



GUIDE TO STUDYING MATHEMATICS

Studying mathematics trains your brain to think logically, accurately and carefully. Maths is broken up into smaller segments for you to study, this allows you to look at one new concept at a time and gradually build your knowledge, experience and confidence.

Adapted from Academic Success USQ <https://usq.pressbooks.pub/academicsuccess/>

Strategies	Descriptions
Where to start?	<ul style="list-style-type: none"> • Build your knowledge and skills with practice. Learning maths is like learning a new language. • Regular practice is essential. No one becomes good at anything without practice. • Practise your maths every day, so you become familiar with the relevant concepts and skills required to solve the different problems. • Use good time management strategies to help you make time for practice each week. • Master the foundations before progressing to harder material. • Show all your working, when you are practising maths questions. This allows you to practise setting out the steps and processes of the maths concept you are studying. It helps to identify any mistakes you may make • Repetition through practising questions will help you recognise similar problems using the same processes.
Studying maths content	<ul style="list-style-type: none"> • Scan the weekly content outcomes to get an idea of what will be covered, prior to each lecture or workshop. • Start at the beginning of each topic and work in a methodical way, Attempt all questions! • Don't skip slides, pages or sections. Maths requires strong foundational knowledge and skills that you build upon. • Aim to have a complete understanding of a topic. If you do not understand a concept <i>yet</i>, look for other resources that may explain it in a different way. • Summarise content as you work through it. • List any new formulae and problem-solving techniques. • Make a note of anything you do not understand. • Find a study buddy to talk about your maths and to clarify any problems. You can do this with friends, peers in your workshops (in person or online).
Understand the process	<ul style="list-style-type: none"> • To be successful in maths, you need to understand the process used for solving maths problems. • You are less likely to remember how to do something if you don't understand the process. • If you are shown a calculation in class, go over it again later and rewrite it in steps that you understand. Things always look easier when someone else is showing you how to do it, compared to when you try at home on your own. • Rewriting the steps will make it easier to complete different questions and you will have good notes for revision.



	<ul style="list-style-type: none">It is also important to remember that there maybe more than one method for coming to the right answer. Identify the most appropriate method to complete the question and then apply it. If a question doesn't specify a particular method to use to solve the problem, you can use a method that suits you best.
Build your skills through practice	<ul style="list-style-type: none">Learning maths is like learning a new language.Studying maths shouldn't be left to just before assignments are due or just before exams.Regular practice is essential for success with maths. No one becomes good at anything without practicePractice your maths every day, so you become familiar with the relevant concepts and skills required to solve the different problemsUse good time management strategies to help you make time for to practiceMaster the foundations at the beginning of the course before progressing to harder material.Show all working, whenever you practice maths questions. Practice setting out the steps and processes of the maths concept you are studying. This helps you to identify any mistakes you may makePracticing questions will also help you to recognise similar problems using the same processes.
Develop Problem Solving Strategies	<ul style="list-style-type: none">Problem solving is a skill that needs to be practiced and developed to make you a stronger mathematician. Most people find problem-solving challenging and need to spend time developing their skills and knowledge.Read the question or problem carefully and identify what you are expected to find.Re-write the key information from the question. Identify which information is needed OR not needed for solving the problem. Refer to this when solving, rather than sorting through the information in the question each time.Express the given information in mathematical terms, defining any variables that you are given and noting any special conditions.Break down the problem into smaller parts.Estimate 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 in the subject that could be applied to solve the problem. Apply the technique you think will solve the problem.Check that your answer to the problem makes sense.
Improve your self-efficacy	<ul style="list-style-type: none">Improving your self-efficacy around doing maths is important.Every time you sit down to study maths believe that you can do the maths within your subject. You are more likely to spend time developing your skills rather than being discouraged and giving up.Improving your self-efficacy will motivate you to persevere with questions that you may find difficult, resulting in better marks.If you find yourself having negative thoughts about your maths ability, try to replace them with positive thoughts. EG; if you find you are thinking "I



	cannot do this problem”, think more positively, “ I can do similar problems, and with continued practice and seeking help when I need to, I will continue to improve, which will help me to pass this course.”
Find techniques to help reduce your stress or maths anxiety	<ul style="list-style-type: none"> • Recognise when you are starting to feel stressed or anxious and having difficulty trying to complete maths problems. • Develop some methods to help you to relax and unwind. • Some different strategies you may be able use include distraction techniques including - reflecting on how you feel; leaving the room to do another activity for short periods of time; mindful breathing techniques (such as breathing in for a count of 5, holding for a count of 6 and breathing out for a count of 7); or any other techniques you may have for reducing anxiety. • It is also helpful to remind yourself of what you <i>can</i> do by returning to a problem that you can do before attempting the problem which caused the stress.
When you are “stuck” on a problem	<ul style="list-style-type: none"> • Read the question again slowly. • Check that you copied down everything correctly, without any errors. • Scan for errors in your calculations. • Look back at your working and answers to similar questions. • Start with a fresh page where you cannot see what you have done previously. • Leave the problem for another day. • Ask for help from lecturer/tutor or support services.
Attend all classes and ask for help	<ul style="list-style-type: none"> • Attend all classes • Ask questions during class • Find a study group or study buddy. • Recognise when you need help and ask for support. • Asking for help can be hard however, if you are finding certain concepts challenging contact your lecturer and they can direct you to support as needed.
Ask for support	<ul style="list-style-type: none"> • Recognise when you need help. • Asking for help is not the easiest thing to do. However, if you are finding certain concepts difficult, you should ask for help from either your tutors or make a learning advisor appointment. • Attend all classes and ask questions • Be organised and specific. Identify what you don’t understand. Make a list of problems that need clarifying, along with your working. • Attempt to solve a problem yourself first and have your working available. It will also show where your understanding is lacking and where you became stuck. • Attempt similar problems from the study materials or textbooks/websites that have answers provided. • Attend PASS (Peer Assisted Study Sessions) if it is offered in your subject. • Find other support options. EG; form study groups (online or in person),



	<p>refer to Khan Academy (online resource), drop into the Peer Advice Desk (ground floor of the library), or make an appointment to meet with a Learning Advisor.</p> <ul style="list-style-type: none">• Contact your lecturer, they can suggest where to seek support if needed.
Top Tips	<ul style="list-style-type: none">• Attend all classes and ask questions• Be organised and specific. Identify what you don't understand. Make a list of problems that need clarifying, along with your working.• Attempt to solve a problem yourself first and have your working available. It will also show where your understanding is lacking and where you became stuck.• Attempt similar problems from the study materials or textbooks/websites that have answers provided.• Practice
Reference:	<p>Adapted from Academic Success USQ under Creative Commons Attribution NonCommercial ShareAlike licence.</p> <p>https://usq.pressbooks.pub/academicsuccess/</p>