

Retrofit/Redesign Assignments to Acknowledge Generative AI

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Overview

Widespread access to generative AI tools necessitates revisiting assignments to make them at the very least less vulnerable to breaches of academic integrity, but also to find opportunities to transform them into vehicles for promoting better understanding and critical use of these tools by students. Two things are certain:

- There is no silver bullet response. We know that AI detection tools do not work, and may in fact do more harm than good.

- The work of responding to this rapidly changing educational environment will require ongoing discussion and adjustment on the part of instructors as the technology evolves.

With these factors in mind, we offer the following strategies organized in two forms, retrofit or redesign.

Retrofit = These are short term fixes you can employ as you and your students learn more about these tools and how they may be useful or not useful for your subject area.

Redesign = These are longer term strategies for exploring how you can incorporate teaching effective, critical use of AI into your course.

The following recommendations are organized by general types of learning and assessment strategies with some examples. Within these broader categories we offer retrofit and redesign approaches. This is a living document; we will continue to update it to meet the changing landscape of generative AI.

Basic Principles

For all assessments, we recommend following these foundational principles:

- Break down high stakes assignments (anything over 15% of final grade) into graded components. Doing so emphasizes the process of learning your content over achieving a particular grade and can minimize the temptation to utilize Generative AI. See our detailed guide [Redesigning Grading Schemes](#)
- Articulate what the learning goals are for each assignment, including weight that learning behaviors (pacing work, incorporating feedback, demonstrating particular aspects of critical thought, etc), final product, and mastery of process or concepts have.
- Be explicit about what AI tools are allowed, particularly paraphrasing, translation, and grammar checker tools and how students are required to cite their use.
- Have an honor code acknowledgement on EVERY assignment, preferably typed or written out by students, not just a click box.
- Wherever possible, integrate student experience and reflection on their learning into the assessment.
- Use a generative AI engine to create a model response to every major phase in an assessment you create, either for your own understanding of how AI could be used to complete it and/or to share with your students to promote critical thought about the assignment goals.

Essential Components for Both Retrofitters and Redesigners

Avoid/Discourage Essential Activities

Key Practices:

- Explain WHY you want students to avoid AI tools, for example because your class builds fluency in a language or in skills like argumentation, or because course topics are poorly represented in the Large Language Models (LLMs) used to train AI engines. Be prepared to revisit this decision at least once a semester based on changes in AI tools and capabilities.
 - For grammar checkers or polishing tools, consider a compromise, particularly with English language learners: allow their use, with citation, for one assignment or for the final version of a multi-step assignment. Consider requiring learners to submit a reflection on the changes suggested, including noting items to work on to build fluency and errors suggested by the checker tool.
- Emphasize student experience and reflection as much as possible, both in the assignment directions and in the process (eg, reflections on completed assignments to identify learning or growth).
- Generate a model assignment response using a generative AI engine and critique it with the class to show how it does not fulfill the assignment's goals.
- Get samples of student work (graded and informal) in person or using browser lockdown
- Emphasize process (eg, having a series of building blocks submitted over time) over product in assignments

Tools:

- [Respondus Lockdown Browser](#)
- [Google Drive tools with version history](#)
- [Gradescope for managing handwritten writing samples](#)
- [Perusall for replacing discussion boards with annotation assignments](#)
- [ED STEM platform tools for coding assignments](#)

Integrate AI Essential Activities

Integrating AI into assignments can help highlight critical thinking tasks that are often so deeply embedded in our assignments that we have trouble isolating them. Some examples are:

Pattern recognition and analysis
Inquiry skills such as interrogating sources and ideas
Assessing and integrating feedback

Make sure that you highlight these skills as part of the student interaction with AI and include, as a distinct aspect of the assignment, a learner description of their process and reflection on what they learned about AI.

Key Practices:

- Teaching critical thought through prompt creation & refinement: See Ethan Mollick's ideas about why generative AI text engines are ["Magic for English Majors"](#): *"To get the best writing out of the AI, you need to provide prompts, just like you do with generative art AI. And, even though using ChatGPT often seems like you are having a conversation, you really are not. What you are trying to do is prompt the system to do things by giving it instructions in English. The best coders of ChatGPT for writing have a solid understanding of the prose they want to create ("end on an ominous note," "make the tone increasingly frantic"). They are good editors of others, so they can provide instructions back to the AI ("make the second paragraph more vivid.>"). They can easily run experiments with audiences and styles by knowing many examples of both ("Make this like something in the New Yorker," "do this in the style of John McPhee").*
- [Generating ideas and providing practice opportunities](#)
- [Using AI for Critical Feedback](#)

Tools:

- [Accessing a Generative AI Engine](#)

Assignments

Collect, Summarize, and/or Respond to Media

Example: Annotated Bibliography or Lit Review

Most AI text generators can easily create responses to this assignment; there are also generative AI tools that have been customized for this task, such as [Elicit](#). The weakness is that AI will hallucinate sources and make up citations; also, depending on the field, there may not be a lot of information available for AI analysis yet so sources may be irrelevant or wholly made up. **Whether you retrofit or redesign, you will need to acknowledge the widespread use of generative AI to complete research tasks like this one and you will need to shift the emphasis of assessment from simply**

amassing sources with summaries to critical assessments of sources, patterns, fitness for purpose, etc..

Retrofit:

Avoid Student Use of Generative AI:

Generate a model assignment using a generative AI tool. Have students critique the product.

Divide the assignment into multiple parts for your feedback, such as submitting a set or partial set of possible sources for feedback, then creating a sample annotation for one or two sources to submit for feedback, and finally submitting the full product. This approach will allow you to see the development of the work and whether or not students have incorporated feedback into their final submissions.

Use the [Library's reverse citation search](#) to check validity of citations:

Integrate Generative AI:

Have students begin by generating an AI version of their annotated bibliography. Assess their critical thinking in deciding which entries to use and how to present them. Have them do an overall reflection on the usefulness and/or drawbacks of using an AI tool for this work.

Redesign:

As a component of the assignment grade, require students to create and refine a prompt in a generative AI tool to generate the most accurate lit review. Have them explain the steps in their process and why they made the choices they made, as well as how they might use this tool in the future.

Written Argument or Analysis Assignment

Retrofit

For both avoiding and integrating, it's essential that you begin by testing your argument or analysis prompts in a generative AI tool to see what kinds of output they generate.

Avoid Generative AI: If the output of your AI test generates a passable response, adjust your discussion prompt to incorporate student experiences and opinions that cannot be generated by AI in a valid or interesting way.

Integrate Generative AI:

Have students input their finished work into a generative AI engine and ask it to produce a counterargument. Have them revise their work based on this feedback and document

their process. Have them write a short reflection on what using the AI feedback taught them.

Redesign:

As part of your assignments, include any of the following steps. Have students document their process, cite the AI they use, and write a reflection on what they learned and how they might use the AI for similar tasks in the future.

- Use generative AI engine to generate possible topics
- Use generative AI to generate multiple perspectives on the chosen topic
- Input finished work into a generative AI engine and ask it to produce a counterargument. Revise work based on this feedback.
- Ask Generative AI to produce an argument on the chosen topic. Write a counterargument to that response.

Example: Close reading/analysis

Retrofit

Avoid Generative AI: Require students to acknowledge the college and/or course honor code. As part of the close reading instructions, require students to actively reflect on the text of their reading and contextualize within their own experience. Example: “How does the narrative relate to your own experiences with family? How does it differ? Give specific examples. ”

If you have been using a discussion board tool, consider switching to an annotation tool like [Perusall](#). These tools require students to annotate and interact within the content, which can facilitate better engagement. Or have them organize and submit their analysis in a graphic like a presentation or mindmap.

Integrate Generative AI: Have students submit the assignment to a generative AI tool (Bing will allow for image as well as text analysis). Have them write a critique/reflection on the generated close reading based on key course concepts. What are the characteristics of the response – is it too general? Inaccurate? Unhelpful for the course? What are the missing elements?

Redesign

Whether or not you integrate generative AI:

Make this type of exercise one that recurs across the semester or is part of a larger assignment sequence so that students can evaluate their development of key skills over time. Have students write a reflection on the changes between their first and most recent or last assignment in this series.

Example: Writing a summary of reading/video

Note that there are a number of specialized generative AI tools that can do this assignment, including Quillbot and HyperWrite ([Three Ways to Upload PDF to ChatGPT to Analyze or Summarize](#)). **Whether you retrofit or redesign, you will need to acknowledge the widespread use of generative AI to complete research tasks like this one and you will need to shift the emphasis of assessment from simple summarizing to critical assessments.**

Retrofit

Avoid Generative AI:

Instead of summarizing, have students complete a [knowledge check](#) on content in a tool such as Brightspace Quizzes or Google Forms or PollEverywhere,

Bring the article into [Perusall](#) (texts and video) or [Annoto](#) (video and audio) for students to annotate. As part of the work in these tools, require students to use the record feature to capture them providing a summary of the reading or video

Integrate Generative AI: Have students use a summarizing tool to produce a response to the assignment. Have them write a critique of how useful the response was, including ways to refine the answers with prompt creation and places where the AI is inaccurate or ambiguous.

Redesign:

Whether or not you integrate generative AI:

Make this type of exercise one that recurs across the semester or is part of a larger assignment sequence so that students can evaluate their development of key skills over time. Have students write a reflection on the changes between their first and most recent or last assignment in this series.

Open Note Exam

[Take a look at this recent Chronicle article in praise of Open Note exams](#)

For all approaches, break down the final exam grade into multiple, graded steps so that students get plenty of feedback on their learning and test-taking abilities.

Example: Exam that is 30% of Final Grade becomes:

- 10% Practice Test
- 10% Exam
- 10% Corrections + Reflection ([Exam Wrapper](#))

Retrofit:**Avoid Generative AI:**

Use [Respondus LockDown Browser](#) and allow only paper notes (all digital notes will be blocked by the lockdown).

Provide guidance for effective note taking and use of materials: What kinds of notes/materials are students allowed to bring into the exam? What should students do with printed slides? Give students guidance on how to rewrite and organize in class notes and discuss how this process of determining what content is relevant and how it's connected to other content is the actual work of "studying".

Integrate Generative AI:

[Have students use AI as a study partner or personal tutor](#). Have students prompt the AI to create several types of organized study guides for course content - incorporate key terms, open-ended questions, diagrams, etc. Use this as a baseline to provide well structured note taking templates for students and instruct them to try one for the exam. Discuss with students, or prompt them to reflect individually, how well the guides worked for them, offer the opportunity to try a different template, or explain why their own study system works better.

Redesign:

Have students prompt the AI to act as a tutor and have a discussion with the AI about the content as a review session for the exam. Or have the students prompt the AI to generate exam questions for the content and practice with their notes. Have students reflect on how well their current note taking system works for them and what they need to improve in preparation for the in-class exam.

Multiple-Step Assessment - Long Term Research Paper or Project

Example: Research paper or essay

For all approaches, get a writing sample from every student at the beginning of the semester, either in class or outside of class using a browser lockdown if you prefer. For large format classes, using [Gradescope](#) to collate and store the samples will make it easier. Gradescope recognizes handwritten responses and can group similar types of responses together for faster grading. It also stores responses for consultation later in the semester.

It is essential that you test your prompts in a generative AI tool to see what kinds of output they generate.

Break down the final grade into multiple, graded steps so that students get plenty of feedback on their writing and there is a trail of the development of their work. Sample:

Paper that is 30% of final grade becomes:

- 5% In-class Pre-writings
- 10% Rough Draft
- 5% Peer Review
- 10% Final Draft Incorporating Feedback

Retrofit:

Avoid Generative AI: Require students to acknowledge the college and/or course honor code. Refine your assignment prompt to include more personal details and reflection on the writing process.

Consider a compromise for grammar checker or polishing tools, particularly with English language learners: allow their use, with citation, for the final version. Consider requiring learners to submit a reflection on the changes suggested, including noting items to work on to build fluency and errors suggested by the checker tool.

Integrate Generative AI: Model the use of a generative AI tool like Bing, versus a simple Google search, to search for research paper topics/sources. Model the investigation of provided sources to vet for credibility, etc. Discuss your expectations for citing and reflecting on generative AI use in the writing process.

Redesign: Break down components of the research paper writing process into separate and graded deliverables. For example, research paper topic, sources list, outline, draft 1, draft 2, final paper.

Example: Group/Individual Project

For all approaches:

It is essential that you test your prompts in a generative AI tool to see what kinds of output they generate.

Break down the final grade into multiple, graded steps so that students get plenty of feedback on their writing and there is a trail of the development of their work. Have one step that draws from work generated in class or in groups. Sample:

Project that is 30% of final grade becomes:

- 5% In-class Pre-writings
- 10% Two page proposal
- 5% Peer Feedback

- 10% Final Draft Incorporating Feedback

Retrofit:

Avoid Generative AI:

Require students to acknowledge the college and/or course honor code.
For presentations, use Google Slides to track student progress.

Integrate Generative AI:

Prompt the AI to provide a project outline based on the assignment instructions and critique the output with students in class.

Redesign:

As part of the project assignment, incorporate local excursions, partner with community organizations, or get students to share their experiences in a reflection portion.

Evaluate the current outcomes for the project and identify opportunities for more creation and critical analysis. Example: For a product proposal, rather than only describing what an app would do, require students to prompt AI to generate basic code for the app.

Math or Other STEM Assignment

Coding or Math Problem Sets

ChatGPT 4 can solve complex and simple math problems and explain the process. Here is an example of what the process currently looks like; do not depend on any current limitations to make your assignments generative AI-proof: [Can ChatGPT solve physics? - PC Guide](#) . An excellent resource is the paper that NYU Courant professor Ernest Davis published on 8/16/2023, "[Testing GPT-4 with Wolfram Alpha and Code Interpreter plug-ins on math and science problems](#)".

Retrofit:

Avoid Generative AI: Use the Respondus lockdown browser for assignments.

Have students write an explanation for how they solved the problem or make a video of their process. If you require one of these methods, make sure you create a model of what the explanation or reflection or video should look like!

Integrate Generative AI:

Put sample problems into a generative AI engine in class and critique the results. Have students put all of the questions of a problem set into a generative AI engine and

explain which answers are correct and which are not correct and how they know.
Correct incorrect answers.

Redesign:

Flip the grading scheme so that the majority of credit comes from answers generated on a daily basis through in class activities.

Consider whether [“edit to mastery”](#) or [Open Note Exams](#) could be a viable approach for this course.

Break down the final grade on assessments into multiple, graded steps so that students get plenty of feedback on their learning and test-taking abilities.

An exam that is 30% of final grade becomes:

10% Practice Test

10% Exam

10% Corrections + Reflection (Exam Wrapper)