



# THE CSU GUIDE TO WRITING IN SCIENCE

Brought to you by Sci FYE  
and Academic Success

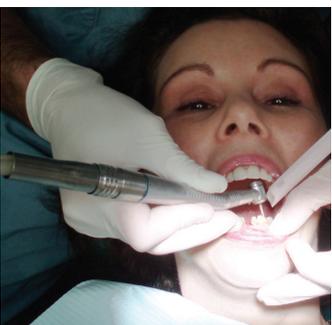
An introduction to the writing  
and presentation skills you will  
need in your first year in the  
Faculty of Science.



Great  
communication  
skills in your  
profession.



Science: *noun*  
(from Latin *scientia*,  
meaning "knowledge")  
1. the systematic  
study of the nature  
and behaviour of the  
material and physical  
universe, based  
on observation,  
experiment, and  
measurement,  
often leading to the  
formulation of laws to  
describe the results  
of such procedures  
in general terms.  
(Macquarie Dictionary)





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## What are the benefits of writing scientifically?

**Being able to write (and talk) scientifically is a great skill to have, not only for studying but also in your professional life.**

### You may not have thought much about ‘science’ when you enrolled in your chosen course.

However, nurses, agronomists, dentists, physiotherapists, wine-makers, paramedics, pathologists, pharmacists, radiographers, speech pathologists, podiatrists, rehabilitation counsellors, vets and health professionals in general are all scientists!

Being able to write (and talk) scientifically will help you pass and progress through your course. You may have to write a laboratory report, essay, or report. You could also be asked to prepare and deliver an oral presentation, or do a poster presentation.

When you graduate, you will find employers, colleagues, clients or patients will value your ability to communicate clearly and logically with both professional and non-professional audiences.

## Here are some of the ways in which you will use scientific writing skills at CSU:

### If you are studying **Agricultural and Wine Sciences**

Bachelor of Agricultural Business Management

Bachelor of Agricultural Science

Bachelor of Agriculture

Bachelor of Ecological Agricultural Systems

Bachelor of Horticulture

Bachelor of Science

Bachelor of Viticulture

Bachelor of Wine Business

Bachelor of Wine Science

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** climatic data from the Bureau of Meteorology and calculate and graph the data

**Describe** the effect of climatic data to determine the suitability of two crops for a specific location

**Explain** the moisture growing season based on your calculations of rainfall

**Argue** the suitability of a chosen weather station

### If you are studying **Animal and Veterinary Sciences**

Bachelor of Animal Science

Bachelor of Equine Science

Bachelor of Veterinary Biology/Bachelor of Veterinary Science

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** a case history and the process involved in the diagnosis of a disease

**Describe** the factors involved in development of a breeding program to conserve an endangered species

**Explain** how to carry out a surgical procedure or the major findings of a research project

**Argue** the case for or against the live export of cattle

### If you are studying **Biomedical Sciences**

Bachelor of Clinical Practice (Paramedic)

Bachelor of Clinical Science

Bachelor of Health Science (Complementary Medicine)

Bachelor of Health Science (Food & Nutrition)

Bachelor of Medical Science

Bachelor of Medical Science (Pathology)

Bachelor of Medical Science (Clinical Physiology)

Bachelor of Pharmacy

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** the results of an experiment or test

**Describe** the purpose of experiments or tests, and what were you trying to prove/disprove

**Explain** results. Are they valid, and did your controls work?

**Argue** the case for a hypothesis, and give a diagnosis



## What are the benefits of writing scientifically?

**Being able to write (and talk) scientifically is a great skill to have, not only for studying but also in your professional life.**

### Here are some of the ways in which you will use scientific writing skills at CSU:

#### If you are studying **Community Health**

Bachelor of Health and Rehabilitation Science

Bachelor of Health Science (Speech Pathology)

Bachelor of Occupational Therapy

Bachelor of Physiotherapy

Bachelor of Podiatry

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** a client's history and develop a management plan

**Describe** the use of prescription and non-prescription drugs for pain relief

**Explain** to a client the importance of maintaining a healthy lifestyle

**Argue** the case for inter-professional practice in health care

#### If you are studying **Dentistry and Health Sciences**

Bachelor of Dental Science

Bachelor of Health Science (Nutrition and Dietetics)

Bachelor of Medical Radiation Science (with specialisations)

Bachelor of Medical Radiation Science (Medical Imaging)

Bachelor of Medical Radiation Science (Nuclear Medicine)

Bachelor of Oral Health (Therapy / Hygiene)

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** the pathology seen on a particular imaging series

**Describe** what an imaging series reveals

**Explain** to a junior practitioner why an imaging series was the most appropriate to demonstrate that particular pathology.

**Argue** the case for the imaging modality used, and its suitability for similar suspected pathologies.

#### If you are studying **Environmental Sciences**

Bachelor of Applied Science (Outdoor Recreation and Ecotourism)

Bachelor of Applied Science (Parks, Recreation and Heritage)

Bachelor of Ecological Agricultural Systems

Bachelor of Environmental Science

Bachelor of Environmental Science and Management

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** the number of rare and threatened species in a location

**Describe** the effect of changes in water quality as a result of human activities

**Explain** to a local community how to protect their native bushland

**Argue** the case for why action is required to combat climate change

#### If you are studying **Nursing, Midwifery & Indigenous Health**

Bachelor of Health Science (Mental Health)

Bachelor of Nursing

Bachelor of Nursing - Graduate Diploma of Clinical Practice (Paramedic)

Bachelor of Nursing Science

YOU WILL USE SCIENTIFIC WRITING SKILLS TO:

**Record** the steps in the onset of a patient's condition

**Describe** a patient's condition to a professional colleague or family member

**Explain** how to do a procedure

**Argue** the case for increased staffing on a ward



## What is scientific writing?

Scientific writing is clear, concise, unambiguous and logical.

### Your writing will be:

- **clear** if it is understandable and easy to read;
- **concise** if it uses no more words than are necessary;
- **unambiguous** if it has only one possible meaning;
- **logical** if its ideas are connected to each other in an orderly and rational way

Good scientific writers use short sentences wherever possible and make good use of the technical vocabulary that is appropriate to their discipline.

### Clarity and concision

To achieve clarity and concision in your writing, you need to strip out any unnecessary or redundant words.

Adjectives and adverbs like 'considerable', 'quite', 'numerous' and 'somewhat' are imprecise and convey different meanings to different readers.

### Here are some examples of being clear and concise:

Change . . .	. . . to:
based on the fact that	<i>because</i>
at the present time	<i>now</i>
for the purpose of	<i>for, or to</i>
the present study	<i>this study</i>
there were several students who completed	<i>several students completed</i>

### Here are some you can practise on:

they were both alike

a total of 68 participants

four different groups saw

absolutely essential

has been previously found

small in size

in close proximity

completely unanimous

one and the same

just exactly

period of time

summarise briefly

the reason is because



## What is scientific writing?

Scientific writing is clear, concise, unambiguous and logical.

### Eliminating ambiguity

If you are not careful, then ambiguity can result when you commence a sentence or paragraph with a pronoun (for example, I, it, they, us)—a word that stands in the place of a noun. If this pronoun does not have a clear referent, then your sentence will be ambiguous.

#### Consider the following example:

The vet and the farmer inspected the mob of sheep. Later, he separated the lambs from the ewes.

The problem here is that it is not clear who separated the lambs from the ewes. To remove any chance of ambiguity, you could write:

The vet and the farmer inspected the mob of sheep. Later, the farmer separated the lambs from the ewes.

### Position, position, position

In English, the first words of a sentence orientate your reader to the main point you are making. This means that the start of the sentence is prime 'real estate' in any piece of writing.

#### In his *A Guide to Scientific Writing*, David Lindsay gives an example that illustrates the power of position in a sentence:

Fleming, in 1929, discovered penicillin after a bacterial plate he was culturing became contaminated with a spore of the fungus *Penicillium* (Lindsay, 1995, p. 54).

The emphasis of the above sentence is on Alexander Fleming, who made the discovery—and was

later awarded the Nobel Prize for his ground-breaking work.

**However, depending on the focus of your work, the sentence could be re-written in a number of ways. English is a flexible language, and we can exploit this flexibility to move the spotlight from one idea to another:**

It was not until 1929 that Fleming discovered penicillin after a bacterial plate he was culturing became contaminated with a spore of the fungus *Penicillium*.

Penicillin was discovered in 1929 after a bacterial plate that Fleming was culturing . . . .

After a spore of the fungus *Penicillium* contaminated a bacterial plate he was culturing, Fleming . . . .

The first of these alternatives emphasizes the history of the development; the second would be used if you were discussing various antibiotics, and the third puts the focus on the accidental nature of many scientific discoveries.

### Active and passive voice

When you write as a scientist (whether you are a nurse or a chemist, for example), your emphasis will not usually be on the person responsible for the action. For example, your readers will not usually want to know that 'We' checked the patients, or that 'I' mixed the chemicals. Rather, the patients and the chemicals are the focus of our attention.

This means that most of the time the safe approach is to avoid using personal pronouns and to write in what we call the *passive voice*.

### Consider these examples of active and passive voice:

First, some grammar:

i. When the subject of a verb performs the action spoken of by the verb, the verb is said to be in the *active* voice.

He *rounded up* the sheep. ("He", the subject, did the rounding up.)

She *will examine* the dog. ("She", the subject, will do the examining.)

ii. When the subject of the verb receives the action spoken of by the verb, the verb is said to be in the *passive* voice.

The sheep *were rounded up* by him. ("The sheep", the subject, received the action; he did the rounding up.)

The dog *will be examined*. ("The dog", the subject, will receive the action; someone will do the examining of it.)

Note: Passive verbs always involve part of the verb 'be' as an auxiliary. To write in this way, using the passive voice, and avoiding the use of personal pronouns, is the safest approach. At times, it may be appropriate to use personal pronouns—so long as you do so sparingly.



## What is scientific writing?

Scientific writing is clear, concise, unambiguous and logical.

### Here are more examples of sentences that are written in the passive voice:

Participants were randomly assigned to groups.	All grafts were done by the same horticultural assistant . . .
The test tubes were thoroughly cleaned according to Brown's procedure . . .	The patients' vital signs were checked every hour.
The seedlings were watered twice daily by the farm assistant.	The child's teeth were examined by the oral health therapist.
The paddock was sprayed with . . .	Data from all test plots were entered into a Microsoft Excel spreadsheet.
Forty-seven piglets were injected with . . .	

In each of the above cases, the subject of the verb ("participants", "test tubes", "seedlings" . . . suffers the action of the verb.

### Numbers ... words or arabic numerals?

As a scientist, you will often have to use numbers in your writing. You show your teacher that you are serious about writing as a scientist when you follow the following

conventions. Other examples can be found in the *APA Publication Manual* (2010). You could also refer to the way numbers are given in your textbook or published articles in your discipline, or a style guide that is recommended by your teacher.

The Convention	Examples
Use numerals to express numbers 10 and above	The 10 piglets were weaned. The horse was 25 years old.
Use words for the numbers one to nine.	The four hectares of wheat were destroyed.
Use numerals when a number of less than 10 is grouped with a number of 10 or above.	Testing revealed that 3 of the 27 cats were infected with the virus.
Use numerals when they precede a unit of measurement.	A 5 mg dose of antibiotic was administered to the dog. A 9 mm splinter was extracted from the cat's paw.
Use words to express any number at the beginning of a sentence.	Twenty-nine of the monkeys became pregnant during the test.
Use a combination of figures and words for large rounded numbers	There are almost 10 million sheep in New Zealand.
Use numerals for any number expressing dates, ages, scores, exact sums of money	The crop was harvested on December 15, 2013. The 2-year-old horses were checked for laminitis. Two of the participants scored 7 on a 10-point scale. The books cost \$21 each.



## What is scientific writing?

Scientific writing is clear, concise, unambiguous and logical.

### Tables and Figures

**Tables** present labelled data—numbers—in columns and rows for easy interpretation or comparison.

#### An example of a table

Table 3

*Climate Summary for Sydney (Observatory Hill), July 2005*

	July		
	2005	Average	2004
<b>Average maximum temperature (°C)</b>	19.0	17.1*	18.0
<b>Average minimum temperature (°C)</b>	9.3	8.4*	8.8
<b>Mean temperature (°C)</b>	14.1	12.7*	13.4
<b>Rain (mm)</b>	62.8	97.7#	43.8
<b>Number of days</b>	7	10	12
<b>Average daily sunshine (hours)</b>	7.7	6.5	6.8

\* Long-term temperature averages calculated since the site change in 1947.  
 # Median July rainfall is 76mm.  
 Climate averages for Sydney are available

**Source:** Australian Bureau of Meteorology, 2005.

Table identification

The title of the table is in italics. Major words and proper nouns are capitalised.

Column headings, centred

Numerals in columns, usually aligned right

The left-hand column is called the stub. Capitalization is sentence style, usually without end punctuation. Standard abbreviations (\$, %, km, n) may be used if space is at a premium.

Table notes are used to avoid repetition, and relate to symbols (\* or #) or superscript letters—like this a—on the table.

Remember to acknowledge your source.

#### Note:

1. The table number is on a line on its own, not underlined or in italics.
2. The table is numbered sequentially in Arabic numerals.
3. The title is placed above the table. Major words and proper nouns are capitalised.
4. Stub entries (the left column) and column headings are capitalised sentence style—only the first word in a title, or subtitle, and any proper names, are capitalised.
5. Vertical lines (or “rules”) are NOT used on a table. Limit horizontal lines to those necessary for clarity.
6. Numerals in columns are usually aligned to the right. If the numerals have decimal points, align the column on the decimal point. If they have commas but no decimal points, align on the commas. If a column includes different kinds of numerals, align on the ones that occur most frequently.



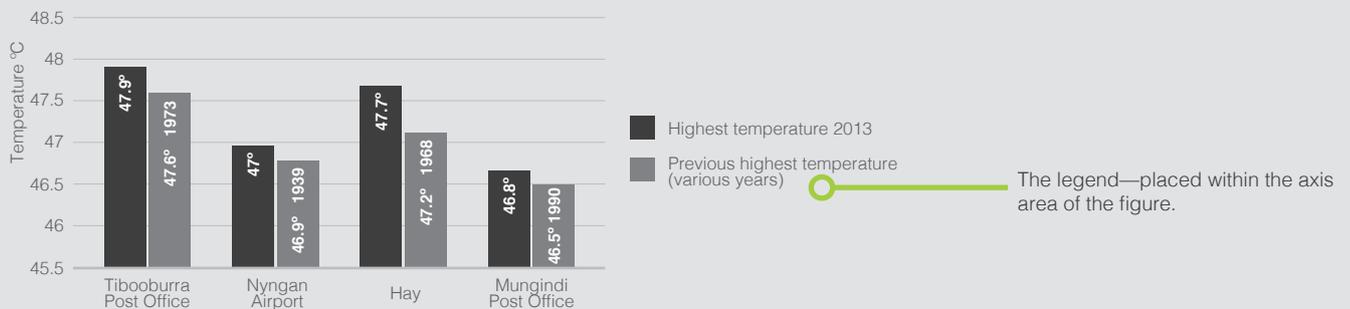
## What is scientific writing?

Scientific writing is clear, concise, unambiguous and logical.

### Tables and Figures

**Figures** (sometimes called illustrations) include charts, graphs, paintings, drawings and photographs.

#### An example of a figure



*Figure 4.* Record Highest Temperature NSW 2013 °C

**Source:** Australian Bureau of Meteorology  
[www.bom.gov.au/climate/current/annual/nsw/summary.shtml](http://www.bom.gov.au/climate/current/annual/nsw/summary.shtml)

Remember to acknowledge your source.

#### Note:

1. The figure number and caption (its title) are placed below the figure.
2. Figures are also numbered sequentially in Arabic numerals.
3. The figure number is italicised, but the legend itself is not.
4. Capitalise only the first word and proper nouns of the caption.
5. Capitalise major words in the legend.
6. Leave a clear space of at least two centimetres above and below the figure.
7. Never continue text alongside a figure. Never split a figure over two pages.
8. Always acknowledge the source of a figure.



## What is scientific writing?

**Scientific writing is clear, concise, unambiguous and logical.**

### Reading for an assessment

When starting any assessment it is best practice to read widely on the area before you begin. Reading a wide range of literature will help you further understand the areas you are studying. During this process,

- make notes of key readings,
- the author/s, the book/journal/or other source so that you can include these sources in your written or oral accounts.

Always check what your prescribed and suggested texts are for each of your subjects. Scientific dictionaries may also be available for the specific discipline that you are studying.

### Referencing at CSU

You must always cite your sources by referencing anything, words or views, that are not entirely your own. Anything originating from someone or somewhere else must be cited.

Referencing is the acknowledgement in your writing of the ideas and work of other people.

All assignments at CSU are expected to be fully referenced. This shows that your use of other sources is transparent and traceable and links you to the community of scholars. Correct referencing ensures that plagiarism is not a concern in your assignments.

#### Here are two examples:

- ✓ Hansen (1987) found that the crop yield was enhanced by the new fertiliser.
- ✓ Crop yield was enhanced by the new fertiliser (Hansen, 1987).



#### For more information on referencing:

- See **Plagiarism** and **Referencing at CSU** under the STUDY tab at student.csu
- Check your Subject Outline for specific requirements
- Talk to your Subject Co-ordinator and/or teaching staff



What are the different types of scientific writing you may have to do in your course?

There are four main types of scientific writing you may be required to do: Laboratory Reports, Essays, Oral Presentations and Poster Presentations ... in addition to exams, of course.

What is required will vary on what course you are doing.

Use this guide to talk to your teaching staff about what is required in each of your subjects. Always check your Subject Outlines and assessment marking rubrics for specific instructions.

## 1. Laboratory Reports

A Laboratory Report (or Lab Report, as we call them) describes a scientific experiment that you have undertaken. Your process, results, and interpretations are recorded within the Lab Report format, which is widely used in the scientific world..

### A typical Lab Report includes the following sections:

<b>Abstract</b>	The <b>Abstract</b> should be approximately 150–200 words, and provides a summary of the entire paper. It will describe the problem and its importance, what was done, how it was done, the results, and their significance for your discipline.
<b>Introduction</b>	The <b>Introduction</b> details the problem that you are exploring, explains why it is worth investigating, clearly states your purpose, and describes how your experiment fits in with previous research on the topic. The Introduction will contain citations to previous research.
<b>Materials and Methods (sometimes called just Methods)</b>	The <b>Materials and Methods</b> section enables another researcher to repeat your experiment exactly. This section will include detailed descriptions of the materials and equipment you used, and a narrative explaining how the experiment was conducted. Sometimes, your lecturer will allow you to simply refer to the Method that is outlined in your Lab Manual.
<b>Results</b>	The <b>Results</b> section summarises the key findings of your experiment. It will contain visual elements, such as <b>Tables</b> and <b>Figures</b> , and some text in which you describe the findings presented in the visuals. See Tables and Figures in the previous chapter.
<b>Discussion</b>	In your <b>Discussion</b> you will analyse and interpret the results from the previous section. You will need to explain what you have discovered and how it relates to the problem that you have been exploring, especially in relation to the literature you discussed in your Introduction. You will explain the extent to which your results confirm or refute what you set out to do in the experiment.
<b>Conclusion</b>	Some teachers and journals ask for a separate <b>Conclusion</b> , which follows the Discussion. Others expect that your conclusion will be the final paragraph of your discussion section. Either way, your conclusion will summarise what you have discovered. It may also identify other areas in which there are “gaps in the knowledge”, and in which further research may be needed.
<b>References</b>	Start a new page for your <b>References</b> , in line with Referencing at CSU in the previous chapter. Your references are to be listed in alphabetical order. You must ensure that all in-text citations are referred to in your References list, and vice versa.

## 2. Essays

An essay is a formal piece of writing in which you respond to a topic that has been set by your subject coordinator.

Regardless of the instructions given, most essays require you to carefully 'weigh up' opinions and evidence in relation to the topic, and to arrive at an informed and rational point of view about it.

There are three main steps in the essay writing process

### 1. Pre-writing

- Analyse the question;
- Brainstorm and categorise initial ideas;
- Plan the essay; and
- Research and record sources.

### 2. Writing

First draft ...

- Review your essay plan and refine your approach to the question;
- Redraft your essay plan (including any new ideas) in a logical order of topics and sub-topics with references to the evidence in your research notes;
- Draft an introduction and use it as the roadmap for your essay; and
- Begin to develop the essay paragraphs.

Subsequent drafts ...

- Further develop your ideas in logically sequenced paragraphs; and

- Write and sharpen your introduction and conclusion.

Note: Essay writing is a process of drafting and redrafting. Several drafts are always required before any quality essay will be ready to submit. A badly written, edited, disorganised or inaccurate essay creates a lasting and poor impression. An excellent essay will mark you as a serious and even, perhaps, extraordinary student.

### 3. Editing and proof reading

Edit by reading each draft to identify:

- weaknesses in your argument/s;
- instances where your intended meaning is not clear;
- inaccuracies in content; and
- a lack of continuity and grammatical errors.

Proofread by carefully checking your final draft for:

- clarity;
- formatting;
- spelling;
- punctuation;
- grammar; and
- references.

Don't forget to correct any errors before submission!!!! Errors of content may be discussed and improved upon. However, errors in mechanics (spelling, punctuation and grammar) are the easiest to prevent - and the hardest to excuse. Time spent in this often tedious pursuit is never wasted – and hardly ever recognized. It is always, however, rewarded.

## A typical essay consists of four sections:

Introduction      Body      Conclusion      References.

Just as important as this broad structure, is the logical structure that you should adopt within each paragraph in the body of your essays—and most other writing that you do at university. This structure (called P.E.A.) consists of the following elements:

- Point:** This is sometimes called a topic sentence. It tells your reader what the paragraph or section is about.
- Evidence:** You will cite material that supports the point of the paragraph. This evidence will come from your reading.
- Analysis:** A sentence or two of analysis ties your paragraph together. It explains how and to what extent your evidence supports the point, and leads the reader on to your next point.

Using the P.E.A. structure in essays, and other written work will help keep your argument on track, and will guide your marker through your paper.

A report is another very common piece of writing. A report always has headings that must be followed. An essay can have these headings but aren't always required – this is one area to check with your lecturer and your subject outlines to clarify requirements.

Both essays and reports written formally, and with the intention of being unbiased, well researched, and a truthful and accurate representation of your assessment of the topic or area being researched.

### 3. Oral Presentations

An oral presentation is a common way of presenting ideas and information in science subjects and may be an assessment item in one or more of your subjects.

Sometimes the oral presentation will be with your fellow students, as a group task. Sometimes they will be an individual or voice-recorded presentation. Either way many people can feel nervous about delivering an oral presentation.

It is, therefore, very important that you plan, prepare and practise your oral presentations.

#### Tips for planning, preparing and delivering an oral presentation:

- Identify your goal for the presentation – what is the main point you want to communicate?
- Know your audience - who will you be presenting to?
- Identify your timeframe - how long have you got?
- Identify what support aids you are going to use, such as Powerpoint, palm cards, a list of talking points or hand outs etc...
- Practise your presentation as many times as you can and time it on a stop watch
- Anticipate questions from the audience
- When you do finally present it, look at your audience rather than down at your notes or the Powerpoint slides

#### A typical oral presentation includes the following sections:

<b>Introduction</b>	<ul style="list-style-type: none"><li>• Title of the presentation</li><li>• Your name(s)</li><li>• An overview of the topic or main idea including a general statement outlining your presentation, definition of any key terms you are going to use and the main points you have used to structure your information</li><li>• Lead to a thesis statement, which summarises the presentation</li></ul>
<b>Body</b>	<ul style="list-style-type: none"><li>• Present the information in sections around your main points and use supporting details. These are similar to paragraphs in an essay but generally, written as dot points on your slides.</li><li>• Be sure to relate your information directly back to the topic.</li><li>• The sections need to be linked to create logical flow of information for your audience</li></ul>
<b>Conclusion</b>	<ul style="list-style-type: none"><li>• Provide a very brief summary of the main points</li><li>• You may finish with recommendations or predictions connecting your ideas back to the world again</li><li>• Thank your audience for their attention to make it clear you have finished</li><li>• Open the floor to questions.</li></ul>

## 4. Poster Presentations

A scientific poster is a common way of communicating in many science fields.

These are large written and visual accounts of a topic, area of research or investigation.

A good poster is an attractive combination of text, visuals, and blank space, and is informative and easy to read.

Always check your subject outlines for specific criteria but a good guide to follow is 20% text, 40% visual and 40% empty space.

### A typical poster looks like this:

**Charles Sturt University**

## Academic Skills auditing helps inform the refinement of two first year science subjects to improve student success at University and beyond

**Hannah P. Wilkinson & John D. I. Harper**  
School of Agricultural & Wine Sciences

### Supporting Students to Succeed

More students are coming to University from increasingly diverse backgrounds and need support to develop skills to underpin their study (Murray 2012). Skills audits were undertaken to identify required academic skills in two first year science subjects: Botany & Microbiology. The identified Skills were then embedded into the programs (Wingate 2006).

### Embedding Appropriate Skills

In **Botany** the skills audit identified that students had difficulty writing clear and concise answers for short answer questions. Using an academic literacies approach (Lea & Street 1998) we developed multiple modes of support, scaffolding learning of these important generic skill. For example, tutorial activities in lecture and practical classes, podcasts, example answers and formative quizzes were used to engage the students in gaining confidence and expertise in writing.

In the follow-on subject, **Microbiology**, numeracy skills are being improved with discipline-specific exercises involving calculation of microbe sizes from microscope calibrations, bacterial dilutions for plating, calculating growth rates and estimation of microbial numbers. Students are supported by on-line and in class tutorials and get to do calculations in practical classes with living microbial cells.

### Outcomes from summative assessments have already been promising with a significant improvement in student marks for these assessments.

### Future Developments for Continued Engagement and Success

The skills audits will be conducted in other subjects though student programs and coupled with curriculum alignment will help maximise learning of important skills to **maximise students success** at university and in their careers.

**References:**

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[www.csu.edu.au](http://www.csu.edu.au)



## What are some of the key terms you may read or hear at CSU?

**As you progress through your course, you will start to learn and become comfortable with University terminology ... here is a list of key terms to get you started.**

<b>Abstract:</b>	Brief outline or summary of the content of an article or paper, placed at the beginning of the document; a critical part of scientific and social science publications because it often determines whether the article will be read.	<b>Extension:</b>	Permission from a relevant person in a School to hand work in later than the submission date; usually needs to be supported by medical documentation or personal reason.
<b>Academia:</b>	The academic world.	<b>Feedback:</b>	Evaluative comments on your work, which should indicate strengths, weaknesses, errors and ways to improve your work.
<b>Academic:</b>	1. (noun) a member of the academy of scholars; 2. any university teaching staff member; 3. (adjective) to do with university teaching or study (e.g. academic paper).	<b>Field trip:</b>	An excursion to study some aspect of the topic in its usual setting, 'in the field'.
<b>Active study techniques:</b>	Students actively engage in study either alone or in study groups. The key here is to work with your study material so that you are making it have meaning for you, for example, looking at each learning objective and writing notes in your own words to show you understand the content. Doing relevant questions from Interact or your textbook to see if you understand the material and its context. Asking for clarification of information on the Forum. Doing a Google search for different examples that may help you understand the material.	<b>FoS:</b>	Faculty of Science.
<b>Active voice:</b>	Describes a sentence where the subject performs the action stated by the verb. For example, Tom changed the flat tire. See "passive voice" also.	<b>Fun:</b>	Do not forget to enjoy the social side of Uni life too. In moderation of course!
<b>Citation:</b>	A quotation from an authoritative source that is used to support an idea or argument.	<b>Grades:</b>	HD - High Distinction 85-100% DN - Distinction 75-84% CR - Credit 65-74% PS - Pass level 50-64% F - Fail below 50%
<b>Draft:</b>	A version of the text. Essays will usually go through several drafts before the final product.	<b>Journal (log book):</b>	A personal record of experiences or observations.
<b>Editing:</b>	1. changing a text, deciding on a better arrangement of words; 2. reducing the size of a text by cutting repetitive sections out.	<b>Journals:</b>	Academic magazines/Articles in the library (e.g. <i>The Bulletin</i> ; <i>Nature</i> ; <i>Journal of Art Education</i> ) shelved in a separate section.
<b>Essay:</b>	From the French word 'essai', this means to balance, or weigh up. An essay is a sequential text having an introduction, a body which contains evidence in support of an argument, and a conclusion which summarises the case to finally establish the argument.	<b>Lecture:</b>	A presentation to a large group, usually by one person transmitting much information on a set topic.
		<b>Lecturer:</b>	An academic who presents lectures.
		<b>Narrative:</b>	A story or account of events, experiences, or the like, whether true or fictitious.
		<b>Osmosis:</b>	An ineffective study technique where a student stares at a textbook or their notes and hopes that the information will jump into their brain.
		<b>Passive voice:</b>	Describes a sentence where the subject is acted upon by the verb. Example: <i>The tyre was changed by Tom.</i>



## What are some of the key terms you may read or hear at CSU?

**As you progress through your course, you will start to learn and become comfortable with University terminology ... here is a list of key terms to get you started.**

<b>Peer learning:</b>	Learning from fellow students by working on material either formally or informally.	<b>Undergraduate:</b>	Student studying for a first degree.
<b>Plagiarism:</b>	Cheating by deliberately pretending someone else's work is your own, either by (a) Copying parts of published material without citing the sources or (b) by presenting work by someone else (e.g. another student) has written as if it were your own.	<b>Unit:</b>	A measure used to give weighting to topics at university. A year's study is made up of a set number of units.
<b>Postgraduate, higher degree student:</b>	Student studying for a second degree or diploma that requires a completed first degree as a prerequisite.		
<b>Prerequisite:</b>	Pre-required knowledge.		
<b>Referencing:</b>	List of all published works referred to within a text, placed at the end of the text.		
<b>Referencing system (or style):</b>	A standardised method of referencing sources. The system used at Charles Sturt University is the APA.		
<b>Report:</b>	A concise and formal text usually presenting results of an investigation.		
<b>Resubmission:</b>	Permission from relevant staff member to amend the text and submit again before being finally graded—not always available.		
<b>Rote learning:</b>	Learning style that depends upon learning by memorisation, rather than understanding.		
<b>Submission date:</b>	The due date for a piece of work to be handed in.		
<b>Time Management:</b>	Good time management is where you allocate adequate time for study. Did you know, for instance, if you go back over lectures with active study techniques within 24 hours of the lecture you radically increase the chances of the material staying in your long-term memory!		
<b>Tutor:</b>	An academic who runs tutorials.		
<b>Tutorial:</b>	A small group meeting frequently focussed on a single issue, usually providing opportunity for discussion.		



Where can you go, and who can you talk to, to get more assistance with writing in science?

## There is a range of Study services you may find useful in helping you develop your Scientific writing skills

### Online

- Study Guides and Tips (<http://student.csu.edu.au/study/studyguidesandtips/writing-at-uni>)
- Study Link (<http://student.csu.edu.au/home/new-students/your-first-year-in-science/what-you-need/studylink-for-science-students>) can help you build and refresh your academic skills in Science
- Check your subject outline for specific requirements. You will find this on Interact. eStudent support (<http://student.csu.edu.au/study/estudent-support>) which can help you learn how to navigate Interact which you have to use to access course and subject information
- Learn about all the services the CSU Library (<http://student.csu.edu.au/library>) offers

### In person

- Talk to your Subject Co-ordinators and/or teaching staff
- Learning Advisers (<http://student.csu.edu.au/study/learning-skills>) can assist you to develop your skills in academic writing and English language; avoid plagiarism by citing correctly and improve your competency in maths and statistics

## During your time at CSU ... and beyond

Throughout your degree program, CSU and the Faculty of Science will provide you with many opportunities to increase your knowledge and skills, not only in important areas of your course content, but also in the social context of any linked professions.

These important areas are called Graduate Learning Outcomes (GLOs) and include:

- Academic Literacy, Learning and Numeracy
- Digital Literacies
- Ethics
- Global Citizenship

- Indigenous Cultural Competency
- Professional Practice
- Sustainability

Having higher understanding in these important areas when you graduate will prepare you to take advantage of opportunities in both your professional and social life.



## What is Sci FYE and Academic Success?

### ABOUT Sci FYE

Sci FYE stands for Science First Year Experience. It is an initiative of the Faculty of Science for first year students.

Sci FYE works to help you get a great start to study and life at University so you can participate, pass and progress in your first year and beyond.

To do that, Sci FYE provides a roadmap to practical knowledge and resources you can use to:

- Prepare for what is expected of you, such as workload, basic scientific academic skills and workplace learning requirements

- Navigate and use the range of communication channels and programs, so you know where to go and who to talk to about what
- Get used to University life and the responsibilities it entails, so you can balance study with your life and work
- Enjoy the full benefits of being part of the Faculty of Science and studying science



To find out more, go to [student.csu.edu.au](http://student.csu.edu.au) and click on **Your First Year**.

### About Academic Success

The CSU Academic Success Team works in collaboration with Faculties to support students' aspiration, participation and success in higher education.

Academic Success programs cover the full range of the student life cycle, including: working with school children from

Kindergarten to Year 12 in aspiration raising programs; the development of pathway and enabling programs to increase participation and effective preparation; and the provision of support services for enrolled students to facilitate student retention and success.



To find out more, go to [student.csu.edu.au](http://student.csu.edu.au) and click on **STUDY**

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