

# MATH 1038 MATHEMATICS FOR COMPUTING

**Credit Points** 10

**Coordinator** Stephen Weissenhofer (<https://directory.westernsydney.edu.au/search/name/Stephen Weissenhofer/>)

**Description** Mathematics forms the backbone of information and communication technology. Video games and multimedia programmers use linear algebra to control movement, actions and animations; analysts depend on number and graph theory to devise models of complex systems; data scientists and machine learning specialists use statistics to train their machine counterparts. The knowledge of mathematics is the difference between a good programmer and a great one. In this subject, we build a foundation of mathematical concepts that computing graduates require for their careers. During tutorials students will use an online interactive system allowing them to interactively explore mathematical concepts.

**School** Computer, Data & Math Sciences

**Discipline** Mathematics

**Student Contribution Band** HECS Band 1 10cp

Check your fees via the Fees ([https://www.westernsydney.edu.au/currentstudents/current\\_students/fees/](https://www.westernsydney.edu.au/currentstudents/current_students/fees/)) page.

**Level** Undergraduate Level 1 subject

**Incompatible Subjects** MATH 1026

## Restrictions

Students must be enrolled in the following programs:

Bachelor of Information and Communications Technology (3639)  
 Bachelor of Information and Communications Technology (Advanced) (3684)  
 Bachelor of Information and Communications Technology (Health Information Management) (3711)  
 Bachelor of Information and Communications Technology/Bachelor of Arts (3654)  
 Bachelor of Information and Communications Technology/Bachelor of Business (3737)  
 Bachelor of Information and Communications Technology/Bachelor of Business (Accounting) (3738)  
 Bachelor of Information and Communications Technology/Bachelor of Laws (2768)  
 Bachelor of Information and Communications Technology/Bachelor of Laws (Honours) (2837)  
 Cyber Security and Ethical Hacking, Testamur Major (T145)

## Learning Outcomes

After successful completion of this subject, students will be able to:

1. Demonstrate an understanding of the basics of sets and functions, including exponentials and logarithms.
2. Solve systems of equations with two and three unknowns and perform basic matrix operations.
3. Use trigonometry and coordinate systems, together with vectors, matrices and determinants, to solve problems and perform geometric (matrix) transformations (2D and some simple 3D).
4. Work with various number systems relevant to computing and with modular arithmetic.

5. Solve introductory probability problems.
6. Demonstrate an understanding of algorithm efficiency by analysing some simple algorithms.

## Subject Content

- Revision of high school algebra
- Sets and functions
- Exponentials and Logarithms
- Trigonometry
- Introductory Linear Algebra
- Coordinate systems, vectors, matrices, determinants, 2D and 3D geometric (matrix) transformations
- Numbers and modular arithmetic
- Introduction to probability
- Complexity of algorithms

## 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	Mandatory
Short Answer	45 minutes (per Quiz)	40	N	Individual	Y
Intra-session Exam	1 hour	20	N	Individual	N
Final Exam	2 hours	40	Y	Individual	Y

## Prescribed Texts

Vince, J. (2023). Foundation Mathematics for Computer Science: A Visual Approach (3rd ed.). Springer International Publishing

## Teaching Periods

### Autumn (2025)

#### Campbelltown

##### Hybrid

**Subject Contact** Stephen Weissenhofer (<https://directory.westernsydney.edu.au/search/name/Stephen Weissenhofer/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1038\\_25-AUT\\_CA\\_3#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_25-AUT_CA_3#subjects))

### Penrith (Kingswood)

##### Hybrid

**Subject Contact** Stephen Weissenhofer (<https://directory.westernsydney.edu.au/search/name/Stephen Weissenhofer/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1038\\_25-AUT\\_KW\\_3#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_25-AUT_KW_3#subjects))

### Parramatta - Victoria Rd

##### Hybrid

**Subject Contact** Stephen Weissenhofer (<https://directory.westernsydney.edu.au/search/name/Stephen Weissenhofer/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1038\\_25-AUT\\_PS\\_3#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_25-AUT_PS_3#subjects))

## **Sydney City Campus - Term 2 (2025)**

### **Sydney City**

#### **On-site**

**Subject Contact** Antoinette Cevenini (<https://directory.westernsydney.edu.au/search/name/Antoinette Cevenini/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1038\\_25-SC2\\_SC\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_25-SC2_SC_1#subjects))

## **Surabaya Semester 1 (2025)**

### **Surabaya**

#### **On-site**

**Subject Contact** Stephen Weissenhofer (<https://directory.westernsydney.edu.au/search/name/Stephen Weissenhofer/>)

View timetable ([https://classregistration.westernsydney.edu.au/odd/timetable/?subject\\_code=MATH1038\\_25-IS1\\_SU\\_1#subjects](https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_25-IS1_SU_1#subjects))