GEOG0186: Foundations of Geography I

Quantitative Skills

Getting you started with the learning materials

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How access the learning materials on Moodle?

URL: https://github.com/UCLPG-MSC-SGDS/GEOG0186

Structure

- **Weeks 1 and 2**: We will cover the basics of computing and coding in RStudio, along with the fundamental building blocks for handling different data types and structures.
- **Weeks 3, 4 and 5**: You will learn how to explore data for descriptive purposes – performing exploratory analysis to see what information can be extracted from a dataset and creating data visualisations.
- **Weeks 6 and 7**: We will focus on how to find secondary datasets from open-source outlets, and how you can make use of these resources in your own studies.
- **Weeks 8 and 9**: We will introduce appropriate data analysis techniques using the air pollution dataset collected during fieldwork.
- **Week 10**: We will wrap up with a "portfolio surgery" making sure you are confident and prepared for the challenges ahead in Foundations of Geography II and beyond.

Learning Materials and Activities

All information concerning timetable and room locations for the computer pract
to 10 are hosted on this linked **[GEOG0186: Quantitative Skills]**. **Please read**
instructions in sections accordingly. These sections are self-guided tutorials
guidance videos. With that said, these tutorials will prepare you for the computer practicals facilitated by the teaching stuff. These in-person sessions will be an opportunity to ask questions and get support.

Please click on the link "[GEOG0186: Quantitative Skills]"

Welcome Page for GEOG0186: Quantitative Skills

UCL

Module Overview
Welcome
Getting Started
What is RStudio (or R)?
Core Content
Lesson: Introduction I

Module Overview > Welcome

GEOG0186: Quantitative Skills

On this page
Welcome
Self-Guided & Flipped Learning Approach
Computer Practical Sessions & Timetable
Questions & Discusson Forum on Moodle

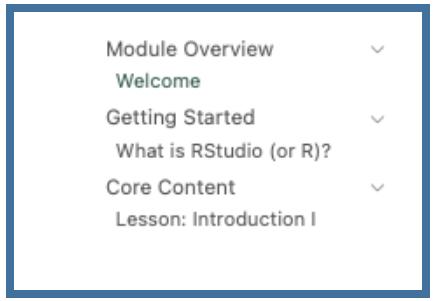
Report an issue

Welcome

Welcome to **Quantitative Skills**, one of the strands in **Foundations of Geography I**.

In this course, you will receive introductory training in quantitative methods and coding in RStudio, a powerful tool for analysing data in geography. No prior coding experience or background in quantitative sciences is expected, so we start from the absolute basics and build toward a solid foundation. The aim of this course is to help you feel comfortable and

Navigating through learning materials? [1]



Use this section to navigate to different chapters

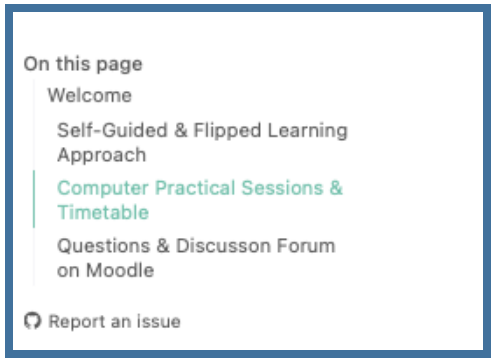
All sessions take place every **Wednesday between 9:00am and 12:00pm**. The entire Geography cohort has been split into three groups (Computer **Groups A**, **B**, and **C**), with practicals delivered separately in one-hour, back-to-back sessions each week to each group. The schedule is as follows:

- **Group A**: 09:00am–10:00am, Christopher Ingold Building G20 – Public Cluster
- **Group B**: 10:00am–11:00am, Birkbeck Malet Street 422/423 – Public Cluster
- **Group C**: 11:00am–12:00pm, Birkbeck Malet Street 422/423 – Public Cluster

> **Important**
>
> The above locations for **Group A**, **B**, and **C** are public clusters with PC workstations. Since you will mostly be working through the materials at your own pace, often on your own laptops with RStudio installed, we highly recommend that you bring your own laptop to the computer practicals for ease of use.

The topics for the course are as follows:

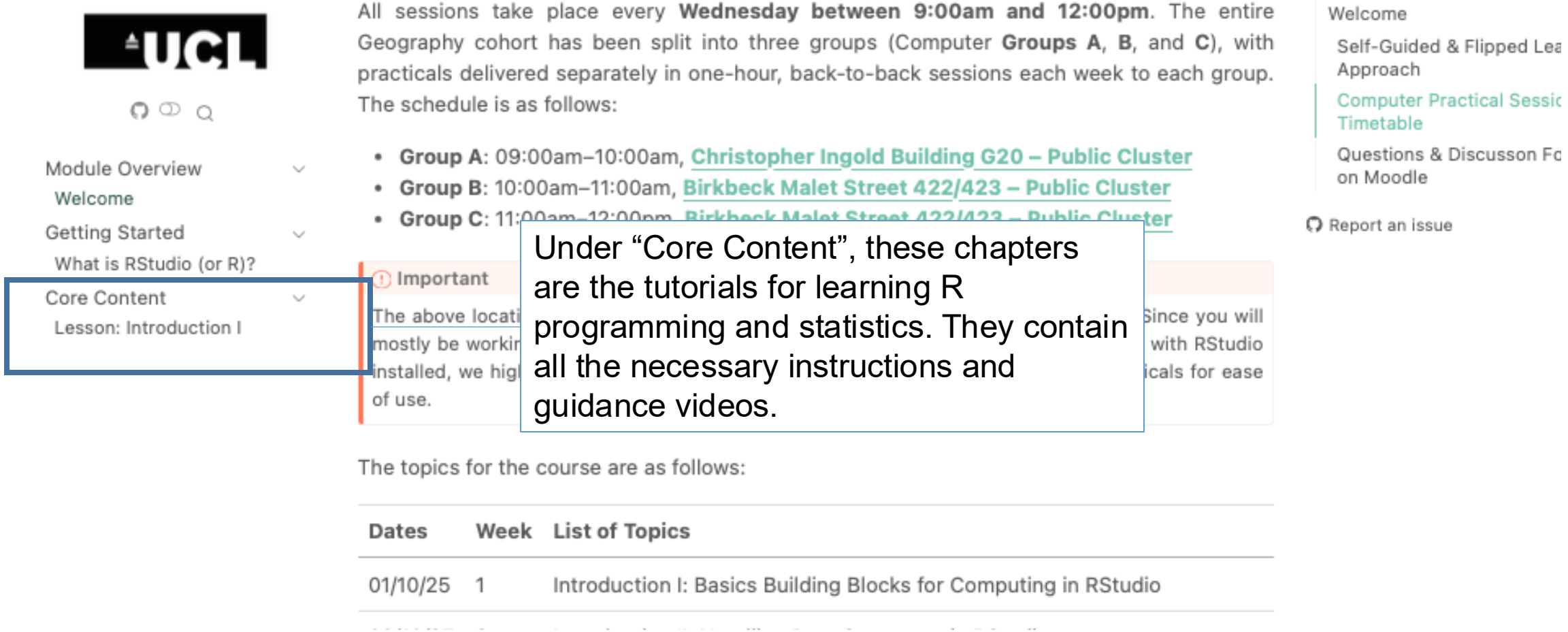
Dates	Week	List of Topics
01/10/25	1	Introduction I: Basics Building Blocks for Computing in RStudio
08/10/25	2	Introduction II: Handling Data Structures in RStudio
15/10/25	3	Examining I: Frequency Distribution
22/10/25	4	Examining II: Descriptive Statistics
29/10/25	5	Examining III: Types of Data Visualisation
		Reading Week
12/11/25	6	Sourcing Data I: Acquiring Data From Open Sources
19/11/25	7	Sourcing Data II: Sampling from Probability Distribution
26/11/25	8	Air Quality I: Correlation & Regression
03/12/25	9	Air Quality II: Box Plots and T-tests
10/12/25	10	Portfolio Surgery & Wrap-up.



Use this section to navigate through the tutorials

The welcome page contains all the necessary information needed to get started, as well as details for groups & room locations for the workshops.

Navigating through learning materials? [2]



Format and learning flow [1]

To generate `bmi` into our data frame, we would need to access the `height` (m) and `weight` (kg) columns using the `$` from the data frame its stored to, and apply the above formula as a code to generate the new `bmi` column:

```
# Create 'bmi' in the data frame i.e.,'dataset' and calculate 'bmi'
# using the $weight and $height
dataset$bmi <- dataset$weight/((dataset$height)^2)
# View the data frame 'dataset' and you will see the new bmi variable inside
View(dataset)
```

You can overwrite the `height` (m) column to change its units into centimeters by multiplying it to 100; equally, the `weight` (kg) column can be overwritten and converted from units of kilograms to grams by multiplying it to 1000.

```
# using $height and *100
dataset$height <- dataset$height*100
# using $weight and *100
dataset$weight <- dataset$weight*1000
# use View() the data frame 'dataset' and you will see the updated variables
View(dataset)
```

There will always be a video to explain the necessary theory of the statistical method, as well as an explanation of the code

Format and learning flow [2]

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# using $weight and *100
dataset$weight <- dataset$weight*1000
# use View() the data frame 'dataset' and you will see the updated variables
View(dataset)
```

There will always be a text to explain the necessary what the code is also doing, and steps for coding – so here, you will have to read through the text.

Format and learning flow [3]

To generate `bmi` into our data frame, we would need to access the `height` (m) and `weight` (kg) columns using the `$` from the data frame its stored to, and apply the above formula as a code to generate the new `bmi` column:

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# View the data frame 'dataset' and you will see the new bmi variable inside
View(dataset)
```

Comment

Actual code

You can overwrite the `height` (m) column to change its units into centimeters by multiplying it to 100; equally, the `weight` (kg) column can be overwritten and converted from units of kilograms to grams by multiplying it to 1000.

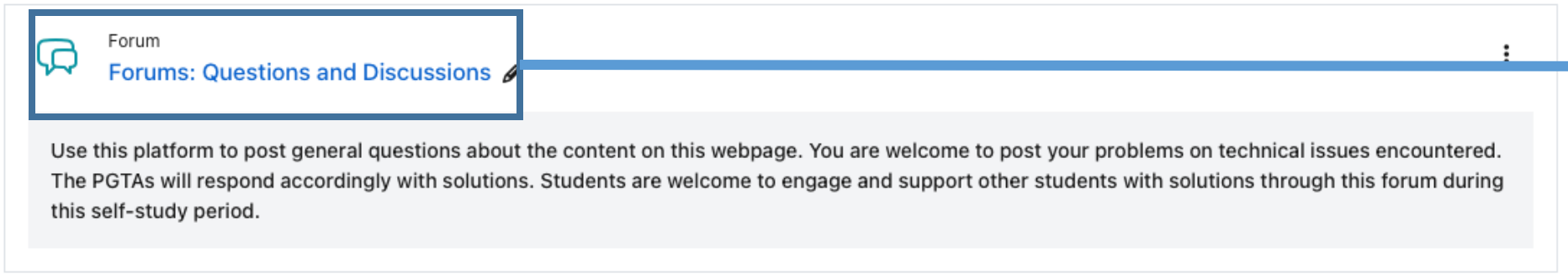
```
# using $height and *100
dataset$height <- dataset$height*100
# using $weight and *100
dataset$weight <- dataset$weight*1000
# use View() the data frame 'dataset' and you will see the updated variables
View(dataset)
```

There will always be code chunks for you to replicate and study in your own RStudio.

The code chunks will be annotated with a # (hash tag) with a comment to give context. So, this is not actual code

The real code is the code chuck with no # (hash tag) at the beginning.

Any questions?



Use this section in **MOODLE** to post question related to RStudio issues or statistics problem. Myself, or one of the PGTAs will try to responds as soon as possible!