REIT6811 Research Methods (Semester 2, 2025)
Assignment 1

Aim: The aim of this assignment is for you to research sources, work effectively with a range of reference formats and metrics relating to researchers and publications. This assignment builds on the databases and practices you have learned in lectures and tutorials. However, you will need to search bibliometrics beyond those given in class. Use complete sentences with clear descriptions and justifications. For all quality measures, state the source, date of access, and provide a correctly formatted reference.

Submission: Submission is via **BOTH** Gradescope and Turnitin via Blackboard.
Ensure your submissions are text-based using a standard font (e.g. Times Roman, Arial, Calibri, or LaTeX default fonts). Your report should be in .pdf format and named according to the format `a1-REIT6811-[SID].pdf`, where SID is your student ID.

Referencing: Use IEEE format except where stated. If using concepts or text from generative AI, ensure you cite their usage. Further notes on referencing and plagiarism are provided at the end of this Assignment, including Appendix A on how to cite Generative AI. Include all your references in a reference manager as the last question requires an Appendix with an image of your reference manager or a copy of your Bibtex file.

Marking: Answer all 8 questions in this assignment with a total worth of 40 marks. Assignment 1 contributes 20% to your final grade. In the following questions, answers to some sections may be easy to look up online. However, marks will only be given if the answer is both accurate and appropriately referenced to an authoritative source. Explain your logic for why those sources are appropriate.

Full marks for Question 1 will only be given if Questions 2-8 are consistent with your Q1 answer by demonstrating high quality referencing in both in-text citations and in the Reference section. As seen in the class demonstrations, sometimes you may need to adjust how a reference is automatically formatted using a reference manager. For this assignment, if you do need to manually edit your in-text citations or references, you can add an explanation of the issue at the end of your answer to that question. The important pedagogic lessons in question 1 are (1) to use effective tools; (2) but also be aware of their limitations and how you are working with them; and (3) communicate your reasoning to your reader if an explanation is needed.

Due Date: 4pm, Monday 8 September 2025 [AEST]

Question 1. Referencing managers (2 marks)

(a) What word processor and reference manager are you using for this assignment? (see also Question 8 where you need to demonstrate the references in your reference manager) (1 mark)

(b) Will you use cite-as-you-write when preparing this assignment? If not, why not? (1 mark)

Question 2. Open Access Journals (13 marks)

There are generally two types of platforms for publishing research outcomes: open access journals and non-open access (closed access) journals.

For this question, please conduct your own background research to identify and compare the features and differences between open access and non-open access (closed access) journals. Cite all your sources and use complete and correctly formatted references (in IEEE format, including the dates of access if required). Collate all your references in one list at the end of the assignment.

(a) What role does open access journal play in disseminating scholarly research? Cite your source(s). (<100 words, 1 mark)

(b) What are the key differences between publishing research papers in open access journals and in non-open access (closed access) journals? Cite your source(s). (<150 words, 1 mark)

(c) What are the main advantages and disadvantages of publishing research papers in open access journals? Cite your source(s). (<150 words, 2 mark)

(d) Each published paper is labeled with a digital object identifier (DOI). For example, 10.1109/ACCESS.2020.2988796 is the DOI of a paper published in IEEE Access. Find the detailed information of this paper (e.g., title, authors, publication year, etc), provide a proper citation, and include it in your reference list. (<100 words, 1 mark)

The following question parts (e) – (h) refer to the article: **Rappaport, S. T., et al. Millimeter Wave Mobile Communications for 5G Cellular: It Will Work! Ieee Access**

(e) Find the paper and obtain its pdf. Enter the article in your reference manager. Note that the reference above is incomplete and not in a standard format. Ensure that you identify any missing details, and correctly format the article in your reference manager according to the IEEE referencing style.

Provide an in-text citation here and ensure that the full citation is correctly formatted in the reference list at the end of the assignment. (<50 words, 1 mark)

(f) In your own words, summarise what the paper is about in less than 50 words, based on the first two lines of the paper abstract. Use appropriate paraphrasing techniques, and specify which paraphrasing methods you have used from the following: (3 marks)

- ☐ Synonyms
- ☐ Changing voice e.g. passive to active OR changing word order
- ☐ Changing a clause to a phrase
- ☐ Changing parts of speech
- ☐ Changing conjunctions / linkers

(g) Fill in the table below, reporting exactly how many times the article by Rappaport et al. has been cited on Google Scholar and Web of Science on the date(s) you accessed them. (2 marks)

Article version	Number of Google Scholar citations	Number of Web of Science citations	Date(s) of access
Peer-reviewed			

(h) For this question you need to find the list of papers that cited Rappaport et al. ordered using the "Sort by relevance" option on the left hand side of Google Scholar. Identify the publishing platform (i.e., open access, non-open access, or hybrid) of the 8 most relevant papers that cite the article by Rappaport et al. Fill in the table below with the number of citing papers (out of the 8 most relevant citing papers) that were published in open access, non-open access, or hybrid journals.

Hint: A hybrid journal allows both open access and non-open access modes.

Using the information in your table, in one sentence, summarise the types of publishing platform that the first 8 references to Rappaport et al. in Google Scholar are found. (<100 words, 2 marks)

	Open Access	Non-Open Access	Hybrid	Date of access
Number of citing papers				

Question 3. Referencing and Plagiarism **(6 marks)**

Below is a passage in an (imaginary) deliverable that a student has submitted to answer the question: **"Can Deep Neural Networks Learn Physics Laws?"**, and further below are excerpts from one of the original sources they used.

Student's answer:

> Deep learning techniques are feasible to physics data. For example, measured physics data can be directly used as the input of a neural network to perform a pre-processing (Li et al., 2021). In addition, deep neural networks can be trained to generate images based on the measured physics data (Li et al., 2021). In these approaches, the physics of measurement is implicitly embedded in the network, and the computation can be accelerated with the help of massive parallelization (Li et al., 2021).

Original source:
Li, M., Guo, R., Zhang, K., Lin, Z., Yang, F., Xu, S., Chen, X., Massa, A., & Abubakar, A. (2021). Machine learning in electromagnetics with applications to biomedical imaging: A review. *IEEE Antennas and Propagation Magazine, 63*(3), 39-51.

Deep learning techniques can be applied to the imaging process in several stages. They can be directly applied to preprocess measured data [14]-[16]. For instance, filters for noise removal or signal classification can be constructed with a trained network based on previous data. In the imaging process, end-to-end DNNs can be trained to transform the measured data directly to images [17], [18]. In these approaches, the physics of measurement is implicitly embedded in the network, and the computation can be accelerated with the help of massive parallelization.

Answer the following two questions about this.

(a) Identify any problems with non-originality, plagiarism and/or referencing style in the student's answer. List the problems, being very specific about where the problems are. (4 marks)

(b) State, using examples, what the student should have done to avoid the problems. (2 marks)

Question 4. Quality metrics for journals and journal articles (5 marks)

Question 4 and Question 5 refer to the two articles cited below. When answering questions, remember to include the databases you used and the dates of access, e.g., h-index = 42 from [database] accessed on [date].

Article 1

Esteva, A., Robicquet, A., Ramsundar, B., Kuleshov, V., DePristo, M., Chou, K., Cui, C., Corrado, G., Thrun, S., & Dean, J. (2019). A guide to deep learning in healthcare. *Nature medicine, 25*(1), 24-29. doi: `https://doi.org/10.1038/s41591-018-0316-z`.

Article 2

E. J. Bond, X. Li, S. C. Hagness, and B. D. Van Veen, "Microwave imaging via space-time beamforming for early detection of breast cancer," *IEEE Trans. Antennas Propag.*, vol. 51, no. 8, pp. 1690-1705, Aug. 2003, doi: `https://doi.org/10.1109/TAP.2003.815446`.

(a) The two citations above are in different formats, APA and IEEE style respectively. What are key differences between these two formats in terms of their in-text citations, and the ordering of the reference list? Show an example of an in-text citation for Article 1 using IEEE style and APA style formatting. (2 marks)

(b) Determine and report the h-Index of the last author in Article 2 based on Scopus, Google Scholar and WoS. Is the h-Index of the author the same or different across these three databases? Give a suitable explanation for your answer. (2 marks)

(c) Choose one metric suitable for assessing the quality or impact of Article 2. Justify your choice and report its value. (1 mark)

Question 5. Teams of authors (3 marks)

The authorship list can reveal important information about a paper. Fill in the table below answering the following questions for the published version of Article 2:

i) Who is the corresponding author? (Write N/A if not explicitly stated in the paper.)

ii) What were the academic or industry affiliations of the authors at the time of publication?

iii) What were their positions (e.g. professor, MPhil student, PhD student)?

Author order	Name	Affiliation	Academic or professional position	Corresponding author?
Author #1				
Author #2				
Author #3				
Author #4				

Question 6. Research Ethics **(6 marks)**

(a) Imagine you are collaborating with a company on the development of a clinical microwave brain imaging system. Discuss the ethical considerations surrounding data collection, ownership, confidentiality, and sharing that must be addressed.

(4 marks)

(b) When evaluating the collected clinical data, you find that some of the data points don't fit the expected trend, and you get significantly better performance by removing those data points. Can these data points be removed for publication, and why or why not? What are appropriate steps to do in this situation? (2 marks)

Question 7. Conflicts of Interest **(2 marks)**

Dr. X is a member of a national research grant committee panel. Recently, Dr. X received a request to assess a grant project led by Dr. Y, who was Dr. X's classmate during their university studies. Dr. X had a close relationship with Dr. Y at that time, and they have maintained regular personal contact since graduation. Despite this relationship, Dr. X decides to accept the assessment task from the panel.

(a) Identify the conflict of interest (COI) that may arise from Dr. X's grant assessment, as well as the potential ethical concerns associated with this task.

(<100 words, 1 mark)

(b) How can Dr. X manage this conflict of interest to maintain research integrity?

(<100 words, 1 mark)

Question 8. Demonstrating your use of a reference manager **(3 marks)**

Add a Reference section in IEEE format which includes all the references in your assignment. Note that you need to cite answers using concepts or text provided by generative AI just as you would any other source (see below for details of the format requirements).

Add an Appendix to demonstrate the list of articles in your reference manager using either a screen image ("screenshot"), or a copy of your Bibtex file.

Academic Misconduct

The University defines Academic Misconduct as involving "a range of unethical behaviours that are designed to give a student an unfair and unearned advantage over their peers." UQ takes Academic Misconduct very seriously and any suspected cases will be investigated through the University's standard policy (`https://ppl.app.uq.edu.au/content/3.60.04-student-integrity-and-misconduct`). If you are found guilty, you may be expelled from the University with no award.

All sources of information should be attributed, and references should use IEEE format except where stated. Use quotation marks when citing specific sentences. Do not plagiarise. In other words, do not directly copy your answers from other sources, such as lecture notes, material written by others, material written by you for other purposes or courses, or any other source. See university and course material on how to avoid plagiarism. Acknowledge the source of all ideas that you use in your work, using methods discussed in the lectures and tutorials.

Generative AI: If you have utilised Generative AI tools such as ChatGPT, you must clearly cite any use of generative AI in each instance. To reference your use of AI:

- See: https://guides.library.uq.edu.au/referencing/chatgpt-and-generative-ai-tools
- Describe how the AI was used in the reference, e.g.:
  "EMI Instrumentation Presentation" prompt; initial slide outline for presentation on EMI shielding in MRI ChatGPT, Apr 2023 version, OpenAI, 2 Feb. 2024, `chat.openai.com/chat`.
- If referencing specific text, do not copy the generated material – just like a journal article or textbook you should write the generated material in your own words, unless quoting (which you should always do sparingly).

Failure to reference use of generative AI tools constitutes student misconduct under the Student Code of Conduct.

It is the responsibility of the student to ensure that you understand what constitutes Academic Misconduct and to ensure that you do not break the rules. If you are unclear about what is required, please ask.

It is also the responsibility of the student to take reasonable precautions to guard against unauthorised access by others to his/her work, however stored in whatever format, both before and after assessment.

All submitted files will be subject to electronic plagiarism detection and misconduct proceedings will be instituted against students where plagiarism or collusion is suspected. If you collude to develop your report, you will be caught.

For more information, please consult the following University web pages:

- Information regarding Academic Integrity and Misconduct:
  - https://my.uq.edu.au/information-and-services/manage-my-program/student-integrity-and-conduct/academic-integrity-and-student-conduct
  - http://ppl.app.uq.edu.au/content/3.60.04-student-integrity-and-misconduct
- Information on Student Services:
  - https://www.uq.edu.au/student-services/

Late submission

Students should not leave assignment preparation until the last minute and must plan their workloads to meet advertised or notified deadlines. It is your responsibility to manage your time effectively.

Assessment submissions received after the due time (or any approved extended deadline) will be subject to a late penalty of 10% per 24 hours of the maximum possible mark for the assessment item.

In the event of exceptional circumstances, you may submit a request for an extension. You can find guidelines on acceptable reasons for an extension here https://my.uq.edu.au/information-and-services/manage-my-program/exams-and-assessment/applying-extension.

All requests for extension must be submitted on the UQ Application for Extension of Assessment form at least 48 hours prior to the submission deadline.

If you submit your assignment before the deadlines, then Turnitin does not allow any more submissions after the deadline. If you have not submitted before the deadline, then Turnitin will allow just one submission after the deadline. If you have been granted an extension and have trouble submitting, email the course account reit6811@eecs.uq.edu.au for help.

Appendix A: Generative AI Usage

Please use the following Table A1 and statement to acknowledge your use of generative AI in this assignment. Include this table at the end of your report or slides, near your references section. The first two rows (in orange) are example only, and should be removed before use.

I acknowledge the use of generative AI tools in completing this assignment. Details of which tools were used and how they were used are provided in the table below, along with appropriate in-text and full references. I take responsibility for critically evaluating and integrating the AI-generated content, and ensuring it adheres to academic integrity standards.

AI Model Used and date	Table A1. Generative AI usage (tick all that apply)								
	Language Translation	Grammar/Style	Planning/Drafting	Research/ Background Information	Content Creation text	Content Creation visual	Content Creation code	Feedback	Other (provide details)
ChatGPT4o 20/08/25		✓	✓	✓				✓	
Midjourney 20/08/25						✓			