# TEAC 2029 FUNDAMENTALS FOR WORKING MATHEMATICALLY

**Credit Points** 10

**Legacy Code** 102208

**Coordinator** John Ley (https://directory.westernsydney.edu.au/search/name/John Ley/)

**Description** In this unit students will acquire a variety of problem solving, investigation and mathematical modelling techniques that incorporate the application of algebra and highlight the importance of understanding probability, data and graphical representations in real life. Students will apply mathematics in real contexts; evaluate data gathered in real time and identify patterns while engaging with the concepts of number, probability, measurement, problem solving, linear and exponential representations. Engagement with this unit contributes directly to the achievement of a sound understanding and application of mathematical concepts and develops mathematical thinking.

**School** Education

**Discipline** Teacher Education

**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 2 subject

**Equivalent Subjects** TEAC 2042 - Mathematics Principles and Applications

**Restrictions** Successful completion of 40 credit points at Level 1.

## Learning Outcomes

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

1. Explain the occurrence of algebraic patterns and relationships in real life contexts;
2. Use deductive reasoning to justify and support conclusions that are appropriate to the context;
3. Analyse the relationships between data and graphical representations and evaluate their validity;
4. Demonstrate research strategies as part of the investigation process and apply them in an appropriate manner to real life data;
5. Demonstrate the development of mathematical thinking by identifying ways to extend mathematical concepts;
6. Demonstrate the relationships between functions and graphical representations;
7. Apply fundamental concepts of problem solving and mathematical modelling;
8. Apply knowledge of problem solving and the modelling process in variety of mathematical applications.

## Subject Content

1. Algebraic reasoning and application (Reasoning, Communication Fluency, Problem Solving)
- Basic concepts, principles and relationships
- application of algebraic techniques in Problem solving
- links between graphical representation and linear and exponential functions
2. Statistical representations (Communication, Reasoning, Fluency)
- patterns and relationships in real life data including proportional representation
- analysis of graphical representations including misrepresentations
- Basic concepts and principles of graphical representations
3. Mathematical Problem Solving and Modelling (Problem Solving, Communicating, Reasoning, Understanding, Fluency)
- Basic concepts and principles of Problem solving and investigations
- mathematical modelling as structured Problem solving
- Working mathematically through communication of reasoning
4. Mathematical Applications including modelling techniques (Understanding, Fluency, Reasoning)
- common everyday applications including financial literacy
- use of Technology for mathematical modelling
- Investigate The principles of probability and their applications

## 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.

| Item | Length | Percent | Threshold | Individual/ Group Task |
|---|---|---|---|---|
| Professional Task | 2,000 words | 50 | N | Individual |
| Final Exam | 2 hours | 50 | Y | Individual |

Teaching Periods

## Autumn
### Penrith (Kingswood)
**Day**
**Subject Contact** John Ley (https://directory.westernsydney.edu.au/search/name/John Ley/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=TEAC2029_22-AUT_KW_D#subjects)

### Parramatta - Victoria Rd
**Day**
**Subject Contact** John Ley (https://directory.westernsydney.edu.au/search/name/John Ley/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=TEAC2029_22-AUT_PS_D#subjects)

## Spring
### Bankstown
**Day**
**Subject Contact** John Ley (https://directory.westernsydney.edu.au/search/name/John Ley/)

View timetable (https://classregistration.westernsydney.edu.au/even/timetable/?subject_code=TEAC2029_22-SPR_BA_D#subjects)