

# COMP 7024 PROGRAMMING FOR DATA SCIENCE

**Credit Points** 10

**Legacy Code** 301493

**Coordinator** Rosalind Wang ([https://directory.westernsydney.edu.au/search/name/Rosalind Wang/](https://directory.westernsydney.edu.au/search/name/Rosalind%20Wang/))

**Description** The use of computers and computer programming for Data Science is fundamental to the discipline. This introductory subject will briefly cover the use of spreadsheet systems and then will consider programming in the statistical system "R" in detail. Other special purpose languages will also be touched on briefly including SQL (Structured Query Language).

**School** Computer, Data & Math Sciences

**Discipline** Computer Science

**Student Contribution Band** HECS Band 2 10cp

**Level** Postgraduate Coursework Level 7 subject

## Learning Outcomes

1. Use Excel to manage and manipulate data.
2. Extract, transform and load data using R and R-Studio; including reading and writing data files.
3. Create complex R programs to conduct Data Science tasks.
4. Use basic SQL to access databases.
5. Apply simulation techniques to Data Science tasks.
6. Create reports using Markdown and R-Markdown.

## Subject Content

1. Introduction to R and R-Studio
2. Data Types, Variables, Expressions, and Data Structures
3. Input and Output
4. Control Structures: Loops, Conditional Expressions, and Functions
5. Simulation techniques
6. Object-oriented programming in R
7. Introduction to SQL
8. Using Markdown for reporting

## Assessment

The following table summarises the standard assessment tasks for this subject. Please note this is a guide only. Assessment tasks are regularly updated, where there is a difference your Learning Guide takes precedence.

| Type            | Length                        | Percent | Threshold | Individual/Group Task |
|-----------------|-------------------------------|---------|-----------|-----------------------|
| Quiz            | 5 x 30 minutes                | 20      | N         | Individual            |
| Final Exam      | Lab based<br>1 hour practical | 40      | N         | Individual            |
| Applied Project | 3,000 words                   | 40      | N         | Individual            |

Teaching Periods

## Autumn (2022)

**Parramatta - Victoria Rd**

**Day**

**Subject Contact** Rosalind Wang ([https://directory.westernsydney.edu.au/search/name/Rosalind Wang/](https://directory.westernsydney.edu.au/search/name/Rosalind%20Wang/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=COMP7024\\_22-AUT\\_PS\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP7024_22-AUT_PS_D#subjects))

## Quarter 1 (2022)

**Parramatta City - Macquarie St**

**Evening**

**Subject Contact** Franco Ubaudi ([https://directory.westernsydney.edu.au/search/name/Franco Ubaudi/](https://directory.westernsydney.edu.au/search/name/Franco%20Ubaudi/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=COMP7024\\_22-Q1\\_PC\\_E#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP7024_22-Q1_PC_E#subjects))

## Spring (2022)

**Parramatta - Victoria Rd**

**Day**

**Subject Contact** Rosalind Wang ([https://directory.westernsydney.edu.au/search/name/Rosalind Wang/](https://directory.westernsydney.edu.au/search/name/Rosalind%20Wang/))

View timetable ([https://classregistration.westernsydney.edu.au/even/timetable/?subject\\_code=COMP7024\\_22-SPR\\_PS\\_D#subjects](https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=COMP7024_22-SPR_PS_D#subjects))

## Quarter 1 (2023)

**Parramatta City - Macquarie St**

**On-site**

**Subject Contact** Franco Ubaudi ([https://directory.westernsydney.edu.au/search/name/Franco Ubaudi/](https://directory.westernsydney.edu.au/search/name/Franco%20Ubaudi/))

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=COMP7024\\_23-Q1\\_PC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=COMP7024_23-Q1_PC_1#subjects))

## Autumn (2023)

**Parramatta - Victoria Rd**

**On-site**

**Subject Contact** Rosalind Wang ([https://directory.westernsydney.edu.au/search/name/Rosalind Wang/](https://directory.westernsydney.edu.au/search/name/Rosalind%20Wang/))

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## Spring (2023)

**Parramatta - Victoria Rd**

**On-site**

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