MATH1041

STATISTICS FOR LIFE SCIENCES

Semester 1, 2015
Chapter 1

MATH1041 – Course Outline

Welcome to MATH1041 – Statistics for the Life and Social Sciences!

This course outline provides you with important information about the course, and you should read this document carefully when you first join MATH1041.

Semester 1, 2015 – General information

Lecturing and administration staff

Course Authority/lecturer: Dr. J. Wishart RC-1030 j.wishart@unsw.edu.au
Administration Student Services Office RC-3090 fy.MathsStats@unsw.edu.au

There is also a team of class tutors and lab tutors involved in the course.

Consulting with staff and getting help

The Student Services Office is your first point of contact, especially early in the course – this is where to go with course and class enrolment enquires. The Student Services Office is open 9-12 and 2-4 Monday to Friday all semester.

The lecturer will have several office hours when they will be available in their office and happy to answer queries (times still to be finalized). If you would like to speak outside of these hours, please arrange an appointment.

There will be a Statistics Walk-in Consulting Service, in which a member of the statistics staff will be available for consultation, usually around lunchtime, every day of the week. If there are any ideas introduced in class that you don’t understand, this is an ideal place to take your questions. Details of who will be available when are coming soon.

Consultation times will be finalised in Week 1 and advertised during lectures and on UNSW Moodle (http://moodle.telt.unsw.edu.au).

Whom should I contact about what? The following table summarises the people
who are available to answer your MATH1041 enquiries.

<table>
<thead>
<tr>
<th>About what?</th>
<th>Example question</th>
<th>Who to see</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your enrolment</td>
<td>Late enrolment in MATH1041/classes</td>
<td>Student Services Office (RC-3090)</td>
</tr>
<tr>
<td>Your lectures</td>
<td>“What did you mean when you said...”</td>
<td>Your lecturer</td>
</tr>
<tr>
<td>Tute/lab exercises</td>
<td>“I’m having trouble doing this question...”</td>
<td>Your tutor/lab tutor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stats Consulting Service</td>
</tr>
<tr>
<td>Mid-semester test</td>
<td>“I don’t understand what I did wrong here...”</td>
<td>Your tutor</td>
</tr>
<tr>
<td>Special consideration</td>
<td>“I missed the final exam because...”</td>
<td>Student Central</td>
</tr>
</tbody>
</table>

If you have any questions in class, do not hesitate to ask! Out of class times, please limit your queries to advertised consulting hours unless your enquiry is urgent.

Credit, Prerequisites, Exclusions:

This course counts for 6 Units of Credit (6UOC).

There are no formal prerequisites for this course. The level of mathematics knowledge that is assumed is that you have achieved the equivalent of a mark of at least 60 in HSC Mathematics.

Excluded: MATH2841, ECON1203, ECON2292.

Sources of course information

MATH1041 Course Pack The Course Pack is available from the UNSW bookshop. It consists of three bound documents:

**Part A** Includes this document, tutorial and lab exercises.

**Part B** Includes lecture notes.

**Part C** Past exam papers and tests, and some solutions.

Note that any corrections and/or supplementary material will be updated on UNSW Moodle regularly.

**UNSW Moodle:** See [http://moodle.telt.unsw.edu.au](http://moodle.telt.unsw.edu.au) for assessment information (when available), further information, updated lecture notes, corrections to the Course Pack, revision materials and some interesting links!

**Mathematics and Statistics Portal:** Your enrolment details and marks in assessments are available to you through the Maths & Stats mark link in the General Information section on the MATH1041 homepage of Moodle. To access information available at this link you need to log in with your student number and zPass.
Course aims

This course provides an introduction to statistics: the study of collecting, analysing, and interpreting data, which is fundamental to doing any form of quantitative research.

Relation to other mathematics courses

This course is primarily aimed at students intending to pursue a major in a field involving quantitative research (hence a knowledge of introductory statistics is essential) but for which higher level mathematics or statistics is not essential. MATH1231, MATH1241 or MATH1251 are prerequisites for many later year mathematics courses, so if you have an interest in pursuing further study in mathematics or statistics, you should consider whether MATH1041 is the right course for you.

It is possible to study higher-level statistics courses after completing MATH1031 and MATH1041, provided that you received a Credit in MATH1031. However, if you wish to complete a Major in Statistics, you will be better prepared if you study MATH1131 and MATH1231 (or MATH1141 and MATH1241), as most of our stats major students do.

Student Learning Outcomes

By the end of this course you should be able to:

1. Recognise which analysis procedure is appropriate for a given research problem involving one or two variables
2. Understand principles of study design
3. Apply probability theory to practical problems
4. Apply statistical procedures on a computer using Microsoft Excel and/or R
5. Interpret computer output for a statistical procedure
6. Calculate confidence intervals and conduct hypothesis tests by hand for small datasets
7. Understand the usefulness of Statistics in your professional area

Relation to graduate attributes – The above outcomes are related to the development of several Science Faculty Graduate Attributes, in decreasing order of emphasis:

1. Research, inquiry and analytical thinking abilities – Statistics is an analytic field and statistical analysis plays a key role in the research process, hence there is a major focus on this graduate attribute.
2. **Capability and motivation for intellectual development** Foundation skills in statistical inference and an understanding of random variables is essential in order to achieve a higher-level understanding in most applied science majors.

6. **Information Literacy** Computers play an important role in modern statistics, hence there will be weekly computing classes, and the computing skills you develop will be assessed in the computer test.

4. **Communication** Discussions in class and written submissions for assessment will develop your skills in communicating statistical ideas.

## Classes

Each week, there are six contact hours in MATH1041 – four hours of lectures, a one hour classroom tutorial, and a one hour computer laboratory class.

**Lectures:** There will be four hours of lectures per week, during **weeks 1-12.**

- Monday 2-4pm Mathews Theatre A
- Wednesday 2-4pm Mathews Theatre A

**Tutorials and computer labs:** Each student will have one classroom tutorial per week and one computer tutorial per week, **starting from week 2 and running to week 13** at the time and place as indicated on your myUNSW timetable. The exercises for each week’s tutorial and lab class are available in the Course Pack and on UNSW Moodle. Class time in computer labs will be dedicated to completing the lab exercises. You will learn a lot more in tutorials if you regularly try the exercises before going to class.

As part of University policy, students are required to attend tutorials, and a record will be kept of tutorial and computer lab attendance. In the computer labs we will use Microsoft Excel and the statistics program **Rstudio**, which is an interface to the freely available statistical language **R** (see [http://www.r-project.org](http://www.r-project.org)). **Rstudio** can be downloaded and installed at home from [http://www.rstudio.com/products/rstudio/download/](http://www.rstudio.com/products/rstudio/download/).

Short solutions to selected tutorial exercises are available in the Coursepack. In cases where there is no solution in the Coursepack, you will be given an opportunity to work through the exercise in class and get feedback from your tutor.

All computer laboratory classes will be held in Red Centre M020.

Up until the end of week 1, you may change your tutorial or lab classes if necessary. After week 1, it will only be possible to change classes at the Student Services Office, and proposed changes will only be approved if you present evidence in the form of work commitments or a timetable clash.

Please attend your timetabled tutorial and lab. If however, due to unforeseen circumstances, you miss a lab class or a tutorial, you are welcome to attend another class later in the week to catch up if there is sufficient space in the class. Please check with the tutor in charge of that class first in this case.
Teaching strategies underpinning the course

New ideas and skills are introduced and demonstrated in lectures, then students develop these skills by applying them to specific tasks in tutorials, labs, and assessment tasks. Assessment in this course will use problem-solving tasks of a similar form to those practiced in tutorials and computer labs, to encourage the development of the core analytical and computing skills underpinning this course. Hence this course is structured with a strong emphasis on problem-solving tasks in tutorials and in assessment tasks.

Assessment

UNSW assesses students under a standards based assessment policy. For how this policy is applied in the School of Mathematics and Statistics see

http://www.maths.unsw.edu.au/currentstudents/assessment-policies

Assessment in this course will consist of two online quizzes (10%, each quiz 5% weight), one mid-semester test (15%), one computing test (15%), and a final examination (60%). Tutors are expected to enter class test marks into the Schools database within one week (at most a fortnight) of the assessment being sat. These marks are then available to you through the Student Web Portal accessed via the Maths & Stats marks link on the MATH1041 page on the UNSW Moodle server (see page 8). It is your responsibility to check that these marks are correct and you should keep marked tests until the end of semester in case an error has been made in recording the marks. If there is an error, either speak to your tutor or bring your test paper to the Student Services Office as soon as possible but no later than Friday Week 13. Once the final exam period commences, no disputes of during-semester marks will be considered.

Knowledge and abilities assessed: All assessment tasks will evaluate your progress towards the learning outcomes outlined above.

Assessment criteria: In assessments we look for a demonstrated understanding of key concepts and analysis procedures. We will award marks on the basis of correctness of final responses, correctness of working used to derive the final answer, and the logic of the setting out of the response. In the case of written responses (as opposed to symbolic, numerical or graphical responses), we are just as interested in your reasoning as we are in your final answer.
<table>
<thead>
<tr>
<th>Task</th>
<th>When Due</th>
<th>Where</th>
<th>Weight</th>
<th>Duration</th>
<th>Material*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Quiz 1</td>
<td>Week 4</td>
<td>MapleTA</td>
<td>5%</td>
<td>1 week</td>
<td>Weeks 1-2</td>
</tr>
<tr>
<td>Online Quiz 2</td>
<td>Week 7</td>
<td>MapleTA</td>
<td>5%</td>
<td>1 week</td>
<td>Weeks 3-5</td>
</tr>
<tr>
<td>Mid-semester test</td>
<td>Week 8</td>
<td>Your tutorial</td>
<td>15%</td>
<td>45 min</td>
<td>Weeks 1-7</td>
</tr>
<tr>
<td>Computer test</td>
<td>Week 11</td>
<td>Your computer lab</td>
<td>15%</td>
<td>40 min</td>
<td>TBA</td>
</tr>
<tr>
<td>Final examination</td>
<td>TBA</td>
<td>TBA</td>
<td>60%</td>
<td>2 hours</td>
<td>All topics</td>
</tr>
</tbody>
</table>

If you are ill for a test, bring the necessary documentation explaining your absence to your tutor in the following tutorial or as soon as practicable thereafter.

* Details of what topics are taught when appear under Course Schedule from page 9.

**Online Quizzes**

**Rationale:** The online quizzes are designed to give immediate in-session feedback to students on their progress and mastery of the material. The system is accessed via the Moodle Learning Management System (see page 8)

One the MapleTA system, “User login” is your zID (z followed by your UNSW student number) and the “Password” is your zPass. The schedule for these online tests for MATH1041 is given below.

<table>
<thead>
<tr>
<th>Quiz</th>
<th>Available</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online Quiz 1</td>
<td>12pm Wednesday Week 3</td>
<td>12pm Wednesday Week 4</td>
</tr>
<tr>
<td>Online Quiz 2</td>
<td>12pm Wednesday Week 6</td>
<td>12pm Wednesday Week 7</td>
</tr>
</tbody>
</table>

More information about the MapleTA system will be posted on Moodle but here are some guidelines you should follow and knowledge you should be aware of when taking each quiz:

- For each of the online quizzes, you are allowed a maximum of 3 attempts.
- Once you begin an attempt at a quiz, you have a fixed time to finish that attempt.
- Each version of a quiz will be different, so don’t just copy answers from one attempt to the next;
- It is expected that you work on each quiz alone.
- **Medical certificates will generally not be accepted for missing the deadlines for the online tests.**

**Weighting:** 10% of your final mark (Each of the two quizzes has 5% weighting).
Mid-semester test

Rationale: The mid-semester test will assist in your development towards the stated learning outcomes, and provide timely feedback on your progress towards these goals.

The test will consist of several short answer questions requiring the demonstration of core MATH1041 skills in probability and descriptive statistics.

The mid-semester test will be held in your tutorial. You must attempt the test in the tutorial in which you are formally enrolled.

You may bring your own UNSW-approved Scientific Calculator to the test. Calculators will not be provided for you.

Weighting: 15% of your final mark.

Computing Test

Rationale: The computing test assists in your development towards the stated learning outcomes, especially those related to statistical computing (learning outcomes 4 and 5), and in combination with the mid-semester test and online quizzes will provide you with timely feedback on your progress.

You will be given your own test, generated by MapleTA, which differ from those of other students in your class. The test will consist of a combination of short answer, multiple choice, numerical calculation, and graphical construction questions. The test is only available on the computers in room RC-M020 at scheduled MATH1041 computer lab times. You cannot access the test remotely from any other computers at any other time. Some questions will not be feasible to answer using manual handwritten methods and thus assess your ability to conduct statistical procedures using a computer.

Weighting: 15% of your final mark.

Final Examination

Duration: Two hours.

Rationale: The final examination will assess student mastery of the material covered in classes.

Weighting: 60% of your final mark.

Further details about the final examination will be available in class closer to the time.

Additional resources and support

Textbook It is recommended that you purchase the following textbook:
Not only will this text be useful for this course, but it will be a handy book to have available on your shelf in later years!

MATH1041 is closely based on the Moore et al text, and students need to have access to it. It can be purchased from the bookshop, or used in the library in Special Reserve. Most tutorial exercises come from this text.

For students who are looking for additional resources to assist their study, there are additional learning resources related to the textbook available from the textbook’s website (including some useful applets and additional exercises).

Course Pack  It is strongly recommended that you purchase a MATH1041 Course Pack from the UNSW bookshop. This contains essential information and learning resources that will form the basis of all MATH1041 classes.

UNSW Moodle

The School of Mathematics and Statistics uses the Learning Management System called Moodle. To log in to Moodle use your zID and zPass at the following URL:

http://moodle.telt.unsw.edu.au

Once logged in, you should see a link to MATH1041 that will take you to the MATH1041 homepage in Moodle.

In the general information section there is a link called “Maths & Stats Marks”. This takes you to a page where you can log in with your zPass and see the marks recorded for various assessment tasks.

If you are unable to log in to Moodle or can not access MATH1041 once logged in you should contact the IT Service Centre. Contact information is provided on the Moodle login page.

You should check UNSW Moodle regularly, but especially around the time that assessments are due. A useful summary of the course schedule is given on pages 9-10.

Study space and Computer labs  Study space is available in the foyer of the Centre Wing of the Red Centre. There are two computer laboratories (RC-G012 and RC-M020), and these are open from 8am-9pm Monday-Friday on teaching days, and you are welcome to use either lab, provided the lab area in question is not being used by a class. Any changes to lab opening hours will be reported at

http://www.maths.unsw.edu.au/currentstudents/computing-information
Course Evaluation and Development

The School of Mathematics and Statistics evaluates each course each time it is run. We carefully consider the student responses and their implications for course development.

Administrative matters


Plagiarism and academic honesty Plagiarism is the presentation of the thoughts or work of another as one’s own. Issues you must be aware of regarding plagiarism and the university’s policies on academic honesty and plagiarism can be found on https://my.unsw.edu.au/student/atoz/Plagiarism.html

Course schedule

Four general topics are covered in MATH1041:

Descriptive Statistics Useful tools for graphically and numerically summarising data.

Study design Some key ideas to consider when collecting data.

Probability Theory An introduction to probability and random variables. Many of the ideas developed in probability theory depend on an appropriate study design.

Statistical Inference How to make general statements (inferences about populations) based on just a sample of data. You will learn a set of powerful and important inferential tools for quantitative research, particularly the life and social sciences, which will come in handy later in your degree and probably when you enter the workforce.

These topics are closely intertwined. In particular, you need a sound knowledge of key Probability Theory concepts (weeks 4-6) in order to gain a deep understanding of Statistical Inference (weeks 6-12). So make sure you prepare well for the Mid-Semester Test, which assesses core Probability Theory material!

Statistical Inference involves some quite subtle concepts, and it often takes people a while to understand the core ideas. Hence seven weeks of the course are devoted to inference, to give you as much time as possible to master these subtle but important concepts.

Tutorials and labs follow a week behind the lectures, both in terms of the weeks that classes are scheduled and (usually) in content.
**CHAPTER 1. MATH1041 – COURSE OUTLINE**

<table>
<thead>
<tr>
<th>Week</th>
<th>Lecture Topic</th>
<th>Text</th>
<th>Tutes/Labs?</th>
<th>Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Descriptive statistics:</td>
<td></td>
<td>×</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Graphical and numerical summaries</td>
<td>§1.1-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Transformations</td>
<td>§2.1</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relationships between variables</td>
<td>§2.1-4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Study design:</td>
<td>✓</td>
<td>Online Quiz 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Design of experiments</td>
<td>§3.1</td>
<td>Available</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling designs</td>
<td>§3.2-3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Probability Theory:</td>
<td>✓</td>
<td>Quiz 1 due</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Probability</td>
<td>§4.1-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Probability Rules</td>
<td>§4.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Random variables</td>
<td>✓</td>
<td>Friday Public Holiday*</td>
<td></td>
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<tr>
<td></td>
<td>Means and variances of random variables</td>
<td>§4.3</td>
<td></td>
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<tr>
<td></td>
<td>Mid-semester break</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>The normal distribution</td>
<td>✓</td>
<td>Online Quiz 2</td>
<td>Available</td>
</tr>
<tr>
<td></td>
<td>Statistical Inference:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sampling distribution of counts and proportions</td>
<td>§5.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>The Central Limit Theorem</td>
<td>✓</td>
<td>Quiz 2 due</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Central Limit Theorem applications</td>
<td>§5.1</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>§6.1</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Confidence intervals</td>
<td>✓</td>
<td>Mid-Semester Test</td>
<td>(in your tutorial)</td>
</tr>
<tr>
<td></td>
<td>Hypothesis testing</td>
<td>§6.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Inference about a population proportion.</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inference about the mean using a t-distribution</td>
<td>§8.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use and abuse of hypothesis testing.</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Comparing two means.</td>
<td>§6.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>§7.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Data analysis for two-way tables</td>
<td>✓</td>
<td>Computer Test</td>
<td>(in your computer lab)</td>
</tr>
<tr>
<td></td>
<td>Inference for two-way tables</td>
<td>§6.1-2</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>§9.1-2</td>
<td></td>
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</tr>
<tr>
<td>11</td>
<td>Inference for regression</td>
<td>✓</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Lectures are scheduled to finish in Week 12.</td>
<td>§10.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Tutorials/Labs continue in Week 13</td>
<td>✓</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*No Friday classes, use the other classes available to catch up on any tutorials or computer labs that you may have missed due to the public holiday.

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**Illness and other problems**

If your performance in this course is affected by illness or other serious difficulties which are beyond your control, you can apply for Special Consideration and you may be offered the opportunity for Additional Assessment.

**Please do not apply online for special consideration for the class tests or online quizzes.** If you are ill for a class test, bring the necessary documentation to the course.
authority/lecturer in charge as soon as practicable thereafter whereby an alternative assessment will be arranged. In regard to the School of Mathematics and Statistics, the online system is only for long-term illness or illness at the time of the final examination. The procedures for this online system are given on page 12.
APPLICATIONS FOR SPECIAL CONSIDERATION IN
MATH1041 SEMESTER 1 2015

If you feel that your performance in, or attendance at, a final examination has been affected by illness or circumstances beyond your control, or if you missed the examination because of illness or other compelling reasons, you may apply for special consideration. Such an application may lead to the granting of additional assessment.

It is essential that you take note of the following rules, which apply to applications for special consideration in all first year Mathematics courses.

1. Within 3 days of the affected examination, or at least as soon as possible, you must submit a request for special consideration to UNSW Student Central ON-LINE.

   Please refer to link below for How to Apply for Special Consideration,

   https://my.unsw.edu.au/student/atoz/SpecialConsideration.html

2. Please do not expect an immediate response from the School. All applications will be considered together. See the information below.

3. You will NOT be granted additional assessment in a course if your performance in the course (judged by attendance, class tests, assignments and examinations) does not meet a minimal standard. A total mark of at least 40% on all assessment not affected by a request for special consideration will normally be regarded as the minimal standard for award of additional assessment as will at least 80% attendance at tutorial classes.

4. It is YOUR RESPONSIBILITY to find out FROM THE SCHOOL OF MATHEMATICS AND STATISTICS whether you have been granted additional assessment and when and where the additional assessment examinations will be held. Do NOT wait to receive official results from the university, as these results are not normally available until after the Mathematics additional assessment exams have started.

   a) A provisional list of results in all Mathematics courses and of grants of additional assessment will be available via the “Maths&Stats marks” link in the UNSW Moodle module of your course. The date for this will be announced later.

   b) Please read all announcements on Moodle. Failure to read announcements will not be accepted as a reason for missing supplementary exams and for not following the correct procedures.

5. The timetables for the additional assessment examinations will be available on the Mathematics website at the same time as the provisional list of results.

   The dates for the mid-year additional assessment examinations will be announced later in the Semester.
6. If you have two additional assessment examinations scheduled for the same time, please consult the School of Mathematics and Statistics Office as soon as possible so that special arrangements can be made.

7. You will need to produce your UNSW Student Card to gain entry to additional assessment examinations.

IMPORTANT NOTES

• The additional assessment examination may be of a different form from the original examination and must be expected to be at least as difficult.

• If you believe that your application for special consideration has not been processed, you should immediately consult the Director of First Year Studies of the School of Mathematics and Statistics (Room 3073 Red Centre).

• If you believe that the above arrangements put you at a substantial disadvantage, you should, at the earliest possible time, send full documentation of the circumstances to the Director of First Year Studies, School of Mathematics and Statistics, University of New South Wales, Sydney, 2052.

In particular, if you suffer from a chronic or ongoing illness that has, or is likely to, put you at a serious disadvantage then you should contact the Student Equity and Disabilities Unit (SEADU) who provide confidential support and advice. Their web site is

http://www.studentequity.unsw.edu.au

SEADU may determine that your condition requires special arrangements for assessment tasks. Once the First Year Office has been notified of these we will make every effort to meet the arrangements specified by SEADU.

Additionally, if you have suffered a serious misadventure during semester then you should provide full documentation to the Director of First Year Studies as soon as possible. In these circumstances it may be possible to arrange discontinuation without failure or to make special examination arrangements.

Professor B. Henry
Head, School of Mathematics and Statistics
UNSW Statement to students on plagiarism

Plagiarism is the presentation of the thoughts or work of another as one’s own.* Examples include:

- direct duplication of the thoughts or work of another, including by copying work, or knowingly permitting it to be copied. This includes copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person’s assignment without appropriate acknowledgement
- paraphrasing another person’s work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and,
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed†.

Submitting an assessment item that has already been submitted for academic credit elsewhere may also be considered plagiarism.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does not amount to plagiarism.

Students are reminded of their Rights and Responsibilities in respect of plagiarism, as set out in the University Undergraduate and Postgraduate Handbooks, and are encouraged to seek advice from academic staff whenever necessary to ensure they avoid plagiarism in all its forms.

The Learning Centre website is the central University online resource for staff and student information on plagiarism and academic honesty. It can be located at:

www.lc.unsw.edu.au/plagiarism

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulæ and concepts.

Individual assistance is available on request from The Learning Centre.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient

*Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle.
†Adapted with kind permission from the University of Melbourne
time for research, drafting, and the proper referencing of sources in preparing all assessment items.