

Studying Mathematics

When studying mathematics, develop regular study patterns. Do not leave mathematics study until just before an assignment or examination. Make sure that you keep up to date with any recommended study schedule.

Studying each Module

- Scan the module first to see what is in store for you. The objectives in the introduction will also give you a summary of what you can expect.
- Begin at the beginning of the module reading through the text and examples. When you come to an activity, attempt the questions yourself. This will help you to learn formulae and when and how to apply problem solving techniques. It will also give you an idea of where you are at.
- You must not skip over pages/chapters in your study material because mathematics is a building process that requires the foundations to be strong before they can be built upon.
- Ensure that you have a complete understanding of the topic that you are studying. If you cannot understand a topic, look for alternative resources that may explain it in a different way or find a tutor to help you. Do this immediately so that you can move on with your studies.
- Summarise the module as you work through it. List any new formulae and problem solving techniques, and take note of anything you do not understand so you can ask.
- We encourage you to talk more about your mathematics. It is amazing how problems can be clarified by talking with somebody. You can do this with friends, work colleagues, at your tutorials or through the course discussion group.
- Contact your lecturer/The Learning Centre for help if you get stuck. This can save an enormous amount of time, especially if you misunderstood a topic.

Getting Help

Recognise that sometimes you do need assistance with mathematics. Here are some suggestions to maximise the benefits of the help that you get:

- Be specific as to what you do not understand – you do not want the tutor to cover areas where you do not need help. In other words, this will save you some time.
- Attempt to solve the problem yourself first and have your work on hand so that the tutor can discuss it with you. This will develop your problem solving skills because you will have thought through the problem already and will not be expecting the tutor to do all the thinking for you.
- Attempt similar problems from the text that have model answers provided, so that you can discuss your problems with the tutor rather than requiring tuition in the basic concepts.
- Be organised and specific; make a written list of problems that need clarifying, including page numbers in the text.

Strategies for Problem Solving

- Read the problem through carefully and identify what you are expected to find.
- Express the given information in mathematical terms, defining any variables that you use and noting any special conditions.
- Determine whether any of the information is not needed for solving the problem.
- Break down the problem into parts.
- ‘Guesstimate’ the answer to the part of the problem that you cannot solve yet and proceed from there.
- Decide which of the skills or techniques you have learnt could be applied to solve the problem.
- Apply the technique that you think will solve this problem.

- Check to see whether the answer you have calculated is reasonable in the context of the question.

If things have still not gone quite right then:

- Check that you have not copied anything down incorrectly.
- Scan for errors in your calculations.
- Look back at answers to similar questions.
- Start with a fresh page where you cannot see what you have done until now.
- Read the question again slowly.
- Leave the problem for another day.
- Ask your tutor or lecturer for help.

Assignments

When doing an assignment, you must express yourself clearly both in English and Mathematics. Many people think that doing mathematics involves ‘doing the sums’. However, ‘doing the sums’ is only one part of doing and being involved in mathematics. In fact, it does not matter how good you are at doing these sums if you cannot communicate your answers or solutions with others. You have to be able to convince your colleagues or clients that your answer is the appropriate one. So communication is just as important in mathematics as it is in other subject areas.

For more information:

- Pólya, G 1945, *How to Solve It*, Princeton University Press, Princeton.
- Other Quick Tips Flyers <http://www.usq.edu.au/learningcentre/tips.htm>
- Online resources on ALSOnline
<http://www.usq.edu.au/learningcentre/alsonline/mathsci/mathsscitopic/default.htm>
- Talk with a tutor at The Learning Centre (tlc@usq.edu.au)