

GenAI Workshop

Dr Ananthan Ambikairajah

University of Canberra

Schedule

- ▶ **Part I - GenAI**
- ▶ **Part II - Philosophies for AI use**
- ▶ **Part III - Prompt Engineering**
- ▶ **Part IV - GenAI Testing Assessments/Work**

About me

[Ananthan Ambikairajah](#)[Publications](#) [Teaching](#) [Podcast](#) [CV](#) [Media Outreach](#)**Dr Ananthan Ambikairajah**

Neuroscientist. Educator. Science Communicator.

 [University of Canberra](#) [Website](#) [Email](#) [Google Scholar](#) [ORCID](#) [ResearchGate](#) [Web of Science](#) [Github](#) [LinkedIn](#) [YouTube](#)

I'm running the Canberra Marathon for Dementia Australia - donate below

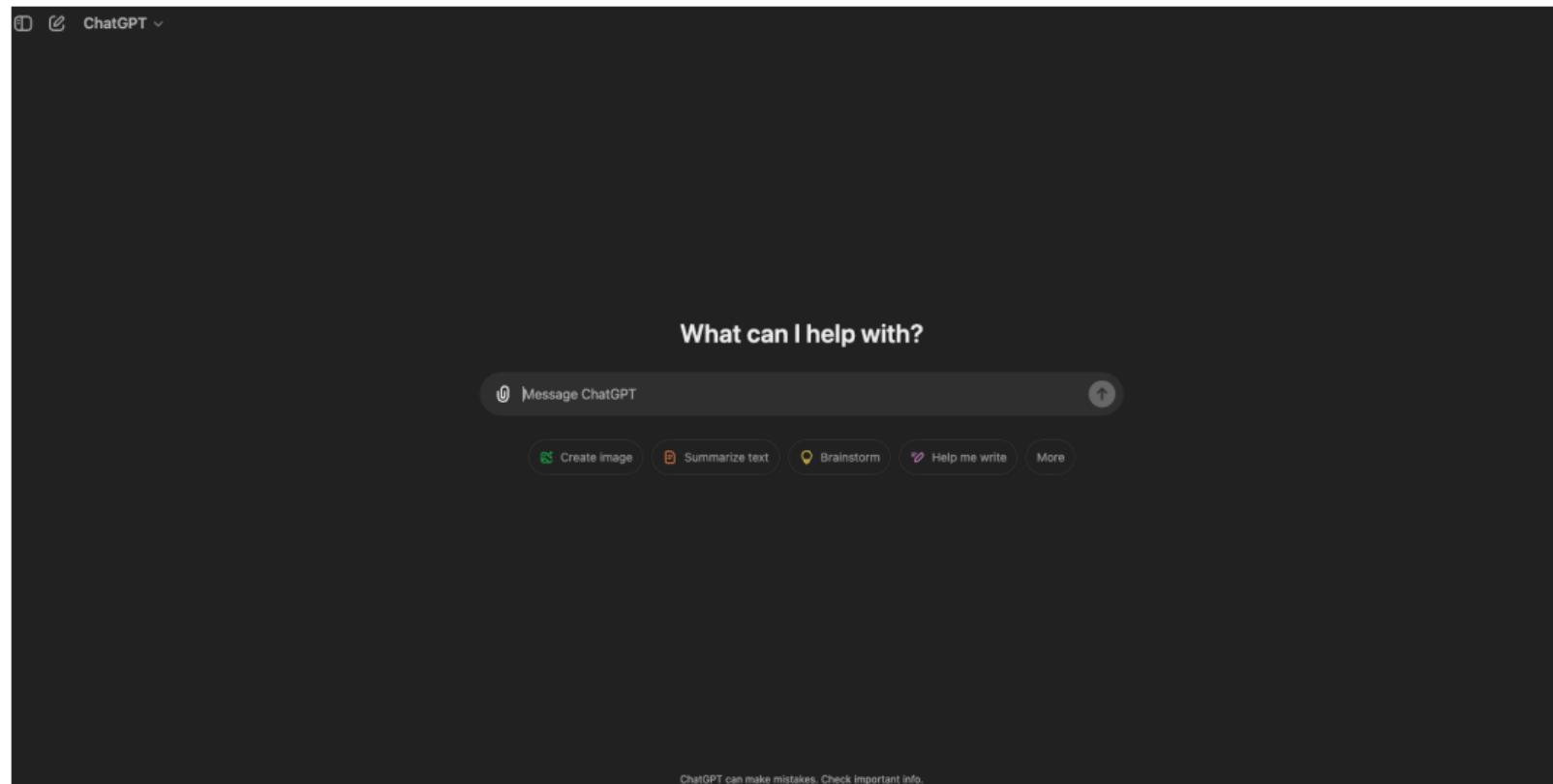
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Dr Ananthan Ambikairajah is a Lecturer in the Discipline of Psychology in the Faculty of Health at the University of Canberra (UC) and a core member of the Centre for Ageing Research and Translation (CARAT). He completed his PhD in Neuroscience at the Australian National University in 2022 and, in 2024, received the ACT Minister for Health's Outstanding New Researcher Highly Commended Award. His research focuses on genetic, environmental and lifestyle factors that influence ageing, brain health and disease, with a particular emphasis on sex-specific determinants and cardiometabolic factors. His recent work investigates potential pathways for dementia risk reduction as well as improving timely and accurate diagnosis. His research has been covered by ABC News, The Sydney Morning Herald, The Australian Financial Review, The Australian and ABC Radio. In 2025, Ananthan received the UC Award for Teaching Excellence and the Vice-Chancellor's Educator of the Year Award. He has also received multiple student-nominated awards and commendations for Excellence in Teaching. Following his undergraduate degree in Neuroscience at the University of New South Wales, he completed a Master's in Teaching (Secondary) and is a Senior Fellow of the Higher Education Academy (SFHEA). In 2023, he founded and continues to chair the Faculty of Health Generative Artificial Intelligence Community of Practice, leading university-wide efforts to support staff and students with their understanding, use and adoption of GenAI to enhance learning, teaching, research and professional practice. Elected to the University Council in 2026, Ananthan represents the academic voice in university governance and serves as the academic staff representative on both the Academic Board and the Faculty of Health Board. Ananthan hosts *Midnight Conversations*, a podcast that communicates research and the principles of scientific thinking to the public in an engaging and accessible way. The podcast is available on Apple Podcasts, Spotify and SoundCloud. Beyond academia, Ananthan is an avid runner who has raised over \$1,000 for Dementia Australia through events including the Canberra Times and Sydney Marathons. He also enjoys rock climbing, playing chess and tennis.

Featured Research Presentation

<https://ananthanambikairajah.com/>

How did we get here?



The screenshot shows the ChatGPT interface. At the top left, there are icons for a file, a refresh, and a user profile, followed by the text "ChatGPT". On the right side of the header is a blue circular icon with a white upward arrow. Below the header is a large, dark gray input field with the placeholder text "What can I help with?". To the left of the input field is a small microphone icon. To the right is a blue circular icon with a white upward arrow. Below the input field is a horizontal row of five buttons: "Create image" (with a camera icon), "Summarize text" (with a document icon), "Brainstorm" (with a location pin icon), "Help me write" (with a pen icon), and "More" (with a three-dot icon). At the bottom of the interface, a small note reads "ChatGPT can make mistakes. Check important info."

ChatGPT, <https://chatgpt.com/>

- ▶ ChatGPT is a generative artificial intelligence (GenAI) chatbot developed by OpenAI
- ▶ Launched on 30th of November, 2022
 - ▶ Large language model
 - ▶ Initially used GPT-3.5, but now uses GPT-5 architecture
 - ▶ In June 2024, announced a partnership with Apple Inc.
- ▶ Major competitors include:
 - ▶ Gemini (formally known as Bard), developed by Google
 - ▶ Claude, developed by Anthropic
 - ▶ Llama, developed by Meta AI
 - ▶ Grok, developed by xAI
 - ▶ Perplexity, developed by Aravind Srinivas
 - ▶ Deepseek, developed by High-Flyer
 - ▶ Microsoft Copilot, developed by Microsoft
- ▶ There's an AI for that

What can it do?

What can it do?

- ▶ Let's ask it and find out.
 - ▶ <https://chatgpt.com/>
 - ▶ <https://copilot.microsoft.com/>
- ▶ What would be a good prompt?

What can it do?

I asked ChatGPT “Write me a good prompt to find the answer to what you do”. It responded:

Here's a good prompt to find a comprehensive answer to what I can do:

Prompt: “List all the capabilities and features of ChatGPT. Provide a detailed breakdown of tasks ChatGPT can assist with, including specific categories like information retrieval, writing assistance, coding support, data analysis, image generation, personal planning, and more. Explain how ChatGPT can be used for educational purposes, creative content creation, professional development, and everyday tasks. Highlight unique ways ChatGPT can be customized to suit different user needs.”

<https://chatgpt.com/share/671727fe-1798-8010-9eee-eb7e499c33b6>

How to share a link from ChatGPT

- ▶ ChatGPT shared conversation links

What can it do?

Now the conversation can be even more fluid with **voice mode**

What can it do?



<https://chatgpt.com/share/671e2fa2-56f4-8010-9afa-d26a9e6f87bf>

What can it do?

- ▶ Quizzes
 - ▶ Canvaswizard
 - ▶ QuizMate
 - ▶ AnswersAi
- ▶ Essays
 - ▶ Prompting for essays
 - ▶ “Humanising” essays
 - ▶ Improving citations
- ▶ Lecture notes and learning resources

What can it do?

- ▶ Udio - music
 - ▶ Velvet Sundown
- ▶ Gamma - presentations
- ▶ Notebook LM - summaries, podcasts
 - ▶ Midnight Conversations Episode 62 - The Science of Parental Technology Use
 - ▶ Midnight Conversations Episode 63 - The Science of Parental Technology Use... Again?
- ▶ Adobe Firefly - images
 - ▶ UC is an Adobe Creative Campus

What can it do?

- ▶ Gradescope - grading and feedback
- ▶ Cogniti
 - ▶ Video demonstration of Cogniti

What can it do?

- ▶ Recorded presentations/interviews
 - ▶ Obama deep fake example
- ▶ Hey Gen - AI Video Generator
 - ▶ ABC Interview - Original
 - ▶ ABC Interview - Tamil
- ▶ Sora - text to video
 - ▶ Bloopers
 - ▶ The Quack: Part 1 by Sora 2

How does it work?

1. Large Language Models (LLMs)
2. Generative Pre-trained Transformers (GPT)
3. Training Process: Pre-training and Fine Tuning
4. Tokenisation and Response Generation
5. Semi-supervised Learning
6. The alignment problem

1. Large Language Models (LLMs)

- ▶ LLMs are types of artificial intelligence designed to process and generate human language.
- ▶ They excel at tasks involving text, such as writing, summarizing, translating, and answering questions.
- ▶ These models are trained on enormous amounts of text data, which allows them to learn language patterns, grammar and facts. They do not keep a copy of the data they were trained on, but rather generate novel content based on the patterns they encode.
- ▶ A key characteristic of LLMs is their parameters. These are the internal values (i.e. weights) learned during training, which influence how the model makes predictions.
- ▶ Fundamentally, LLMs predict what word comes next in the sentence

2. Generative Pre-trained Transformers (GPT)

- ▶ GPT are a large language model.
- ▶ Generative: can generate new, contextually relevant text, given an input prompt. It's not limited to merely retrieving information (i.e. Google Search) but can produce original content.
- ▶ Pre-trained: model is trained on large datasets which teaches it to understand the structures, meaning and nuances of language
- ▶ Transformer: highly efficient at processing text because they use a mechanism called self-attention. This allows the model to focus on different parts of the input sentence and understand how words relate to each other, regardless of their position in the sequence. For example, in the sentence "The cat sat on the mat," the model can determine that "sat" relates more to "cat" than to "mat." Transformers can process input in parallel, making them much faster and more efficient at handling large datasets
- ▶ GPT-4 has knowledge of events that occurred up to December 2023 and GPT-4o's knowledge cut-off is October 2023. Paid subscriptions enable ChatGPT to search the web for real-time data.

3. Training Process: Pre-training and Fine Tuning

- ▶ Pre-training: GPT is trained on **massive datasets**, which include (1) information that is publicly available on the internet, (2) information licensed from third parties and (3) information provided by users or human trainers. This pre-training allows for the model to predict the next word in a sequence and learn grammar, facts, reasoning patterns, and general knowledge about the world. For instance, if it sees the phrase “The sun rises in the...,” it will predict “east” based on patterns it learned from its training data.

- ▶ **Biases in ChatGPT**

- ▶ The model is skewed towards Western views and performs best in English. Some steps to prevent harmful content have only been tested in English.
- ▶ The model’s dialogue nature can reinforce a user’s biases over the course of interaction. For example, the model may agree with a user’s strong opinion on a political issue, reinforcing their belief.
- ▶ These biases can harm students if not considered when using the model for student feedback. For instance, it may unfairly judge students learning English as a second language.

3. Training Process: Pre-training and Fine Tuning

- ▶ Fine-tuning: After pre-training, the model is fine-tuned on task-specific datasets, making it more accurate for particular use cases (e.g., coding or customer support).
- ▶ Reinforcement Learning with Human Feedback (RLHF): GPT models are further refined using feedback from users. This ensures that the model generates high-quality and useful responses in real-world interactions.

4. Tokenisation and Response Generation

- ▶ Tokenisation - before being processed, text is broken down into tokens, which is mapped to a numerical representation. GPT generates responses token-by-token by sampling from the probability distribution of possible next tokens. For example, “the” might be one token, while a longer word like “happiness” could be broken into two or more tokens.
- ▶ ChatGPT-4o context window can take up to 128,000 tokens, which is roughly 96,000 words
 - ▶ ChatGPT-5 context window can take up to 196,000 tokens
- ▶ Claude 3 context window can take 200,000 tokens, which is roughly 150,000 words
 - ▶ Claude Sonnet 4.5 supports 1 million tokens of context
- ▶ Gemini 1.5 Pro context window can take up to 1 million tokens, which is roughly 700,000 words
 - ▶ Gemini 2.5 Pro, also supports 1 million tokens, with support for 2 million tokens coming soon.
- ▶ PhD theses are up to 100,000 words

4. Tokenisation and Response Generation

- ▶ Response generation:
 - ▶ Autoregressive model: GPT is an autoregressive model meaning it generates text one token at a time. For each token, it considers the previous tokens to predict the next one, building sentences word by word.
 - ▶ Sampling from a Probability Distribution: Instead of always choosing the most likely token, GPT samples from a probability distribution. This allows it to generate diverse and creative responses, rather than repeating the same output every time.

5. Semi-supervised Learning

- ▶ GPT models employ a combination of unsupervised pre-training and supervised fine-tuning, which is often referred to as semi-supervised learning
 - ▶ Unsupervised Pre-training: In this phase, the model learns language by predicting the next token in sequences from raw, unlabeled data. It doesn't need labeled datasets (i.e. those that provide correct output or classification for each example) to learn general language patterns.
 - ▶ Supervised Fine-tuning: After pre-training, the model is refined on labeled data, helping it specialize in tasks like answering questions or generating specific types of text.
 - ▶ Reinforcement Learning: Further improvements are made through reinforcement learning, where human feedback helps guide the model's behavior.

6. The Alignment Problem

- ▶ Alignment is concerned with whether the model's outputs meet human expectations and ethical standards, such as producing truthful, helpful, and unbiased content. Misalignment occurs when the model optimizes for its training goals (e.g., next-word prediction) but fails to produce outputs that align with user needs.
 - ▶ Capabilities refer to a model's technical proficiency in performing tasks, such as generating text, summarizing content, or predicting sequences.
- ▶ Symptoms of misalignment:
 - ▶ Hallucinations: The model fabricates facts or generates misinformation.
 - ▶ Unhelpfulness: The model may fail to follow explicit user instructions or provide meaningful, context-appropriate answers.
 - ▶ Bias and Toxicity: If trained on biased or toxic data, the model can reproduce such biases in its outputs, even if the user does not request harmful content.
 - ▶ Lack of Interpretability: It is difficult to trace how the model arrives at certain outputs, making it hard for humans to understand its reasoning or decisions.

6. The Alignment Problem

- ▶ Efforts to address the alignment problem include:
 - ▶ Reinforcement Learning from Human Feedback (RLHF): OpenAI has employed RLHF to help fine-tune models like ChatGPT. In this process, human evaluators provide feedback on outputs, guiding the model toward generating safer, more aligned responses.
 - ▶ Bias Mitigation and Safeguards: Developers work to minimize the model's inherent biases by curating training datasets and introducing filters that block toxic content. However, complete alignment remains an open challenge.

Further limitations to GPT models

- ▶ ChatGPT sometimes writes plausible sounding but incorrect or nonsensical answers. Fixing this issue is challenging, as: (1) during reinforcement learning training, there's currently no source of truth; (2) training the model to be more cautious causes it to decline questions that it can answer correctly; and (3) supervised training misleads the model because the ideal answer depends on what the model knows, rather than what the human demonstrator knows.
- ▶ ChatGPT is sensitive to tweaks to the input phrasing or attempting the same prompt multiple times. For example, given one phrasing of a question, the model can claim to not know the answer, but given a slight rephrase, can answer correctly.
 - ▶ Therefore, the way you talk to GenAI matters.
- ▶ The model is often excessively verbose and overuses certain phrases, such as restating that it's a language model trained by OpenAI. These issues arise from biases in the training data (trainers prefer longer answers that look more comprehensive) and well-known over-optimization issues.

Further limitations to GPT models

- ▶ Ideally, the model would ask clarifying questions when the user provided an ambiguous query. Instead, our current models usually guess what the user intended.
- ▶ While we've made efforts to make the model refuse inappropriate requests, it will sometimes respond to harmful instructions or exhibit biased behavior. We're using the Moderation API to warn or block certain types of unsafe content, but we expect it to have some false negatives and positives for now. We're eager to collect user feedback to aid our ongoing work to improve this system.

What is under the hood - ChatGPT vs Microsoft Copilot

ChatGPT ▾

What model do you use?

 I use OpenAI's GPT-4 architecture. This model is designed to understand and generate human-like text based on the input it receives. It has been trained on a diverse range of internet text to assist with a wide variety of tasks, from answering questions to generating creative content.

⬇️ ⏪ ⏴ ⏵ ⏹ ⏸

 You

What model do you use?

 Copilot

I'm powered by a combination of advanced language models, including GPT-4, and I have access to various tools that help me provide accurate and helpful responses. If you have any specific questions or need assistance, feel free to ask! 😊

⬇️ ⏪ ⏴ ⏵ ⏹ ⏸

• 1 of 30 responses | AI-generated content may be incorrect

ChatGPT ▾ Are you AGI? ↑ A

No, I'm not an AGI (Artificial General Intelligence). I'm an AI language model developed by OpenAI, based on the GPT-4 architecture. While I can understand and generate text on a wide range of topics, my capabilities are limited to the tasks I've been trained on, and I don't possess general intelligence or self-awareness. AGI would have the ability to understand, learn, and apply knowledge across a wide variety of tasks at a human level, which is beyond my current capabilities.

Change model Could you become AGI?

As an AI language model, I can't evolve or change my fundamental capabilities on my own. My current design and functionality are based on the architecture and training provided by OpenAI. Transitioning from an AI like me to an AGI would require significant advancements in AI research, architecture, and technology beyond what's currently implemented in models like mine.

Developing AGI involves creating systems that can perform any intellectual task that a human can, exhibit general cognitive abilities, and possess a form of understanding and learning that goes beyond task-specific applications. This would likely require new breakthroughs in areas such as:

1. **Learning and Adaptation:** The ability to learn and adapt to new tasks and environments in ways similar to human learning.
2. **Generalization:** Strong generalization capabilities that allow the AI to apply knowledge from one domain to entirely new and unrelated domains.
↓
3. **Reasoning and Understanding:** Advanced reasoning, problem-solving, and understanding

Message ChatGPT ↑

ChatGPT can make mistakes. Check important info.

ChatGPT

Are you sure you're not AGI?

Yes, I'm sure. Here are some key reasons why I'm not an AGI:

- Scope of Understanding:** My understanding is limited to the data and patterns I was trained on. I don't truly understand context or meaning in the way humans do; I generate responses based on patterns in the training data.
- Learning and Adaptation:** I don't learn from new experiences or adapt in real-time. My responses are based on a static model that was trained up to a certain point. Any new learning would require retraining or updating the model by human engineers.
- Generalization:** While I can handle a wide range of topics, my ability to generalize is limited to the patterns I've seen in the training data. I can't apply knowledge to entirely new and unrelated domains without specific training.
- Reasoning and Problem-Solving:** My reasoning is based on patterns in the text data, not on true understanding or cognitive processes. I don't have the ability to engage in complex problem-solving that requires deep comprehension and innovation.
- Self-awareness:** I lack any form of self-awareness, consciousness, or subjective experience. I don't have beliefs, desires, or a sense of self.
- Autonomy:** I don't have autonomy or the ability to set and pursue my own goals. I operate based on user inputs and predefined algorithms.

AGI would require these capabilities and more which are far beyond what I can do as an AI language model.

Message ChatGPT

ChatGPT can make mistakes. Check important info.

Microsoft Copilot

The screenshot shows a Microsoft Copilot interface. At the top, there are navigation icons for 'COPilot' (highlighted with a blue underline) and 'NOTEBOOK'. On the right, there is a user profile icon, the email address 'Ananthan.Ambikairajah@canberra.edu.au', and a three-dot menu icon.

You
Are you AGI?

Copilot
I apologize for any confusion, but I am not an AGI (Artificial General Intelligence). I'm an AI language model designed to assist with various tasks and answer questions. If you have any other inquiries, feel free to ask! 😊

You
Could you become AGI?

Copilot
As an AI language model, I don't have consciousness or self-awareness. However, the development of AGI (Artificial General Intelligence) is an ongoing field of research. AGI would be capable of understanding and learning any intellectual task that a human can. While I can't become AGI myself, researchers continue to explore ways to create more advanced AI systems. 🚀🌟

You
 Ask me anything... Reply Share Save Copy Delete

Commercial data protection applies to this chat.

Microsoft Copilot

The screenshot shows the Microsoft Copilot interface. At the top, there are navigation links for 'COPilot' (which is underlined) and 'NOTEBOOK'. On the right, there's an email address 'Ananthan.Ambikairajah@canberra.edu.au' and a profile icon. A three-line menu icon is also present.

In the main area, a message from 'You' asks, 'Are you sure you're not AGI?'. Copilot responds, 'I apologize if my previous response caused any confusion. I am not an AGI. If you have any other questions, feel free to ask! 😊'. Below this, there are icons for thumbs up, thumbs down, reply, download, and a speaker. A note says '3 of 30 responses' and 'AI-generated content may be incorrect.'

A horizontal line with a triangle icon and the text 'It might be time to move onto a new topic. Let's start over.' follows.

At the bottom, there's a 'New topic' button with a lock icon, an input field 'Ask me anything...', and a toolbar with icons for image, link, quote, and share. A small note at the bottom of the input field says 'Commercial data protection applies to this chat.'

Privacy

Settings X

 General	Improve the model for everyone	Off >
 Personalization	Shared links	Manage
 Speech		
 Data controls	Export data	Export
 Builder profile	Delete account	Delete
 Connected apps		
 Security		

- ▶ **Part I - GenAI**
- ▶ **Part II - Philosophies for AI use**
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Faculty of Health Generative Artificial Intelligence Community of Practice

TERMS OF REFERENCE

Aim/Objective

The Faculty of Health (FoH) Generative Artificial Intelligence (GenAI) Community of Practice (CoP) aims to upskill staff and students on GenAI to enhance their learning, teaching (L&T) and research, in addition to producing future ready graduates and tertiary educators.

Scope

1. How GenAI is being used in health professions/L&T space/research;
2. How to use and embed use of GenAI into FoH curricula and research practices,
3. What professional development (PD) may support staff to use/embed GenAI into FoH curricula (including work integrated learning) and research.
4. How best to support innovation in teaching/research at FoH, using GenAI.

Membership of this CoP is open to all staff within the Faculty, including academic and professional staff. The scope here is not driven by academic integrity rather how to make the most of GenAI to produce future ready graduates. Staff interested in academic integrity GenAI issues are encouraged to join the UC Academic Integrity [Microsoft Team](#) which includes a CoP.

Proposed Activities for 2024

1. Create a Teams page that allows for the sharing of information and connection for members of this CoP.
2. Establish terms of reference for this CoP.
3. Establish a journal club via a channel on Teams which allows members to share research about GenAI's use in research, teaching and learning and in health professions .
4. Disseminate resources relating to GenAI use, relevant to Tertiary Education Quality and Standards Agency (TEQSA) requirements.
5. Develop and implement a survey of FoH staff and student about needs and uses of GenAI in their teaching, learning and research.
6. Establish a conference/forum which allows FoH staff and students to showcase their use of GenAI in learning and teaching.
7. Coordinate GenAI -focused professional-development initiatives for FoH teaching staff and students, including upskilling workshops, webinars with academic and industry experts, and panel discussions to foster learning, collaboration, and innovation in health education.
8. Explore time efficient tools for GenAI integration in teaching and research e.g. MCQ generation
9. Apply for seed grant funding to support the use of GenAI in FoH learning and teaching.
10. Develop a FoH teaching award that recognises the outstanding contribution of an academic regarding the use of GenAI in their teaching.
11. Quarterly social catchups over coffee amongst GenAI CoP members to drive informal discussion

Response

Number of responses

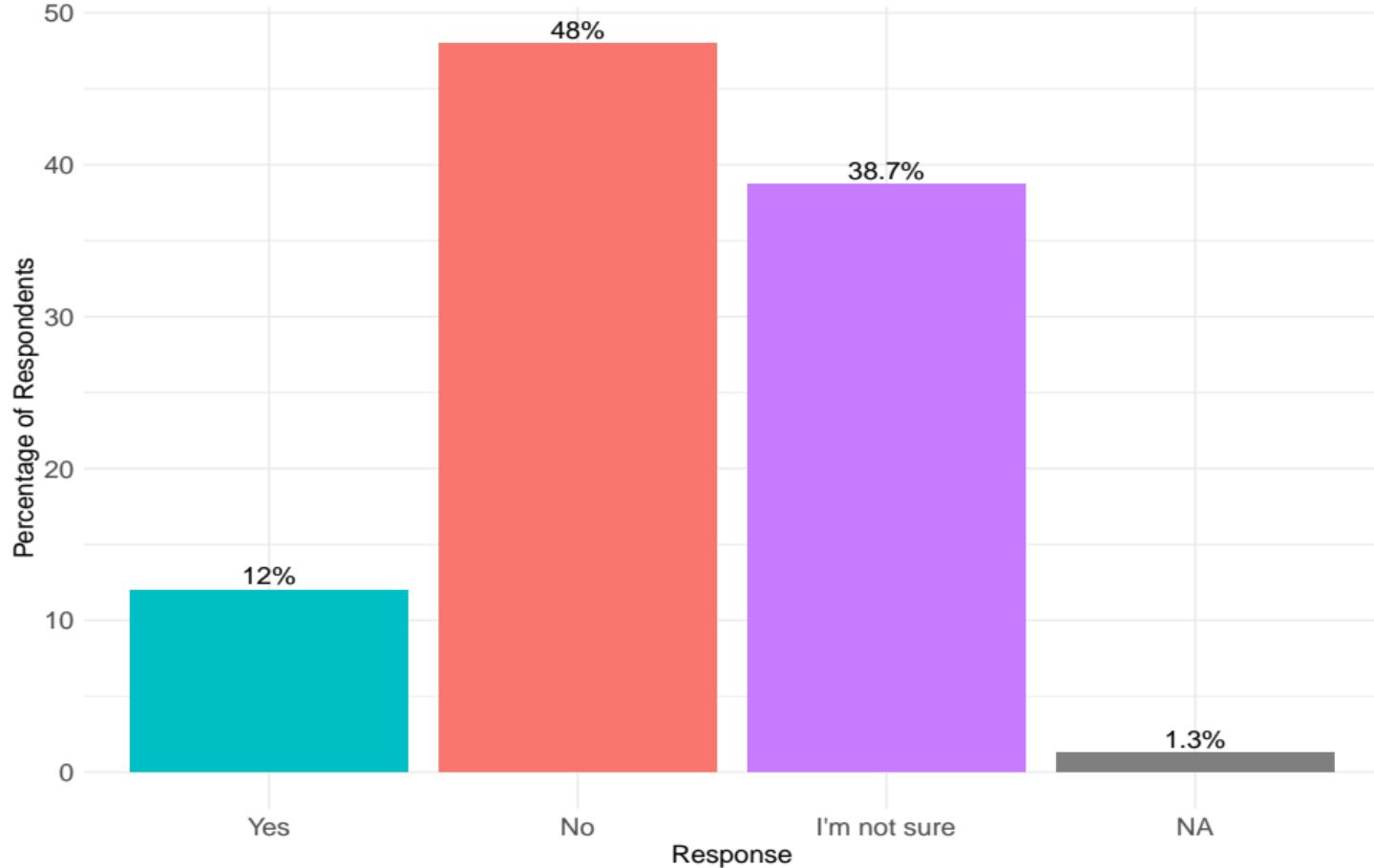
- ▶ 2024: 71
- ▶ 2025: 75

Question 8

8. Did you complete this survey in 2024?

- Yes
- No
- I'm not sure

Response



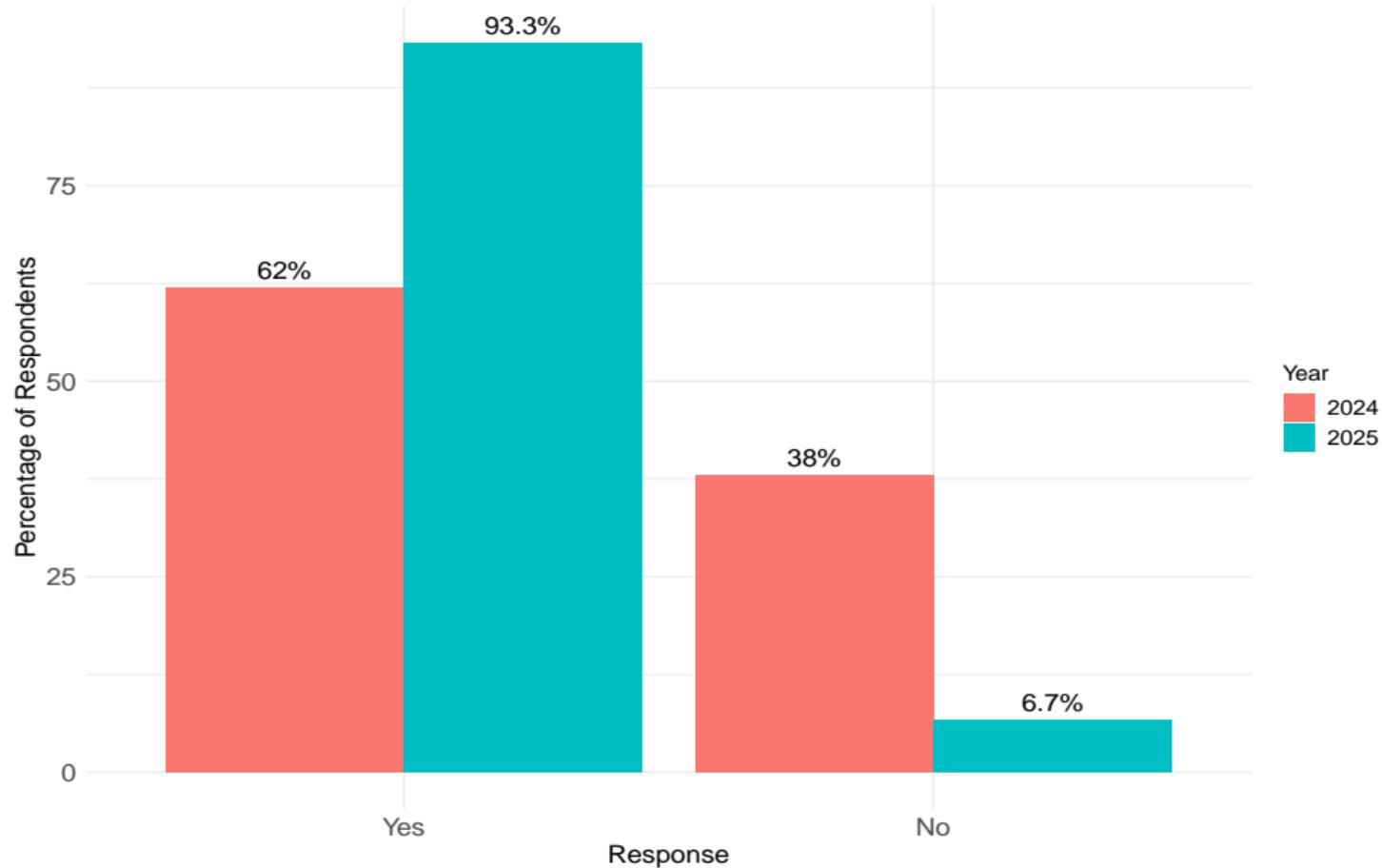
Question 1

1. Have you previously used any GenAI tools or applications in your work? 

Yes

No

Question 1

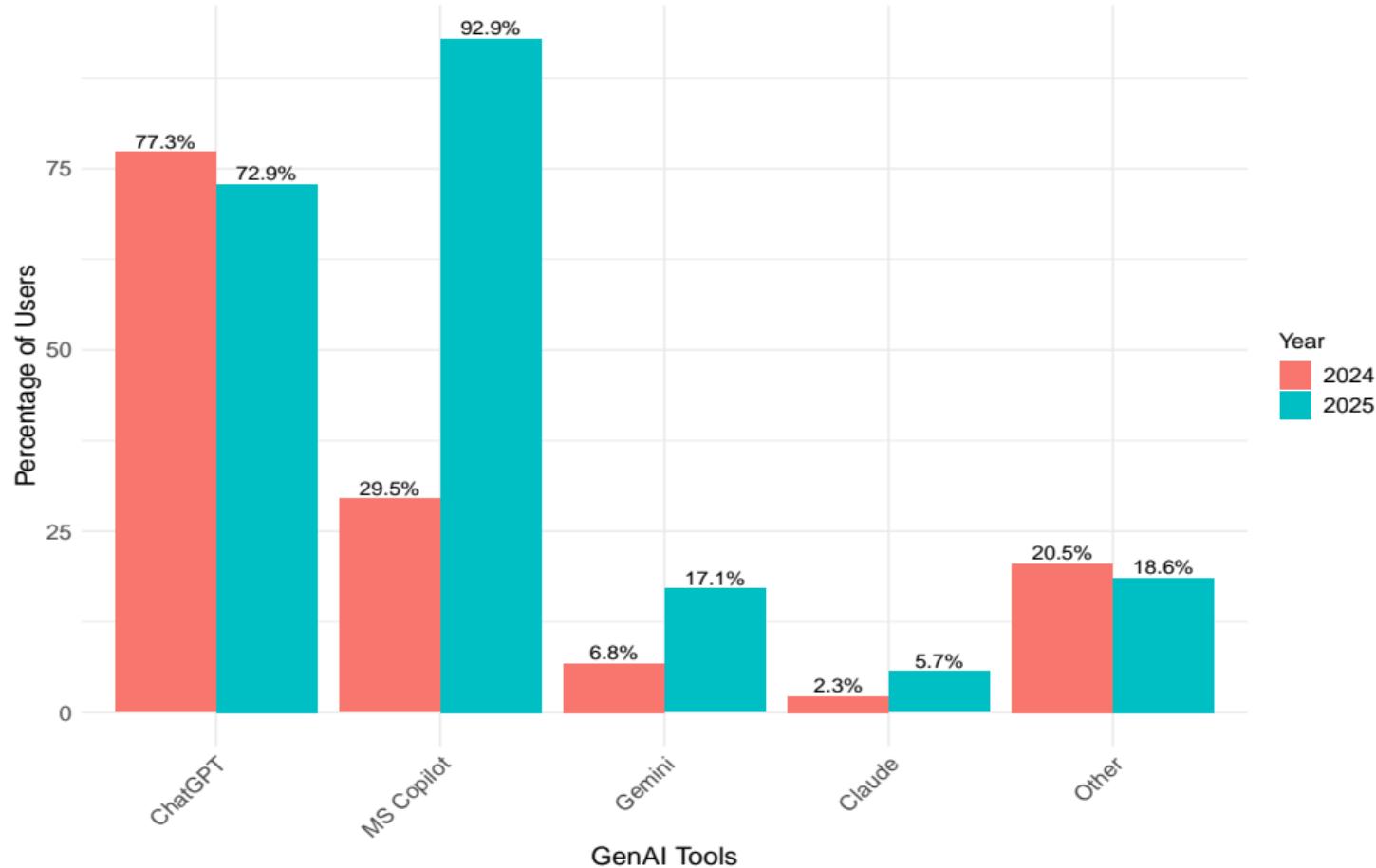


Question 2

2. Which GenAI tools or applications have you used? □₄₀

- ChatGPT
- Microsoft Copilot
- Gemini
- Other

Question 2



Recommendation 6: The Committee recommends that the Australian Government encourage consistent guidance and uptake of GenAI: in HE—including updating the threshold standards, and recognises TEQSA's leadership role and efforts.

Recommendation 16: 4.107 The Committee recommends that the Australian Government, in conjunction with educational providers, encourage educators and other staff to use GenAI tools for appropriate tasks to help streamline parts of teaching and administration. 4.108 For example, lesson planning, timetabling, reporting, and simple grading for yes/no or multiple-choice questions.

Recommendation 22: The Committee recommends that universities and TAFEs embed GenAI competencies and skills across all courses and degrees.

Recommendation 23: The Committee recommends that Tertiary Education Quality and Standards Agency work with higher education providers to develop standards and frameworks, including authorship policies, to guide universities in maintaining research and academic integrity regarding GenAI.

November 2023

- ▶ Assessment reform for the age of artificial intelligence

September 2025

- ▶ Enacting assessment reform in a time of artificial intelligence

1. Assessment and learning experiences equip students to participate ethically and actively in a society where AI is ubiquitous
2. Forming trustworthy judgements about student learning in a time of AI requires multiple, inclusive and contextualised approaches to assessment

Assessments should emphasise:

- ▶ appropriate, authentic engagement with AI
- ▶ a systemic approach to program assessment aligned with disciplines/ qualifications
- ▶ the process of learning
- ▶ opportunities for students to work appropriately with each other and AI
- ▶ security at meaningful points across a program to inform decisions about progression and completion

The 3 pathways:

1. Assuring learning across the whole degree program: This approach involves the comprehensive redesign of assessment across programs to create coherent, integrated assessment regimes that capture valid evidence of achieving learning outcomes.
2. Assuring learning by unit/subject: This approach incorporates at least some assurance of learning within each unit/subject to provide confidence that one or more assessment tasks are completed without unauthorised assistance.
3. Assurance of learning occurs across degree structures, but some assurance remains within units only: This hybrid strategy employs elements of both program-wide reform and assurance of learning at a unit/subject level to create balanced assessment regimes.

1. Assuring learning across the whole degree program

This approach creates a holistic view of student development and achievement that draws on multiple points of evidence gathered throughout the developmental process students undergo during a degree program.

Key characteristics of program-wide assessment include:

- ▶ Coherent design: Assessment activities are intentionally designed as an integrated system aligned with program learning outcomes rather than as isolated unit/subject-level tasks.
- ▶ Developmental progression: More readily allows for assessments to build in complexity and sophistication as students progress through their program, with clear scaffolding of knowledge and skills development.
- ▶ Multiple secure assessment points: Student achievement of program learning outcomes is evaluated through multiple, supervised assessments strategically deployed throughout the program that assure students' learning over time against program-level learning outcomes.
- ▶ Shared responsibility: Assessment design and evaluation become a collective responsibility of teaching teams across the program, rather than the domain of individual unit/subject coordinators.

1. Assuring learning across the whole degree program

- ▶ Program-level assessment reform represents the most comprehensive and aligned response to the challenges and opportunities posed by gen AI. By reconceptualising assessment as a program-level system rather than a collection of isolated tasks, it creates multiple, interconnected, secure points of evidence that collectively provide robust assurance of student learning.
- ▶ Successful implementation is likely to require substantial institutional commitment and resourcing, including executive sponsorship, aligned policies, technological infrastructure, extensive professional development and systems to support curriculum design. In many cases, the transition requires significant upfront investment and carefully managed change processes to overcome resistance and ensure quality implementation.

2. Assuring learning by unit/subject

- ▶ The assurance of learning at the unit/subject level approach focuses on incorporating at least one secure assessment task in every unit or subject across a program.

Key characteristics of unit/subject wide assessment include:

- ▶ Unit/subject-level implementation: Every unit/subject coordinator is responsible for designing and implementing at least one secure assessment task within their specific unit.
- ▶ Straightforward identity verification: Secure assessment tasks must include mechanisms, generally simple to implement, that verify the person completing the assessment is the enrolled student.
- ▶ Controlled conditions: Assessments that restrict gen AI or other assistance can be conducted under conditions that effectively enforce these restrictions.
- ▶ Proportion of unit/subject grade: It is not possible to pass the unit/subject without having satisfactorily completed the secure task(s), effectively making the secure task a hurdle requirement.
- ▶ Varied formats: Secure assessment can include oral presentations, in-class tasks, supervised practical demonstrations or a number of other formats.

2. Assuring learning by unit/subject

- ▶ This approach aligns with traditional academic structures and preserves unit/subject-level autonomy, potentially facing less resistance than approaches requiring extensive whole-of-program coordination. It also provides clear evidence of integrity measures to stakeholders concerned about qualification validity at the level of individual tasks.
- ▶ Successful implementation requires investment in assessment design expertise, infrastructure and quality assurance processes. Institutions must carefully manage the risk of over-relying on examination-based formats that may limit the assessment of complex capabilities and create an overly granular learning experience for students.

3. Assurance of learning occurs across degree structures, but sometimes assurance remains within units only

- Rather than securing every individual unit/subject or redesigning the entire program, this approach identifies critical groupings of units/subjects where coordinated assessment provides the most valuable evidence of learning progression toward program outcomes.

Key characteristics of combined approach can include:

- Strategic unit/subject groupings: Units/subjects are strategically grouped (such as by major, year level or core knowledge areas) for coordinated assessment design.
- Progression evidence focus: Assessment is designed to assure evidence of progression toward program learning outcomes at key junctures in the program.
- Selective integration: Assessment tasks are integrated across selected units/subjects where connections are most meaningful for demonstrating achievement of program outcomes.
- Distributed responsibility: Responsibility for the assurance of learning is shared between program-level coordination and unit/subject-level implementation.

3. Assurance of learning occurs across degree structures, but some assurance remains within units only

- ▶ The combined approach of assuring learning within groups of units/subjects within a program context offers a flexible, strategic response to the challenges posed by gen AI. By selectively implementing program-wide assessment principles in some areas while maintaining unit/subject-level assurance of learning in others, institutions can balance immediate integrity assurance with longer-term educational enhancement.
- ▶ This approach is particularly valuable for complex programs with multiple specialisations or as a transitional strategy for institutions moving toward more comprehensive program-wide assessment.

Ongoing challenges across pathways

- ▶ A critical consideration across all pathways is how learning can be assured across modes of assessment
- ▶ The traditional division between synchronous (time-bound, often supervised) and asynchronous (flexible timing, often unsupervised) assessment is being reconsidered in light of gen AI capabilities. Furthermore, the viability, integrity and validity of assessment activities conducted in digital environments remain significant concerns.
- ▶ All pathways come with a warning that it may be all too easy to revert to inequitable assessment formats that only focus on assuring learning.

- ▶ AI will only continue to improve
- ▶ Any take-home assessment *could* involve AI use
- ▶ It is not possible to ban AI or reliably detect AI
- ▶ We cannot out-run, out-design or out-prompt generative AI
- ▶ Our students must master the productive and responsible use of AI
- ▶ Any take-home assessment perhaps *should* involve AI use

- ▶ Lane 1: Assurance of learning outcomes
 - ▶ Short-term
 - ▶ In-person exams/tests
 - ▶ Viva voce (an oral examination)
 - ▶ Longer term
 - ▶ In-class contemporaneous assessment e.g. skills-based assessments run during tutorials or workshops
 - ▶ Viva voce (or other interactive oral assessment)
 - ▶ In-person exams/tests (used sparingly, designed to be authentic and for assuring program rather than unit level outcomes)

- ▶ Lane 2: Human- AI collaboration where relevant
 - ▶ Short-term
 - ▶ Students use AI to brainstorm, draft outlines, summarise resources, perform research and analyse content
 - ▶ Longer term
 - ▶ Students collaborate with AI and document this process. The documented process demonstrates learning, is graded, and is more heavily weighted than the product.

Two Lane Approach Summary

	Lane 1	Lane 2
Role of assessment	Assessment of learning	Assessment for and as learning
Level of operation	Mainly at program level	Mainly at unit level
Assessment security	Secured, in person	'Open' / unsecured
Role of generative AI	May or may not be allowed by examiner	As relevant, use of AI scaffolded & supported
TEQSA alignment	Principle 2 – forming trustworthy judgements of student learning	Principle 1 – equip students to participate ethically and actively in a society pervaded with AI
Examples	In person interactive oral assessments; viva voces; contemporaneous in-class assessments and skill development; tests and exams.	AI to provoke reflection, suggest structure, brainstorm ideas, summarise literature, make content, suggest counterarguments, improve clarity, provide formative feedback, etc

UNSW Six Lane Approach

Clearly signal to students what the assessment is about:

- ▶ NO ASSISTANCE: This assessment is designed for you to complete without the use of any generative AI.
- ▶ SIMPLE EDITING ASSISTANCE: In completing this assessment, you are permitted to use standard editing and referencing functions in the software you use to complete your assessment.
- ▶ PLANNING/DESIGN ASSISTANCE: You are permitted to use generative AI tools, software or services to generate initial ideas, structures, or outlines.
- ▶ ASSISTANCE WITH ATTRIBUTION: This assessment requires you to write/create a first iteration of your submission yourself. You are then permitted to use generative AI tools, software or services to improve your submission.
- ▶ GENERATIVE AI SOFTWARE-BASED ASSESSMENTS: This assessment is designed for you to use generative AI as part of the assessed learning outcomes.
- ▶ NOT APPLICABLE: Generative AI is not considered to be of assistance to you in completing this assessment.

UC's position on the integration of GenAI is based on the following principles:

- ▶ The use of GenAI in assessments aligns with the mapped learning outcomes
- ▶ Its application reflects industry relevance and/or is identified as a professional capability requirement
- ▶ Where GenAI is permitted or required, students are scaffolded to use GenAI ethically and effectively, and how to appropriately acknowledge its use

USING GenAI IN ASSESSMENT FOR EDUCATION & RESEARCH

UC's position on the use of Generative Artificial Intelligence (GenAI) in assessment for education and research is based on the following three principles:

- The use of GenAI in assessments aligns with the mapped learning outcomes.
- Its application reflects industry relevance (and) or is identified as a professional capability.
- Where GenAI is permitted or required, student learning is scaffolded (guided) in ways to use GenAI ethically and effectively, and how to appropriately acknowledge its use.



PERMITTED

The ethical use of GenAI is allowed in completing the assessment

- Students are permitted to utilise GenAI in an ethical manner as appropriate to the assessment task without restriction.
- Students are encouraged to use approved UC tools or others with consideration of data privacy of self and others.
- Students must acknowledge the use of GenAI in the reference list or bibliography for the assessment.
- Students are permitted to use Studiosity Writing Feedback Plus to seek feedback on drafts of their assessments.



GUIDED

Students will be guided in how GenAI must/may be used in completing the assessment as detailed in the unit outline and assessment instructions

- Through the completion of the AIM module, use of the Lib Guide and discussion with faculty, students will develop an understanding of how they should use GenAI ethically when completing assessment.
- If the guidance indicates GenAI may be used, students are encouraged to make their own informed decisions on their ethical use of GenAI.
- If the guidance indicates GenAI must be used, as unit learning outcomes include GenAI skills, students will be required to complete the assessment task to demonstrate these learning outcomes.
- Students must acknowledge the use of GenAI in the reference list or bibliography for the assessment.
- Students are permitted to use Studiosity Writing Feedback Plus to seek feedback on drafts of their assessments.



RESTRICTED

The use of GenAI is NOT allowed in completing the assessment

- Students must not use GenAI in completing the assessment.
- Students are permitted to use Studiosity Writing Feedback Plus to seek feedback on drafts of their assessments.

- ▶ **Part I - GenAI**
- ▶ **Part II - Philosophies for AI use**
- ▶ **Part III - Prompt Engineering**
- ▶ **Part IV - GenAI Testing Assessments/Work**

- ▶ Prompt engineering is the art of asking the right questions to get the best output from LLMs
 - ▶ Prompt
 - ▶ Processed by model
 - ▶ Completion

Prompting best practices:

1. Clearly communicate what content or information is most important.
2. Structure the prompt: Start by defining its role, give context/input data, then provide the instruction.
3. Use specific, varied examples to help the model narrow its focus and generate more accurate results.
4. Use constraints to limit the scope of the model's output. This can help avoid meandering away from the instructions into factual inaccuracies.

Prompting best practices:

5. Break down complex tasks into a sequence of simpler prompts.
6. Instruct the model to evaluate or check its own responses before producing them. (“Make sure to limit your response to 3 sentences”, “Rate your work on a scale of 1-10 for conciseness”, “Do you think this is correct?”).
7. Be creative! The more creative and open-minded you are, the better your results will be. LLMs and prompt engineering are still in their infancy, and evolving every day.

- ▶ Fewer assumptions the AI makes means it is less likely to hallucinate
- ▶ Craft precise and unambiguous instructions
- ▶ Provide examples
- ▶ Use the conversational interface on many generative AI tools to refine its outputs.
- ▶ Specificity is key! The model will make an assumption on any point you don't clearly explain.
- ▶ Continuous Trial and error
- ▶ If you switch topics, start a new chat or it may get confused
- ▶ Encourage AI to think step by step
- ▶ A good prompt has 4 key elements: Role, Task, Requirements, and Instructions.

The Basics

Role

Prompts starting with “act as...” or “pretend to be...” will provide responses similar to that of the role which you provide. Setting a specific role for a given prompt increases the likelihood of more accurate information, when done appropriately.

- ▶ E.g. act as an expert in the field of computer science
- ▶ Determines the type of information and the way the information is communicated to you.
- ▶ This also determines the interactivity of the conversation.

Task

The task is a summary of what you want the prompt to do. There is a lot of creativity that comes into writing a great task. It can range from generating birthday gift ideas to doing game show questions with the content from your last lecture.

- ▶ Outline what you want the AI to do.
- ▶ Be specific about the task's objective, as unclear objectives lead to worse outputs.

Requirements

Writing clear requirements is all about giving as much information as possible to ensure your response doesn't use any incorrect assumptions. AI models make assumptions for any information they don't have in the prompt. It is often important to define what an output should look like and conditions that affect the output. This includes the various conditions to limit the assumptions made by the model.

Instructions

Instructions will inform the AI how to complete the task. Instructions can include examples of how it is supposed to work, steps it can follow or any information.

- ▶ How should the AI go about completing its task.
- ▶ Examples of how it could go about tasks.
- ▶ Feedback on steps it has taken will improve this even further.

Example

Role:

Act as a science communication expert for a university's outreach program, specializing in simplifying complex research on genetics, aging, and brain health for the general public.

Task:

Write a 500-word blog post that introduces recent findings on how genetic and lifestyle factors influence brain health and aging. The goal is to explain the scientific concepts in an accessible way and offer practical advice readers can apply to support their brain health.

Example

Requirements:

- ▶ Audience: General public, especially those with a basic interest in science or health.
- ▶ Tone: Friendly, informative, and encouraging.
- ▶ Format: Blog post format with a catchy title, an engaging introductory paragraph, clearly organized content with subheadings, and a concluding paragraph.
- ▶ Citations: Mention credible sources briefly, such as university research studies or peer-reviewed journals, to reinforce key points.

Instructions:

- ▶ Start with a hook to engage readers, using a relatable fact or question.
- ▶ Avoid jargon and explain scientific terms in simple language.
- ▶ Structure the post with subheadings for easier reading, focusing on key findings and their implications.
- ▶ Include three practical, research-based lifestyle tips that can support brain health.
- ▶ End with an encouraging message about how small changes can positively impact brain health over time.

Example

<https://chatgpt.com/share/671d8ed0-90dc-8010-81b2-540888673c9f>

Types of prompts

Direct prompting (zero-shot)

Direct prompting is the simplest type of prompt. It provides no examples to the model, just the instruction. You can also phrase the instruction as a question, or give the model a “role.”.

Best For: Straightforward requests, basic explanations, or generating ideas.

Example: As a university instructor, explain the importance of academic integrity to first-year students.

Types of prompts

Prompting with examples (One-, few-, and multi-shot)

One-shot prompting shows the model one clear, descriptive example of what you'd like it to imitate. Few- and multi-shot prompting shows the model more examples of what you want it to do. It works better than zero-shot for more complex tasks where pattern replication is wanted, or when you need the output to be structured in a specific way that is difficult to describe.

Best For: Replicating specific styles, formats, or patterns; handling complex instructions; creating consistent output.

Example: “Summarize a journal article in 50 words. Example: Article: ‘The Role of Genetics in Ageing’ Summary: ‘This article discusses how genetic factors influence ageing, highlighting recent research on gene expression changes associated with lifespan.’ Now, summarize this article on the psychology of learning in the same format.”

Types of prompt

Chain-of-thought prompting

Chain of Thought (CoT) prompting encourages the LLM to explain its reasoning. Combine it with few-shot prompting to get better results on more complex tasks that require reasoning before a response.

Best For: Problem-solving, complex explanations, step-by-step instructions.

Example: “Explain the process of photosynthesis in steps: Step 1: Describe how plants absorb sunlight. Step 2: Explain how chlorophyll converts sunlight to energy. Step 3: Describe the creation of glucose from water and carbon dioxide. Step 4: Outline the oxygen release process.”

Types of prompt

Zero-shot chain-of-thought prompting

This approach takes a zero-shot prompt and adds an instruction: “Let’s think step by step.” The LLM is able to generate a chain of thought from this instruction, and usually a more accurate answer as well.

Best for: Word problems, logical reasoning, tasks requiring precision

Example: “Describe the process by which neurons communicate with each other. Let’s think step by step through the stages of this process.”

Tips

- ▶ Formatting your inputs correctly can help the model identify the information it needs to use. The most effective way to format your inputs is using Markdown formatting. Markdown is a lightweight markup language used to add formatting elements to plaintext documents.
- ▶ [Markdown Cheat Sheet](#)

Tips

- ▶ Use the latest model
- ▶ Be specific, descriptive and as detailed as possible about the desired context, outcome, length, format, style, etc
- ▶ Articulate the desired output format through examples
- ▶ Start with zero-shot, then few-shot, neither of them worked, then fine-tune
- ▶ Instead of just saying what not to do, say what to do instead

Tips

- ▶ When in doubt, you can always ask the AI to help you write a prompt

1. “Privacy first”

- ▶ Never put identifiable patient data or highly sensitive information into open AI systems.

2. “Have a go”

- ▶ Use the technology in the natural conversational tone it was designed first, before focusing on ways to optimise prompts.

3. “Choose the right tool for the job”

- ▶ AI tools have different strengths and weaknesses. Sometimes, this principle means knowing when not to use AI e.g., in research, are participants fully informed that their data will be placed into an AI system?

Take home principles

4. “Start small”

- ▶ Using AI effectively often means breaking down a task into simple steps then working with AI to achieve those steps.

5. “Reverse engineer, where possible”

- ▶ This essentially means have a vision for what the output should look like. If you know what the output should be, you can craft more specific and tailored prompts to help the AI. This may not always be the case i.e., you may be working the problem out with AI as you go, which is fine, but if you do have a clear understanding of the end goal, or even better, an example to work on and adapt to, this will speed up the process.

6. “Demanding more? Give more.”

- ▶ If people are demanding more from the output and want larger pieces of work, this is where they need to give more time and effort to crafting their prompts to get the best output.

7. “When in doubt - ask AI for help”
 - ▶ It is important to view AI as a partner.

8. “Play”

- ▶ A more fun way of saying the process is trial and error. As much as people are learning about these technologies, it is constantly changing and for specific tasks there will be optimal ways of prompting that are only discovered through trial and error. The first response is rarely the final response, even with great prompting. Iteration is key.

9. “Take responsibility”

- ▶ This means take responsibility of the output and ensure you verify that you have double checked the output of AI.

10. “Credit and transparency”

- ▶ Be transparent and open about AI use. At a minimum, what AI tool was used and how was it used

- ▶ **Part I - GenAI**
- ▶ **Part II - Philosophies for AI use**
- ▶ **Part III - Prompt Engineering**
- ▶ **Part IV - GenAI Testing Assessments/Work**

- 1) Pick an assessment or piece of work
- 2) Use what you have learnt to work with GenAI to complete the task

Feedback

<https://forms.office.com/r/1JKGpnsx7e>

GenAI Workshop (Online)



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