is cumulative.
- It requires regular studying and keeping up to date. It is not designed for leaving everything to last minute all-night studying before assessments.
- To help you build study skills, the course has a specific assessment structure which integrates multiple formative assessments.
    - This creates an iterative improvement path.

Assessments

The DAPR1 final grade is made up of the following components:

- Weekly quizzes (10% of final grade)
- Assessed report (30% of final grade)
- Final exam (60% of final grade)

Assessments: Weekly quizzes

Weekly quizzes (10% of final grade)

- There are 14 assessed quizzes, but only the 10 best scores out of the 14 quizzes will count towards the final grade.
- Released on a Monday at 9am and due on the Sunday at 5pm.
- The feedback and solutions will only be available after the deadline (after Sunday at 5pm)
- No extensions, as these count as continuous summative assessments.
- There are also 2 practice quizzes at the start of the course which won't count towards your grade

Assessments: Assessed report

Assessed report (30% of final grade)

- No extensions, as this is groupwork-based
- To be done during weeks 6-10 of semester 2
- Format: each group will be given data and a set of tasks, and you will be required to write up your analysis
- Multiple opportunities to practice during the labs, by creating 3 formative (practice) reports
- In the previous years, students who attended most/all labs and submitted all formative reports were more likely to score higher on the assessed report.

Assessments: Final exam

Final exam (60% of final grade)

- After semester 2 in the Main Exam Diet (April/May)
- 60 multiple choice questions
- Written in an exam hall

Course materials

- Each week's material will be within a weekly folder on LEARN containing:
  - Weekly quiz
  - Lecture slides
  - Lecture activities or readings
  - Lab exercises
- The weekly folders will become available incrementally on LEARN.

What you can expect from us

1. We will work hard to help you learn.
2. We will be open and communicate with you.
3. We will be polite, respectful and treat you like adults.

What we expect of you

1. You work regularly throughout the year and keep up to date with the materials.
2. You interact and communicate with the teaching team.
3. You are polite and respect the teaching team and your classmates.
4. If you email, include the course name **DAPR1** in the subject as some instructors also teach in DAPR2 or DAPR3.

A brief word on engagement

- We are very keen to make sure everyone succeeds
- To do that, we need to know when people are struggling
  - Please, let the tutors or instructors know if you are struggling, so that we can help
- We will keep an eye on this in a few ways:
  - Attendance during office hours
  - Engagement (discussion forum, labs)
  - Weekly quiz performance

Lab pedagogy

- **Based on novel educational practice and informed by student feedback**
  - Pair programming principles (driver vs navigators)
  - Group work
  - Assessment for learning with formative feedback
- **Modern and inclusive lab materials that respect diverse learning communities**
  - Multiple layers of support
    - Peer-to-peer
    - Hints
    - Worked Example
    - Tutor Explanation
    - Office Hours
  - Extra examples on R code
  - Color contrast accessibility also available

Lab structure

- The course has 3 labs each week, and you have been allocated to one lab per week. See your personal timetable for which one to attend.
- Within each lab, you will work in groups (one group per table) of at most 5 students.
- In each group:
  - One person is the "**driver**" – responsible for typing on the PC for that week
  - The rest are the "**navigators**" – responsible for commenting on the strategy, spotting and fixing typos or coding errors
  - The driver will rotate each week.

Lab structure

- Group-based work in preparation of the assessed report in Sem. 2
    - As a group, you will create 3 formative reports (two in Sem. 1, one in Sem. 2) for which you will receive feedback
- One group per table, each group has a name
    - Take note of the group name
    - For example, Lab 1 has Group 1.A, 1.B, 1.C, 1.D, …
    - During your first lab you must self-register for the group with that name on LEARN.

Own-work Policy

The use of generative AI tools is not permitted for any assessment of this course.

For group-based reports:

- Avoid plagiarism on reports
- Don’t copy/share work between groups
- Don’t copy verbatim from the lab materials

Own-work policy:

- Weekly quizzes
- Final exam

Failure to comply with the instructions above is in direct violation of the university own-work policy and will be reported to the academic misconduct office

Tasks for welcome week

Go to the course LEARN page > click Course Materials: Semester 1 > click S1 Week 0: DAPR1 Starts Here! and complete the Tasks:

- Watch the **Course introduction** video (this one)
- Read the **Course Information** folder
- Read the **Assessment** > **Assessment information** page
- Register for the **RStudio server online**
- Watch the **RStudio Server overview** video

Welcome to the course!