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 HECS Band contribution amount via the Fees (https://www.westernsydney.edu.au/currentstudents/current_students/fees/) page.

Level Undergraduate Level 1 subject

Learning Outcomes

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 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
- Logarithms
- Trigonometry
- Introductory Linear Algebra
- Coordinate systems, 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
Short Answer	45 minutes (per Quiz)	40	N	Individual
Intra-session Exam	1 hour	20	N	Individual
Final Exam	2 hours	40	Y	Individual

Prescribed Texts

Vince, J. (2020). Foundation Mathematics for Computer Science: A Visual Approach (2nd ed.). Springer.

Teaching Periods

Autumn (2023)

Campbelltown

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_23-AUT_CA_1#subjects)

Penrith (Kingswood)

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_23-AUT_KW_1#subjects)

Melbourne

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_23-AUT_MB_1#subjects)

Parramatta - Victoria Rd

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_23-AUT_PS_1#subjects)

Sydney City Campus - Term 2 (2023)

Sydney City

On-site

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View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1038_23-SC2_SC_1#subjects)