

Journal Clubs

BIOENG-451 Course Notes
Prof. Gioele La Manno

September 2025

1 Instructions on Journal Clubs

Goal: a rigorous, inclusive discussion that sharpens scientific judgment and fosters clear, evidence-based reasoning.

The journal club is designed to practice careful reading, critical evaluation, and constructive discussion of research publications. Each week we will focus on two papers, one per group. Each member of the group will be responsible for reading and discussing one of the two papers. Two special members per group will be assigned to present the paper before starting. This role will rotate and each person will be presenter at least once during the course. It is not needed to read the "other" paper (as your knowledge on it is never tested/graded), but attention to your colleagues' journal club discussion is expected, and intervening in a helpful manner is kind and helpful.

Please make sure you dedicate enough time for reading critically. There is a reason if we give you the papers on day one! What is enough? A good rule of thumb is to spend at least 4 hours reading, thinking about the paper and preparing for the journal club, but this is a minimum, if it feels hard and you feel you need more time, it is normal and a good sign. We want to be representative of reading in the real world, thus, each paper is provided "as is": there will be harder papers and easier ones, it is intended. We keep it into account when grading, but be ensured on average things will be balanced and fair.

To make sure everybody can contribute, to respect different preferences in terms of public speaking and to help the critical reading learning process, we will have the journal clubs in two moments:

2 Journal Club (live): Timing and Flow

- 15-minute presentation.** The *Presenters* open with a concise slide deck rapidly covering: problem framing, main claims, core methods, key results/figures, and limitations. Prioritize selection and clarity over exhaustiveness.
- 30-minute discussion.** Moderated by the Prof and/or TA.
 - We will ensure all designated *Discussors* contribute, so be ready to be called in to comment.
 - Please make sure you contribute and respect others' right to speak.
 - Feel encouraged to disagree respectfully with your colleagues (it will NOT weight negatively on your peer), actually the opposite!

3 Pre-Journal Club (on the forum): Explanation

Goal: prepare for a rich, inclusive discussion by engaging with the material and your peers ahead of time.

1. **Read the paper.** The schedule is organized so that you will have sufficient time to read the paper. Each student is expected to read the assigned paper thoroughly before the journal club session and in time to contribute onto the forum.
2. **Start the discussion**
3. **The journal club starts on the forum.** Each student is expected to start the discussion on the forum, these points can be made in the live, so the live journal club can be partially repetitive of the forum one, but this is not a problem, as it will help to structure the live discussion and make it deeper.
4. **Do not delete if "wrong".** In a sense there are no wrong comments, the discussion flows and we are contributing to an enhanced understanding, if you say something that you later realize is not correct, do not delete it, but rather add a comment showing you advanced your understanding. This is a sign of a productive discussion.
5. **New post or reply** Use a new post for a new subthread or critical point, use a reply to comment on an existing post to follow a thread of discussion.

4 Not allowed: use of AI tools

You might see the use of AI tools as a shortcut for this course. It is not, it is a way to miss the occasion this course is. I am a strong supporter of the use of AI tools, and AI is highly recommended in the other class I teach (to code). However, in this specific case we are exercising almost exclusively reasoning and critical thinking, and thus the use of AI tools is not allowed, as it seriously undermines the learning objectives of the course. We will take measures to identify you have used AI tools to come up with discussion point (be sure that we will have used all the LLM we can to check what are the most common proposed comments). Last years a few students used AI tools, I could always tell, don't underestimate what one can see when you are expert of the field and used to train critical thinkers.