First Year Survival Guide
Science, Health and Engineering

Developed & compiled by staff of the
College of Science, Health and Engineering
La Trobe University

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Welcome to the College of Science, Health and Engineering (SHE) at La Trobe University!
If this is your first time studying at university, you will notice that there are a lot of new things to get used to, as well as questions to consider.

The SHE First Year Survival Guide has been written to introduce you to university study and help you develop the academic skills you will need, not only to survive your first year, but to excel!
A ‘TO DO’ list – tips to get you started

Orientation week

☐ I have attended my course welcome
☐ I have competed a campus tour
☐ I have met some students in my course
☐ I have downloaded the MyLaTrobe App
☐ I have picked up my student card

The first week

☐ I have enrolled successfully in all my classes, tutorial and labs for the semester via my StudentOnLine account
☐ I have viewed my personalised timetable using Allocate Plus and I have checked for changes
☐ I know the location of all my classes (lectures, tutorials, laboratories, etc)
☐ I have logged on to my StudentOnLine account to view my academic and personal information, and I have made changes as necessary
☐ I have read the Subject Learning Guides for my subjects
☐ I have checked my student email account for messages and am aware that this is the only email account that should be used for ALL communications at university.
☐ I know where ASK La Trobe and the Learning HUB are located
☐ I have met some other students in my course
☐ I have found the books I need from the bookshop
☐ I have organised my car parking or know which bus/train/tram I am taking to Uni.

*Check out this blog for hints and tips on parking at Bundoora campus.*

*Driving to Uni? Here’s what you need to know…* If you are in Bendigo or City Campuses, refer to *La Trobe Car Parking*. Albury Wodonga, Mildura and Shepparton – your parking is free!

☐ I have subscribed to the ‘That’s what SHE said’ student blog for SHE students to stay informed of opportunities, events and tips for success.
The first month

Now that you have settled in, here is a list of activities that you can work towards, during your first few weeks:

☐ I have been on a library tour, and I know how to use the library for lending, research, printing etc.
☐ I have found and used the assignment calculator
☐ I have been checking and using my student email regularly
☐ I know where to go for help with language and academic skills at the Learning Hub
☐ I know where the student union or student association is on my campus
☐ I know what activities and events are available on my campus
☐ I know what student support is available – see Chapter 8 for further details.

The first semester

☐ I have sought feedback on assessment items to identify where I can improve
☐ I have met my lecturers, tutors, teachers and/or supervisors
☐ I have found/organised a study group with other students (if applicable)
☐ I have explored the recreational facilities at La Trobe and have become involved in university life
☐ I have registered for UniTemps to find casual/part-time work on campus
☐ I know what is expected of me and where to find help if I need it
☐ I have started thinking about an overseas exchange program

What is Allocate Plus?

Allocate Plus is the timetabling program used by La Trobe. Read the follow blog from ‘That’s What SHE Said’ to learn all about Allocate Plus and the important dates you need to know.
# Table of Contents

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chapter 1</td>
<td>#How2uni</td>
<td>6</td>
</tr>
<tr>
<td>Chapter 2</td>
<td>Getting the Most out of Your Reading</td>
<td>24</td>
</tr>
<tr>
<td>Chapter 3</td>
<td>Writing in Science, Health and Engineering</td>
<td>32</td>
</tr>
<tr>
<td>Chapter 4</td>
<td>Academic Integrity: Referencing &amp; Paraphrasing</td>
<td>55</td>
</tr>
<tr>
<td>Chapter 5</td>
<td>Maths and Stats Support</td>
<td>66</td>
</tr>
<tr>
<td>Chapter 6</td>
<td>Working in a Team</td>
<td>68</td>
</tr>
<tr>
<td>Chapter 7</td>
<td>Succeeding in Assessment Tasks</td>
<td>78</td>
</tr>
<tr>
<td>Chapter 8</td>
<td>Student Services and Support</td>
<td>122</td>
</tr>
</tbody>
</table>
Chapter One

#How2uni
Learning at university is designed to be stimulating and challenging. It can take some time to adjust to this new learning environment, as you become an independent learner. The table below compares some of the main differences, between previous learning habits and learning at university.

<table>
<thead>
<tr>
<th>Previous Study Environment</th>
<th>University Environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>guided homework tasks to assist learning</td>
<td>self-directed revision throughout semester – need to set your own homework</td>
</tr>
<tr>
<td>time often structured by teachers/curriculum/homework</td>
<td>need to manage your own study time</td>
</tr>
<tr>
<td>study tasks fairly evenly spread throughout the year</td>
<td>may have many assessments due at the same time</td>
</tr>
<tr>
<td>concepts often simpler</td>
<td>concepts often more challenging</td>
</tr>
<tr>
<td>information often presented as black and white ‘facts’</td>
<td>a more critical approach to information required</td>
</tr>
<tr>
<td>writing tasks may not require in-text references and reference lists.</td>
<td>in-text references and reference lists required for most writing</td>
</tr>
<tr>
<td>smaller amounts of directed reading</td>
<td>extensive reading of text books and journal articles required</td>
</tr>
<tr>
<td>less emphasis on online materials</td>
<td>LMS used to communicate important information e.g. lecture notes, assessment information</td>
</tr>
<tr>
<td>easy to ask for help</td>
<td>help is available, but need to know who to ask or where to look online</td>
</tr>
</tbody>
</table>
Seven Predictors of Success at University

1. **Time on Task**
   - Put time aside to study for each subject every week – this is the strongest predictor of success!

2. **Attend Class**
   - Attending lectures, tutorials and labs regularly is the second strongest predictor of academic success.

3. **Focus on Goals**
   - Knowing what your future goals are, gives you purpose to your studies and keeps you on track - a strong motivator for success.

4. **Develop Self-Confidence**
   - Nurturing a sense of academic self-confidence and an expectation that you will succeed at university are core to academic success.

5. **Develop Peer Relationships**
   - Establishing a friendship group means you have like-minded people to support you in your studies and gives you a sense of belonging.

6. **Online Engagement**
   - Engaging with the University’s ‘online environment’ via access to the LMS, student email and MyLaTrobe App is central to academic success.

7. **Work-Life-Study Balance**
   - Working no more than 15 hours a week in paid employment (if enrolled full-time) enables sufficient time to study.
Develop higher order thinking skills
Learning is not the same thing as simply remembering. At university you will need to develop higher order thinking skills (see Bloom’s Taxonomy below). Many assessment tasks will require you to go beyond remembering and repeating information. You will be asked to apply what you have learnt to new situations or to analyse and evaluate information. This could mean pulling apart a writer’s arguments and evidence (analysing) and making judgements about them (evaluating).

The highest-level thinking skill is creating. This refers to the creation of new knowledge that has never been known before. This is a skill that is normally developed at postgraduate level.

Higher Order Thinking

Creating
Evaluating
Analysing
Applying
Understanding
Remembering

Lower Order Thinking

Bloom’s Taxonomy

http://edorigami.wikispaces.com/Bloom's+Digital+Taxonomy
Monitor your learning

It takes time to develop learning strategies to be successful at university. Monitoring your learning strategies involves a way of thinking called *metacognition*. *Cognition* means ‘thinking’ and *meta* means ‘about’ or ‘beyond’. Metacognition, therefore, means thinking about the way you think or learning about the way you learn. In this process, you are both the person doing the learning and the person ‘watching yourself’ and reflecting on your learning.

Students who develop their metacognitive skills are more successful learners than those who don’t. It is not difficult to become skilled at using metacognitive strategies to assist your learning – it just takes a bit of thought and awareness.

Think of it like playing a sport. When you’re on the playing field, you’re caught up in the moment and reacting to immediate tasks at hand.

However, as you play more often, you can also mentally shift yourself to the grandstand and ‘watch yourself’ playing. You can observe and analyse your performance and think about how you might perform better next time. You may even be able to apply what you’ve learned about yourself to your performance in a different sport.

![The Metacognitive Frog](image)

In the same way, you are ‘on the playing field’ when you are studying for an exam, doing an assessment task or taking notes in a lecture. You can also mentally watch yourself doing the task ‘from the grandstand’. You can reflect
on what works for you to help with your learning and what doesn’t work. For example, you may find that when memorising a series of symbols or words, it is useful to practise recalling them out-loud while walking or listening to music and you may plan to use this technique again. Alternatively, you may find that you’ve wasted hours reading unrelated material when preparing an essay. Next time, you decide to target your reading more closely to the essay question.

When undertaking a learning or assessment task, ask yourself the following questions:

**REFLECT**
- Is this approach working?
- Is it helping me achieve my goals?
- Can I change the way I’m doing this?

**EVALUATE**
- Was my approach to the task effective?
- What worked?
- What didn’t?

**MODIFY**
- How can I improve my approach next time?
- How can I approach the task more efficiently and effectively?
Why attend lectures?

To help deliver lecture materials more flexibly and accessibly, many lecturers make PowerPoint slides and Echo 360 recordings available to students online. It can be very helpful to print PowerPoint slides and preview them before a lecture. Echo 360 recordings are very useful for revision.

So, if it's online, why attend lectures?

“I’ll just print out the slides – these will provide all the information I need in an already summarised form”.

- PowerPoint slides or other forms of lecture summary are not comprehensive enough on their own to cover the lecture material. To understand a summary, you need to hear it explained in full detail.
- Summaries do not always show the links between different points and how they relate to the ‘big picture’ ideas. Lecturers will often add these links verbally and with gestures during the lecture.
- Lecturers often give tips for assignments and exams that you won’t find on the slides.
- Writing your own notes and summaries means you engage with the material in an active way.

“Why go all the way to the campus to attend a lecture when I can just stay home and listen to it later on Echo 360?”

- Being on campus and attending lectures allows you to consolidate your learning by talking with other students about the topic.
- Many lectures now include interactive activities to assist you with learning in class. You can’t participate in these online.
- You have an opportunity to ask questions in a lecture.
- Even with the best intentions, you may find it very difficult to get around to listening to lectures later on.
• You are paying for it! Skipping a lecture is like going to the cinema and paying for a movie ticket and then walking out without seeing the film!

• Technology can fail – why risk it?

Here is what some current students have to say about going to lectures:

“I really benefited from going to every lecture - the visual stimulation is often better than anything you can do at home and the interaction with fellow students is essential to the university experience”.

“I found speaking with the lecturers rewarding because it’s good to get to know the staff that assess and assist you.”

“Attending the lecture will allow you to see and share in the passion that the lecturer has for the subject and gives you the opportunity to ask questions of people who know the subject material really well.”

Thanks to John McDonald (former In2Science Peer Mentoring Program Manager) for obtaining these quotes.
Making a study plan

To be successful at university, you need to study consistently throughout the semester, right from the first week. This study time is additional to the time you spend on assessment tasks. It is strongly recommended that you spend at least one hour studying and completing assessment tasks for every one-hour contact time at university. This means, if you have 24 hours of lectures and classes every week, you should spend 24 hours a week on assessment tasks and additional study.

Organising your time

A semester planner is a good way to start. It’s a good idea to make a big one to put up on your wall. Here’s a small section of one to give you an idea.

Semester Planner

<table>
<thead>
<tr>
<th>WEEK</th>
<th>SUBJECT</th>
<th>1 27 Feb-2 Mar</th>
<th>2 5-11 Mar</th>
<th>3 12-18 Mar</th>
<th>4 19-25 Mar</th>
<th>5 26 Mar-1 Apr</th>
<th>6 2-5 Apr</th>
<th>SEMESTER BREAK 6-15 Apr</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE1XX</td>
<td>(Mum’s 50th b’day Sun)</td>
<td>Lab report Wed (5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHY1ZZ</td>
<td>Group exercise Tue (2.5%)</td>
<td></td>
<td>Lab report Thu (2.5%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
A ‘to do’ list can be useful to organise what to study

Week 7 ‘TO DO’ list

BIO1APM
✓ Revise lecture notes lectures 19 – 22 and write summaries (2 hrs)
✓ Make mind map for cell metabolism topic (1 hr)
✓ Do cell metabolism revision questions from LMS (1 hr)
✓ Read Knox Ch.2 p 49-60 & combine with lecture notes (2hrs)

PHY1SCA
✓ Read Knight - Chapter 10 and make mind map (2 hrs)
✓ Write results and discussion sections for lab report (2 hrs)
✓ Review lecture notes for week 6 (2 hrs)
✓ Practice past exam questions 40-60 (1 hr)

STA1SS
✓ Do past exam questions for topic 4 (1 hr)
✓ Review lecture notes from week 6 (2 hrs)
✓ Email lecturer about problems with topic

A grid can be useful to organise blocks of time to study

<table>
<thead>
<tr>
<th></th>
<th>Mon</th>
<th>Tue</th>
<th>Wed</th>
<th>Thu</th>
<th>Fri</th>
<th>Sat</th>
<th>Sun</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.00 AM</td>
<td>lec</td>
<td>study</td>
<td>prac</td>
<td>study</td>
<td>lec</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.00</td>
<td>study</td>
<td>study</td>
<td>prac</td>
<td>lec</td>
<td>study</td>
<td>study</td>
<td>study</td>
</tr>
<tr>
<td>11.00</td>
<td>study</td>
<td>lec</td>
<td></td>
<td>prac</td>
<td>study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12.00 PM</td>
<td>lec</td>
<td>lec</td>
<td>study</td>
<td></td>
<td>work</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td>lec</td>
<td>lec</td>
<td></td>
<td></td>
<td></td>
<td>tennis</td>
<td></td>
</tr>
<tr>
<td>2.00</td>
<td>lec</td>
<td>prac</td>
<td>prac</td>
<td>lec</td>
<td>lec</td>
<td>tennis</td>
<td></td>
</tr>
<tr>
<td>3.00</td>
<td>study</td>
<td>prac</td>
<td>prac</td>
<td>lec</td>
<td>lec</td>
<td>tennis</td>
<td></td>
</tr>
<tr>
<td>4.00</td>
<td>study</td>
<td></td>
<td></td>
<td>study</td>
<td>study</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.00</td>
<td>study</td>
<td>yoga</td>
<td></td>
<td>study</td>
<td></td>
<td></td>
<td>study</td>
</tr>
</tbody>
</table>

For more hints and tips on how to develop your time management skills, go to the [Acheive@Uni website](http://Acheive@Uni website)
It is important to be realistic. Don’t set impossible goals for yourself. You’ll be more likely to stick to your timetable if you take into account the following:

**Allow for the limitations of your attention span.** Avoid scheduling large blocks of time for one subject. Alternating subjects for study will help you to sustain your concentration and interest.

**Work in terms of tasks not time.** Rather than having a vague aim to ‘study biology for two hours’, set a particular section of work for each study period. A sense of achievement comes from successfully completing small tasks and breaking the work up into smaller sections, making the whole process of study seem less daunting.

**Review your approach.** If your study plan is not working effectively, review your strategies and consider making changes. For example, you may have attempted to fit too much into your timetable, or your timetable may not be flexible enough to accommodate unexpected events. Resist the temptation to throw away your plan and allow yourself to fall in a heap. Some minor adjustments may be all you need to stay on track.

**Make sure you include some recreation time.** If you allocate time for recreational activity you will be less tempted to throw it all in and waste time avoiding study because of unrealistic demands you have made upon yourself.

Check out the [Assignment Calculator](http://www.latrobe.edu.au/library) from La Trobe Library!

**Preparation for class**

**Read required reading** before the lecture (see Chapter 2, *Getting the Most out of Your Reading*).

**Preview and print lecture note slides (if available) before the lecture** to give you an idea of the main concepts to be presented in the lecture.

**Get a sense of the overall structure of the lectures.** What were the main concepts? How did the lecturer set out the argument or main idea? Pay particular attention to establishing how all the individual pieces of information fit together to produce a coherent whole. **Note any questions/problems.** If you don’t understand something, ask. Make the
question as specific as possible, for example, “I don’t understand why low carbon dioxide concentrations cause stomata to open”. Try using the discussion forum on LMS to get answers to questions. If this doesn’t work, ask your demonstrator or lecturer.

Organising your notes

Organise notes into topics/areas. It is easier to remember individual details when they are grouped into mini-sections. Make a list of the areas you need to know in each subject and write down headings and subheadings.

Make notes. Don’t fall into the trap of spending 99% of your study time mindlessly writing out notes and 1% of your time reading them. You should be making notes for each topic area in each subject throughout the semester so that they are ready for SWOT VAC. The more ‘active’ you are in writing notes, the better you will be able to remember them. This may involve reconstructing your notes in a different format (see Chapter 2, Getting the most out of Reading at University)

Do past exam papers and revision questions. If available, you should do these at the end of each topic. Find the questions on a past paper that relate to a particular topic and do them after you finish each topic. At this stage, it is better to do past exam questions in an ‘open book’ style, using your lecture notes and textbooks to answer any questions you don’t know. IMPORTANT - exam formats may change from year to year, so check with your lecturer to find out if there are any major changes.

Audio. Try recording your summaries or prepared answers to practice questions. Comprehension improves if you listen and read at the same time. The other advantage for those who like multitasking is that you can listen while doing something else like walking, cooking or sitting on a bus.
Revision – during semester & SWOT VAC

Form a study group. Studying regularly (perhaps weekly) with a small group is a great way to learn. You can sort out difficulties with content, check that you’re on the right track and test each other to practise recall. It is also easier to stay motivated and on track when you study in a group.

Do practise questions - Past exam questions or revision questions provided by your lecturer are useful. During SWOT VAC, it is a good idea to practise answering questions under exam conditions in the time allotted, without looking at your notes or books. Make sure you focus on anything you got wrong. It is critical that you study before doing the practise questions. That way you can check how effective your study has been. If you do the questions prior to studying, you will focus on studying those topics, rather than learning all of the material that could be covered in the exam.

During SWOT VAC there are usually no classes. It is not possible to effectively learn all of the content for all of your subjects during this week unless you have been studying throughout the semester. SWOT VAC is a time for refreshing your memory about content you have previously learned and understood. The key principle during this period is to move from recognising to understanding to recalling:

 văn

Many students, after having read over material several times, assume that because it looks very familiar they have learned it. Simply being able to recognise material does not automatically mean that you understand it or will be able to recall it later in the exam.
Practise recall - The following suggestions may be useful:

- Revise definitions from your glossary. Cover the definition side and practice recalling definitions; then cover the term side and practice recalling the terms.

- Use flash cards with the question on the front and the answer on the back. Keep aside any that you got wrong and then do these again. Keep doing this until you get them all correct.

- If you need to memorise diagrams, make large ones and stick them up on your walls.

- Use rhymes and mnemonics to assist recall. For example, to remember electron loss and gain in oxidation and reduction, the following may be easy to remember: OIL RIG - Oxidation Is Loss; Reduction Is Gain (of electrons).

- Revise with a friend or a study group to share knowledge and exam strategies and to practice recall.

Self care
There are several strategies you can try to reduce your anxiety, before and during exams.

- **Start early and stay on track** with your exam preparation to reduce your stress levels.

- **Look after your health.** Get plenty of sleep, eat healthy food and try to find time to exercise. Many people find that yoga and breathing exercises can help physically and mentally.

- **Keep things in perspective.** Although it may seem at the time that the next exam will be the most important event in your entire life, this is probably not the case and thinking like this only puts more pressure on yourself.

- **Take a break.** Notice when you are tired or losing concentration. If you feel like this late at night, you could make more effective use of your time by going to bed and getting up earlier the next morning to study when
your mind is feeling fresher. A good way to refresh a tired mind is to go on a brisk 15-minute walk. A 15-minute TV break is not usually refreshing, and can easily turn into a 1-hour break.

- **Set rewards for yourself.** Rewards for good progress can assist with motivation. Try setting yourself a goal and rewarding yourself when you achieve it.

- **La Trobe provides a free counselling for students.** If you feel overwhelmed by exam stress or study motivation problems and unable to cope, you can make an individual appointment with one of the counsellors on your campus. Check out the [counselling webpage](#) for more information.

- **Mindfulness** is another way we can learn to relax and focus. The meditation form of mindfulness is useful if you want to strengthen your ability to focus and be in the moment. This helps to reduce the feeling of anxiety and worry that can creep in during semester. There are some great free apps you can download to help practise the skill of mindfulness. These include Smiling Minds, Headspace, Calm and The Mindfulness App. [Check out this blog for more information](#).

**Tips for types of exam questions**

**Multiple choice questions**

Many students believe that to answer a multiple-choice question they need only be able to *recognise* material and so need only do minimal revision. A well-written multiple-choice examination will require you to have thorough knowledge of the subject and to be able to integrate and apply information, and to discriminate between similar answers.

- Carefully note the connecting words as well as the key words in both the question stem and possible answers.

- Beware of double negatives. For example, the question might ask, “*which of the following is true?*”, and the first answer may read, “*(a) it is not the case that...*”

- Think carefully about sentences with words such as *never* and *always*. 

---
• Try considering each alternative of a multiple-choice question as a true/false statement and then choose the odd one out.

• If you see an answer you think is correct, check to make sure that the others are incorrect. You may find that you’ve been a bit hasty.

• Does the question contain any clues to the answer? Do the alternative answers give clues? Through careful analysis and a process of elimination it may be possible to arrive at the correct answer even if at first sight you did not have any idea.

• If you don’t know, make an educated guess after careful consideration of all the options.

Short answer and essay questions
Your main aim is to provide a clear, logical explanation that can be followed easily by your examiner.

• Don’t rush into a question. Give yourself time to think about and plan your answer. Before writing, make notes or a brief outline to aid your memory if you have a mental block later.

• Short answer - summarise the main points in the first sentence. This means that you will have to plan your answer first. If you run out of time, your examiner can see where you were heading with your answer.

• Essay - your introduction should outline the main points of your argument. The body of the essay should consist of a logical sequence of these ideas. Have one main idea per paragraph and express the main point of the paragraph in the first sentence. The conclusion should provide a summary of your argument.

• If you run out of time or misjudge things and still have a question to go, then write notes/points. Set out a plan of how you would have answered the question if you’d had time. A well-structured outline is often sufficient to achieve a pass for that question.

• In a short answer question, content must be strictly relevant. Make sure that your answer is clear and concise. Padding wastes time and may lose you marks.
• If appropriate, include clearly-labelled graphs or diagrams. These may help you to remember things which you have forgotten or provide you with a basis for your writing.

**Problem solving questions (particularly for statistics, mathematics, computer science and engineering)**

• Read the question carefully. Take note of each part of the question you will have to address.

• Check carefully what data you have been given and what has been left out.

• Think about which principles could be applied to the data. List the formulae you will need to answer the question, without placing the given values in them. This will help to avoid unnecessary slips resulting from a faulty transcription of the formulae.

• Decide the order of the steps you will have to take to get to the answer.

• Double check your arithmetic before moving onto the next step. Make sure you haven't misplaced any decimal points or made an incorrect substitution in the formula.

• Include all of your calculations in your answer. That way, even if the outcome is incorrect, your examiner will be able to see where the mistake was made and may still award you some marks for your approach to the question.

• If the dimensions of the result do not seem right, check your computations again and if you still come up with the same answer, write down whether or not you believe it to be valid and provide a possible explanation for such a result.

**Predict your grade!**

The Study Success Predictor below lists behaviours that you should exhibit in order to excel in your subjects. Circle True or False for each of the following statements describing the way you will study in your first year subjects. Then add up your scores to predict your grade (thanks to Susan Lawler for providing this activity).
True / False  I will read and use the First Year Survival Guide.

True / False  For every hour I spend in class (lectures, tutes and pracs), I will spend one hour studying, even when I have no assignments to prepare.

True / False  I will always do the required reading before every lecture.

True / False  I will go over my lecture notes as soon as possible after the lecture to rework them and mark problem areas.

True / False  I will do revision questions or past exam papers throughout the semester to test my understanding.

True / False  I will create a glossary to record all of the key terms I need to know in each of my subjects.

True / False  I will make flashcards and use mnemonics for myself to help me remember facts and equations.

True / False  I will make diagrams or draw mental pictures of the concepts and experimental procedures discussed in class.

True / False  I will “teach” concepts to friends, myself in the mirror, or imaginary students.

True / False  I will carefully follow all instructions relating to my written assignments so that I do not lose marks needlessly.

True / False  I will learn how to use the library resources and systems (e.g. catalogue, databases and research help desk) to find information for assignments.

True / False  I will complete a draft of my written assignments in time to get feedback from others and make improvements.

True / False  I will ask for help when I need it by talking to the lecturer, demonstrator or tutor after lectures, during practicals, or by making an appointment.

True / False  I believe in my ability to do well in all of my subjects.

The predicted grade for your performance this semester is below:

<table>
<thead>
<tr>
<th>Number of true responses</th>
<th>Predicted grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>11-14</td>
<td>A</td>
</tr>
<tr>
<td>7-10</td>
<td>B</td>
</tr>
<tr>
<td>4-6</td>
<td>C</td>
</tr>
<tr>
<td>2-3</td>
<td>D</td>
</tr>
<tr>
<td>Less than 2</td>
<td>Fail</td>
</tr>
</tbody>
</table>

Note: you can change your predicted grade at any point by changing your behaviour so that more of the statements are true.
Chapter Two

Getting the most out of Reading at University
Getting the most out of your reading

In most of your subjects at university, you are expected to do a large amount of reading related to your lectures to help you to understand the main concepts. You will probably have to read multiple sources of information for essays, reports and other written assignments.

Reading for lectures

Your lectures will be much easier to follow if you read your text book or other required reading before your lecture. Even a quick skim read of the relevant pages will give you some idea of the main concepts. You will also be more prepared to ask questions if you are familiar with the topic beforehand. If you haven’t been told which pages to read before the lecture, check your subject guide for the topic of the next lecture and try to locate the relevant part of the text book that deals with that topic.

Before a lecture

Preview the text book section (or other prescribed reading) by skimming the relevant pages to get a general understanding of the topic area. This is the very least amount of reading you should do before each lecture. Try the following strategies when skimming:

- take note of headings and sub-headings
- look at figures, tables and illustrations
- read the first sentence of every paragraph to get the main ideas
- look for key words in the text
- read chapter overviews or summaries

Then, read the section in detail. At this stage, don’t worry about anything you don’t fully understand. It may be covered more clearly in the lecture, and you can follow it up later.

After a lecture, or series of lectures on a topic

Re-read the relevant sections of the text book in more detail. Then, do the following:
Check your understanding
Make a note of anything you do not understand and follow it up by:
- reading about the same topic from another source
- posting a question on the LMS discussion forum
- asking your lecturer, demonstrator or tutor
- asking another student in your class

Make notes
Use your reading material and your lecture notes to make your own revision notes. There are several strategies for making effective notes from your reading. The more active you are when producing the notes, the better you will learn. Copying whole sentences from your textbook or lecture notes is a very passive way to study and is not effective. Simply highlighting large chunks of information is also not a very effective strategy for revising. Here are some suggestions for note making strategies:

1. **Linear summaries** for each topic. Numbering each point can help with recall in the exam. *Keep summaries brief.*

<table>
<thead>
<tr>
<th>DIGESTION &amp; NUTRITION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Feeding mechanisms</strong></td>
</tr>
<tr>
<td>1. Particulate Matter</td>
</tr>
<tr>
<td>2. Food Masses</td>
</tr>
<tr>
<td>3. Fluids</td>
</tr>
<tr>
<td><strong>Nutritional requirements</strong></td>
</tr>
<tr>
<td>• Carbohydrates</td>
</tr>
<tr>
<td>• Proteins</td>
</tr>
<tr>
<td>• Fats</td>
</tr>
<tr>
<td>• Water</td>
</tr>
<tr>
<td>• Vitamins</td>
</tr>
</tbody>
</table>
2. **Mind Maps** or other diagrams such as flow charts and grids. During an exam, it is often easier to recall information which has been represented diagrammatically. *Colours* are particularly helpful to stimulate the memory. There are a number of websites where you can get mind map software, e.g. Freemind, Inspiration, Thinkgraph, and Visual Mind. Some of these are free or freeware programs and others are commercial.

3. **Flash cards.** If you can get past exam papers or revision questions, copy and paste the question on one side and the answer on the other. This is especially useful for multiple choice questions. If you don’t have past exam or revision questions, you can create your own based on the topic areas you’ve studied.

<table>
<thead>
<tr>
<th>(FRONT)</th>
<th>(BACK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>What kind of radiation will travel through an electric field on a pathway that remains unaffected by the field?</td>
<td>B. a gamma ray.</td>
</tr>
<tr>
<td>A. a proton</td>
<td></td>
</tr>
<tr>
<td>B. a gamma ray</td>
<td></td>
</tr>
<tr>
<td>C. an electron</td>
<td></td>
</tr>
<tr>
<td>D. an alpha particle</td>
<td></td>
</tr>
</tbody>
</table>
4. **Glossary.** You will have to learn many new terms and acronyms. Learning them gradually over the semester is the most effective way to remember them. Try keeping a small notebook where you can record new terminology for each of your subjects, as in the example below. Some of your first year subjects may have a glossary available on LMS or in your lab manual.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alkynes</td>
<td>Unsaturated hydrocarbons containing one or more triple carbon-carbon bonds</td>
</tr>
<tr>
<td>Nodal plane</td>
<td>A region where there is zero probability of finding an electron</td>
</tr>
</tbody>
</table>

**Reading for assessment tasks**
Many assignments in first year require you to use ideas from sources such as books, and journal articles in your writing. It is very important that the information you use comes from high quality and reliable academic sources.

Further information about finding and evaluating sources is on the Library website: ►latrobe.libguides.com/libskills

Information about subject-specific reading material can be found in the Library’s Libguides: ►latrobe.libguides.com/

**Reading a journal article**
You are probably reasonably familiar with reading text books. *Journal articles*, however, may be unfamiliar and are more difficult to read. Journal articles, (also called *papers*), are written by experts for experts. These articles are published in *journals*, which are usually available in hard copy and online formats. Journals, such as those shown below, are collections of journal articles and are usually published several times a year.

In science, journal articles are often written about new experiments and thus have a similar structure to a laboratory report (see Chapter 7). In engineering and computer science, journal articles are often written about the design of
something new and may be similar to a technical report (see Chapter 7). Your subject lecturers, in addition to teaching you, also research and publish journal articles in journals related to their area of expertise. This is how knowledge is shared so that others can build on existing knowledge to create new knowledge.

There are two main types of journal articles

1. *Experimental or design papers* – these are written about a particular approach to a problem. They may be written by a single researcher or, more often, by a group of researchers. Each researcher, or group of researchers, writes a paper about their findings and publishes it in a journal.

2. *Review papers* – these are written by the foremost experts in a field. They are a summary of all of the recently published research about a particular problem. They compare and evaluate the findings of recent experimental or design papers and comment on the current state of knowledge about a particular problem.

Journal articles can be very difficult to understand at first year level. They often contain many technical terms and assume knowledge of complex concepts. When reading a journal article at first year, you are probably only looking for fairly basic information on a topic. You will rarely need to read the whole article in detail. It may be easier to start with review articles that give you an overview of a topic.

Target your reading

Before you begin reading a journal article, you need to stop and think about exactly what information you’re looking for. Different sections of a journal article will contain different types of information. The sections you will most likely need to read are the abstract, introduction and discussion.

*Abstract*

This gives you an overview of the whole journal article. It provides useful background information or a summary of the main findings related to the problem being investigated.
**Introduction**
You will usually find some background information in the introduction relating to what is already known about the problem being investigated. This section is likely to be the most useful place to look for information relating to your written assignments.

**Method**
This section has a variety of names but is basically where you will find information about exactly what was done to gain knowledge about the problem. In an experimental paper, it usually describes the setup of the experiment, the materials used and the methods used. The method section is often very complex and difficult to read. This section may be of use if your assignment asks you to compare conflicting research findings about a particular problem. In this case, the methods section may provide information about the methods used which will enable you to evaluate which study finding is most likely to be more reliable. For most written assignments in first year, you will not need to read the methods section.

**Results**
This section gives a detailed description of the results of the investigation. It is often very technical and you are unlikely to need to read this section for first year assignments.

**Discussion**
The discussion usually starts with a brief description of the main findings of the investigation. It then goes on to explain these findings in detail and compare them with the findings of other studies. You may find this section useful if you need to report on the current state of research about a particular topic.

**Read and make notes**
When reading a journal article, it is often a good idea to print it out and write comments and notes on the paper itself. Before reading and taking notes, it is very important to ask yourself,

“What information am I looking for?”
For example, if you have to write an introduction for an agricultural science report on soil pH and plant disease in Australia, you could ask the following questions:

1. What is the normal pH range of Australian soils?
2. Which diseases are caused when soil conditions are too alkaline? Too acidic?
3. By what mechanism does an alteration of soil pH result in plant disease?
4. What can be done to prevent fluctuation in soil pH?
Chapter Three

Writing in Science, Health and Engineering
Writing style
Writing in science, health and engineering requires a different style from writing in other academic disciplines. If you study subjects in other faculties, you may find that there are different expectations and requirements for written assessments. For example, a marketing report would have a different structure and language style to a laboratory report. Your subject guides will give you specific information regarding written assignment requirements for particular subjects. The following are general features of good scientific writing:

Appropriate and Relevant Content:
It is important to ‘stick to the topic’.
In an essay, everything you write must relate to the essay question. In a laboratory report, everything you write in the introduction must be related to the exact topic and everything you write in your discussion must be related to your results. You need to be careful not to ‘go off on a tangent’ and start to present or discuss random ideas that are not related to the exact topic or question.

Substantiated (supported) claims
In order to build a strong argument, you must have supporting information, usually from a reliable academic source.

scriber crossed out: The population of koalas in outer Brisbane coastal areas is declining.

✓ The population of koalas in outer Brisbane coastal areas is declining. In 2008, numbers were found to be 64% lower than in 1999 (Queensland Department of Environment and Resource Management, 2008)
Use of high quality academic sources of information with adequate and accurate acknowledgement

It is CRITICAL to use reliable sources of information for your written assignments. For most (but not all) subjects, websites are NOT acceptable academic sources. Commercial (.com) websites are the most likely to be unreliable. The author of a commercial website is often not known and the pages may contain biased or inaccurate information. Ask your lecturer, demonstrator or tutor whether website information is allowed for a particular assignment.

When you use information from sources such as books and journal articles, you are using ideas that you did not create yourself. As these ideas belong to someone else, it is important to acknowledge the person or people who created the ideas. In academic writing, this is done by providing references to show where the ideas came from. Referencing at university is quite complicated and takes some time to learn.

Note:

- For more information on finding credible sources and evaluating websites, go to Achieve@Uni
- Click on this link to view the library’s short YouTube clip ‘Why can’t I just Google’
- There is a detailed guide to paraphrasing and avoiding plagiarism in Chapter 4 of this Guide.

Adequate and accurate paraphrasing of information

In addition to providing references, you also need to paraphrase information from other sources. This means you must put the ideas in your own words. This may seem strange and difficult at first, especially if the information is complex and hard to understand, but there are good reasons for paraphrasing.

Paraphrasing shows the person who is marking your work that you understand what you are writing about. It also helps you to keep a consistent writing style. Your writing will flow more smoothly if you write in your own natural style. Even if you provide a reference, you still need to paraphrase information before you include it in your written assignment. If you don’t, you may be accused of plagiarism.
Precise
Use specific terminology where appropriate

✘ A machine was used to see how much light went through the liquid.

✔ A spectrophotometer was used to measure the absorbance of the sample solution in order to determine the concentration of haemoglobin.

Be careful with words like ‘it’ and ‘they’. Sometimes it is better to be specific about what ‘it’ is or ‘they’ are.

✘ After a while it went up.

✔ After 10 minutes, the temperature of the copper sulphate solution increased by 20°C.

Concise – aim for maximum content, minimum words
If you are under the word count, you need to add more content rather than ‘pad out’ your writing with extra words. Adding ‘filler’ words will not get you any extra marks. It’s the number of ideas that are marked, not the number of words.

✘ In my opinion, up until the present time, it seems relatively unclear as to which will, in the long run, emerge as the best method of sampling to use in order to obtain the desired results in the shortest possible time.

✔ It is not known which sampling technique is the most efficient.

Formal – avoid personal, emotional and colloquial (everyday) language
Avoid personal language
It is advisable to avoid using personal language, particularly pronouns which refer to the reader e.g. *you, your, us, our*. It is sometimes acceptable to use ‘*I*’ and ‘*we*’ in academic writing, but this varies throughout the different scientific disciplines.

- **If you want to improve this experiment, you should increase the sample size.** [informal]

- **To improve this experiment, the sample size should be increased.** [more formal]

**Avoid colloquial language**
Colloquial language is everyday language which may be suitable when speaking, but should not be used in formal, academic writing.

- **Every day, more and more electronics are thrown out and end up in the tip.** [informal]

- **Electronic waste is an increasing problem with 75% of computers bought annually in Australia ending up in landfill (Australian Bureau of Statistics, 2006).** [more formal]

**Avoid emotional language**
The use of emotional language may weaken an academic argument.

- **It will be a tragedy if these graceful and beautiful animals are lost to the world forever.** [emotional & informal]

- **It is vital that conservation measures are immediately put in place to save this vulnerable species from extinction.** [more formal]
Avoid contractions
Formal, academic writing uses the full forms of words rather than shortened versions (contractions). NB This Guide is not a formal, academic piece of writing and so we have used contractions.

✅ is not  ✖ isn't

✅ do not  ✖ don’t

✅ will not  ✖ won’t

Clear structure and flow

Order points logically
This is important at the planning stage of your writing. It is very difficult to understand a piece of writing if the ideas are not presented in a logical order. Make sure you have one main unifying idea per paragraph and that the ideas within the paragraph lead logically from one to the next. Also take note of the order of paragraphs so that there is a logical progression from one main idea to the next.

Link ideas within and between paragraphs
Good writing makes clear, links between ideas, as well as how each main idea relates to the topic. Where possible, linking words and expressions should indicate the relationship between ideas. For example, if you want to show that a second sentence is a result of the first sentence, you could start the second sentence with ‘as a result’.
The following table gives a brief list of linking words and expressions

<table>
<thead>
<tr>
<th>Function</th>
<th>Linking word examples</th>
<th>Examples in sentences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Similarity</td>
<td>Similarly, Likewise, In a similar way, A similar study…</td>
<td>Similarly, proteins in the endoplasmic reticulum function as…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>A similar study also found a correlation between …</td>
</tr>
<tr>
<td>Contrast</td>
<td>In contrast, Conversely, On the other hand, (less formal)</td>
<td>In contrast, Van der Waals forces are much weaker.</td>
</tr>
<tr>
<td></td>
<td>While…, …; Although…., …; however…., …; However,…</td>
<td>While covalent bonds are very strong, Van der Waals forces are much weaker and only allow temporary associations between molecules.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Although the design was adequate, insufficient planning had gone into the implementation stage.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>There was an increase in the concentration of hydrogen ions; however, there was no change in…</td>
</tr>
<tr>
<td>Cause → Effect</td>
<td>X causes Y; X leads to Y; X results in Y; X brings about Y; As a result of; Because of X, …; Y happened; Due to X, …; Y happened; Owing to X, …; Y happened; As X happened, Y happened; Since X happened, Y happened</td>
<td>A reaction of this type causes extensive damage to the cells.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The build up of charge leads to an electrostatic force.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As a result of the storm damage, the site was no longer suitable for the study.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Due to the small sample size, significant results were not obtained.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>As this behaviour has not been observed in any other species, further research is needed to determine…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Since there was no significant effect detected, it was decided to run the experiment again using a different sample.</td>
</tr>
<tr>
<td>Function</td>
<td>Linking word examples</td>
<td>Examples in sentences</td>
</tr>
<tr>
<td>------------------------</td>
<td>-----------------------</td>
<td>---------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Effect → Cause</td>
<td>X results from Y</td>
<td>A buildup of charge <strong>results from</strong> this interaction.</td>
</tr>
<tr>
<td></td>
<td>X was caused by Y</td>
<td>The signal noise <strong>could be a consequence</strong> of a semiconductor defect.</td>
</tr>
<tr>
<td></td>
<td>X may be due to Y</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X could be a consequence of Y</td>
<td></td>
</tr>
<tr>
<td>Additional point</td>
<td>*Moreover, Furthermore, In addition,</td>
<td><strong>Moreover</strong>, there are no specific advantages of using this type of pathogen as a model.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>In addition</strong>, these types of molecules have the disadvantage of forming aggregates.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>* These linking words should be used infrequently. It is not necessary to have a linking word between every sentence. It is also much better to use more specific linking phrases e.g. “<strong>A further disadvantage is</strong>…”</td>
</tr>
<tr>
<td>Chronology (time order)</td>
<td>First, Firstly, After that, Then, Next,</td>
<td>The sample was <strong>first</strong> treated with nitric acid in order to…</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>After that</strong>, the trace metal was extracted with…</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The sample was <strong>then</strong> analysed using a…</td>
</tr>
<tr>
<td>Summary</td>
<td>In conclusion, To sum up, In summary, In short,</td>
<td><strong>In conclusion</strong>, no significant difference between in the reproductive rates of the two species was found.</td>
</tr>
<tr>
<td>Example</td>
<td>For example, To illustrate, …such as…</td>
<td><strong>For example</strong>, subsoil physiochemical constraints are a major factor limiting crop productivity.</td>
</tr>
<tr>
<td>Purpose</td>
<td>To In order to So that So as to</td>
<td>The sample was agitated <strong>to</strong> ensure an even distribution of the colloid particles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The sample was agitated <strong>in order to</strong> evenly distribute the colloid particles.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The sample was agitated <strong>so that</strong> the colloid particles became evenly distributed.</td>
</tr>
</tbody>
</table>
**Common grammar errors**
To understand simple grammar errors, you need to know a little bit about basic sentence structure.

**What is a sentence?**
For a sentence to be complete it must usually contain a **subject** and a **verb**. A sentence must also convey a complete thought. For example, ‘A student is.’ contains a subject and a verb but doesn’t express a complete thought. It doesn’t convey any information and so, is not a complete sentence.

<table>
<thead>
<tr>
<th>The subject</th>
<th>says who or what does the action e.g. ‘who wrote?’</th>
</tr>
</thead>
<tbody>
<tr>
<td>The verb</td>
<td>is the ‘doing word’ and describes an action or state.</td>
</tr>
<tr>
<td>For example,</td>
<td></td>
</tr>
<tr>
<td>The students</td>
<td>wrote.</td>
</tr>
<tr>
<td>(subject)</td>
<td>(verb)</td>
</tr>
</tbody>
</table>

A simple sentence can also have other elements:

<table>
<thead>
<tr>
<th>An object</th>
<th>answers the question ‘what’ after the verb e.g. ‘wrote what?’</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example,</td>
<td></td>
</tr>
<tr>
<td>The students</td>
<td>wrote a report.</td>
</tr>
<tr>
<td>(subject)</td>
<td>(verb) (object)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A complement</th>
<th>says what something is/was etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example,</td>
<td></td>
</tr>
<tr>
<td>The students</td>
<td>were confused.</td>
</tr>
<tr>
<td>(subject)</td>
<td>(verb) (complement)</td>
</tr>
</tbody>
</table>
An adverbial tells us how, when, where, or why.

For example,

The students (subject) wrote (verb) their reports (object) carefully. (adverbial - how)

Eventually, the students (subject) wrote (verb) their reports carefully. (adverbial - how)

We use a comma when the adverbial element comes before the subject.

Seven of the most common grammar errors

1. **Comma splice error**
   A comma splice error occurs when two complete sentences are joined together by a comma. For example:

   ✗ The benefits of this kind of therapy are substantial, there are relatively few adverse side effects.

   Comma splice errors are quite common, particularly for native speakers of English. They often result from the desire to avoid writing short sentences. A comma splice error can be fixed in different ways, depending on the length of the sentences.

   If the two sentences are short, it is best to join them with a conjunction ('joining word') such as ‘and’, ‘so’, or ‘but’, as in the following example:

   ✓ The benefits of this kind of therapy are substantial, and there are relatively few adverse side effects.

   If the two sentences are short and they are of equal grammatical weight and value, it is best to use a semicolon.

   ✓ The benefits of this kind of therapy are substantial; the adverse side effects are relatively few.
If the two sentences are already rather long, it is better to put a full stop between and have two separate sentences.

✓ The reported benefits of this kind of therapy are substantial, particularly when used in conjunction with more traditional approaches. However, there are relatively few adverse side effects and these are generally not severe.

2. Run on sentence
Run on sentences are the same as the comma splice errors described above, except that there is no comma placed between the two sentences. These are less frequent than comma splice errors and can be fixed in the same way.

✗ The benefits of this kind of therapy are substantial there are relatively few adverse side effects.

3. Sentence fragment
A fragment is an incomplete sentence. Fragments may be missing a verb or a subject or they may not convey a complete thought.

Example of a fragment that has a subject and a verb but does not express a complete thought.

✗ Because the lemming was heading towards the cliff. ⇩ FRAGMENT

This fragment contains a subject and a verb, but it not a complete thought. We have the reason for something, but we don’t have the ‘something’. This is the most common form of fragment error. The word ‘Because’ has turned a complete sentence (‘The lemming was heading towards the cliff.’) into a fragment, which requires another part to be a complete sentence.

To correct this sentence it needs another part. For example:

✓ Because the lemming was heading towards the cliff, others decided to follow.
There are many words similar to ‘because’ that when used in this way, require another part to make a full sentence. Some examples are given in the table below. Don't be confused. This doesn't mean that you can't start a sentence with ‘Because’ (a common urban grammar myth!). You can start a sentence with ‘Because’ as long as you make sure to include the other part of the sentence.

<table>
<thead>
<tr>
<th>Fragment example</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>because</strong></td>
</tr>
<tr>
<td>Because measurements were not taken at regular intervals.</td>
</tr>
<tr>
<td><strong>although</strong></td>
</tr>
<tr>
<td>Although the paramecium was not observed.</td>
</tr>
<tr>
<td><strong>whereas</strong></td>
</tr>
<tr>
<td>Whereas the left ear showed no sign of swelling</td>
</tr>
<tr>
<td><strong>since</strong></td>
</tr>
<tr>
<td>Since there were no other parameters.</td>
</tr>
<tr>
<td><strong>unless</strong></td>
</tr>
<tr>
<td>Unless future studies find otherwise.</td>
</tr>
</tbody>
</table>

The fragments in the above table can be corrected by adding another sentence part with a subject and a verb.

Example of a fragment with no verb or subject

✖ Being a very headstrong and independent lemming with a mind of her own.

This fragment does not contain a full verb or a subject. The word ‘being’ at the beginning of the sentence looks like a verb, but it is really only part of one. To be a full verb, an –ing word needs to be combined with a ‘helping verb’ such as am, is, are, was or were. (e.g. The lemming is being stubborn). To fix the fragment in the above example, another part needs to be added to make it a complete sentence.

✔ Being a very headstrong and independent lemming with a mind of her own, Fifi did not join the others in their rush towards the cliff.
Here’s another example of a fragment.

❌ At the edge of the extremely steep cliff near a group of boulders.

The example above is a fragment because it only tells us the ‘where’ part of the sentence. It does not contain a subject or a verb. We don’t know who is doing what. The fragment needs another part to make it a complete sentence.

✅ At the edge of the extremely steep cliff near a group of boulders, the lemmings gathered for a brief, final meeting.

4. **Subject verb agreement**

In English grammar, subjects must ‘agree with’ verbs. We use different forms of verbs for different types of subjects. The following table gives some examples.

<table>
<thead>
<tr>
<th>subject</th>
<th>example of subject</th>
<th>verb</th>
<th>object</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>(I)</td>
<td>like</td>
<td>learning grammar.</td>
</tr>
<tr>
<td>You</td>
<td>(You)</td>
<td></td>
<td>that game.</td>
</tr>
<tr>
<td>We</td>
<td>My friends and I</td>
<td></td>
<td>doing it.</td>
</tr>
<tr>
<td>They</td>
<td>The people in the pub</td>
<td></td>
<td>chocolate.</td>
</tr>
<tr>
<td>He</td>
<td>That guy in our lab</td>
<td>likes</td>
<td></td>
</tr>
<tr>
<td>She</td>
<td>The woman in the photo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It</td>
<td>(Even) my dog</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subject verb agreement with the verb ‘to be’ is a little more complicated.

<table>
<thead>
<tr>
<th>subject</th>
<th>example of subject</th>
<th>verb (to be)</th>
<th>complement/adverbial</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>(I)</td>
<td>am</td>
<td>a great example.</td>
</tr>
<tr>
<td>You</td>
<td>(You)</td>
<td>are</td>
<td>extremely unreliable.</td>
</tr>
<tr>
<td>We</td>
<td>My friends and I</td>
<td>are</td>
<td>in the right place.</td>
</tr>
<tr>
<td>They</td>
<td>The people in the pub</td>
<td></td>
<td>intoxicated.</td>
</tr>
<tr>
<td>He</td>
<td>That guy in our lab</td>
<td>is</td>
<td></td>
</tr>
<tr>
<td>She</td>
<td>The woman in the photo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It</td>
<td>(Even) my dog</td>
<td>is</td>
<td></td>
</tr>
</tbody>
</table>
Making subjects agree with verbs is fairly easy when the sentence is short and the subject is right next to its verb. However, when sentences are long and complex, subject verb agreement can be more difficult, as in the following example.

❌ **Punctuating** long sentences, such as the ones in the following examples, *cause* difficulties for many writers.

(verb)

✅ **Punctuating** long sentences, such as the ones in the following examples *causes* difficulties for many writers.

(verb)

In order to check whether the subject agrees with the verb, you first need to identify the main verb in the sentence (‘cause’ in the sentences above) and then ask who or what causes difficulties? The answer is ‘punctuating’. Punctuating = ‘it’, so we need to use the verb form with the ‘s’ i.e. punctuating… *causes* difficulties…

Errors also frequently occur when the sentence starts with ‘there is/are’.

❌ *There is not many studies which have investigated the science of navel gazing.*

✅ *There are not many studies which have investigated the science of navel gazing.*

5. **Problems with commas**

Few people know how to use commas correctly. A lot of the time, this doesn’t matter as many sentences ‘requiring’ a comma can be easily understood even without the comma. However, there are some instances where a sentence becomes ambiguous, or even unreadable, without a comma.
Example 1

I told them to eat, Lucy.

I told them to eat Lucy.

The difference in punctuation is small, but the difference to Lucy is considerable.

Example 2

When we finally packed up the instrument had already completed the scan.

When we finally packed up, the instrument had already completed the scan.

(introductory part) (main part of sentence)

The first sentence is difficult to read because it may seem like the instrument was packed up. In the second sentence, the comma after the introductory part makes the meaning clearer. The introductory part of the sentence is not a full sentence on its own. If there is an introductory part at the beginning of a sentence, it is a good habit to always place a comma between it and the main part of the sentence.

Example 3

In the lab reports were made about people altering data to fit the hypothesis.

In the lab, reports were made about people altering data to fit the hypothesis.

(adverbial) (main part of sentence)

This is similar to example 2. The first sentence is difficult to read and its meaning is not clear because the words ‘lab’ and ‘reports’ are often used together as a compound noun. In the second example, a comma separates the adverbial element ‘in the lab’ from ‘reports’ making the meaning clear.
Example 4

❌ Recent studies on the mating behaviour of the endangered three toed sloth from South America, have analysed the frequency of the ‘ay-ay’ mating call.

✔ Recent studies on the mating behaviour of the endangered three toed sloth from South America have analysed the frequency of the ‘ay-ay’ mating call.

Do not use a comma after the subject of a sentence. When the subject of a sentence is very long, you may feel that you need to put a comma between the subject and the verb. This is not correct.

6. Parallel structure

Problems with maintaining parallel structure often occur when constructing lists, either as dot points or within a sentence. Items in a list should be the same type of word in terms of grammar, for example, a list of nouns or a list of verbs. The following examples should illustrate.

❌ The objectives of this review are:

- Outlining the main conceptual areas behind the science of navel gazing
- To give an account of the controversy surrounding the benefits of navel gazing
- The different ways to navel gaze

Each of the dot points has a different grammatical form. To give the items in the list parallel structure, they should have the same grammatical form as in the list of verbs (actions) below.

✔ The objectives of this review are to:

- outline the main conceptual areas behind the science of navel gazing
- give an account of the controversy surrounding the benefits of navel gazing
- describe the different ways to navel gaze.
7. Apostrophes
Apostrophes are notoriously difficult to use correctly. There is even a website showing examples of ‘apostrophe abuse’ on signs from around the world: apostropheabuse.com/

Once you know the rules, it’s not that hard. Apostrophes are used for two main reasons:

I. To denote a missing letter
When we put two short words together, we use an apostrophe to show that a letter is missing. It is not common to use these shortened forms in academic writing. Here are some examples.

<table>
<thead>
<tr>
<th>do not</th>
<th>don’t</th>
</tr>
</thead>
<tbody>
<tr>
<td>is not</td>
<td>isn’t</td>
</tr>
<tr>
<td>you are</td>
<td>you’re</td>
</tr>
<tr>
<td>it is</td>
<td>it’s</td>
</tr>
<tr>
<td>we are</td>
<td>we’re</td>
</tr>
</tbody>
</table>

We do not use an apostrophe to make an abbreviation or acronym (e.g. CD, USB, ATM) plural. Also, we do not use an apostrophe when making years plural. So,

<table>
<thead>
<tr>
<th>✗</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>CD’s</td>
<td>CDs</td>
</tr>
<tr>
<td>USB’s</td>
<td>USBs</td>
</tr>
<tr>
<td>ATM’s</td>
<td>ATMs</td>
</tr>
<tr>
<td>1960’s</td>
<td>1960s</td>
</tr>
</tbody>
</table>

II. To denote possession
Apostrophes are used to show possession or ownership of something, as in the following examples. Note that the apostrophe is placed after the ‘s’ if the noun is plural. We can also use pronouns in place of the noun. The table below contains some examples.
<table>
<thead>
<tr>
<th>Singular Nouns</th>
<th>Pronoun</th>
<th>Plural Nouns</th>
<th>Pronoun</th>
</tr>
</thead>
<tbody>
<tr>
<td>The student’s writing</td>
<td>his/her</td>
<td>The students’ writing</td>
<td>their</td>
</tr>
<tr>
<td>The paper’s references</td>
<td>its</td>
<td>The papers’ references</td>
<td>their</td>
</tr>
<tr>
<td>The bee’s knees</td>
<td>its</td>
<td>The bees’ knees</td>
<td>their</td>
</tr>
<tr>
<td>The computer’s functions</td>
<td>its</td>
<td>The computers’ functions</td>
<td>Their</td>
</tr>
<tr>
<td>Robyn’s office</td>
<td>her</td>
<td>n/a</td>
<td>n/a</td>
</tr>
</tbody>
</table>

We do not use apostrophes before an ‘s’ in plural nouns where there is no possession. Thus, the following are incorrect.

A point of confusion
The words that cause the most confusion when using apostrophes are *it’s* and *its*.

- *It’s* – the apostrophe denotes a missing letter (i.e. short form of it is)
- *Its* – is used to show possession but has no apostrophe (e.g. Its ears are big).
**Commonly confused words**
The English language can be very confusing, so it’s easy to make mistakes. Some commonly confused words are listed in the following tables.

<table>
<thead>
<tr>
<th>Word Confusion</th>
<th>Explanation</th>
</tr>
</thead>
</table>
| **effect/affect** | **Effect** is usually a noun.  
  e.g. *There was no **effect** on the reaction rate.*  
  **Affect** is usually verb (action).  
  * remember ‘a’ for *action & affect  
  * the reaction rate was not **affected**. |
| **would of/would have** | ‘**Would of**’ is incorrect. ‘**Would have**’ is correct.  
  ✗ The experiment would of worked.  
  ✓ The experiment would have worked. |
| **few/less** | Use **few** or **fewer** with ‘countable’ nouns.  
  e.g. *There were **few** errors.*  
  Use **less** with ‘uncountable’ nouns.  
  e.g. *There was **less** air in the container.* |
| **comprise/consist** | Use **comprise** without ‘of’.  
  e.g. *The sample comprised 42 males and 47 females.*  
  Use **consist** with ‘of’.  
  e.g. *Water consists of hydrogen and oxygen atoms.* |
| **its/it’s** | Use **it’s** as a short form of ‘it is’  
  Use **its** as a possessive |
| **practice/practise** | **Practice** is a noun.  
  e.g. *I need more **practice** with this technique.*  
  **Practise** is a verb.  
  e.g. *I need to **practise** this technique.* |
**Singular/plural confusion**
Some commonly used words in the sciences have irregular plurals that can be confusing. The table below gives some examples.

<table>
<thead>
<tr>
<th>Singular</th>
<th>Plural</th>
</tr>
</thead>
<tbody>
<tr>
<td>hypothesis</td>
<td>hypotheses</td>
</tr>
<tr>
<td>criterion</td>
<td>criteria</td>
</tr>
<tr>
<td>phenomenon</td>
<td>phenomena</td>
</tr>
<tr>
<td>thesis</td>
<td>theses</td>
</tr>
<tr>
<td>datum</td>
<td>data</td>
</tr>
<tr>
<td>medium</td>
<td>media</td>
</tr>
<tr>
<td>appendix</td>
<td>appendices/appendixes (both correct)</td>
</tr>
<tr>
<td>bacterium</td>
<td>bacteria</td>
</tr>
<tr>
<td>stimulus</td>
<td>stimuli</td>
</tr>
<tr>
<td>index</td>
<td>indices/indexes (but different meanings)</td>
</tr>
<tr>
<td>analysis</td>
<td>analyses</td>
</tr>
<tr>
<td>axis</td>
<td>axes</td>
</tr>
<tr>
<td>formula</td>
<td>formulae/formulas (both correct)</td>
</tr>
<tr>
<td>basis</td>
<td>bases</td>
</tr>
<tr>
<td>diagnosis</td>
<td>diagnoses</td>
</tr>
<tr>
<td>parenthesis</td>
<td>parentheses</td>
</tr>
<tr>
<td>genus</td>
<td>genera</td>
</tr>
</tbody>
</table>
A word about Microsoft Word grammar checker and spell checker

Automatic spelling and grammar checkers are not as accurate as a human editor, and Microsoft Word spellchecker and grammar checker make mistakes, particularly the grammar checker.

The grammar checker often misses subject verb agreement errors or identifies a sentence as containing an error when it doesn’t have one.

Grammar checkers are useful for writers who have a knowledge of correct grammar. They can alert the writer to inadvertent mistakes and typos, but ultimately, it’s the writer who makes the final decision whether to accept or reject the suggestion.

The Microsoft Word spellchecker is generally more accurate; however, it may not recognise alternative spellings as illustrated in the poem below.
Candidate for a Pullet Surprise  
by Mark Eckman and Jerrold H. Zar

Published in the Journal of Irreproducible Results, Vol. 45, No. 5/6, 2000, page 20.

I have a spelling checker,  
It came with my PC.  
It plane lee marks four my revue  
Miss steaks aye can knot sea.

Eye ran this poem threw it,  
Your sure reel glad two no.  
Its vary polished in it's weigh.  
My checker tolled me sew.

A checker is a bless sing,  
It freeze yew lodes of thyme.  
It helps me right awl stiles two reed,  
And aides me when eye rime.

Each frays come posed up on my screen  
Eye trussed too bee a joule.  
The checker pours o'er every word  
To cheque sum spelling rule.

Bee fore a veiling checker's  
Hour spelling mite decline,  
And if we're lacks oar have a laps,  
We wood bee maid too wine.

Butt now bee cause my spelling  
Is checked with such grate flare,  
Their are know fault's with in my cite,  
Of nun eye am a wear.

Now spelling does knot phase me,  
It does knot bring a tier.  
My pay purrs awl due glad den  
With wrapped word's fare as hear.

To rite with care is quite a feet  
Of witch won should bee proud,  
And wee mussed dew the best wee can,  
Sew flaw's are knot aloud.

Sow ewe can sea why aye dew prays  
Such soft wear four pea seas,  
And why eye brake in two averse  
Buy righting want too pleas.
Communicating science to the public
When talking about their work, scientists can be easily misunderstood by the public. In an article in *Physics Today*, Richard Somerville and Susan Hassol highlighted the importance of clear communication of science to the public. They listed words which scientists often use when communicating about climate change and highlighted the difference between scientists’ intended meaning and the public understanding of those terms.

<table>
<thead>
<tr>
<th>Scientific term</th>
<th>Public meaning</th>
<th>Better choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>enhance</td>
<td>improve</td>
<td>intensify, increase</td>
</tr>
<tr>
<td>aerosol</td>
<td>spray can</td>
<td>tiny atmospheric particle</td>
</tr>
<tr>
<td>positive trend</td>
<td>good trend</td>
<td>upward trend</td>
</tr>
<tr>
<td>positive feedback</td>
<td>good response, praise</td>
<td>vicious cycle, self-reinforcing</td>
</tr>
<tr>
<td>theory</td>
<td>hunch, speculation</td>
<td>scientific understanding</td>
</tr>
<tr>
<td>uncertainty</td>
<td>ignorance</td>
<td>range</td>
</tr>
<tr>
<td>error</td>
<td>mistake, wrong, incorrect</td>
<td>difference from exact true number</td>
</tr>
<tr>
<td>bias</td>
<td>distortion, political motive</td>
<td>offset from an observation</td>
</tr>
<tr>
<td>sign</td>
<td>indication, astrological sign</td>
<td>plus or minus sign</td>
</tr>
<tr>
<td>values</td>
<td>ethics, monetary value</td>
<td>numbers, quantity</td>
</tr>
<tr>
<td>manipulation</td>
<td>illicit tampering</td>
<td>scientific data processing</td>
</tr>
<tr>
<td>scheme</td>
<td>devious plot</td>
<td>systematic plan</td>
</tr>
<tr>
<td>anomaly</td>
<td>abnormal occurrence</td>
<td>change from long-term value</td>
</tr>
</tbody>
</table>

Academic Integrity: Referencing & Paraphrasing
Introduction
Using references in your writing enables readers to check your ideas or follow up your sources for themselves and also gives due credit to the person/people who produced the original information. Ideas are a kind of ‘intellectual property’, owned by their creators. Therefore, when you use someone else’s idea in your writing, it is important to clearly show the difference between your own ideas and theirs. If you do not make this difference clear, you may be accused of plagiarism. This is a serious academic offence and may result in failing an assignment or even a whole unit. A further reason for using references in your writing is to give your assignment weight and authority and back up your arguments.

When you use information from sources, most of the time you need to put it in your own words (called paraphrasing). The person who marks your writing will want to see evidence that you have understood the concepts you are discussing. Writing something in your own words shows that you have understood what you are writing about. Paraphrasing also helps to give your writing a consistent style as you blend your own sentences with paraphrased information from other sources into your own personal style.

This section aims to show you how to reference correctly and to provide guidance in paraphrasing and avoiding plagiarism. It is specifically targeted at first year students, but you may find it a useful reference for other year levels.

The Academic Integrity Module (AIM) covers why it is important to reference and what plagiarism is. All La Trobe undergraduate and postgraduate coursework students must complete this module in the first semester of their first year, to avoid the consequences of misconduct. You can find this module listed under ‘My Subjects’ in your LMS.
Part A - Referencing

There are two places where references must be included in a piece of writing:

1. **In-text references (citations)** - in the text of your writing
2. **Reference list** - at the end of your writing (before the appendix)

Every source (e.g. text book, journal, electronic source) that you cite in your report (in-text references) must be included in the reference list and every reference included in your reference list must be cited in your report.

It is VERY IMPORTANT to use the correct format for in-text references and reference lists. There are hundreds of different referencing styles. In most first year subjects in the College of Science, Health and Engineering, you are expected to follow the **APA** (American Psychological Association) style of referencing - check your Subject Learning Guide for the style you are expected to use in each of your subjects. You should **always check** the referencing style required for all written work submitted.

For more information on the APA referencing style and other referencing styles used at La Trobe University, check the [Academic Referencing Tool](#).

1. **In-text references**

   Every idea that is not your own (e.g. information from a book or journal article) needs to include an in-text reference (also called a citation) to show where the idea came from. Even if you have put the information in your own words (paraphrased) you must still provide an in-text reference.

**Author or idea focus?**

In-text references can either focus on the *author* or the *idea*, depending on which is the most important. In first year, you will probably focus more on the idea than the author. Author-focused referencing is more commonly used when citing important research or experimental work.
Using et al.
If a piece of work has three, four or five authors, list all authors in the first citation. In subsequent citations, include only the first author followed by the Latin abbreviation et al. (short for et alia, meaning and others). Note, there is always a full stop after ‘al’ and it is not necessary to use italics for ‘et al.’ in APA format.

Example:
Most fungi consist of tubular filaments called hyphae, and a mass of these in one organism is known as a mycelium (Raven, Evert, & Eichorn, 2005). The walls of the hyphae are usually made of a strengthening polymer called chitin (Kimball, 2005) and can grow more than one kilometre in 24 hours (Raven et al., 2005).

If a piece of work has six or more authors, apply the et al. rule for all citations. Write the name of the first author followed by et al. (as above).

If multiple references shorten to the same form, cite the surnames of as many authors required until the references can be distinguished. This may mean citing the first two, or occasionally three, authors followed by et al.

Same idea from more than one source
Sometimes you may find the same idea in two (or more) sources, and are unsure about which source to cite. The simple answer is to cite them both. When doing so, order the citations alphabetically, based on the first author’s surname. Do not change the order of authors within a piece of work. Separate the citations with semicolons.

Example:
In insects, gas exchange occurs by diffusion through a system of tubes called trachea, which are connected to the external environment through holes called spiracles (Knox, Ladiges, & Evans, 1994; Purves et al., 2004).
2. Reference Lists
As well as using in-text citations, you must also include a reference list at the end of your piece of work. A reference list is different from a bibliography, which lists all works read, whether or not they are cited in your work. **A reference list contains only those works that you have cited in your writing.**

In the APA referencing style, references are listed at the end of your piece of writing, in alphabetical order of the first authors’ surnames (A – Z). Do not change the order of authors’ name in a particular source.

The format of the reference list depends on the type of source you are citing. Reference lists should be double-spaced, without a line space between each reference, and with a hanging indent.

It is critical to know how to list the order of details, when to use italics, where to put full stops and commas, capitalisation of words, and parentheses.

**Using DOIs and URLs**
When citing an electronic resource, APA referencing style recommends the inclusion of uniform resource locators (URLs) or digital object identifiers (DOIs). URLs map digital information on the Internet, however they are susceptible to error when a document is moved, reconstructed, or deleted. The DOI system allows consistent identification of sources: Unique DOIs are assigned to particular content, allowing readers direct access to such content regardless of its location on the Internet with a DOI search. DOIs are often located alongside copyright information on the title page of an electronic journal article (top right corner), and look like this: 10.xxxx/xxxx-xxxx.xx.x.xxx. If no DOI can be located, provide a URL with the prefix ‘Retrieved from’. If the document you are citing contains information that is likely to change, include a retrieval date in the following format:

Retrieved Month Date, Year, from http://www.__________

Do not place a full stop at the end of a URL or DOI. This may create confusion for the reader when searching for the information.
Figures (Graphs, Maps, Diagrams, Photos)
For some assignments, it may be acceptable to use figures from other sources. You should check the requirements for specific tasks with your lecturer, tutor or demonstrator.

<table>
<thead>
<tr>
<th>In-text citation</th>
<th>Reference List</th>
</tr>
</thead>
</table>

Chapter in an Edited Book
Some books have different chapters written by different authors plus an editor or editors.

<table>
<thead>
<tr>
<th>In-text citation</th>
<th>Reference List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>One author</strong></td>
<td>Chapter author’s surname</td>
</tr>
<tr>
<td>The author of the chapter is cited</td>
<td>Year of publication</td>
</tr>
<tr>
<td>…(Ryan, 2005).</td>
<td>Title of chapter</td>
</tr>
<tr>
<td>Ryan (2005) contends that…</td>
<td></td>
</tr>
</tbody>
</table>

**Multiple authors**
The same rules as for books (shown above) apply when there are multiple authors for chapters.

<table>
<thead>
<tr>
<th>In-text citation</th>
<th>Reference List</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Title of Editor’s Name(s)</strong></td>
<td>Chapter author’s surname</td>
</tr>
<tr>
<td><strong>Title of book</strong> <em>(in italics)</em></td>
<td>Year of publication</td>
</tr>
<tr>
<td><strong>Chapter pg. numbers</strong></td>
<td>Title of chapter</td>
</tr>
</tbody>
</table>

* When the author and publisher are the same, use the word *Author* as the name of the publisher.
Encyclopaedia Article

<table>
<thead>
<tr>
<th>In-text citation</th>
<th>Reference List</th>
</tr>
</thead>
</table>

Websites

Electronic sources, particularly websites, should be used cautiously. Not all information found on the Internet is reliable. Websites with URLs that end in .com are commercial sites and may not be reliable (they may contain bias or inaccurate information). If you are unable to identify the author (person or organisation) or the date of an Internet source, it is less likely to be reliable, and probably should not be used as a source in your writing.

Wikipedia can be a useful source of background information in the initial stages of researching a topic. However, because the authors of the information are not identified, it is advised NOT to cite Wikipedia in lab reports, assignments, essays etc. If possible, a reference to an Internet source should include:

- The author of the document (often an organisation rather than an individual)
- The year of publication or most recent update
- The title, or a description of the document
- The date the document was viewed if the information is likely to change
- Either the URL (i.e. http//www...) or the DOI (i.e. 10. xxxx/xxxx-xxxx.xx.x.xxx)
Frequently Asked Questions about Referencing

If I write something in my own words, do I need to provide an in-text reference?
Yes, we reference ideas, not just the words used to express them, so you need to show where the original idea came from. Most sentences without a reference are considered to contain your own ideas, so you must make it clear whether your sentences contain ideas that are your own or someone else’s.

Does that mean I need to provide a reference for nearly every sentence?
Yes, in first year it is likely that you will not have a great deal of your own knowledge of the subject matter, so most of the information you use in your writing will come from other sources and thus will need a reference. Sometimes, if it is clear that two or three sentences come from the same source, it is only necessary to reference one of the sentences.

When can I ‘own’ an idea and so do not have to provide a reference for it?
There is not always a clear dividing line between what constitutes your own knowledge and what is knowledge from others and hence needs to be referenced. It can sometimes be difficult to decide whether you need to put a reference or not. As you progress through your studies your own knowledge base will increase and you will be able to express much more information without needing to look it up in a reference. In first year, there is very little information that you ‘own’, so it is usual for first year pieces of writing to contain many more references than a postgraduate piece of writing.

Can I summarise from one source into a paragraph and just put the reference at the end?
No, if you do this, you may be accused of plagiarism. Any sentence which cannot clearly be attributed to another author is considered to be your own. A person reading your work would have no way of telling which sentences in the paragraph were your own and which came from another source. It is also poor writing style to take large slabs of information from a single source. It is better to synthesise information from several sources.

Can I reference lecture notes?
It is not good practice to cite your lecture notes. It is better to find the same information in a text book.
Part B - Paraphrasing

How to paraphrase
Many students find paraphrasing difficult. In order to paraphrase well, you must first understand what you are reading. Poor paraphrasing is often the result of poor understanding of the text. Some students try to paraphrase at the sentence level rather than the ideas level. Changing a few words and shifting parts of the sentence around does not result in a good paraphrase. A better way to paraphrase is to read a section of the text, write down a few key words that summarise the main idea(s) and then build up a sentence in your own words without looking back at the original sentence(s).

Example 1
Original text:
“There are some orchids whose flowers mimic the shape and colouring of female insects. The mimics are so realistic that male insects will attempt to copulate with the flower, thereby pollinating them” (Knox et al., 1994, p. 827).

Paraphrase:
Male insects sometimes attempt to mate with orchids that have flowers which appear like female insects. In this way, the male insect inadvertently pollinates the flower (Knox et al., 1994).

Example 2
Original text:
“Some dinoflagellates reproduce in enormous numbers in warm and somewhat stagnant waters. The result can be a ‘red tide’, so called because of the reddish colour of the sea that results from the pigments of the dinoflagellates” (Purves et al., 2004, p. 552).

Paraphrase:
Because of their red coloured pigments, some dinoflagellates can cause a ‘red tide’ when they reproduce in great numbers in warm, still seas (Purves et al., 2004).
Paraphrasing & Summarising
Sometimes, only some of the information you read is relevant to what you are writing about. If so, it is possible to select the parts of the text that are relevant. Look at the following example from Raven, Evert, and Eichhorn (2005):

Example
Original text:
“It is the mesophyll – the ground tissue of the leaf – with its large volume of intercellular spaces and numerous chloroplasts, that is particularly specialised for photosynthesis. The intercellular spaces are connected with the outer atmosphere through the stomata, which facilitate rapid gas exchange, an important factor in photosynthetic efficiency” (Raven, Evert, & Eichhorn, 2005, p. 564).

Paraphrase:
Gases are exchanged between the external environment and the intercellular spaces in the mesophyll of the leaf via the stomata (Raven, Evert, & Eichhorn, 2005).

Paraphrase or quote?
If you want to use the exact words of the original, then use a direct quote. To show that it’s a direct quote, use quotation marks to enclose the quoted text and include the page number.

Quotations are generally used less frequently in the sciences than in the humanities because the ideas expressed are normally more important than the words used to express them. You must have a good reason to use a quote. Being unable to write a better sentence than the original is not a good reason. Your lecturers are more interested in your understanding rather than your ability to locate the perfect quotation, so it is much better to put the information into your own words and then reference it.

Sometimes, however, the exact words may be important, as in the following example from Charles Darwin’s Origin of Species.

Example
“I have called this principle, by which each slight variation, if useful, is preserved, by the term of Natural Selection” (Darwin, 1859, p. 61).
Part C – Academic Integrity

If you do not reference or paraphrase correctly, you may be accused of academic misconduct. Misconduct can take many forms (including plagiarism). The University’s Academic Integrity policy clearly outlines students’ responsibilities.

Students will:

a. not submit their own academic work for assessment if it has already been submitted for assessment at another time (including at another institution), without the express permission of the academic staff member who will assess the work;
b. never purchase or commission work and submit this as if it were their own work;
c. ensure that they do not knowingly or carelessly make their work available to other students in any form;
d. comply with exam conditions, for example, not bring unauthorised materials into the exam;
e. observe and apply the University’s academic integrity values, ethical standards, and practices of honestly conducted scholarship;
f. consult and use the University's guides & information to avoid plagiarism & academic misconduct;
g. consult with staff when in doubt about any matter where plagiarism or other academic misconduct may be involved;
h. attend individual meetings or group instruction sessions when they are counselled to do so by their teachers, subject coordinators or an AIA;
i. declare all printed, electronic, graphical, artistic work, and other kinds of sources from which they obtained material or ideas used in work submitted for assessment;
j. acknowledge sources in the ways approved and expected by the discipline and school in which the assignment is set;
k. produce assignments independently, except when they are asked to participate in a group project requiring a joint group response to a task;
l. ensure that when doing group work, the scholarship of the group’s submissions has been honestly conducted and properly referenced;
m. read and comply with the Statement of Student Responsibility shown on the University's website;
n. use text-matching software appropriately, including as a learning tool to check for potential text matches before submitting work for assessment;
o. retain copies of submitted (written) assignments for a minimum of one year;
p. use the Assignment Declaration Form available on the Academic Integrity website if asked to submit hard copies of work for assessment.

Before you submit your first piece of written work

1. Read the information about academic integrity on the Achieve@Uni website
2. Complete the Academic Integrity Module (AIM) via your LMS
Chapter Five

Maths and Stats Support
Maths Hub and Maths Skills Program

Mathematics underpins all the Sciences including Health, so a good grounding of basic mathematical skills is essential for success. If you:

- lack confidence with mathematics
- haven’t studied mathematics for a while
- have problems with some mathematics topics
- feel intimidated or overwhelmed by mathematics,

the Maths Hub provides mathematics and statistics support for all disciplines including: Chemistry, Physics, Biology, Engineering, Nursing, Exercise and Sports Biomechanics, Biochemistry, Biotechnology etc.

The Maths Hub is part of the University’s Learning Hub, which is located on every campus. For more information, about Learning Hub times on each campus and Learning Hub materials, please check details when you self-enrol into the LEARNING HUB LMS site.

The Maths Skills Program is a 5-week voluntary course which runs from Week 4 to Week 8 inclusive of a semester and is extended beyond that for those who need extra help until the end of that semester. The program provides:

- 24/7 access to an online program called MyMathTest
- worksheets with guidance, notes, worked examples and exercises

In certain disciplines, there are specific Maths Skills Programs:

- Maths Skills for Biology
- Maths Skills for Chemistry
- Maths Skills for Nursing
- Maths Skills for Pharmacy
- Maths Skills for Physics
- Maths Skills for Statistics
- Maths Skills Extensions

For more information on the Maths Skills Program at your campus, contact: Maths Skills Program Coordinator – Deborah Jackson: D.Jackson@latrobe.edu.au 03 9479 1006
Chapter Six

Working in a Team
Teamwork – an important Graduate Capability

Throughout your degree, you will work in a team environment. Teamwork is an employability skill that universities are committed to developing in their students. However, university study is an individual pursuit, with student choosing subjects that interest them. Students earn marks that reflect their individual abilities and efforts. Paradoxically, universities must train students in teamwork. This is because success in most workplaces is collective, rather than individual. Your employer values your contribution not for what it shows about you, but for what it does for the organisation.

At university, you can’t always choose your teammates and working in a team can be a difficult and stressful experience. Sometimes, students feel that working in a team slows them down or reduces their marks; perhaps it is difficult to get people together for meetings or to adhere to agreed timelines. Students sometimes feel that it would be easier to work alone. Yet, later, when students are applying for jobs, if they have always worked alone, they find that they have no way to demonstrate their capacity to work in a team. University offers you this opportunity in a safe, learning environment – much better to learn it here than at work when your employment and promotion are at stake.

We can greatly improve our effectiveness and success in teams if we have teamwork skills and an understanding of theory that underpins teamwork capability. In any team it is likely that there will be a range of personality types – some like to be highly organised, others like to push close to a deadline and thrive on stress or ambiguity. All types are useful. Valuing diversity is the key to effective teamwork, though it sometimes challenges us.

Teamwork is used to produce more or better work than individuals could achieve by working on their own. Students learn by discussing ideas with team members and sharing the work. Teams often divide the work into sub-tasks and distribute these among the members according to their interests and expertise. Thus, a group can achieve work for which no single member has the necessary time or skills. To get the most out of teamwork it is essential to collaborate on activities and be prepared to work in a team that has a diverse membership – to work and listen to others, respecting all contributions.
So, how can you make this work? Typically, teamwork has 3 steps:

1. Forming the team and planning the activity/task
2. Working on the task collaboratively and monitoring progress
3. Putting together the group output and reflecting on the team process
1. Team formation and planning the task

Team members meet and:

- get to know one another
- discuss and understand the assessment task (remembering to check the rubric to ensure that you’re aligning your work to marker’s expectations),
- identify subtasks,
- agree on goals (personal and team)
- establish ways of working together (rules/norms)
- plan the project with sequenced deadlines
- set times to exchange information
- help each other and monitor progress, and
- decide how to manage conflict if it arises.

A documented Team Agreement can be helpful at this stage.

Successful teams have members take on designated roles. For example, if you are in a group that is undertaking a project to find an appropriate method for a practical experiment, the following roles might be appropriate:

**Chair**: the person responsible for the meeting, decisions being made, everyone being heard and assigning a task

**Liaison**: the person who liaises between team members and ensures that members understand tasks. If someone does not attend a meeting this person would follow up to find out if they are OK.

**Organiser**: the person responsible for bringing the assessment and marking rubric to the meeting; collecting contact details from each team member, making sure timelines are met, ensuring everyone knows where to get resources

**Scribe**: person who records what is decided at the meeting, documents an action plan with the team members and emails it to everyone in the team
If your team’s task is to gather data in the field about insect behaviour, the likely roles would be:

**Observer**: the person who observes the insect behaviour;

**Record keeper**: the person who records what the observer sees;

**Equipment monitor**: the person who ensures that the equipment is on hand and ready for use;

**Safety monitor**: the person who monitors safety, calls in to base regularly and acts in an emergency.

In addition to formal roles such as observer or scribe, team members can sometimes take less formal roles that influence the dynamics of the group such 'compromiser', 'joker' or 'encourager'. See links at the end of this chapter to learn more about this.

Team members may decide to swap roles or to keep the same role for the duration of the project. It is a good idea to challenge yourself to take on different roles so that you develop your teamwork capabilities. Asking your team for feedback on your role performance, so that you can adjust your behaviour is an excellent strategy.

### 2. Monitoring progress of the task

Scheduling regular team meetings to update each other on progress, difficulties or changes should be agreed to, early in the process. Usually the first few meetings are face-to-face so that people can get to know each other, but after that some students like to meet online (Be aware that anything, including your assignments, which you share on social network sites, such as Facebook becomes the property of the site).

During a meeting, it is essential to have a written record of decisions, sent to all team members. This ensures that everyone is clear about their responsibilities and can be helpful if misunderstandings arise. You can find good [examples of an agenda and minutes](#) at the Learnhigher website.
A simple format for recording a meeting could look like the following:

<table>
<thead>
<tr>
<th>Due Date</th>
<th>Action</th>
<th>Whose Responsibility</th>
<th>Done</th>
<th>Follow up</th>
</tr>
</thead>
</table>

When team work goes well, it is often because everyone knows what needs to be done, and what they are responsible for. You may want to consider:

- What skills/knowledge each member brings to the task
- What skills/knowledge each would like to develop
- What constraints each member has (time; distance from uni; cultural constraints on certain activities; language; disability). Nobody should do less because of a particular constraint; but you should find ways of enabling each member to do the best they can.
- What could be usefully done in pairs (someone with expertise in some aspect of the task partnered with somebody inexperienced, so skills are shared)
- Fairness. Some sub-tasks need to be done earlier in the process, some later. Some are bigger than others.
Dealing with Possible Problems in a Team

Conflict is often associated with teamwork. Having an open, friendly, supportive approach is a good way to minimise potential conflict. Conflict is normal and can be healthy as long as team members remember the golden rule – *show respect and consideration to others.*

The table below itemises some common types of problems and likely solutions.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communications within the team</td>
<td>At the first meeting make a contact list for all members to record who has to communicate what, with whom, by when, etc. Email this to all members of the team after each meeting. If a team member goes silent, contact them to see if they are OK and offer support, if possible.</td>
</tr>
<tr>
<td>Keeping to the timetable you’ve planned</td>
<td>Make a realistic plan for the team to follow; if a team member is having difficulty, find out why and suggest how the rest of the team can help. The team may need to adjust the plan but make sure the person who falls behind contributes fairly in return. Keep a written record of this process – it is useful for team skill development.</td>
</tr>
<tr>
<td>Differences in personal styles</td>
<td>Focus on people’s strengths; find out how they would like to contribute. Remember cultural differences – in some cultures, it is not acceptable to be critical or outspoken. If English is a second language for some team members, they may need a little more time to formulate what they want to say; make space for them to contribute.</td>
</tr>
<tr>
<td>Dominant team members</td>
<td>Have a Chair who ensures everyone has equal time; swap roles within the team – perhaps the dominant person can take on the role of scribe for a while.</td>
</tr>
<tr>
<td>A quiet team member</td>
<td>Set an expectation that everyone speaks at a meeting and all contributions are heard and respected. You might approach the person outside the meeting for an informal chat. If they know that someone else on the team thinks their ideas are sound, they are likely to feel confident to contribute to the group. Some people need to be invited to speak until they are comfortable in the team.</td>
</tr>
<tr>
<td>A lazy team member</td>
<td>Offer team support – there’s always a reason for not contributing. Is there something that the team can help with so that the person can contribute? Give them clear time lines that are fairly short; this might mean that their task is broken up into small stages. Acknowledge work done well; it builds confidence. Document the process.</td>
</tr>
<tr>
<td>Problem</td>
<td>Solution</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Team member lacking skills</td>
<td>Find out if there is something else they can do and offer them the opportunity to work with another team member to learn the new skill.</td>
</tr>
<tr>
<td>Technology</td>
<td>Troubleshoot within the group – it is likely someone else knows the solution. Keep duplicate files – never rely on a memory stick.</td>
</tr>
<tr>
<td>Conflict within the team</td>
<td>Expect conflict; it is a normal stage in team development. Recognise it is occurring and talk about it openly and respectfully in the team.</td>
</tr>
</tbody>
</table>

Seek to understand the other party. Most people in a team start-off wanting to do their best. If you notice behaviour that is having a negative effect on some members of the group you may need to shine a light on it - not to blame, but to start a conversation and be an impetus for positive change. Focus on achieving the team goals and be prepared to compromise.

You may feel in conflict with someone because they have a different style from you. In this case, a wise saying is “Neither better nor worse, only different.” Remember that difference is valuable in a team.

Early in the stage of team development discuss the issue of conflict and make a plan of how the team will deal with it when it arises. If your team plan is not enough to manage the conflict, the team may need help to resolve serious conflict. You could bring in a third party such as a counsellor or your demonstrator.

3. **Group Output and Reflection on team process**

Whatever your task, you will need to bring together the components at the conclusion, so you can present what you have done, for evaluation. There are many ways to do this, depending on; the tasks, how you shared them and what skills your members brought to the work. You will need to decide whether to:

- prepare contributions individually, then collaborate as a group to decide how these are to be combined and presented, so that the output is jointly constructed.
- work together and draft a joint output.

Students also say that a coordinated team effort produces a more cohesive output than a disjointed compilation of individual efforts – the chop and glue approach.
However the work is put together, it is essential that each team member ensures their tasks are completed and proofread before being submitted. If you are making an oral group presentation, ensure you practise together using your visual aids – at least one full rehearsal is essential. You are going to share the mark, so you want to share the responsibility.

Remember along the way to celebrate achievements, small and large. A bit of positive feedback lifts the team spirit. You will need to give fair feedback to team members on their work and to accept reasonable feedback on your work. Use this feedback to reflect on your team skills to add to your personal growth. This reflection will be helpful when you are applying for jobs and you need to articulate your skills.

Sometimes reflection is a component of your assessment. If so, the purpose is to think about what you have learned about working in a group.

- What went well, and why? What didn’t go well, and why not?
- What could you have done differently for a better result?
- Based on this experience, what would you do differently when next asked to work in a group?
- What models, theories or ideas about teamwork have you read about and used to inform your teamwork?

Your reflections will also help your tutor or demonstrator to monitor the success of each groups’ learning, and can explain any problems that may need to be taken into account in assessing the work submitted by the group.
Useful links

- Learnhigher
- Achieve@Uni Managing teamwork
- De Bono Ways of thinking
- Tuckman Model of team development
- Belbin Team Role Theory
- Lazear group Self-analysis on team skills
- Myers-Briggs Personality types
- Achieve@Uni Group presentation skills
- Foundation Coalition funded by National Science Foundation, USA - Decision making in a team
- Oregon State University Group think
- Carleton College
- Assignment Calculator
Chapter Seven

Succeeding in Assessment Tasks

Assessment at University
Laboratory Reports
Technical Reports
Essays
Oral presentations
Assessment at University

The Assessment section of your Subject Learning Guide will usually list the details on what assessments you have, when they are due and how much they are worth.

Mark the deadlines of all your assessments in your calendar and wall planner

Unpacking your assessments

Make sure you read the instructions carefully and you are aware of the requirements. You need to consider:

- What percentage of my overall grade is the assignment worth?
- What is the word count?
- Is there a minimum number of references to be cited and what referencing style is required?
- Is there a template outlining the format and structure to be used? Are all elements or criteria equally assessed?

How rubrics can help you get a better grade

Many assessment tasks will have a rubric which defines what is expected and what will be assessed. A rubric contains:

- the criteria (elements of the task) required
- the descriptors of these elements for each level of performance
- a rating scale (level of performance)
- the weighting of each criteria (sometimes criteria are weighted differently)

Use the rubric to do your best

- Read the rubric/criteria carefully
- Ask your lecturers or tutors anything you don’t understand
- Refer to the rubric as you do your assessment to ensure you stay on track and include everything required
- Before you hand in your assessment, check your work against the rubric (if you have time, make changes)
Part A - Laboratory Reports

Before going into detail about how to write a good laboratory report, it is a good idea to think about why you are writing such a report in the first place. To get a mark that contributes to your overall grade for the subject is only one reason for writing a lab report.

When you write lab reports, you are developing skills as a trainee scientist. Firstly, you are learning to relate experimental work with theory. This is an important part of what scientists do.

Secondly, when you write a lab report, you are practising what scientists do – communicating their research (often results of experiments) to others.

Scientific knowledge grows when scientists conduct research and communicate their findings to others who may then build on this information to find out more answers to problems or questions. Scientists write papers and have them published in academic journals (see Chapter 3) or deliver their papers to other scientists at conferences.

Even if you don’t end up working as a scientist, writing a laboratory report helps you to develop graduate capabilities. In addition to gaining knowledge and developing skills in a particular discipline of study, it is expected that you will leave university with a range of skills that will be useful to you in many future situations.

Some of the graduate capabilities you can develop by writing a lab report include inquiry research skills (locating suitable sources of information), critical thinking and problem-solving skills, quantitative literacy skills and the ability to communicate clearly and effectively in writing.
Guidelines for biology, physics, (some) chemistry, pharmacy and agricultural science laboratory reports

N.B. These are general guidelines only. It is VERY IMPORTANT that you check specific requirements in each of your subjects. This information will be in your subject guides or on LMS. If you are not sure, check with your tutor, demonstrator, prac/lab coordinator or subject coordinator.

Format
- Double space your report (except reference list & appendix)
- Make headings centred and in bold UPPER CASE
- Number all pages
- Use 12 point Times New Roman
- Write paragraphs - do not use dot points

The sample lab report (p. 102) will give you an idea of formatting requirements.

Style
See Chapter 3 for guidelines about how to write your report in a scientific writing style.

Binomial Names
When writing reports involving living things, the full scientific name of each species is given on first mentions in the text and on first mention in each report section in longer reports. Thereafter, the generic name may be abbreviated to its initial letter (except when starting a sentence where the full form is needed). For example, *Bufo marinus* becomes *B. marinus*. However, if two species with different names start with the same letter then this does not happen.

Calculations
Include units for all relevant calculations e.g. \(1\text{mA} \times 1\text{K}\Omega = 1\text{V}\)

Numbered answers need to be rounded to 2 or 3 decimal places. However, you need to check how many decimal places are required for the data you present in your report. E.g.
\(\pi \times 2 = 6.283185307 \rightarrow =6.283\)
Word Limit
Word limits may vary so check with your tutor, demonstrator, prac/lab coordinator or subject coordinator for each report.

A scientific report usually consists of the following sections:

Title, abstract, introduction, materials and methods, results, discussion, acknowledgements, references, appendices

Title
Write a short title (in bold UPPER CASE) that specifies the nature of the project. A report title should be concise (key words only) and informative and should include the Latin species name (in italics) and/or higher taxonomic category if appropriate.

Your Name:
Practical Group:
Demonstrator:

Abstract
This is a short summary of the report which includes a general statement describing the overall aim of the investigation, alternate hypothesis(es) to be tested (if required), and a concise summary of the major findings. If a hypothesis is required, include whether the hypothesis was supported or rejected.

Marks awarded for a concise and correct summary of the investigation with overall aim and findings spelt out clearly.

Introduction
This section introduces the specific problem addressed in the investigation, providing the context in which it fits. It is a step-by-step, logical argument to arrive at a reason for your investigation. It starts with general information and becomes more specific. The introduction begins with background to theory and current knowledge of the topic or problem under investigation. How much
introduction is required will vary, depending on word limits. The introduction integrates ideas from different sources and explains why it is important to investigate (i.e. its significance). Information about specimens under study may also be included. The introduction finishes with a clear statement of the aim(s) and (if required) hypothesis(es).

You must use references to provide information in your introduction. You MUST include in-text references for all information and ideas that you have cited from other sources, and list these in the reference list at the end of your report (see Chapter 4 for referencing guidelines).

**Marks awarded** for inclusion of the above points, in a coherent and cohesive (i.e. well-linked) piece of writing which includes a variety of relevant references.

**Materials and Methods**
This section describes the procedures and materials used in the experiment. It should be written so that a peer could read it and reproduce what you did. It can include details about experimental procedures, apparatus, study sites, data collection, reagents used, analytical procedures and statistical techniques (if relevant). Combine the materials and methods; do not write them separately. This section should be written in the past tense, following a scientific style using appropriate scientific terminology and well-structured sentences (rather than lists or dot points).

**Marks awarded** for a concise, accurate and logically ordered description that could be followed by a peer.

**Results**
This section contains a clear and accurate presentation of your data in both written and graphical/tabular form. You should provide a written description of your results before presenting your results quantitatively in tables or figures (graphs, charts, diagrams). You must also report the results of any statistical tests used to analyse your data.
The results section contains:

**Descriptive text.** This should go above the relevant figure or table (e.g. Looking at Figure 2 below) and should describe trends or significant features in your data using appropriate scientific terminology (e.g. “the majority of seeds germinated within ten days of planting” or “the temperature rose steadily for the first 10 minutes and then remained constant.”) You must not discuss the data, i.e. do not give reasons for your results. This comes in the discussion section.

**Reporting results of statistical tests.** If you used statistical tests to analyse your data, report on the type of test used, its calculated statistic, the degrees of freedom and the probability value. Often this is placed in the parentheses after a statement on the significance of a particular result.

**Examples:**

1. **Basic statement (bare minimum):** Abundance of the sea star *Patiriella exigua* differed significantly between sites (t-test, t=0.165, d.f.=19, p<0.05).
2. **Basic statement plus biological meaning of statistical result (good response):** Abundance of the sea star *Patiriella exigua* differed significantly between sites (t-test, t=0.165, d.f.=19, p<0.05). Abundance of sea stars was greater at Altona than Queenscliff (Figure 1).
3. **Most concise (best response):** Abundance of the sea star *Patiriella exigua* was significantly greater at Altona than Queenscliff (t-test, t=0.165, d.f.=19, p<0.05) (Figure 1).

**Tables and/or figures.** Do not display the same data in both a table and a figure. Label each figure and/or table with a caption which tells the reader what is being shown. By convention, table captions go above the table and figure captions go below the figure. Captions do not need to be double line spaced. Include units where appropriate.
Example:
Table 1. Mean (+ standard deviation) contraction rate of the dorsal blood vessel of the earthworm *Lumbricus* sp. at different temperatures.

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Mean contraction rate (min⁻¹)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>1.6 ± 1.5</td>
</tr>
<tr>
<td>20</td>
<td>10.9 ± 3.1</td>
</tr>
</tbody>
</table>

*Marks awarded* for a clear and correct display of results incorporating the above features as appropriate.

Discussion
The structure of the discussion is the reverse of the introduction. It starts with specific information about your results and then becomes more general. It usually has four main components.

1. An accurate statement of your main findings (without repeating a detailed presentation of results) including whether or not your hypothesis(es) was/were supported (if relevant). You may give an indication of which data tells you this.
2. An explanation of what your results mean and a comparison with other published sources of information (i.e. books, journal articles etc.)
3. Any methodological issues that may have influenced your results and suggestions for improvement
4. What can or should be done next to further our understanding of the problem. For example, “Future studies could investigate…”

Your discussion should be clearly and concisely written with logical flow of the ideas presented. In the discussion, explain what your results mean by analysing them and assessing their significance.

*Marks awarded* for a clear, correct, in-depth analysis of your results, with statements supported by references or logical reasoning.
Acknowledgements
It is important to acknowledge the assistance of others when writing a laboratory report. People to thank in the acknowledgements may include members of your team or group, people who provided specimens, anyone who proofread your work, or anyone who gave feedback or critical comments.

References
This section lists the collection of journal articles, books, web pages, lab manuals and handbooks that you have cited in your report (in alphabetical order of the authors' surnames). The types of references permitted for each report may differ between subjects so check your lab manual or with your tutor, demonstrator, prac/lab coordinator or subject coordinator.

See Chapter 4 for further information on referencing, or use the Referencing tool on the Libraries Website:


Marks awarded for a reference list which accurately follows the required APA format and includes all necessary details.

Appendix
Any data that is too bulky to include in the results section should go in an appendix(ies). You may need to check with your demonstrator about which data needs to go in an appendix. Details of statistical calculations (if relevant) should also go in the relevant appendix. Statistical analyses may include null hypothesis (H₀), alternative hypothesis (Hₐ), calculations and conclusion with respect to the null/alternative hypotheses (was the alternative hypothesis supported?). There is no need to double space an appendix. Each appendix is numbered using Roman numerals (I, II, III and so on) and must be referred to in the appropriate place in the Results section.
Sample first year biology laboratory report
The following is an example of a high-quality first year biology laboratory report, although there is still room for improvement. Your reports may involve analysis of more data than in this report and require a different type of data presentation.

Read the report and take note of the following features:
- Clearly expressed ideas with few, if any, grammatical or typographical errors.
- Use of citations (in-text references) and the format of the reference list
- Appropriate information/content presented in each section
- How results are first presented to the reader with text, including results of statistical analysis
- Format of the report including line spacing, font, capitalization, headings and general layout
- The content and format of figures


Joanne Jones
Practical Group: Wednesday AM
Demonstrator: Ricardo Zamarillo

ABSTRACT
This laboratory study investigated the effect of temperature on the contraction rate of the dorsal blood vessel in the earthworm Lumbricus sp. It was hypothesized that the contraction rate would be different at 20°C and 5°C. Results showed that the contraction rate of the dorsal blood vessel was significantly faster at 20°C than at 5°C. These results supported the hypothesis.
INTRODUCTION

The common earthworm (*Lumbricus terrestris*) is a terrestrial annelid of the class Oligochaeta (Baker & Garland, 1982). Earthworms have no specialized respiratory structures and gas exchange occurs by simple diffusion through a liquid film on the surface of the body, which must be kept moist (Curtis & Barnes, 1989). The earthworm has a closed circulatory system, of which the dorsal blood vessel is the principal pumping organ (Hickman et al., 2008). The blood is transported in this vessel by peristaltic waves of contraction and carries food, wastes and respiratory gases (Hickman et al., 2008). A closed circulatory system has an advantage over open systems as it can support a faster metabolic rate (Purves, Sadava, Orians, & Heller, 2004).

Earthworms, along with most invertebrates, are ectotherms (Knox, Ladiges, Evans, & Saint, 2005). The body temperature of ectothermic animals is determined by the environment (Hickman et al., 2008) and cannot be regulated except by behavioural mechanisms (Purves et al., 2004). As the body temperature increases, the rate of metabolism also increases so that more energy is available for activities such as movement (Hickman et al., 2008). The aim of this study was to observe and record the contraction rate of the dorsal blood vessel in earthworms at varying temperatures. It was hypothesized that the contraction rate would be different at 20°C and 5°C.

MATERIALS AND METHODS

A live earthworm (*Lumbricus* sp.) was placed between two glass plates, using blotting paper to hold the worm firmly, and rubber bands to secure the glass. A dish of water was prepared, and once the temperature of the water had been stabilized at 20°C, the worm was submerged and viewed through a stereo microscope. The contractions of the dorsal blood vessel were counted over a five minute period and recorded as contractions per minute. Ice was added to the water to reduce the temperature to 5°C, and 10 minutes were allowed to pass for stabilization before the contraction rate was recorded again.
The water was agitated at intervals of five minutes to allow sufficient aeration to prevent low oxygen concentration in the water. This whole procedure was repeated so that a total of 3 individuals were studied at both 5°C and 20°C. The contraction rate at 5°C and 20°C was compared statistically using a t-test (see Appendix 1 for calculations).

RESULTS

Contraction rate of the dorsal blood vessel was significantly faster at 20°C than at 5°C (t-test, t=6.440, d.f.=5, p<0.001) (Figure 1).

![Figure 1. Mean contraction rate of the dorsal blood vessel of the earthworm Lumbricus sp. at different temperatures. Error bars represent standard deviation.](image)

DISCUSSION

As the body temperature of the earthworm increased, the rate of contraction of the dorsal blood vessel also increased, thereby supporting the hypothesis that the contraction rate would be different at 20°C and 5°C. These results provide evidence that earthworms are ectothermic because the body temperature changed as the temperature of the surrounding environment changed.
An increase in body temperature results in an increase in metabolic rate (Knox et al., 2005). A higher metabolic rate increases activity levels of the animal and the rate of processes such as digestion (Knox et al., 2005). Earthworms construct burrows by forcing their anterior end through spaces and ingesting the soil (Barnes, 1987). The soil is digested and waste is defecated into the burrow where it is plastered onto the burrow wall with mucus (Barnes, 1987). A warmer worm would move faster, burrow more quickly and digest its food more quickly.

Ectothermic animals cannot control their body temperature physiologically but they can modify their behaviour to regulate their body temperature (Hickman et al., 2008). The earthworm body is surrounded by a waxy cuticle which needs to stay moist (Hickman et al., 2008) to reduce the risk of the earthworm drying out. Consequently, the earthworms prefer damp conditions and they live in burrows in moist soil (Hickman et al., 2008). They only leave their burrows at night when conditions are cooler and damper (Hickman et al., 2008). Because of these behavioural strategies to avoid extreme heat, the earthworm is able to live and function at a body temperature which suits its needs.

This study could be improved by increasing the sample size of earthworms measured. Some earthworms did not appear to be functioning normally during the experiment, suggesting that they may have been affected by the experimental procedure. A greater sample size would allow removal of the abnormal replicates.

ACKNOWLEDGEMENTS

Many thanks to my laboratory partner Susan Shaw who assisted with running this experiment. Thanks also to Ben Thompson for the helpful comments on a draft of this report.

REFERENCES


Appendix 1. Calculation of a t-test to compare contraction rate at 5°C and 20°C.

Null hypothesis (H₀)
There will be no difference in contraction rate of the dorsal blood vessel when the earthworm was exposed to temperatures of 5°C and 20°C.

Alternative hypothesis (H₁)
The contraction rate of the dorsal blood vessel will differ when the earthworm is exposed to temperatures of 5°C and 20°C.

<table>
<thead>
<tr>
<th>Temperature</th>
<th>Mean</th>
<th>n</th>
<th>d.f.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5°C</td>
<td>1.48</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>20°C</td>
<td>10.93</td>
<td>6</td>
<td>5</td>
</tr>
</tbody>
</table>

Calculation of SS

<table>
<thead>
<tr>
<th>Contraction rate @ 5°C (Xᵢ)</th>
<th>Xᵢ - mean</th>
<th>(Xᵢ - mean)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.2</td>
<td>-1.28</td>
<td>1.64</td>
</tr>
<tr>
<td>0.4</td>
<td>-1.08</td>
<td>1.17</td>
</tr>
<tr>
<td>2</td>
<td>0.52</td>
<td>0.27</td>
</tr>
<tr>
<td>3.3</td>
<td>1.82</td>
<td>3.31</td>
</tr>
<tr>
<td>1</td>
<td>0.34</td>
<td>0.12</td>
</tr>
<tr>
<td>2</td>
<td>0.52</td>
<td>0.27</td>
</tr>
</tbody>
</table>

**TOTAL 6.77 = SS₁

<table>
<thead>
<tr>
<th>Contraction rate @ 20°C (Xᵢ)</th>
<th>Xᵢ - mean</th>
<th>(Xᵢ - mean)²</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.6</td>
<td>-2.33</td>
<td>5.43</td>
</tr>
<tr>
<td>15</td>
<td>4.07</td>
<td>16.56</td>
</tr>
<tr>
<td>8</td>
<td>-2.93</td>
<td>8.58</td>
</tr>
<tr>
<td>12</td>
<td>1.07</td>
<td>1.14</td>
</tr>
<tr>
<td>14</td>
<td>3.07</td>
<td>9.42</td>
</tr>
<tr>
<td>8</td>
<td>-2.93</td>
<td>8.58</td>
</tr>
</tbody>
</table>

**TOTAL 49.70 = SS₂

Calculation of pooled variance ˢᵖ

\[
S_p^2 = \frac{SS₁ + SS₂}{df₁ + df₂} = \frac{6.77 + 49.70}{5 + 5} = \frac{56.47}{10} = 5.647_{\text{min.}}^{-1}
\]

Calculation of t

\[
t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{S_p^2}{n₁} + \frac{S_p^2}{n₂}}}
\]

\[
t = \frac{1.48 - 10.73}{\sqrt{\frac{5.65}{6} + \frac{5.65}{6}}} = -6.9
\]

Critical t value: \( t_{(0.05; 10)} = 2.228 \). Calculated t value (6.9) is > critical t value (2.228) so \( P < 0.05 \).

Therefore, the null hypothesis (that there would be no difference in contraction rate when the earthworm was exposed to temperatures of 5°C and 20°C) was rejected.

The alternative hypothesis that the contraction rate of the dorsal blood vessel will differ when the earthworm is exposed to temperatures of 5°C and 20°C was supported.
**PRE-SUBMISSION REPORT CHECKLIST - The more you tick, the higher your mark!**

<table>
<thead>
<tr>
<th>REPORT SECTION</th>
<th>CRITERIA</th>
<th>Done</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH EXPRESSION</td>
<td>My ideas are expressed clearly and concisely, and I have checked for grammar and spelling errors.</td>
<td></td>
</tr>
<tr>
<td>TITLE</td>
<td>The title of my report is concise and informative.</td>
<td></td>
</tr>
<tr>
<td>ABSTRACT (if required)</td>
<td>My abstract clearly states the aim, hypothesis/es (if needed) and summarises findings.</td>
<td></td>
</tr>
<tr>
<td>INTRODUCTION</td>
<td>My introduction identifies and uses relevant information to provide a context for the investigation. I have stated the aims and hypothesis/es (if needed) of the study.</td>
<td></td>
</tr>
<tr>
<td>MATERIALS &amp; METHODS</td>
<td>I have described the procedures, materials and statistical analysis used in the investigation concisely and logically.</td>
<td></td>
</tr>
<tr>
<td>RESULTS</td>
<td>My results section has a written description which describes patterns and trends in the data includes (if appropriate) a statement of the results of statistical analysis (i.e. are differences/relationships significant).</td>
<td></td>
</tr>
<tr>
<td></td>
<td>I have presented my data in a figure(s) (with a caption below) and/or table(s) (with a caption above). Any figures that are graphs have labeled axes with relevant units included.</td>
<td></td>
</tr>
<tr>
<td>DISCUSSION</td>
<td>I have stated my main findings concisely and compared my results with results of similar studies (if appropriate). I have then explained what my results mean, using information from books or journals. I have drawn valid conclusions from my data. I have discussed possible weaknesses and suggested possibilities for future study on this topic.</td>
<td></td>
</tr>
<tr>
<td>REFERENCES</td>
<td>I have adequately and correctly cited both in-text and in my reference list using appropriate style.</td>
<td></td>
</tr>
<tr>
<td>FORMAT</td>
<td>My report includes all necessary sections, including acknowledgments and is the correct length. My heading styles are correct and I have double spaced my report.</td>
<td></td>
</tr>
</tbody>
</table>
Part C - Guidelines for psychology laboratory reports

N.B. These are general guidelines only. It is VERY IMPORTANT that you check specific requirements in each of your subjects. This information will be in your subject learning guides or on LMS. If you are not sure, check with your tutor, demonstrator or lecturer.

Like any writing in science, writing in psychology needs to have a formal, academic scientific style (see Chapter 3), which avoids personal, emotional or poetic language. All writing in psychology, whether it is an essay or a laboratory report must follow APA (American Psychological Association) style for layout, formatting, language style and referencing.
Detailed information about APA style can be found in the APA Manual (6th Edition). The 6th edition differs from the 5th edition in some crucial areas related to referencing. You are expected to follow the guidelines in the 6th edition, not the 5th. If you are planning to study psychology for the next three years, it is advisable to purchase the APA manual (available from the bookshop). Copies are also available on reserve from the libraries on all campuses.

For useful hints on writing psychology reports and essays, the following references are VERY helpful:


A quick and simple guide to APA referencing (including information on using DOIs) is in Chapter 4 of this Guide.
How to format a psychology laboratory report

- **Margins:** 1 inch (2.45cm) left and right side
- **Font:** Times New Roman, Size 12. Make sure you change font to this from the default Calibri.
- **Spacing:** Double spaced
- **Page Numbers:** Top right corner
- **Header:** Top right corner in front of page number

10 Steps to writing a good laboratory report
1. Identify the research topic
2. Conduct a literature search
3. Review the literature – make a reference list as you go
4. Organize your information and develop a list of key arguments
5. Develop your research hypotheses
6. Collect the data – run the study
7. Analyse the data
8. Interpret your data analyses and decide on your findings
9. Write your report
10. Finalise reference list, proof read, write abstract

Sections of a psychology research report

**Title Page**
The title page needs to include a concise (usually not more than 12 words), title which clearly reflects the purpose of the study. The title is centred and written in sentence case, with all words of four letters or more capitalised. Do not capitalise articles (a, an, the), prepositions (e.g. in, to, for, at) and coordinating conjunctions (e.g. and, for, so, but). All verbs, nouns, adjectives, and pronouns should be capitalized. The title should be double-spaced, and repeated at the top of the first page of the report. A running header is located above the title. Include your full name in upper and lower case, centred on the page, on the line below the title.

**Abstract**
This is a summary of your report and is on a separate page, on its own. The abstract is usually 120 words but each assignment may have its own instructions so be sure to check. Ensure that your abstract addresses all sections of the report. The summary sentence of the introduction section often includes the aim, e.g. "Understanding attitudes towards drinking is essential
for developing educational campaigns, thus this study investigated…” The heading for the abstract should be centred, **Bold**, with the first letter in upper case.

**Introduction**

The introduction identifies the problem and provides a justification for conducting the research. Do not write the word 'introduction' as a sub-heading. Instead, use the title of the report. The introduction is usually about 500 words long for a full report (i.e. 2-3 double spaced pages). The introduction contains definitions, reviews the literature, justifies your study and measures, and states your aims and hypotheses.

**General background**: The introduction should start off broad, introducing and generalising about the area in question. You should then provide more information about the general research area, linking it to the species/age group/population we are interested in. Make sure to define any unfamiliar or ambiguous terms as you go along, but be careful that your introduction does not read like a dictionary.

**Literature review**: The next section of the introduction becomes more specific, reviewing literature that is relevant to the hypotheses of your investigation. Do not include lengthy descriptions of how researchers did their study – report only important findings. Make sure the literature review part of the introduction covers the variables being assessed in the study. It is often important to show that you realize you have only looked at a small part of the area in question by acknowledging (briefly) other aspects of the area. In this part of the introduction, you may need to include any variability in research findings or any knowledge gaps from the existing literature. You can then link this to the reason you are conducting the study (i.e. to clarify prior conflicting research findings or to fill a gap in the prior research in the area of study).

**Aim(s)**: The last part of the introduction funnels down to the aim, which tells the reader exactly what you are investigating and why. It is not a separate section (no sub-heading) or a separate paragraph of the introduction. It is the last sentence in the literature review section of your introduction. Because you are writing the report after the investigation has been conducted, write the aim in the *past tense* (e.g. "This study aimed to investigate…").

**Hypothesis**: The final part of the introduction is a statement of the hypothesis (or hypotheses if you have more than one). Do not write a sub-heading for the hypothesis; just write it in a separate, final paragraph of the introduction. The hypothesis is a statement of what you expected to find and should ideally include the theory behind your expectation. The hypothesis should follow
logically from what you have written in the literature review section. Make sure that your hypothesis can be measured or quantified in some way (e.g. "It was hypothesized that high/low scores on X would in some way explain/influence or predict Y").

**Method**
This section describes how you performed the study – the 'who', 'with what', 'how' section. The methods section should be in a logical order and be as concise as possible, with just enough information to allow anyone who reads it to replicate the study. The heading for the method section should be centred, **Bold**, with the first letter in upper case.

There are three sections in the method, which require separate sub-headings:

- **Participants**– flush left, **BOLD**, first letter uppercase
- **Materials**– flush left, **BOLD**, first letter uppercase
- **Procedure**– flush left, **BOLD**, first letter uppercase

The **participants** section contains relevant information about the people or animals used in the study (e.g. number, gender, age).

The **materials** section includes everything you used and why (don't go overboard - not pencils or paper!). List these in the order used in the study with an explanation as to the purpose and written in full sentences, not dot points.

The **procedure** is a logical, step-by-step description of how you carried out the study. It should include details such as any instructions given to participants, whether participants were divided into groups, or whether any changes were made to the order of questions.

**Results**
The results section is a description of **what** you found, but **not why** you found it (save that for the discussion). You may need to include information about anything you did to the raw data, whether you needed to compute any new variables or whether you excluded any data. You will need to provide descriptive statistics in your explanation of how you analysed the data.
Tables and/or figures are an important part of the results section. Do not present the same data in both a figure and a table; choose the most appropriate and effective way to present the data.

For each figure or table:
1. introduce the table or figure in a sentence or two
2. present the table or figure. Make sure labels are correct – labels for figures go below the figure; labels for tables go above the table.
3. point out the most important observation you want to draw attention to in the table or figure (the important or significant trends and features in your data are often the ones you'll write about in your discussion). Use past tense.
4. ensure that if p values are used, you report an exact p value and check whether statistical notation needs to be italicised.

Make sure you carefully check APA formatting requirements for figures and tables. It is important to note how lines are used in tables and how punctuation is used in figure and table labels. The heading for the results section should be centred, **Bold**, with the first letter in upper case.

**Discussion**

The discussion section of the report explains what your findings mean and how they relate to what is already known. The discussion does not need to start on a new page. It should be logically divided into paragraphs and should have a heading which is centred, **Bold**, with the first letter in upper case.

Your discussion should do the following:

1. Restate the research aims and summarise the main findings in the first paragraph, including whether the results support/refute your hypotheses.
2. Interpret, evaluate, and comment on the important findings in your study. How does your data compare to what others have already found?
3. Discuss any methodological issues (e.g. limitations due to sample size, possible sources of bias).
4. Suggest directions for future research. What could you or other researchers investigate next?
5. Conclude your report with a final brief paragraph that sums up what you have found and why it is important.
References
Include both in-text references and a reference list in your report.

All work cited in the report must include the full reference in the reference list. Conversely, each entry in the reference list must be cited in text. Wikipedia is not an acceptable source for psychology reports or essays.

It is very important to follow APA referencing guidelines very carefully. Even those who have been using APA referencing for years (e.g. PhD students) still need to check the guidelines as there are many to remember. MAKE SURE TO CHECK!

Your reference list should be on a separate page and list all sources you used in alphabetical order of the surnames of the first-named author for each reference. You should include the sub-heading 'References' centred in Bold type.

If the references take up more than one page, do not re-type the word References on sequential pages, simply continue your list. APA style reference lists are formatted with a hanging indent and are double-spaced. There is no extra line between each reference. The first line of the reference is flush left. The example below demonstrates:


For more detailed guidelines on APA referencing (including information about DOIs), go to Chapter 4 of this book.
# Psychology Laboratory Report Checklist

Use the checklist below to thoroughly check your report before you submit it for assessment.

<table>
<thead>
<tr>
<th>Section</th>
<th>Content</th>
<th>Have you</th>
</tr>
</thead>
<tbody>
<tr>
<td>(part of APA mark)</td>
<td>Title Running Head</td>
<td>□ created a Title Page, with a descriptive name for your report □ included a Running Head (a short descriptive version of the title) at the top right hand corner next to the page number in the header</td>
</tr>
<tr>
<td>Abstract <strong>No mark, just comment</strong></td>
<td>1. Brief overview of study. 2. Summarise all sections. 3. 120 words</td>
<td>□ included a short statement of introduction, aims, method (participants, how measured), results and conclusion. □ put the abstract on a separate page.</td>
</tr>
<tr>
<td>Introduction</td>
<td>Background Info on your area of interest. Definition of attitude. Review of literature (if any!); Background to 2 group comparison. Hypothesis.</td>
<td>□ provided clear definition of area and cited a relevant article. □ provided support for the comparison you are making and cited an article relevant to this. □ included a hypothesis about the two group comparison.</td>
</tr>
<tr>
<td>Method <strong>Participants Materials Procedure</strong></td>
<td>1. Participants — who took part? 2. Materials — what was used? 3. Procedure — what was done?</td>
<td>□ recorded where your participants came from, how many men and women there were and other demographics □ recorded how you took measures □ described the testing environment</td>
</tr>
<tr>
<td>Results</td>
<td>1. Brief explanation of what was calculated 2. Presentation of data in table 3. Verbal interpretation of data (not repeating numbers, just describing pattern)</td>
<td>□ presented the data correctly in a Graph/Table (APA) □ described what this means in terms of a difference between the two conditions</td>
</tr>
<tr>
<td>Discussion</td>
<td>1. What do our results show? 2. Hypotheses supported/not 3. Relate back to literature reviewed in intro 4. What explanations have you for differences, unexpected results? 5. How do they relate back to the concept measured (theoretical discussion)?</td>
<td>□ Restated the hypothesis □ mentioned whether the results support it □ commented on whether past literature is consistent with your findings Why/Why not? □ described any problems you found with the study. Could you have done it differently?</td>
</tr>
<tr>
<td>APA Format and References</td>
<td>Conclusions</td>
<td></td>
</tr>
<tr>
<td>---------------------------</td>
<td>-------------</td>
<td></td>
</tr>
<tr>
<td>1. References for all in-text citations.</td>
<td>□ recommended what could be done in the future How could these findings be extended?</td>
<td></td>
</tr>
<tr>
<td>2. Check details like page numbering, correct format of Tables, referencing in the report &amp; ref list.</td>
<td>□ included a statement to bring it all together</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Presentation and Writing Style</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Grammar, punctuation, spelling, paragraphs, clarity, logical progression.</td>
<td>□ ensured your report follows APA style. Check Burton (2010) and Undergraduate student handbook for correct guide.</td>
</tr>
<tr>
<td></td>
<td>□ Proof read your work for simple errors prior to submission.</td>
</tr>
</tbody>
</table>
Part D - Technical Report Writing in Engineering

It is VERY IMPORTANT that you check specific requirements in each of your subjects. This information will be in your subject guides or on LMS. If you are not sure, check with your tutor, demonstrator or lecturer.

Introduction
Engineers, computer scientists and information technologists write technical reports in order to share information with their colleagues, managers, clients and others. It takes a lot of time, effort and practice to become a skilled technical report writer.

A well-written technical report requires a number of skills including:
- research skills to acquire high quality, relevant information for your report
- analytical and critical thinking skills in order to select appropriate content, analyse it, evaluate it, and make recommendations
- the ability to write clearly and concisely in English
- excellent formatting skills and attention to detail to achieve a high quality presentation of your report
- the ability to proofread your own work

A technical report has its own particular style and format and is different from an essay or a laboratory report. Technical reports usually have the following:
- Title Page
- Summary (sometimes called an abstract)
- Acknowledgements
- Table of contents
- Glossary of terms
- Introduction
- Body
- Conclusions
- References
- Appendices

Not all readers will want to read every section. What they read will depend on the information they require. Some may only be interested in the technical detail; others will be more interested in the final analysis or recommendations. For this reason, a technical report should have clearly defined numbered sections, labeled with headings and subheadings, allowing the reader to navigate to sections of interest.
 Formatting your technical report

Section Numbering
A technical report has numbered sections to make it easy for readers to locate
the information they are interested in. The first section to be numbered is the
introduction (1.0). Sub-sections are labeled 1.1, 1.2, 1.3 or 2.1, 2.2, 2.3 etc. If
you need further sub-sections you can use three levels of heading e.g. 1.1.1,
1.1.2, 1.1.3 etc. The sample table of contents on p. 122 shows the heading
numbering system in more detail.

Page numbering
All pages after the title page, up to and including the table of contents should
be numbered with lowercase roman numerals i.e. i, ii, iii, iv, v, vi. etc.
Do not number the title page. After the table of contents, pages should be
numbered in Arabic numerals i.e. 1, 2, 3 etc. Print your work on one side of the
paper only.

Font
Choose a clear font (Arial, Times New Roman or Verdana). Apart from
headings, all text should be font size 12. Use single line spacing.

Headings
For a professional looking report, use automated heading styles. In Microsoft
Word, heading styles are found using the format tab to select ‘styles and
formatting’. A pane will appear on the right hand side of the screen which lists
all possible levels of heading. It is important to use these automatic styles if
you are creating an automated table of contents using Microsoft Word.

Calculations
Include units for all relevant calculations e.g. 1mA x 1KΩ = 1V

Numbered answers need to be rounded off to 2 or 3 decimal places. e.g.
π x 2 = 6.283185307 → = 6.283
Figures (photos, graphs, diagrams, maps) and tables
Summarise data and to add clarity to your report by using figures and tables. Tables with large amounts of uncollated data should go in a separate section, called the appendix, at the end of the report. The appendix is also used for any calculations required for the report.

Figures and tables need to be numbered and labeled. If you include figures or tables that you did not create yourself, you need to provide a reference. The label for a table goes above the table and the label for a figure goes below the figure (see the examples below).

Table 4 Mobility test results (Liu et al., 2009)

<table>
<thead>
<tr>
<th>Trial</th>
<th>Distance (ft)</th>
<th>Time (s)</th>
<th>Speed (mph)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>19.5</td>
<td>2.6</td>
<td>5.11</td>
</tr>
<tr>
<td>2</td>
<td>19.5</td>
<td>2.3</td>
<td>5.77</td>
</tr>
<tr>
<td>3</td>
<td>19.5</td>
<td>2.2</td>
<td>6.03</td>
</tr>
<tr>
<td>4</td>
<td>19.5</td>
<td>2.8</td>
<td>4.75</td>
</tr>
</tbody>
</table>

Figure 3. Illustration of drive controller layout (Butler & Bright, 2009)
Figure 4. Top and basal surfaces of the regional top seal - the Lakes Entrance Formation, Gippsland Basin, Victoria. Surface grids derived from well data. Digital Elevation Model shows position of coast in the background (Department of Primary Industries, Victoria, 2010).

The following pages contain detailed information about each of the sections in a technical report.
Title Page

La Trobe University
Department of.....

Title of Your Report

Your name(s)

Student ID number(s)

Lecturer: XXX XXXXX

A report submitted in partial fulfillment of the requirements of the unit XXX1XX in the Bachelor of XXX

La Trobe University, Campus

Month, year
Summary (also known as the abstract)

This section contains the following elements:

- **background and purpose** – what the report is about in 1-2 sentences
- a **summary** of the main information contained in the report (this will vary depending on the nature and purpose of the report)
- the **main conclusions** (e.g. recommendations, outcomes of a project).

In your summary, you should not refer to specific figures or include references. The length of the summary will vary depending on the total number of words required in the report. For a first year report, the summary would usually be approximately 100 - 300 words, but you should check the requirements for particular subjects.

**Example**

**Summary**

This report compares two different methods of microprocessor cooling that are not yet available on the market. The constant increase in the need for faster processors has resulted in processors with much higher power consumption and higher consequent heat outputs. Reducing the heat outputs will increase the reliability and optimal performance of microprocessors. The two methods which will be reviewed in this report are the use of a sintered copper porous insert in a water block and the use of nanofluids as cooling liquids. The results of the comparison indicated that using the copper insert greatly increased the thermal resistance and the nanofluids cooling liquid increased the heat transfer coefficient by as much as 40%.

**Acknowledgements**

This is the section where you can acknowledge anyone who helped with a project or a report. It may not be necessary to include this section in a first year technical report. Check the requirements for specific tasks.
Table of Contents
The Table of Contents (TOC) lists all sections in your report and includes the section numbers and page numbers. It is written on a separate page and must be formatted correctly. Use the automatic TOC function in Microsoft Word to assist with formatting. The following example of a TOC should give you an idea.

Example

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2.0</td>
<td>Sintered copper porous inserts</td>
<td>1</td>
</tr>
<tr>
<td>2.1</td>
<td>Introduction</td>
<td>2</td>
</tr>
<tr>
<td>2.2</td>
<td>Description</td>
<td>2</td>
</tr>
<tr>
<td>2.3</td>
<td>Results and conclusion</td>
<td>3</td>
</tr>
<tr>
<td>3.0</td>
<td>Nanofluid</td>
<td>4</td>
</tr>
<tr>
<td>3.1</td>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>3.2</td>
<td>History of nanofluids</td>
<td>5</td>
</tr>
<tr>
<td>3.3</td>
<td>Results and conclusion</td>
<td>5</td>
</tr>
<tr>
<td>4.0</td>
<td>Conclusion</td>
<td>6</td>
</tr>
<tr>
<td>5.0</td>
<td>References</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Appendix I: thermal resistance calculations</td>
<td>8</td>
</tr>
</tbody>
</table>
**Glossary of terms**

It may be useful to include a glossary of terms if you have a large number of technical terms in your report.

**Example**

<table>
<thead>
<tr>
<th>Glossary of terms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Amplitude</strong> – in an oscillating system, the amplitude is a measure of the maximum extent of oscillation</td>
</tr>
<tr>
<td><strong>Diffraction</strong> – the spreading of a beam of light or other wave system as a result of passage through a narrow aperture</td>
</tr>
<tr>
<td><strong>Hologram</strong> – a three-dimensional image produced by illumination of a photographic interference pattern</td>
</tr>
<tr>
<td><strong>Optical paths</strong> – the path taken by light in an optical system</td>
</tr>
<tr>
<td><strong>Uniform planes</strong> – multiple planes which have no variation in form</td>
</tr>
</tbody>
</table>

**Introduction**

The introduction of a technical report usually includes the following:

- The background or context for the task. This often includes an outline of the problem being investigated. You **must include in-text references** in this section.
- A statement of the purpose of your report. For example,
  - to evaluate several approaches to…
  - to examine the use of … for the purpose of …
  - to present the design of a … that can…
- An outline of what is in the report and what is not (the scope of the report)
- The methods used and/or sources used to compile the report (this may not be necessary for all technical reports)
The introduction should start with more general information and gradually become more specific. This can be represented as a funnel shape.

*General information*

*Specific information*

**Example** (when you have not designed/created something new)

1.0 Introduction

Since they were first used in the 1930s, particle accelerators have grown in size, capability and function (Freudenrich, 2009). While some of the larger accelerators are used to delve more deeply into the origins of the universe, the majority are used in industry for more practical purposes (Wilson, 2001). These smaller accelerators can be found in a range of industries, including health science, where they are used for diagnosis, and materials science, where they are used in the analysis of the structure and properties of materials (Hellborg, 2005). This report starts with a brief history of particle accelerators. It then examines the range of uses of particle accelerators and their benefits to the scientific and wider community. It does not aim to give the reader a complete understanding of the complex physical and mathematical concepts that underpin the design and operation of particle accelerators. Rather, it is intended to present the reader with a basic conceptual overview of particle accelerators and their benefits to society. Information for the report was sourced from journal articles, books and technical reports published online.
Example (when you have designed/created something new)

1.0 Introduction
Maintaining sterility and effectively decontaminating food and packaging is a very important aspect of the food processing industry. Research in different institutions around the world has led to the finding that cold plasma can be used as an agent for decontamination. Because the plasma is ‘cold’ (around 40°C) the food and packaging are not in danger of being destroyed by heat (Hazeltine, 2004). Since the plasma can be composed of inert gases, it is safer than the chemicals currently used for decontamination (Sturrock, 2004).

Whilst equipment for generating cold plasma already exists, it appears that tools for performing real time diagnostics of cold plasma are not readily available. Real time diagnostics are essential both as a control measure in the food processing industry and to further research into the behaviour of cold plasma. Thus, the aim of this project is to prototype a real time diagnostic tool for cold plasma which samples voltage fluctuations in the plasma.

The first section of this report will provide a detailed practical and theoretical basis for the project. The design of a system to meet the project requirements will then be presented in detail. Following this, the implementation and verification of both software and hardware aspects of the system will be described along with a discussion of problems, solutions and suggestions for further improvement. An analysis of data collected using the system and a comparison with data collected using other equipment will provide part of the basis for determining the usefulness of the prototype. Finally, a system level evaluation will provide insight into the strengths and weaknesses of the project as a whole along with suggestions for future development.
Body
The body of the report contains logically ordered sections with appropriate headings and sub-headings. In larger sections, you will need to organise your ideas into paragraphs.

All ideas that you have taken from sources such as books, journal articles or websites must be paraphrased and referenced (see Chapter 4 of this guide). Lists with dot points may be used within the body of the text if it makes the information easier to understand. Most of the information, however, will be in paragraphs.

Tables and figures, such as diagrams, photographs and graphs can be used to present information clearly (make sure they are formatted correctly). If your report is based on a project which resulted in some original work, the body of the report would outline the research methodology, present the findings, and analyse and discuss these findings.

Conclusion
The first sentence should answer the purpose which was stated in the introduction and then present a summary of the main findings. It may also be appropriate to include suggestions or recommendations based on these findings. This is particularly relevant if the report involves a project where something new was designed or created.

Example

4.0 Conclusion

This report has evaluated the effectiveness of the use of a porous sintered copper insert and nanofluid cooling liquid for cooling microprocessors. It was found that both methods of cooling increase the heat transfer from the heat sink to similar degrees. It is likely that both of these products will be available on the market in the near future due to their high effectiveness and low production cost.
Reference List
At the end of your report, you need to list the references that you cited throughout the text of your report. This also includes references for figures and tables. If you are required to use a different referencing style from APA (see Chapter 4), you will need to ask your lecturer, tutor or demonstrator for the referencing guidelines for that style.

Example

5.0 References


Appendix (‘Appendices’ if you have more than one)
The appendix is where you put information that is too detailed to go in the main body of the report. The types of material that go in the appendix include raw (uncollated) data, calculations and detailed drawings.
Part E - Essays

These are general guidelines only. It is VERY IMPORTANT that you check specific requirements in each of your subjects. This information will be in your subject guides or on LMS. If you are not sure, check with your tutor, demonstrator or lecturer.

No matter what field of study, the same basic process can be used to plan and write your essay. This process can be divided into five steps:

1. **Analyse the question** - identify key instruction words (see table on the next page), the topic/s and specific aspects to be discussed. You will need to read and re-read the essay topic to ensure you understand what is being asked.

2. **Research the topic** - ask a series of questions about your topic to focus your research. Seek information from a wide range of sources. Keep a record of all sources used so that you can include them in your in-text references and reference list.

3. **Plan the essay** - organise key ideas and related themes, taking into consideration format restrictions and word limits. Make sure you record which sources you used for which information. The easiest way to do this is to write an in-text reference next to your notes.

4. **Write the essay** - construct these ideas into the key elements of an essay: an introduction, a discussion (or body) divided into a number of paragraphs, and a conclusion. The writing style is formal and impersonal. Edit for errors.

5. **Write your reference list** *(see Chapter 4 for information about referencing)*
<table>
<thead>
<tr>
<th><strong>Common essay ‘instruction’ words</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Analyse</strong></td>
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<td><strong>Comment</strong></td>
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<tr>
<td><strong>Compare and contrast</strong></td>
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<tr>
<td><strong>Define</strong></td>
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<td><strong>Describe</strong></td>
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<td><strong>Discuss</strong></td>
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<td><strong>Evaluate</strong></td>
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<td><strong>Examine</strong></td>
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<td><strong>Explain</strong></td>
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<tr>
<td><strong>Identify/illustrate</strong></td>
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<td><strong>Prove</strong></td>
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<td><strong>Relate</strong></td>
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<tr>
<td><strong>Review</strong></td>
</tr>
<tr>
<td><strong>Summarise</strong></td>
</tr>
</tbody>
</table>
The essay writing process is demonstrated below, from a first year student’s Psychology essay.

Evaluate the evidence for differences in cognitive processing across age groups when engaging in complex tasks such as driving. Can rates of car accidents in younger drivers be directly attributed to these differences? Based on this information, what would you recommend to policy makers seeking to reduce car accidents in the 18–25 age group?

1. Analyse the question
Identify the key instruction words and think about what they mean in relation to the essay topic.

Evaluate the evidence for differences in cognitive processing across age groups when engaging in complex tasks such as driving. Can rates of car accidents in younger drivers be directly attributed to these differences? Based on this information, what would you recommend to policy makers seeking to reduce car accidents in the 18–25 age group?

Evaluate the evidence - this instruction indicates that there is some debate about whether there is a difference in cognitive processing across age groups when engaging in complex tasks such as driving. We can assume that studies have been conducted in an attempt to determine the answer, but that different studies have found different things. Some findings may have supported a difference in cognitive processing across age groups when engaging in complex tasks and some may not have. When researching the essay, you would need to search for different studies representing a range of findings and then evaluate the evidence from the studies. This means you need to ‘weigh up’ the evidence on both sides and come to a conclusion based on this evidence.

Evidence AGAINST a difference in cognitive processing across age groups during complex tasks

Evidence FOR a difference in cognitive processing across age groups during complex tasks
Can rates of car accidents in younger drivers be directly attributed to these differences? This instruction is asking you to apply the evidence you have evaluated to a specific situation – rates of car accidents. If you think there is a difference in cognitive processing across age groups during complex tasks, could this be contributing to higher rates of car accidents among young people? If you think there is no difference, then you might need to argue that there is a different cause of the higher rates of accidents among young people.

What would you recommend to policy makers seeking to reduce car accidents in the 18–25 age group? This part of the question asks you to make recommendations based on your response to the first two parts of the question. You may need to think about who the policy makers are. You may also need to consider what current policies there are to reduce the rate of car accidents for this age group and whether these policies relate to cognitive processing. If they don’t, should they?

2. Research the topic

Start by making a list of research questions. This will help you to search for and read the exact information that you need in order to answer the question. For the example essay topic, these questions might include:

- What evidence is there that younger drivers have more accidents? Is this evidence recent? From Australia?
- What is cognitive processing?
- What is a complex task? Examples?
- Are there any differences in cognitive processing across age groups when engaging in complex tasks? If so, what are they and what causes them?
- What cognitive processing occurs when driving?
- Which has the greater influence on accident rates among younger drivers – inexperience or cognitive development?
- How do the stages of brain development in 18 – 25 year olds affect their decision-making, hazard perception and risk taking behaviour?
- What current policies aim to reduce car accidents in the 18 – 25 age group?
- Do any policies base their recommendations on cognitive processing differences in young people?
Begin with what you know from lectures and tutorials then proceed to books and journal articles. Use library catalogues – including electronic data bases and seek the assistance of your subject librarian (see Chapter 2 for more information on reading for assignments).

3. Plan the essay
This involves three main steps. Firstly, brainstorm. Jot down everything you can think of from your research related to the topic. The next step, grouping, is where you attempt to find common ideas within the brainstorm. Give your grouped ideas a heading. These groups then become the themes for your essay. Finally, outline the essay in detail with each theme becoming a main point supported by factual evidence. Write down all necessary referencing details as you plan.

4. Write the essay
Construct these ideas into the key elements of an essay: an introduction, a discussion (or body) divided into a number of paragraphs, and a conclusion. The writing style is formal (see Chapter 3 for guidelines on writing in a formal, scientific style).

5. Write your reference list
Make sure that all references cited (in-text) are included in your reference list and all references in your list have been cited in your essay (see Chapter 4 for more details on referencing).

The structure of academic essay writing
The following examples illustrate the essential elements of an essay – an introductory paragraph, a body paragraph and a concluding paragraph.
Model Introductory Paragraph

The introductory paragraph sets the scene for the whole essay. It consists of four sections which move from general to specific information.

1. **Introduce** the general topic of your essay in an interesting way.

2. Give **background or context** which gives relevance to the discussion.

3. Include a **thesis statement** which is the main point of the essay

4. List **subtopics/themes** to indicate the order of discussion to follow (each theme mentioned in the introduction, is addressed in the same order in the body).
   - A brief definition may belong in the introduction (one sentence only).
   - Keep all information relatively general (no detailed evidence).

The rate of fatal car accidents among young drivers (defined in this essay as drivers aged 18-25 years old) is proportionally greater than those among other age groups. In Victoria in 2008, 24% of car accident fatalities were in the 18–25 year old age group, though this age group makes up only 12% of the Victorian population (*Age Group Statistics, 2009*). During adolescence and into early adulthood changes continue to occur in the brain (Dahl, 2008). This ongoing brain development means young people are still developing and refining cognitive processing skills, which impacts upon their ability to engage in and complete complex tasks (McAnarney, 2008), such as driving. As a result, it can be argued that higher rates of car accidents involving young drivers can be directly attributed to differences in their cognitive processing abilities compared to more mature drivers. To support this statement this essay will discuss brain development in young people, particularly in relation to decision making, engaging in risky behaviours, hazard perception and the ability to divide attentional resources. Finally, it will conclude by reviewing and suggesting ideas policy makers could utilise to reduce car accidents among young drivers.
Engaging in risky behaviours is a major cause of accidents among young drivers. This may be due to cognitive factors. Development in frontal and parietal regions of the brain continues into early adulthood (Dahl, 2008). This part of the brain (dorsolateral prefrontal cortex or DLPFC) is where neural networks involved in risk taking behaviour reside. Beeli et al. (2008) suggest the DLPFC does not mature until late adolescence, when many young people are driving. This late maturation of the DLPFC may explain why young drivers take risks, including speeding and driving after drinking alcohol. Indeed, Steinberg (2010) hypothesises that young people’s heightened risk taking behaviour is due to immature self-regulatory systems combined with easily aroused reward systems. Two studies suggest there is a strong link between risky driving behaviours of young drivers and their higher rate of traffic accident involvement. Fergusson, Swain-Campbell, and Horwood (2003) completed a 21-year longitudinal study of New Zealand children. They reported that 90% of young drivers who participated admitted to risky driving. In addition, an Australian study by Vassallo et al. (2007) using data from the Australian Temperament Project (ATP) reported similar results. Thus, it can be argued that brain development may be linked to risk taking behaviour of young drivers involved in accidents.
Model Concluding Paragraph

The concluding paragraph rounds off your essay by reminding the reader of your main point, the supporting themes or sub-topics and a strong final comment. There are four aspects to consider in the conclusion.

1. **Signal** the end of the essay with a connective: “In conclusion; To summarise”.

2. **Paraphrase** your thesis statement (the main point of the essay).

3. **Paraphrase and summarise** the sub-topics/themes addressed in the essay to remind the marker of your main discussion points.

4. Leave the marker with a strong effective comment; a message they will remember.
   - **Don’t** add any new material.
   - **Avoid** detailed information – the conclusion is a more general statement.

*In conclusion*, the underlying cause of higher car accident rates among young drivers may be directly attributed to differences in their cognitive processing abilities when compared to more mature drivers. Young peoples' brains are still developing in regions responsible for making decisions, participating in risk taking activities, perception of danger and capacity to concentrate. Hence, young drivers are more likely to engage in risky driving behaviours and have less developed cognitive processing skills to enable them to drive safely. To address this problem, it was suggested to policy makers that there is a continued need to try to limit or reduce the risks young drivers are able to take, and to cater for more practice of decision-making and hazard perception skills and more effective use of attentional resources. Although the Victorian Graduated Licensing Scheme helps to address such concerns, it is also recommended that stronger young driver education programs, and more parental and community involvement be included. This will help change young drivers’ attitudes towards risky driving behaviours and ensure they are better informed about their own abilities and the risks associated with driving.
Oral Presentations

An important skill that you will develop at university is the ability to give group and individual presentations on diverse topics. Oral presentation skills are essential for academic success and future employability. Being a good presenter means having good oral communication skills, and being able to prepare engaging and effective presentations. Spending time preparing the content of the presentation and working on your communication skills are equally important.

The key to being a good presenter is to practice. You will find that rehearsing and preparing for your presentations will increase your confidence in your communication skills.

The Achiev@Uni presentations module provides you with resources to develop your presentation skills, including individual and group presentations. It also includes tips on how to use technology to effectively deliver presentations.
Chapter Eight

Student Services and Support
Academic Support Services

The Learning Hub
Drop-in, consultation and workshops.
- Peer Learning Advisors (PLAs)
- Student Learning Lecturer

Specialist and peer support
- English Language Development
- Writing, study skills, time management
- Library skills and digital literacy
- Maths Hub

For more information, about Learning Hub times on each campus and Learning Hub materials, please check details when you self-enrol into the LEARNING HUB LMS site.

Library Workshops and Resources
Access a range of resources, including:
- Expert Help Guides
- Library Essentials for new students
- Past exam papers
- Online theses

Find out about training and workshops on Excel, SPSS, Endnote and more: https://www.lib.latrobe.edu.au/training/all-campuses

Achieve@Uni
Online academic skills and support
- Study skills
- Finding, evaluating and using information
- Academic integrity
- Paraphrasing, quoting and referencing
- Oral Presentations – preparing and presenting
- Math and Stats at University – worksheets and guides
University Life

Ask La Trobe
Help service for students providing general advice on administrative processes including:

- Enrolment, fee payments, graduations
- Exam dates and general information
- Student ID cards
- Form submission

Access Ask La Trobe via

- 24/7 online FAQ's [http://latrobe-current.custhelp.com/app/home](http://latrobe-current.custhelp.com/app/home)
- 1300 LATROBE (1300 5208 762)

Student Financial Support

- Emergency Aid - $200 immediate relief
- Interest free student loans up to $4000
- Student grants up to $4000 in extreme hardship
- E: finaid@latrobe.edu.au


Special Consideration

Must meet criteria:

- Assessment worth more than 15%
- Serious, short-term, adverse and unforeseen circumstances (illness, emotional disturbance, misadventure)

Complete online application

- Less than 3 working days after due date
- Must providing supporting documentation

More information: [https://www.latrobe.edu.au/students/admin/forms/special-consideration](https://www.latrobe.edu.au/students/admin/forms/special-consideration)
**Career Ready**

The Career Ready team provides advice on
- Finding a job
- Choosing a career path
- Developing employability skills

The Career Ready Advantage program assists students to record and build on their experiences
- WIL and placements
- Leadership and volunteering
- Studying overseas

**International Student Services (ISS)**

Help and support is available for all international students for any issue:
- One on one help with ISS staff
- Visa and CoE related
- After hours student hotline: 1800 758 360
- Referrals to specialty services
- Ask a Question online

**Student Union, BSA and WSA**

The purpose of the LTSU, the Bendigo Student Association (BSA) and the Wodonga Student Association (WSA) is to advance the education of La Trobe University students. They provide a range of free support services to assist with:
- Welfare and emergency housing
- Advocacy
- Financial counselling
- Student legal service
- Clubs and Associations
Health and Wellbeing

Counselling and Mental Health
Free and confidential short-term counselling
- Individual counselling via face to face, phone or skype
- Specialist sessions for LGBTIQ and Indigenous Students
- Group sessions and workshops

Appointment Booking - Follow this link to find your campus, and your counselling contact details

After-hours Counselling – 1300 687 327 (5-9pm weekdays and 24 hours weekends and public holidays)

Emergencies – if there is a risk of imminent harm to you or someone else, call Emergency Services on 000

Psychiatric Triage (Crisis Assessment and Treatment teams)

<table>
<thead>
<tr>
<th>Campus</th>
<th>Service</th>
<th>Phone contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bundoora</td>
<td>Psychiatric Triage – North East</td>
<td>1300 859 789</td>
</tr>
<tr>
<td>Bendigo</td>
<td>Psychiatric Triage – Loddon Campaspe/Southern Mallee</td>
<td>1300 363 788</td>
</tr>
<tr>
<td>Shepparton</td>
<td>Psychiatric Triage – Goulburn &amp; Southern</td>
<td>1300 369 005</td>
</tr>
<tr>
<td>Albury/Wodonga</td>
<td>Psychiatric Triage – North/Eastern Hume</td>
<td>1300 881 104</td>
</tr>
<tr>
<td>Mildura</td>
<td>Psychiatric Triage – Northern Mallee</td>
<td>1300 366 375</td>
</tr>
</tbody>
</table>

- Lifeline - 24/7 telephone counselling on 13 11 14, or chat online (7pm – 4am, 7 days)
- Suicide line - 24/7 telephone counselling on 1300 651 251
- Suicide Call Back Service - 24/7 telephone counselling on 1300 659 467 or register for 24/7 text-based online counselling
- Kids Helpline - available if you are 25 years old or younger. 24/7 telephone counselling on 1800 55 1800 and email counselling and web chat.
See the University’s Health and Wellbeing website for more information on:

- Studying with a disability
- LGBTIQA+ Support
- Supporting students from a refugee background
- Faith and spirituality
- Speak up
- Respect at La Trobe
- Medical facilities and clinics

**Speak Up**
Assistance when you are concerned about harassment, discrimination, violence or other forms of unacceptable behaviour. Report anonymously and confidentially or call (03) 9479 8988

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**Consent Matters**
Remember to log on to your LMS and complete the Consent Matters module for more information on how to make good choices with your own consent, and how to be a responsible bystander for others.
That’s what SHE said

A Science, Health and Engineering blog written by SHE students for SHE students

she.blogs.latrobe.edu.au

SHE students share their experience and tips on how to make the most of university. Stay informed about social, academic and administrative issues with blogs like:

- **Getting around campus**
- **Driving to Uni? Here’s what you need to know…**
- **Rundown of Reminders…published regularly to keep you up to date**
- **Procrastinate your Procrastination**
- **Mindfulness**

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