

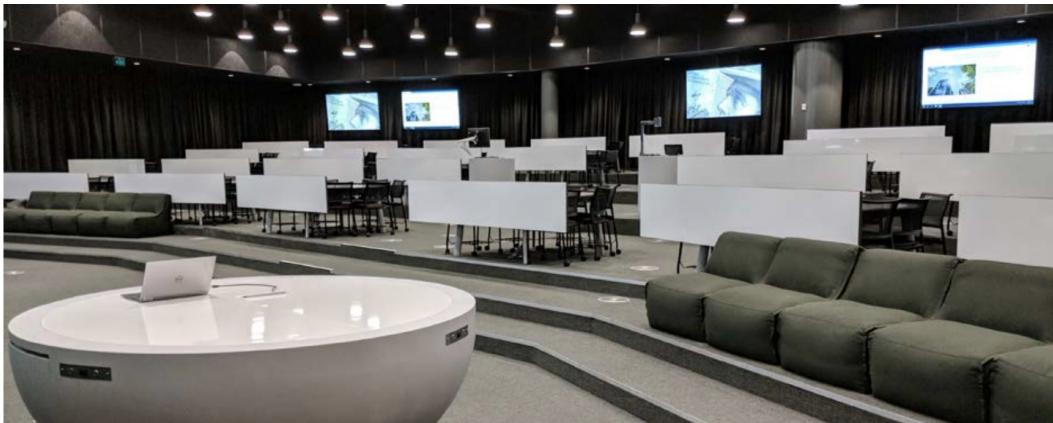
# An inclusive solution for teaching and learning R during the COVID pandemic

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# Teaching in times of COVID

Instead of teaching in classrooms



👉 We moved to remote and online teaching and learning.



Tools to facilitate the task!  
Photo by [Todd Quackenbush](#) on [Unsplash](#)

# Student cohort and units

## Students

- Both undergraduate and graduate.
- Classroom size range from about ~300 to 60~80 students.

## Challenges

- Different knowledge levels and coding experience.
- Remote/online learning.

## Units

- Introduction to data analysis
- Reproducible and Collaborative practices



# Goals

## Teaching and Learning Experience

- Efficient and effective experience
- Unifying learning
- Remove the installation/usage burdens
- Remote/hybrid learning

## Pedagogy

- Active learning and constructivism
- Authentic learning: Usage of practical real examples

# Approach

- Programming language
- Integrated development environment (IDE)



Integrated development environment (IDE) in the **cloud**



# Learning and empowering

- Use Rstudio Cloud for the entire semester
- Use Rstudio Cloud the first 4 weeks so that students are confident to install and use R and Rstudio in their local machines.



# Organization and delivery

## Week 3: Grammar of Graphics and Dates

 Grammar of graphics

 ggplot themes

 Palettes ggplot

 Data visualisation

 Dates and times

 Resources for beginners 140.2KB PDF document

 Week 3 - Lecture 133.5MB PDF document 

 Video: Week 3 - Tutorial 25.9MB Video file (MP4) 

 Rstudio Cloud URL for ETC1010 -5510 if you join in Week 3

 Week 3 - Tutorial 1.6MB PDF document 

# Lectures

# Lectures

# rvest + polite (R packages)

## Simplify processing and manipulating HTML data

- `bow()` - check if the data can be scraped appropriately
  - `scrape()` - scrape website data (with nice defaults)
  - `html_nodes()` - select specified nodes from the HTML document using CSS selectors.
  - `html_table()` - parse an HTML table into a data frame.
  - `html_text()` - extract tag pairs' content.



16/88

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# Tutorials

## Tutorials



Introduction to Data Analysis  
Week 2 - Tutorial

### Contents

1 Exercise 1: Use wide, long format and separate	2
2 Exercise 2: Worked example of data cleaning	2
3 Exercise 3: Data exploration and manipulation	3
4 Exercise 4: Data analysis	4

### Workshop objectives

- ✓ Changing the form of a dataset using pivot\_wider and pivot\_longer
- ✓ Altering the dataset using filter and select
- ✓ Adding new variables using mutate
- ✓ Reporting using summarise, count and group\_by
- ✓ Data cleaning and performing data analysis using tidyverse

### Instructions

1. Follow this link [here](#) and log in into Rstudio Cloud using google and enter your monash user details (for help see the week 1 workshop 2 video in Moodle).
2. In each question you will replace '\_\_\_\_' with your answer, please note that the Rmd will not knit until you've answered all of the questions.

The screenshot shows the RStudio Cloud interface. At the top, there's a navigation bar with the RStudio Cloud logo, the course name 'ETC1010 - 5510', and links for 'Projects', 'Members', 'Usage', and 'About'. Below the navigation bar is a search bar with the placeholder 'New Project'. The main area is titled 'Your Projects' and shows a list of projects. One project is highlighted with a yellow arrow pointing to it: 'Week 1- Workshop 2'. Other visible project names include 'RStudio Project', 'Space members', and 'Created Jul 30, 2020 9:23 AM'. At the bottom right, there are buttons for 'Delete', 'Move', and 'Export'.

# Rstudio Cloud: Tutorials

Studio Cloud

ETC1010-5510 S1 2021 / Week1 Tutorial

File Edit Code View Plots Session Build Debug Profile Tools Help

01-oz-atlas.Rmd

```
1 ---  
2 title: "Australian Atlas"  
3 author: "ETC1010 - 5510"  
4 output:  
5   html_document: default  
6 ---  
7  
8 ````{r setup}  
9 ````  
10  
11 ## Making a report  
12  
13 We have pulled some data on platypuses from the Atlas of Living Australia using the "ALA4R" package,  
and done some subsetting of the data to only look at a few of the key variables.  
14  
15 Let's read in data with `read_csv`:  
16  
17 ````{r read-platy, echo=TRUE}  
18   1: library(platypus)  
19   2: library(readr)  
20.1  3: platypus_nsw <- readr::read_csv("platypus_nsw.csv")  
20.2  4: platypus_nsw
```

Console Terminal Jobs

R 4.0.5 · /cloud/project/

RAM Settings Help Patricia Menendez

Environment History Connections Tutorial

Import Dataset 286 MiB

Global Environment

Data

- platypus 10698 obs. of 8 variables
- platypus\_nsw 5455 obs. of 8 variables

Values

a	5
a1	2
a2	0.15
a3	44 FFFFFFFF666667

Files Plots Packages Help Viewer

New Folder Upload Delete Rename More

Cloud > project

Name	Size	Modified
.Rhistory	0 B	Feb 25, 2021, 3:01 PM
01-oz-atlas.html	775 KB	Mar 5, 2021, 4:09 PM
01-oz-atlas.Rmd	2.9 KB	Mar 2, 2021, 8:51 AM
data		
project.Rproj	205 B	Jan 10, 2022, 12:07 PM
Week1-Tutorial.pdf	1.7 MB	Mar 1, 2021, 4:58 PM

ETC1010-5510 S1 2021  
Monash University

# Teaching team

- Chief Examiner / lecturer
- Group of fantastic teaching associates!

## Communication / Prep

- Slack channel
- TA dedicated Rstudio Cloud space + Unit space:
  - TA Rstudio Cloud space: Everyone has admin access.
  - Unit space admin share with Head Teaching Associate.

# Teaching associates RStudio Cloud space

The screenshot shows the 'Members' tab of the RStudio Cloud interface for the 'TA space S1 2021' space. The top navigation bar includes 'Projects', 'Members' (which is selected), 'Usage', and 'About'. On the right, there are icons for settings, trash, three dots, and a user profile for Patricia Menendez.

The main area displays 'All Members (8)'. There are two tabs: 'Current Members' (selected) and 'Invitations'. A search bar is available. The member list includes three rows:

Name	Role	Action
AV	Admin	trash icon
CQ	Admin	trash icon
JP	Admin	trash icon

A yellow arrow points from the 'Members' tab in the top navigation to the 'Members' section in the main content. Another yellow arrow points from the 'Role' dropdown menu to the 'Admin' role. A third yellow arrow points from the 'Access' section in the 'Options' sidebar to the 'Invitation required' radio button.

**Options**

**Access**

**Invitation required**  
Add specific members to the space by sending invitations.

**Sharing link**  
Anyone with the sharing link can access the space.

**Permissions**

Contributors can see the members list

Contributors can make their projects visible to all members

Contributors can change project resources (e.g. memory)

- Unit space --> Contributors/moderators

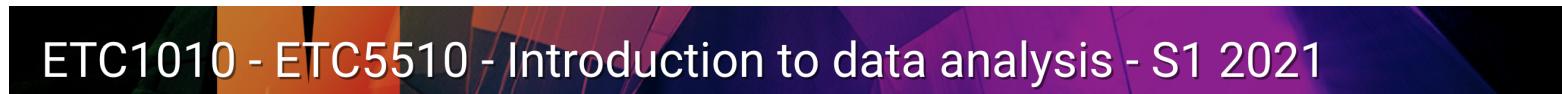
# Assessment

- Assignments
- Group work
- Semester assessment



# Assignments

- Launch and submitted via learning management system (Moodle)



Dashboard / Units / Faculty of Business and Economics / Department of Econometrics and Business Statistics / S1 2021 / ETC1010 - ETC5510 - S1 2021 / Assessments / Assignment 1 2021

## Assignment 1 2021

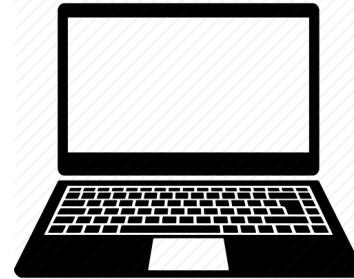
- RStudio Cloud Assignment space

The screenshot shows the RStudio Cloud interface for the "ETC1010 - 5510 Assignments..." project under "Monash University". The header includes navigation links for Projects, Members, Usage, and About. Below the header, a search bar and a "New Project" button are visible. The main area displays "Your Projects" with a list containing "Assignment 1". The project details for "Assignment 1" show it is an "RStudio Project" created on Mar 12, 2021, at 12:18 PM, and has 265 derived projects. Action buttons for Delete, Move, and Export are located in the bottom right corner of the project card. Three yellow arrows highlight specific elements: one pointing to the project name in the header, one pointing to the project name in the list, and one pointing to the "Delete" button.

# Semester Assessment

- Timed exercise (2hrs).
- Launched and submitted via learning management system (Moodle).
- Exercise in Rstudio Cloud unit space.
- Zoom call opened for **technical support**.
- Teaching team on Zoom call/slack channel.

R Studio Cloud



R Studio®

# Some thoughts

- Rstudio Cloud accessibility: remove installation burden/diversity of operating systems.
- Facilitate remote and online learning.
- Rstudio Cloud users/access.
- Connection between Rstudio Cloud - Rstudio.
- R projects!
- A learning, and also empowering, tool for users in their journey to learning R.

**My own view: Teaching and Learning Experience  
It is like fine dining, not only about the food but  
about the experience!!**

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Slides: [https://bit.ly/PMenendez\\_RstudioCloud](https://bit.ly/PMenendez_RstudioCloud)

**Many thanks!**

Photo by [Zane Persaud](#) on [Unsplash](#)