



# Academic writing

Introduction to Machine Learning  
(COMP90049)

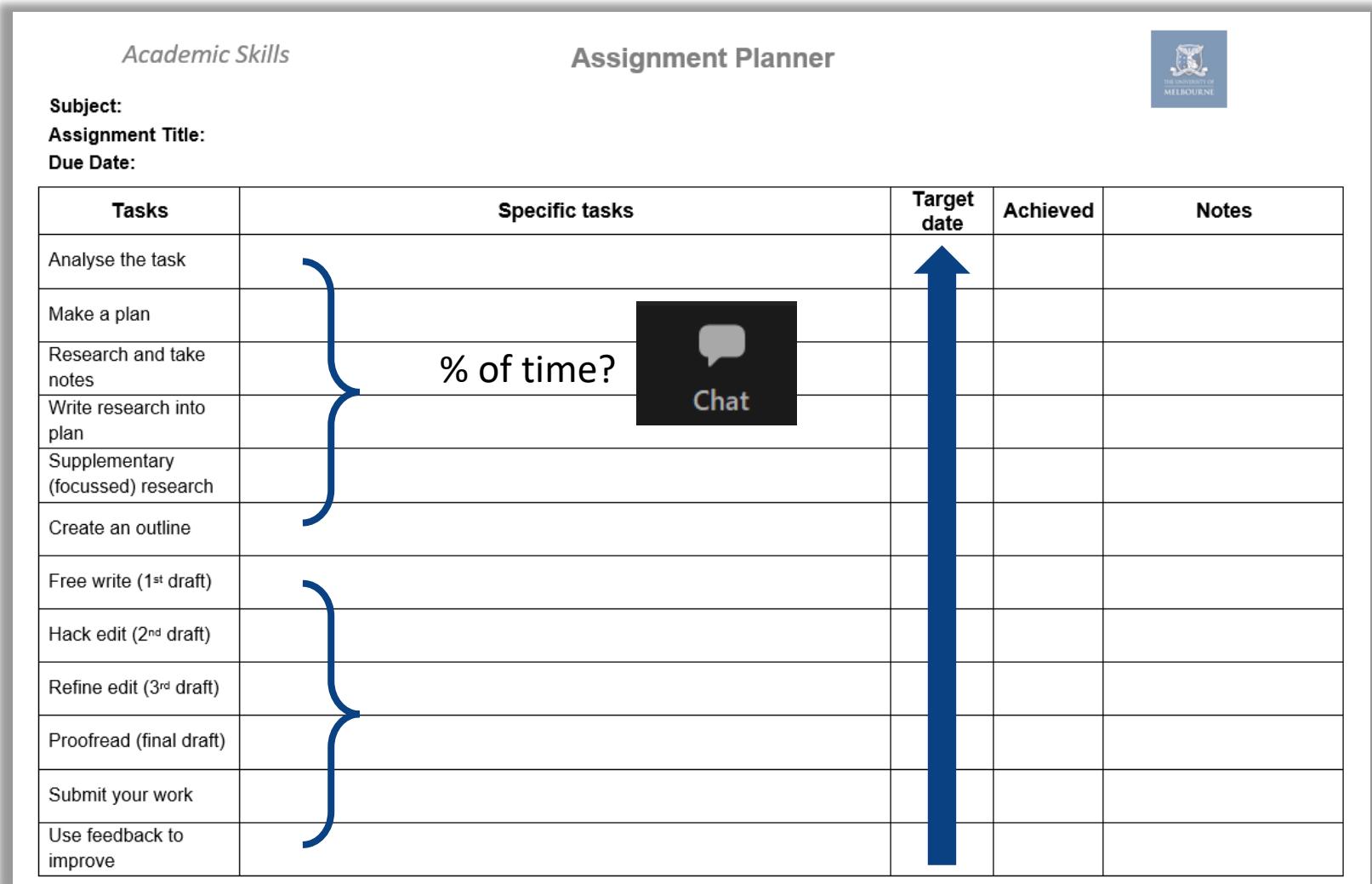
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# Writing process

1. Determine the task type
2. Analyse the task
3. Brainstorm key ideas
4. Research and read
5. Write and edit
6. Polish and submit





Semester  
Planner

# **SEMESTER 2 2021**

	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN	MON	TUE	WED	THU	FRI	SAT	SUN		
JULY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	1					
WINTER BREAK												WINTER BREAK												Semester 1 Special / Supplementary Exams						MELBOURNE ORIENTATION				WEEK 1			
AUGUST	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31							
WEEK 2						WEEK 3   Employability Week						WEEK 4						WEEK 5						WEEK 6													
SEPTEMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							
WEEK 6						WEEK 7						WEEK 8						WEEK 9						MID-SEMESTER BREAK						WEEK 9							
OCTOBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
WEEK 10												WEEK 11												Non-teaching period						WEEK 12						SWOT VAC	
NOVEMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
EXAMS												EXAMS												SUMMER BREAK						SUMMER BREAK							
DECEMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						
Summer 2 Graduate Classes												Summer 2 Graduate Classes												Semester 2 Special / Supplementary Exams						SUMMER BREAK						UN-CLOSED	
SUMMER BREAK						SUMMER BREAK						SUMMER BREAK						SUMMER BREAK						SUMMER BREAK (UN-CLOSED UNTIL 3 JANUARY)						SUMMER BREAK							



# Determine the task type

What type of writing is it?

What is the structure?

What am I expected to do?

### 3. Report

You will submit an **anonymised report** of 2000 words in length ( $\pm 10\%$ ), **excluding reference list**. The report should follow the structure of a short research paper, as will be discussed in the guest lecture on Academic Writing. It should describe your approach and observations, both in engineering (optional) features, and the machine learning algorithms you tried. Its main aim is to provide the reader with **knowledge** about the problem, in particular, **critical analysis of your results and discoveries** (or maybe some that you havent!). The internal structure of well-known classifiers (discussed in the subject) should be discussed if it is important for connecting the theory to your practical observations.

- Introduction: a short description of the problem and data set
- Literature review: a short summary of some related literature, including the data set reference and at least two additional relevant research papers of your choice. One option is [Agarwal et al. \(2011\)](#), as well as papers cited there.
- Method: Identify the newly engineered feature(s), and the rationale behind including them (Optional). Explain the methods and evaluation metric(s) you have used (and why you have used them)
- Results: Present the results, in terms of evaluation metric(s) and, ideally, illustrative examples
- Discussion / Critical Analysis: which must cover the following aspects with greater focus on contextualising:
  1. Contextualise\*\* the systems behavior, based on the understanding from the subject materials (the most important part of the task in this assignment)
  2. Discuss any ethical issues you may find with developing a sentiment classifier given the data and evaluation used in this assignment. Your discussion may touch on data selection, user discrimination, or other biases introduced in the pipeline. You may use ([Díaz et al., 2018](#); [Yang and Eisenstein, 2017](#)) for inspiration (and cite it appropriately if you do), or come up with your own ideas.
- Conclusion: Clearly demonstrate your identified knowledge about the problem
- A bibliography, which includes ([Vadicamo et al., 2017](#); [Go et al., 2009](#)), as well as references to any other related work you used in your project. You are encouraged to use the APA 7 citation style, but may use different styles *as long as you are consistent* throughout your report.

\*\* Contextualise implies that we are more interested in seeing evidence of you having thought about the task and determined reasons for the relative performance of different methods, rather than the raw scores of the



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## Introduction

## Literature review

## Method

## Results

## Discussion / Critical Analysis

## Conclusion

## Bibliography

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## Introduction

- short description of the problem and data set

## Literature review

- short summary of some related literature, including the data set reference and at least two additional relevant research papers of your choice

## Method

- identify the newly engineered feature(s), and the rationale behind including them (Optional)
- explain the methods and evaluation metric(s) you have used (and why you have used them)

## Results

- evaluation metric(s) and, ideally, illustrative examples

## Discussion / Critical Analysis

- contextualise the systems behavior (evidence of you having thought about the task and determined reasons for the relative performance of different methods), based on the understanding from the subject materials
- discuss any ethical issues you may find with developing a sentiment classifier given the data and evaluation used e.g. data selection, user discrimination, or other biases introduced in the pipeline.

## Conclusion

- clearly demonstrate your identified knowledge about the problem

## Bibliography

- encouraged to use the APA 7 citation style

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# Analyse the task

Identify **direction**, **content**, **limiting words**: e.g.

*short description of the problem and data set*

*short summary of some related literature,  
including the data set reference and at least  
two additional relevant research papers of  
your choice*

*discuss any ethical issues you may find with  
developing a sentiment classifier given the  
data and evaluation used in this assignment*

**Make sure you use similar words and phrases  
in the relevant section of your paper**

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## Introduction

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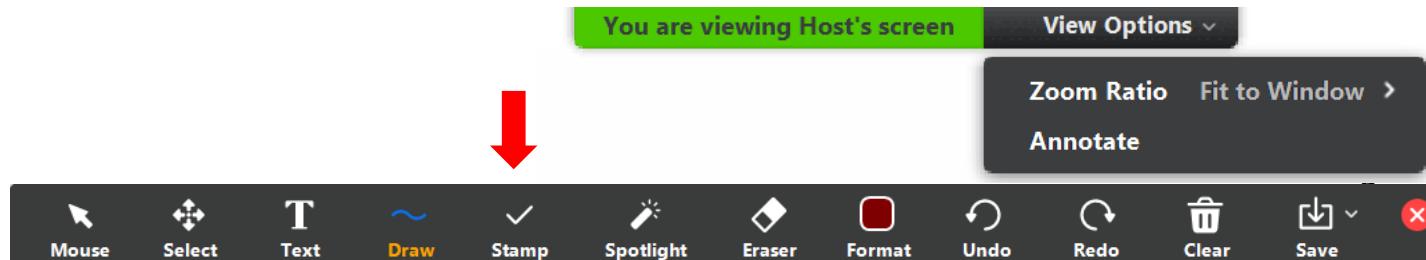
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# Analyse the task

*content words*

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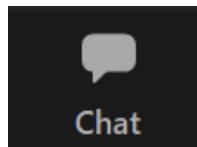


# Brainstorm key ideas

Organise plan into sections

Allocate word counts

- Introduction and conclusion?
- Balance of literature review, method, results and discussion / critical analysis?



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## Introduction

## Literature review

## Method

## Results

## Discussion / Critical Analysis

## Conclusion

## Bibliography

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10 110%

School of Computing and Information Systems, The University of Melbourne  
COMP90049 Introduction to Machine Learning, Semester 2 2021: Assignment 3 Report Marking Rubric

Method (25% weighting)	Critical Analysis (50% weighting)	Report Quality (25% weighting)
10 <ul style="list-style-type: none"><li>System design is admirably clean and unquestionably structured.</li><li>Testable hypotheses were derived from knowledge for the given task.</li></ul>	10 <ul style="list-style-type: none"><li>Clearly identifies the knowledge gained about the task.</li><li>Argumentation is logical and incontrovertibly supported by evidence.</li><li>Theoretical properties of methods are well-understood and linked to practical observations.</li><li>Demonstrates a very high level of abstract thought.</li><li>Admirably situated with respect to the academic community.</li><li>Publishable with perhaps minor changes.</li></ul>	10 <ul style="list-style-type: none"><li>Reports are cohesive, where the components indicate how they relate to the whole.</li><li>Logical and formal, in line with typical academic writing.</li><li>Easy-to-follow.</li><li>Clearly synthesised and chosen discussion relevant to the given problem.</li><li>And meets word limits.</li></ul>
<b>Critical Analysis (50% weighting)</b>		



# Brainstorm key ideas

Organise plan into sections

Allocate word counts

- Introduction and conclusion?
- Balance of literature review, method, results and discussion / critical analysis?

**Method, results, discussion substantive**

A screenshot of a Microsoft Word document titled "COMP90049 Report.docx - Saved". The document is organized into sections, each with a bold title. The sections are: "Introduction", "Literature review", "Method", "Results", "Discussion / Critical Analysis", "Conclusion", and "Bibliography". The "Bibliography" section is currently empty. The Word ribbon is visible at the top, showing tabs like File, Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Help, Acrobat, Share, and Comments. The status bar at the bottom shows "Page 1 of 1", "159 words", and "Display Settings Focus Focus". The page number "12" is located in the bottom right corner.



# Research and read

## Find information

- Read with a focus
- Add notes to plan
- Record reference details

## Research using:

- References in course material
- <https://unimelb.libguides.com/>

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## Introduction

### Literature review

- concept (author, year, p)
- concept (author, year, p)

### Method

- feature 1 – method, evaluation, rationale (author, year, p)

### Results

- metric 1, example
- explanation a, rationale b (author, year, p)

### Discussion / Critical Analysis

- performance of method 1, reasoning a, reasoning b (author, year, p)
- ethical issue 1, link to data
- ethical issue 2, link to evaluation (author, year, p)

### Conclusion

### Bibliography

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# Write and edit

- Meet your interim deadline to **start** writing
- **Start anywhere** in the body of the paper
  - A section you are confident about
  - Work you have already completed
- Write the introduction and conclusion last
- Meet your interim deadline to have a full (or mostly complete) first draft
- Refer back to the task and rubric to edit sections for content
  - Do I need it? Is it relevant?
  - No? Remove it
- Large edits
  - Possible removal of whole sections, paragraphs or sentences
  - Moving content from one section to another
  - Adding analysis and interpretation
- Small edits
  - Sentence, word, text level



# Writing: Critical analysis



# Critical analysis

Two elements to critical literacy:

- A reporting / describing element:
  - You find information about the topic, describe what it says, what was done, found, claimed etc.
  - This frames the second part: important, but don't stop here
  - The '**catalogue**'
- An interpretive / response element:
  - You interpret and respond to what you have read
  - Critically engage with the readings and the topic / task
  - The '**dialogue**'

# Reflective questions

- What happened? What do I / we know?
  - describing, assessing, context
- What has changed?
  - gap between expectation and actual
- What worked? Why?
  - strengths
- What didn't? Why?
  - limitations
- What have I learned?
  - understandings
- What might we do differently?
  - learning
- How can we get there?
  - development
- What do I know now?
  - conclusions



# Functional language

- **Content** language
  - Topical (engineering)
- **Functional** language
  - cohesive-linking-highlighting

*Therefore, however, first, next, for example, though, and, which*

*This is important because ... This shows that... This tells us ...*

# ‘Interpreting’ language

What this means\* is ... (\*shows / tells us / reveals / highlights / points to / implies)

... importantly\* suggests that ... (\*crucially, significantly)

... which points to / suggests the need for ...

... which is vital / crucial as it ...

... which shows / illustrates that ...

... which is significant as it ...

... is illustrative because it ...

... meaning that ...

... illustrating / pointing to the need for ...

In doing so, it points to ... / In so doing, tells us that ...

This language signals interpretation and adds your ‘voice’ to your writing.

# Incorporating sources

## “Direct quotation”

- Copy of an author’s **exact** words
- Use sparingly, for definitions or commentary

*Cheng et al. (2010) proposed a user location framework “based purely on the content of the user's tweets, even in the absence of any other geospatial cues” (p. 759).*

## Paraphrasing or summarising

- Ideas expressed in your words
- Use often, cite the source every time

*A framework was proposed whereby the location of a user was estimated solely on tweet content even where geospatial data is absent (Cheng et al., 2010).*

# APA7 in-text citation tips

- Try to start and finish paragraphs with your words, instead of a citation; this helps you add your interpretation / **critical analysis**
- Include the author/s family name/s and the year for in-text citations
  - No given name initials (these appear in the Reference List only)
- Use et al. for sources with three or more authors
  - *Et alia* means ‘and others’ in Latin (the . in **al.** shows the word has been shortened)
  - *Letts et al. (2015) argue that ...* (not *Letts [and others] argues ...*)
  - *The paper by Cheng et al. (2010) proposed ...* (not *Cheng [and others’] (2010) paper proposed ...* )
- Include page number and your own comment with direct quotes
  - *... part of the data set” (Lee, 2017, p. 5). The implications of this are ...*



# Editing: Report quality

# Report writing style

- Address the task – show you are doing so with key language
  - *This paper explores / examines / identifies... (intent / position)*
  - *This suggested that... (discussion / analysis)*
  - *Having carried out ... we conclude / find that ... (concluding)*
- State the function of the report sections and make relationships clear to current work
- Clear graphics and layout; refer to graphics in text, numbered headings
- Formal language
  - full forms (~~didn't~~ did not)
  - avoid emotive language (*frustrating, disappointing, obvious, good, bad*)

# Tenses in report writing

- Past tense for finished action
  - *did, found, discovered, proved, showed*
  - *... a second experiment is was performed ...*
- Present simple for fact, current observation or current feeling
  - *... it refers to ... it signals that ... we can see that ... it shows...*
  - *Lee (2010) proposes that this is ...*
- Present perfect for an action that started in the past which is still happening now
  - *Over the past decade, researchers have focussed on ...*

# Sentence length

If the sentences are **short and related**,  
then join them

<b>Less than 8 words in the sentence (1 line in a Word doc)</b>	Very short sentence	OK, but don't use too many of these; writing can appear short and choppy, hard to read.
<b>8-15 words (1 - 1.5 lines)</b>	Short	✓ OK combined with 15-25.
<b>15-25 words (2 - 3 lines)</b>	Average number per sentence.	✓✓ This length will form the majority of your sentences.
<b>25-35 words (3 - 4 lines)</b>	OK, but becoming long.	✓ Can be effective if the point is worth making in a single sentence; make sure you have control over the idea(s) though and use appropriate connecting / linking words.
<b>35-45 words (4 - 5 lines)</b>	Long	Consider breaking up the idea(s) into two or more shorter sentences.
<b>More than 45 words (+ 5 lines in a Word doc)</b>	Too long	✗ Avoid this; the point gets lost, control over the language is lessened and chances for errors in form and logic increase.

If the sentence is 5 lines (and not a list),  
consider breaking it up



# Sentence length

Short, join:

A majority class baseline was used for this experiment. It is based on the ‘Zero Rule’. This rule classifies all tweets according to labels with the greatest training set ratio.

A majority class baseline based on the ‘Zero rule’, which classifies all tweets according to labels with the greatest training set ratio, was used for this experiment. (27 words)

or

The majority class baseline used for this experiment was based on the ‘Zero Rule’, which classifies all tweets according to labels with the greatest training set ratio. (27)

Long; cut:

By analysing the training set, it was somewhat surprising to find a number of feature values equal to 0, especially as many samples have 0-value for all their attributes, which means that none of the feature terms ever occurs in them. (41)

By analysing the training set, we found a number of feature values equal to 0. This was somewhat surprising, especially as many samples have 0-value for all their attributes, which means that none of the feature terms ever occurs in them.



# Polish and submit

- Factor editing time into your schedule
- Edit / proofread after a break
- Change font / save as pdf / print hard copy for final proofreading
- Read aloud / use Read Aloud in Word
  - These will help you read from an outsider's or non-expert perspective
- Proofread for one writing feature at a time
  - e.g. words and phrases from the task brief, functional language for critical analysis, functional language for cohesion, sentence length, tense, word choice, punctuation, spelling, APA7
- Know how and by when to submit **in advance**

# Stage II task

Write 200-400 words total per review, responding to three 'questions':

- Briefly summarise what the author has done in one paragraph (50-100 words)
- Indicate what you think that the author has done well, and why in one paragraph (100-200 words)

*The strengths of the writing to me are ... What is clear about the paper is ...*

*You have ... and this is evident in the way you ... because ...*

- Indicate what you think could have been improved, and why in one paragraph (50-100 words)

*The writing could improve in the following areas ... You could ... It needs more ...*

*You could try to ... Think about having more of ... / less of...*

## What could we look for?

Message clarity / language / content / citation and Reference List / link / flow / accuracy / headings / relevance / critique / interpretation / use of data / figures / charts

# Academic Skills

*Enabling students to realise their full academic potential and achieve excellence*



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consultations



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development

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/academic-skills](https://students.unimelb.edu.au/academic-skills)

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