

Scientific Essay Writing

BIOENG-399 Immunoengineering Spring 2025

Prof. Li Tang

TAs:

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Due: 23:59, 30th May, 2025; submit in moodle (in PDF, please name your file as “last name.first name”)

1. Scientific essay writing

In this course, we will learn many examples of bridging immunology and engineering thinking from recent research publications. To help you develop the skills needed to search, summary, digest, and comment on particular information from giant scientific literature pool, we will have a scientific essay writing practice this term. You can choose any topic related to immunoengineering and discuss it with TAs during exercises. Learn how to use search engines (such as pubmed, web of science, google scholar) to find scientific publications of interest. Read both review article and research papers into details, understand the results, summarize the discoveries, make your comments, and convert it into your own writing in a format acceptable in academia. This essay is to mimic a typical “views” or a “perspective” published in scientific journals, summarizing a specific topic and commenting on the research in the field. See examples in Moodle and search for more in scientific journals.

2. Essay writing requirements

- Choose any topic related to immunoengineering or immunology (discuss with TAs during exercise if you are not sure)
- Read related, recent papers (ideally within last 5 years) in the chosen topic. **These directly related papers should be clearly highlighted in the bibliography.**
 - BA student: at least 1 review article and 1 research paper
 - MA student: at least 1 review article and 2 related research papers (compare and discuss the 2 chosen papers)
 - MA student only: in the last paragraph, please propose a new idea that potentially improves the technology/engineering approach/knowledge reported in the research paper you read, and give a brief explanation and justification
- Left and right margins 2.54 cm, top and bottom 2.54 cm, single-spaced, Arial 11 pt. font.
- Figure or scheme can be included (up to 1). Figure is counted towards your page limit. You may either create your own figures or use figures from the literature, where appropriate. Be sure to add references to any figures you did not create!
- Length limit:
 - BA student: 2 pages
 - MA student: 3 pages
- Please be sure to cite all literature and include a complete bibliography in your essay in a standard format (choose any format from a good journal, e.g., *Nature*, *Science*) and be consistent. Please collect citations at the end. Citations do not count towards your page limit.

- Summarize the topic (state-of-the-art, outstanding challenges, your own perspective) as well the research paper, comment on the paper(s) and even the research field, share your vision and perspective
- Writing with ChatGPT or similar AI tools is not allowed.
- Due: 23:59, 30th May, 2025, via moodle submission
 - Format: PDF
 - Please make sure the file name follows: "Last name_first name"

3. Grading criteria

- Is the chosen topic area well-defined and impactful?
- How much do you understand the topic?
- Is the summary comprehensive and include all the state-of-the-art?
- Do you identify the major challenges in this area?
- Do you clearly present your vision and thoughts about the future directions in this area?
- Is the essay written in a manner that is easy to understand, with few errors? If figures are used, are they clear, and add to the clarity and comprehension of the proposal?
- Is the essay formatted correctly as per the stated criteria (acceptable as a typical scientific writing)?
Is the essay appropriately referenced with citations?
- Is the proposed idea new and relevant? (MA only)