

Vignette on the use of AI in NSSE

Course	AAB20G
Modality	Blended Learning / Flipped Classroom
Intended Learning Outcomes	Students will be able to: 1. Compare foundational glycolytic regulatory pathways with complex metabolic adaptations in pathological states (e.g., cancer cell metabolism). 2. Analyze empirical peer-reviewed review literature by directly mapping text insights back to baseline lecture concepts. 3. Critically evaluate AI-generated summaries by executing text-grounding techniques and verifying citations against primary source documents.
Role of Faculty	Before lesson: 1. Provide YouTube link on the use of Gemini Notebook on NTULearn 2. Curates and pre-loads the lecture slides and selected journal review paper related to foundational concepts in glycolysis and its importance in biomedical research, respectively, on Gemini Notebook and NTULearn. 3. Prompt on Gemini Notebook to create 10 essential questions for students to use in their interaction uploaded material within Gemini Notebook. Questions can include the relevance of topics/concepts covered in lecture to the review paper to provide context. 4. Check for accuracy of the generated answers provided by Notebook based on essential questions. During lesson: 1. Provide lecture on the topic of glycolysis, its regulation and its importance in biological systems to students. Emphasis placed on the biomedical importance by providing examples on the consequences of pathway breakdown. 2. Provide instructions to students on the use of Gemini Notebook to further their understanding on key regulatory intermediate and its importance in cancer cell metabolism. 3. To get students started, provide them the 10 essential questions (uploaded on NTULearn) they can prompt on Gemini Notebook to understanding the review paper.
Role of Students <i>Learning as Participating: Practice</i>	1. Primes students' understanding using alternative modalities, including listening to generated Audio Overviews, reviewing glossaries using Gemini Notebook 2. Interrogates the text through active query submission via the chat panel on Notebook using the structural prompts provided. 3. Validates all answers by explicitly clicking and verifying embedded numeric source citations to locate exact points in the original PDFs on Notebook.
Role of AI	Learning with AI (to learn science) Learning to use AI (to learn science) 1. Serves as a source-grounded learning assistant via Gemini Notebook restricted to the user's specific course material context. 2. Translates high-density scientific prose into student-accessible summaries and multi-format learning platforms. 3. Prevents AI hallucinations by linking every claim directly to interactive text citations.
Artefacts (if any)	Creating a dedicated digital workspace e.g., " <i>Unit 1: Glycolysis & Cancer Metabolism</i> ".