

Rapid developments in generative artificial intelligence (AI)¹ technologies have led to an explosion of AI generators of text, code, images, and voice, of which ChatGPT is one example.² AI generators can, with varying degrees of effectiveness, generate answers to a question, produce text and content-based responses based on prompts, code, or design an artefact. Generative AI can be used to learn, summarise, analyse, respond to assignments or produce material for research and other academic publications, among numerous other possible uses.

AI offers exciting new opportunities for teaching and learning, and for advancing ethical research and scientific innovation. In this guide, you will be introduced to generative AI and its potential benefits to your learning experience.

For basic explanations of what AI is – as well as machine learning, generative AI, and large language models – see <u>UNESCO's recent quick start quide</u> (Sabzalieva & Valentini 2023), Mills (2023a) and Riedl (2023). UJ also offers a free course on AI in the Fourth Industrial Revolution – see free online courses via uLink.

Other generative AI tools currently available include Bing's Chat, Google's Bard, Anthropic's Claude, Alpha Code, DALLE-2, CoPilot, and MidJourney.



Artificial intelligence involves the development and capacitation of machines to perform complex tasks usually associated with human intellectual endeavour. A famous example of AI was when the world chess champion Gary Kasparov was defeated in 1997 by the IBM supercomputer, Deep Blue. By refining the programme's parameters and feeding in large amounts of game-play data, the team behind Deep Blue was able to create a computer capable of out-processing the skill level of a chess master!

Contemporary AI builds on this early foundation. Machines, software and platforms exist that are able to correctly analyse, process, calculate and represent information, sometimes with greater accuracy than humans. The advent of 'Big Data' in the last two decades has increased the demand for more complex forms of AI, as businesses and governments recognise the value of AI tools for effective planning, forecasting, and targeting of clients and beneficiaries (Crawford et al, 2023).



LARGE LANGUAGE MODELS AND ChatGPT

ChatGPT is perhaps the most widely known generative AI tool at the moment. It is an AI generator based on what is called a 'large language model', which combines deeplearning algorithms with large data sets to transform clusters of information into contextually and factually specific answers. This is based on human neural networks and the way that humans process, sequence, and transform information into knowledge.

The more the AI generator 'learns' from the grammatical rules, writing conventions, and thematic relationships embedded in the data, the better it gets at predicting the correct arrangement and combination of ideas required by the prompt. 'Prompts' in ChatGPT can be very general or quite specific. For example:

General: Provide an academic history of South Africa from 1652.

Specific: Write 500 words on the Soweto Youth Uprising as told by a high school student.

Caution! Generative AI tools are only as valid as the information and data thev are based on. Cases of gender or racial bias are not uncommon, and these tools can generate offensive content. Be aware that despite your prompt to the AI tool, there is a danger of FALSE or **FICTITIOUS** information being generated as a response, including fake citations and references. It is therefore important to use alternative resources to verify 'facts' presented in generated content, as in-built validation is not part of current AI generators. Generative AI tools are constantly changing, so it is important to remain updated about changes to the tools used by yourself or the University.

GETTING THE MOST OUT OF GENERATIVE AI

Generative AI has a number of valuable uses for the learning process. It is a great learning assistant, and can offer personalised support that strengthens what you learn in class, from your practicals and tutorials, and with peers. Generating Ideas

Use generative AI to brainstorm ideas, get creative prompts, or test assumptions



Learning and studying

Use generative AI to test yourself or a friend, deliver detailed summaries, explain calculations, and provide activities for studying or research



Feedback and evaluation

Use generative AI to provide feedback on written work, evaluate assignment answers, improve translations, and review your ideas

How you use generative AI depends on your course, department, or faculty rules, as well as UJ policy. Familiarise yourself with the rules and requirements before you produce assignments and assessments. Plagiarism and academic integrity regulations for generative AI use will affect how your work is assessed and whether you are penalised for the mis/ use of AI tools.

Be sure to read the <u>UJ Plagiarism Policy</u>. Using AI tools without acknowledgement may constitute plagiarism and lead to disciplinary action. You must be **RITE** when you use generative AI tools:





Be responsible: Be sure to foreground learning integrity in your use of generative AI tools. This means that you use the tool in a way that helps you make sense of the content and enhance your skills, rather than simply using it to complete an assignment. For example, limit the use of generative AI tools to the early stages of writing and research – to inspire, brainstorm and plan – rather than produce content for you. Immerse yourself in the process of learning, and not only the product you are asked to create. Be careful not to rely on generative AI, as you may not develop your own writing skills, style, critical thinking, and creativity.



RITE

Be informed: Before you use generative AI, you should "research who or what company developed the tool, how it was developed, how it works, what functions it can perform, and what limitations and/or risks

it presents" (Gutiérrez 2023). Check for updates and reports on bugs or data leaks. Stay informed on the broader ethical issues relating to AI tools. <u>Some of these issues</u> include privacy and data, intellectual property infringements in the development of these tools, labour exploitation in the process of building these tools, and the environmental impact of the development and use of these <u>tools</u>.

Be transparent: Clearly indicate which tools were used, and how you used them.

Be ethical: Distinguish between what you produced, and text/image produced by an AI tool through citation and quotation marks. It is wrong to present AI-generated work as your own work and doing so is academic misconduct.

ACKNOWLEDGING THE USE OF AI RESOURCES

Whilst there are no conventions as yet for referencing, there is a suggested approach from the University of Queensland, Australia. In brief, these are based on the APA guidelines for personal communication and correspondence as the content is generally not recoverable.

In-text references:

Author of generative AI model, Year of version used Example: (OpenAI, 2022) or OpenAI (2022)

In the Reference list:

Author of AI model used. (Year of AI model used). *Name of AI model used* (Version of AI model used) [Type or description of AI model used]. Web address of AI model used

Example: OpenAI. (2022). *ChatGPT* (Dec 20 version) [Large language model]. https://chat.openai.com/

Note that the complete transcript of the response obtained to a prompt can be included as an appendix.

Always indicate where you have used generative Al resources and to what extent. Use the **plagiarism** declaration as a checklist to ensure that your work meets the necessary standards for academic integrity.

