



Wollongong College Australia

A College of the University of Wollongong

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ITC Education Ltd trading as
Wollongong College Australia
CRICOS 02723D
ABN 14105312329

Foundation Studies 3-Session Program

(CRICOS course code: 023266F)

Subject Outline Summer 2009/10

FSP 002

Academic Skills - Maths

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WCA-FSP 002-SO/3

Academic Skills - Maths

Subject description

Academic Skills - Maths is designed to provide you with a level of mathematical language and knowledge that will prepare you for further studies of Mathematics in Sessions 2 and 3 of FSP3.

This subject will develop your skills in calculation, manipulation and problem solving and provide you with the language necessary to enable you to carry out these tasks. The focus of this subject is both on developing mathematical skills and improving your competence in the language and terms of mathematics.

Subject structure

Academic Skills - Maths is a 4 credit point, single-session subject delivered as 4 hours of scheduled classes per week. The session is of 14 week's duration with face-to-face classes scheduled for the first 12 weeks and a study/examination period in Weeks 13 and 14. Classes may be in the format of lectures, demonstrations, examples and exercises. You will be expected to complete practical exercises to successfully complete this subject.

In addition to scheduled class sessions, students are expected to spend additional time in individual study and research. As a general guideline students will need to spend at least 1 hour in private study (including completing homework and revision) for every hour of scheduled class time. Students with a weak mathematics background may need to spend considerably more time in private study in order to obtain a satisfactory grade in the subject.

Teachers will be available for a consultation time each week. Students will be notified of the time and location of the consultation session during Week 1 of the Session. It is recommended that students experiencing difficulty with this subject arrange to consult with the teacher as difficulties are encountered.

Some students may require tutorial support to improve language/literacy skills. Where this is recommended, students will be advised to use the College's self-access facilities in the Multimedia Centre in their own time. These facilities are located upstairs in building 30. Where this is recommended, your attendance at and use of these facilities may form part of your participation mark.

Learning resources

Students are required to purchase the following text for this subject:

Barton, D. 2004. *New Signpost Mathematics 9 [Stage 5.1 to 5.3]: Homework book*. Pearson Education, Australia.
[ISBN: 978-0-7339-6564-7]

Lessons may be supplemented by handouts and worksheets from the class teacher. It is important that these handouts and your own notes made during classes are organised properly. You will require a folder to store and organise these so that this material is available for revision purposes.

Calculators

Students will be required to bring a scientific calculator to all classes. Students who need to purchase a calculator for this subject are strongly recommended to purchase a Casio FX-82 series (approximately \$25 – \$40) calculator.

Only approved scientific calculators will be permitted in exams. The list of approved calculators is located on the college website (www.wca.uow.edu.au). Students should refer to this list to confirm their calculator has been approved for use in exams. Programmable calculators are not permitted. Programmable calculators usually have a RUN, EXE, CALC or SOLVE button.

Subject outcomes

Successful completion of Academic Skills - Maths will enable students to:

- develop a working knowledge of the basic mathematical language of arithmetic, algebra, equations, co-ordinate geometry, probability, functions & graphs and elementary trigonometry.
- apply the basic mathematical skills of arithmetic, graphing, algebra, and elementary trigonometry.
- understand important mathematical concepts/ideas such as probability, co-ordinate geometry and functions.
- solve applied problems using the appropriate methods.

Subject outline in weeks

The following guide to lessons and activities may be adjusted to suit the needs of the group as long as subject outcomes and assessment criteria are met.

Week 1 - Arithmetic

Language of numbers, symbols, basic operations

Decimals, fractions, integers, number sets

Factors and multiples; reciprocals, absolute value

Week 2 - Arithmetic

Percentages, rounding, significant figures, scientific notation, powers and roots

Language and simple exercises involving indices

Exercises in simple consumer arithmetic

Ratios, rates

Week 3 – Basic Algebra

Terminology used in algebra; simplifying expressions, substitution

Factorising and expanding, binomial products, linear equations

Week 4 – Basic Algebra

Changing the subject, algebraic problem solving including exercises in perimeter and area

Pythagoras' theorem

Week 5 - Statistics

Language of Statistics

Data Representation including frequency distribution tables

Statistical graphs including histograms

Revision

Week 6 - Graphs

Reading and interpreting graphs

Graphs of physical phenomena

Class Test 1 (Covering all topics covered weeks 1 – 4)

Week 7 - Probability

Introduction and terminology of probability

Standard examples of single stage experiments

Multi-stage experiment – Tables, Tree diagrams and Probability tree diagrams

Week 8 – Number Plane

The number plane and its terminology; graphs of linear equations

Midpoint, length and gradient of an interval

Finding the equation of a straight line

Parallel and perpendicular lines

Week 9 – Functions

Terminology, dependent and independent variables

Function notation; Domain and Range

Revision

Week 10 – Functions

Graphs of non-linear functions including translations

Regions and inequalities by plotting

Class Test 2 (Covering weeks 5 – 8)

Week 11 – Trigonometry

Terminology, trig ratios, solving right triangles

Bearings, angles of elevation and depression

Week 12 – Revision

Group Mathematical Problem Solving

Revision and examination practice

Weeks 13 & 14 Final examination Period

Examination and study period. Please refer to examination timetable for the exact date, time and location of the final exam.

Assessment

Assessment and plagiarism policy

All written assessment tasks, with the exception of examinations and in-class tasks, must be word-processed unless students are otherwise advised.

Students must keep copies of all assessment tasks submitted for marking with the exception of class tests and examinations.

Plagiarism is a form of cheating or stealing that happens when a student uses someone else's work and presents it as his/her own without showing where it comes from. To avoid this, students are expected to submit their own original work for assessment and to accurately acknowledge all references and sources used in essays and assignments.

For information regarding assessment, plagiarism, acknowledging sources and examination rules, please refer to the Wollongong College Australia Student Handbook <http://www.wca.uow.edu.au/handbook>

Assessment schedule

Task	Due	Weighting	Length/Time
Class Test 1	Week 6	20%	1 hour
Class Test 2	Week 10	20%	1 hour
Quizzes	Weeks 3 & 11	6%	10-15 mins
Final Examination	Week 13/14	45%	2 hours
Participation	Ongoing	9%	Weeks 1 - 12

Marking Guidelines

WCA best practice is that students can normally expect to have assessment tasks handed back within two weeks, and before the next assessment task is due. On occasion there may be exceptions to this time frame due to, for example, the size of the task, the size of the class, teacher illness or teacher leave.

Where there are several teachers marking a major assessment task, tasks will be handed back by all the teachers within the same week.

Assessment criteria and explanation of components

All assessment components are marked according to set marking criteria.

Class Test 1 **20%**

This test will assess your understanding and skills of topics studied during weeks 1-4 inclusive. The test will also assess your language skills and knowledge of mathematical terms.

Class Test 2 **20%**

This test will assess your understanding and skills of topics studied during weeks 5-8 inclusive. The test will also assess your language skills and knowledge of mathematical terms.

Quizzes **6%**

Two quizzes will be given during class times in weeks 3 & 11. These quizzes will be informal assessment tasks of 10 - 15 minutes duration, and will cover only one or two topics.

Final Examination **45%**

The examination will test your knowledge, skills and language competence related to all topics in the subject. It will have both a language and mathematical focus.

Participation **9%**

Active participation in tutorials is expected of all students in all classes. Participation in class discussions will help develop the student's confidence in questioning and commenting on material presented, encourage critical thinking and allow the tutor to evaluate the student's progress.

Participation marks may be allocated according to the following criteria:

- Active participation in tutorial support classes where recommended
- Recording answers to tutorial exercises in designated tutorial exercise book.
- Bringing tutorial exercise book to all classes.

- Active participation in class discussions and group work
- Proactive consultation with class teacher and/or tutorial support where relevant
- Completion of non-assessable tasks including homework and practice tasks
- Preparation for teacher-student consultation sessions