MATH 1026 QUANTITATIVE THINKING

Credit Points 10

Legacy Code 300831

Coordinator Patrick O'Doherty (https://directory.westernsydney.edu.au/search/name/Patrick ODoherty/)

Description This subject develops the quantitative skills that underpin many fields of study in the sciences. The content covered includes basic algebra, functions, graphs, equations, linear and quadratic, introductory probability and descriptive statistics. These mathematical/statistical concepts will be revised and developed using scientific concepts such as molarity and dilution, optical density, population growth, and predator-prey models. In all aspects of this subject, students will be developing and using critical thinking skills to solve mathematical/statistical problems set in a scientific context.

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/) page.

Level Undergraduate Level 1 subject

Equivalent Subjects MATH 1011 - Fundamentals of Mathematics

Restrictions

Students may complete the three subjects Quantitative Thinking, Analysis of Change and Mathematics 1A in the following order: Quantitative Thinking, Analysis of Change, Mathematics 1A. This means that students may complete QT before attempting AoC, but not after. AoC and QT may be attempted before M1A, but not after. Students may not enrol in QT and AoC or QT and M1A or AoC and M1A in the same teaching term.

Assumed Knowledge

Basic competence in algebraic manipulation and some familiarity with elementary probability and statistical concepts.

Learning Outcomes

On successful completion of this subject, students should be able to:

1. Manipulate algebraic and numeric expressions.
2. Recognise and draw graphs representing linear, quadratic , logarithmic and exponential functions.
3. Solve linear equations, and quadratic equations.
4. Use modelling techniques to represent basic biological systems.
5. Describe data in both numerical and graphical forms.
6. Communicate mathematical and statistical ideas using standard practices.
7. Employ critical thinking skills to solve mathematical and statistical problems set in a scientific context.

Subject Content

- Critical Thinking Skills: Problem-solving strategies; Inductive and Deductive reasoning.
- Numeracy and Calculation: Fractions; Index rules; SI units; Scientific notation; Rounding and estimation; Significant figures; Accuracy and precision; Using a calculator.
- Basic Algebra Review: Substitution in formulae; Rearranging formulae; Proportional reasoning.
- Interpretation: functions; graphs - linear, parabola, logarithmic, exponential; linear equations, quadratic equations.
- Uncertainty and Probability: introductory probability; basic statistics; Descriptive statistics; Random variables and probability distributions; the Normal distribution; treatment and assessment of errors; introductory hypothesis testing; introductory l

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	30 minutes each	10	N	Individual
Short Answer	6 x Tutorial Quizzes	30	N	Individual
Short Answer	50 minutes	20	N	Individual
Final Exam	2 hours	40	Y	Individual

Summer Online

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	Approx 5 questions each, (5 hours in total)	20	N	Individual
Quiz	30 minutes each	15	N	Individual
Short Answer	50 minutes	25	N	Individual
Final Exam	2 hours	40	Y	Individual

Summer

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	Approximately 5 questions each, each taking approx. 5 hours in total	20	N	Individual
Quiz	30 minutes each	10	N	Individual
Short Answer	50 minutes	20	N	Individual
Final Exam	2 hours	50	Y	Individual

Teaching Periods

Spring (2023)

Campbelltown

On-site

Subject Contact Patrick O'Doherty (https://directory.westernsydney.edu.au/search/name/Patrick O&/#x27;Doherty)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1026_23-SPR_CA_1#subjects)

Hawkesbury

On-site

Subject Contact Patrick O'Doherty (https://directory.westernsydney.edu.au/search/name/Patrick O&/#x27;Doherty)

View timetable (https://classregistration.westernsydney.edu.au/odd/timetable/?subject_code=MATH1026_23-SPR_HW_1#subjects)

Parramatta - Victoria Rd

On-site

Subject Contact Patrick O'Doherty (https://directory.westernsydney.edu.au/search/name/Patrick O&/#x27;Doherty)

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Summer (2023)

Parramatta - Victoria Rd

On-site

Subject Contact Patrick O'Doherty (https://directory.westernsydney.edu.au/search/name/Patrick O&/#x27;Doherty)

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Autumn (2024)

Campbelltown

On-site

Subject Contact Charles Zworestine (https://directory.westernsydney.edu.au/search/name/Charles Zworestine/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=MATH1026_24-AUT_CA_1#subjects)

Hawkesbury

On-site

Subject Contact Charles Zworestine (https://directory.westernsydney.edu.au/search/name/Charles Zworestine/)

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Parramatta - Victoria Rd

On-site

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Spring (2024)

Campbelltown

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