

A Checklist for Managing AI Use in Agribusiness and Applied Economics Courses

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Abstract:

Since the release of artificial intelligence tools like ChatGPT, instructors are wrestling with how to maintain academic honesty when students have access to artificial intelligence (AI) tools that can assist them with completing course work. This paper explores the key ethical considerations that an instructor should evaluate when managing students' use of AI tools. It reviews the syllabus guidance provided by 95 universities that house agribusiness and applied economics programs regarding ethical considerations for managing AI usage. A checklist of key considerations is created to guide instructors who are considering developing course policies for managing the use of AI in their classes. The checklist is used on a data analytics course to demonstrate how to create syllabus statements for the use of AI.

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1 Introduction

Over the last 2 years, students' course assignments in the author's courses have noticeably improved. This includes more structurally and grammatically sound essays, improved problem-solving on homework assignments, and more advanced Excel skills. While homework assignments have improved, students' formal assessment on exams have not necessarily followed suit. A possible explanation emerged when a student was discovered using OpenAI's ChatGPT on a midterm assessment. ChatGPT is one of many generative artificial intelligence (AI) applications being employed by students to complete their coursework and assessments.

Given recent advances in AI, instructors are wrestling with how to manage its usage in their courses (Denial 2024). De Fine Licht (2024) provides reasons why instructors may want to ban or use AI in the learning process. Some instructors believe that the use of AI is akin to cheating and want to ban AI technology to maintain academic integrity. Other instructors see AI as a tool students will use in their future work and want to provide guidance regarding how to properly utilize it. Regardless of instructors' stances on AI adoption, they need to consider the ethical issues of adopting AI and develop a set of corresponding course policies to manage its use.

This work examines the key ethical considerations that instructors should be cognizant of when developing their syllabus statement regarding the use of AI. It reviews the guidance provided by universities with agribusiness and applied economics programs (AAEP) regarding how instructors can manage the AI tools used in their courses. Specifically, it investigates example syllabus statements provided by these universities from the lens of ethical considerations. This paper develops a checklist of key considerations to guide the development

of course policies for the use of AI. This checklist is applied to a data analytics course to create a set of course policies to manage students' use of AI.

2 Literature Search and Selection Process

To explore the intersection of AI, ethics, and course policy considerations in higher education, a literature review was conducted using Google Scholar to identify key articles. The exploratory search was performed using a combination of key terms, including AI, artificial intelligence, ethics, ethical, business, economics, and syllabus statements. These keywords were selected to capture a broad scope of research in the areas of ethical and course policy considerations as they relate to the intersection of AI with business and economics. Since the explosion of AI usage following the release of ChatGPT around November 2022, the search results focused on peer-reviewed articles, conference papers, and reports published primarily within the last 3 years. Each source was evaluated for its relevance to AI usage, ethics, and course policies in higher education. Given the small number of papers written specifically for economics and business, the scope was expanded for other key articles in other disciplines.

3 AI, Higher Education, and Ethical Considerations

The literature regarding AI is vast and growing quickly. This review covers three key areas regarding AI. The first section provides a brief overview of the development of AI. The next section covers AI's capabilities and usages in university classes. The final section investigates the literature associated with the key ethical considerations for adopting AI into the classroom.

3.1 AI's Development

The idea of AI dates to the late 1940s and early 1950s, when Turing (1950) proposed a test to determine whether machines can think. Turing's key question was whether a machine's responses to questions could be indistinguishable from a human, regardless of whether the

answers were correct. In November of 2022, OpenAI released ChatGPT, an AI large language model (LLM) capable of answering questions written in natural language (Heaven 2023; Yusuf et al. 2024). LLMs use neural network computational models trained on extensive written data for replicating human cognitive abilities (Raiaan et al. 2024). With the rapid development of LLMs, increased computing power, and free AI tools, instructors are faced with the possibility that materials submitted by students are partially generated by an AI tool.

Many papers have defined AI (Turing 1950; Simmons and Chappell 1988; Wang 2019). For the purposes of this paper, AI is defined as the ability of a machine or computer program to imitate human intellectual capabilities, including the ability to answer questions, synthesize information, make calculations, generate ideas, create art and music, and analyze data. Many assignments instructors give students can be accomplished or assisted by an AI tool with the appropriate prompting by the student. In this context, AI tools are applications or devices that use AI algorithms to complete tasks from given prompts.

3.2 AI's Capabilities and Usages in the Higher Education Classroom

Today, many AI tools appear to be able to surpass Turing's test by providing correct answers or better essays than students. Researchers have found that individuals using AI tools can perform better than students not using these tools on instructors' assessments (Geerling et al. 2023; Shear et al. 2023; Hultberg et al. 2024). However, AI-generated information is not always accurate or superior to students' work. Ibrahim et al. (2023) found that ChatGPT was able to provide answers that were either as good as or better than those of students in only 9 out of 32 courses. Nikolic et al. (2024) found mixed results in the performance of AI tools on engineering assessments. Terwiesch (2023) found that ChatGPT3 could achieve only a B or B- on an MBA-level operations management exam. While AI can answer some questions correctly, Buchanan et

al. (2024) point out that AI tools can hallucinate (i.e., make up information, including citations that are not true), which can mislead students into providing incorrect answers.

AI tools are rapidly changing, and not all AI tools are created equally. Hultberg et al. (2024) demonstrate that different AI tools provide varying quality of answers. Abeysekera (2024) finds that new versions of ChatGPT outperform older versions on accounting exams, highlighting the rapid advancement of AI capabilities. Nikolic et al. (2024) highlight concerns about academic integrity due to the rapid increase in capabilities of AI tools like ChatGPT, Copilot, Gemini, SciSpace, and Wolfram Alpha.

AI is used in both research and teaching. Bickley et al. (2022) and Korinek (2023) discuss how AI has been utilized in economics research. Other researchers have explored how AI can be incorporated into teaching. Cowen and Tabarrok (2023) discuss how to use prompt engineering to teach economic concepts. Mollick and Mollick (2023) describe leveraging AI to implement teaching strategies more efficiently. Laker and Sena (2023) analyze ChatGPT's accuracy in a business analytics class. Cribben and Zeinali (2023) provide examples of how ChatGPT can be useful in the areas of operations research, supply chain management, and statistics and data analytics. Plakias (2024) advocates having a discussion with students regarding the use of AI in the course as part of course development and the learning process.

Regardless of the course, instructors need to develop clear statements on the use of AI and associated course policies to guide students in the ethical and proper usage of AI tools. Surveys by McDonald et al. (2025) and Wang et al. (2024) found that at least 56 percent of the universities surveyed provide syllabus statements instructors can incorporate into their syllabi on students' use of AI. McDonald et al. (2025) found that these statements were categorized into

three levels: “embrace,” “limit,” and “prohibit.” A substantial body of work discusses ethical considerations when incorporating AI into the classroom.

3.3 Key Ethical Considerations When Adopting AI Tools in the Learning Environment

Li (2024) and Li et al. (2024) review multiple papers regarding the ethical usage of AI in higher education and provide a summary of ethical issues regarding the use of AI usage in education.

Some of these issues are directly related to the course, while other issues are more overarching.

The key ethical considerations identified by Li (2024) and Li et al. (2024) regarding the use of AI in a course include (1) academic honesty, (2) biases in information provided by AI tools, (3) student data privacy, (4) equity and accessibility of AI tools, and (5) students’ overreliance on AI tools.

3.3.1 AI and Academic Honesty

One of the key ethical considerations found in the literature is whether students’ use of AI violates the principles of academic honesty.¹ Denkin (2024) surveyed faculty members and found that some faculty viewed using AI as cheating, roughly the same amount considered it not

¹ For this paper, academic honesty is defined as upholding the academic rules set forth by the university that govern students’ behavior related to the courses at the university. These rules not only define students’ specific behavior in their own classes but also how they interact with students from other classes. For example, some rules may forbid students to assist other students in other courses. Academic honesty and academic integrity are used interchangeably in the literature, so they will be treated as synonymous. While some literature discusses academic honesty, others frame this issue from the perspective of academic dishonesty, which is defined in this paper as the breaking of university rules as they pertain to university courses.

cheating, and a majority were between the two extremes. Chen et al. (2024) noticed a higher propensity of cheating since the release of ChatGPT. While some view students' utilization of AI tools as cheating, Oravec (2023) prefers to think of the use of AI as "misattributed co-authorship." For those who consider AI usage as not cheating, Firth et al. (2024) lay out a framework for appropriate usage of AI tools. The three most pressing concerns regarding academic honesty and AI are fair attribution, copyright infringement, and transparency.

Fair attribution is a paramount principle in academia. Students early in their academic careers learn the importance of fair attribution and that it is wrong to plagiarize another person's work. AI blurs the lines regarding what type of assistance the student receives and how to fairly attribute it. As Von Eschenbach (2021) points out, AI is a black box to a person. One of the key problems inherent in using an AI tool is that it typically does not provide information about where it sourced the information it provides. Worse yet, it may attribute information to the wrong source or invent information entirely due to a hallucination. With AI being built into many of the technological tools that students utilize, it is going to be challenging for students to understand when they should cite AI. The problem that can occur is that students may see AI as a tool to be used like a spell checker, a calculator, or an individual at a writing center. It would be atypical to see a student cite in a research paper that they used a spell checker or utilized an individual in a writing center to improve their paper.

Since AI tools are based on LLM models that utilize extensive datasets and statistical probabilities, students using these tools may inadvertently violate copyright of a work because AI tools do not typically attribute sources of their information or tell you the limitations to citing

the work.² To avoid perpetuating biases and unknowingly infringing on copyright, students need to be aware of these issues when using AI tools and learn how to fact check and verify sources.

Both instructors and students need to be transparent on how they utilize AI for a course. If an instructor is going to utilize an AI tool to help with the assessment of the student's work, the instructor needs to notify the student. If a student utilizes an AI tool to complete any part of an assignment, it is incumbent upon the student to cite how the tool was utilized. Students need guidance regarding how to cite AI tools and when it is appropriate. While the level of citation is left up to the instructor at many universities, McAdoo (2024) provides guidance regarding how the APA would like the use of AI cited.

Addressing the cheating question should start with the instructor's learning objectives and how AI is used to complete assigned work. Murray and Williams (2023) believe the use of AI should be managed to enhance the learning outcomes for the course. Given the differing views among instructors on AI-related cheating, Laker and Sena (2023) emphasize the importance of instructors clearly defining their stance on academic honesty involving the use of AI for coursework.

3.3.2 Biases or Inaccurate Information Provided by AI Tools

To build large language models like ChatGPT, AI developers train their systems on large amounts of data. Based on the training data set used, biases exist in the models (Mhlanga 2023). Vázquez and Garrido-Merchán (2024) provide a taxonomy of biases that occur in AI image-

² In terms of this paper, plagiarism is defined as a student using another person's work without properly citing the source. Copyright infringement occurs when a student uses a work that has limitations on usage and is protected by law.

generating tools like DALL-E. These biases include cultural, socioeconomic, biological, and demographic. Since AI tools are black boxes for both students and instructors, neither know the implicit biases behind the information provided. Mhlanga (2023) provides one example of how this bias can affect students, discussing the possibility of instructors utilizing an AI tool to grade students' work. Biases in the training dataset used to develop the AI tool could cause nonnative speakers to receive lower grades.

While AI systems can provide biased information due to the training sets used to build them, there is also the possibility that the systems can provide inaccurate results through hallucinations due to the probabilistic nature of how they generate text (Buchanan et al. 2024). This implies that if a student blindly uses text from an AI tool, the individual could be using incorrect information.

3.3.3 Data Privacy

AI and data privacy can intersect in a few ways regarding an instructor's course. First, the instructor needs to be cautious about what is asked for in an assignment. Since AI tools incorporate any information that is entered into them, students need to safeguard what information they enter. For example, if a student is participating in an entrepreneurial course, the individual may not want to enter information into an AI tool that would give the AI tool the student's intellectual property. Students also need to be cognizant that they should not enter any proprietary data into the AI tool. This could occur in a data analytics course where an instructor has the student analyze data that the instructor has collected from research or a company.

Since it is easy for a student to copy and paste assessment questions, a student may inadvertently be giving an instructor's or a textbook's intellectual property to an AI system, potentially violating copyright. This implies that students need guidance from the instructor

regarding what information they are allowed to provide an AI tool. An instructor on an assignment may inadvertently ask a student to upload an image of the student to learn how an AI image generator works, causing the student to provide personal data to the AI tool.

Using tools to detect the use of AI can be problematic. First, these tools can be unreliable and give data that leads to false positives, causing an instructor to erroneously suspect a student of cheating (Weber-Wulff et al. 2023). This could lead to an instructor falsely accusing a student of violating academic honesty principles, when the student did not utilize AI (Sadasivan et al. 2023). Another issue occurs when the instructor uploads a student's work into a detector, which potentially provides the tool with the student's personal intellectual property.³ Because of these issues, some universities have policies that ban or limit the usage of AI detection tools, while others are developing a set of policies for acceptable use. An instructor who uses AI detection tools needs to be cognizant of what the university's policies are regarding the use of these tools and should consider talking to students before uploading any information to an AI detector.

3.3.4 Equity Issues and Accessibility of AI Tools

Equity issues need to be considered regarding how students use AI (Cotton et al. 2024). A key equity consideration relates to students' ability to access AI tools. Section 3.2 discussed that researchers have found that more recent AI tools, typically the paid versions, provide better answers than the older versions, which are possibly free or cost less. Instructors need to be cognizant that some students will be able to afford better tools, while others will only be able to

³ When Turnitin was first released as an antiplagiarism tool at the author's university, the academic senate debated its ethical usage due to concerns about students' intellectual property rights.

use the free tools (Roshanaei et al. 2023). This can give one set of students an advantage over another set, causing equity and accessibility issues. To handle this issue, some universities have policies that limit the AI tools that instructors can require students to use in their courses. If the university does not have a predefined set of tools, the instructor should consider limiting students to a set of AI tools rather than allowing them to choose whatever tool the students want. This ensures that students will be on an equal playing field when using AI tools.

Another issue that is associated with accessibility of AI tools is related to course expectations. Cribben and Zeinali (2023) advocate for instructors to specify in their course syllabi how students will be evaluated if students use AI tools. Anecdotally, discussions with colleagues across different disciplines suggest that some instructors are considering raising their expectations to account for students using AI tools. This can further exacerbate equity issues if not all students have access to AI tools that have the same level of capabilities. Furthermore, these raised expectations can lead to an increase in students' stress, causing individuals to be more reliant on AI technology, which results in a reduction in self-efficacy (Zhang et al. 2024). It is not unfathomable that even if instructors place a limitation on the tools that can be used, students may utilize better tools. One way to handle this issue is to require students to hand in the output of the AI tool the individual used.

The strength of LLM AI tools is their ability to handle natural language. A student can ask a question of the AI tool and it will typically provide an answer. Federiakin et al. (2024) point out that the quality of the answer provided by AI tools is based on the quality of prompt given to the AI tool. Students from more affluent areas may have had access to AI tools in high school and learned how to effectively utilize them. Less affluent students may not have had any previous exposure to AI tools. This can lead to a knowledge divide on how to efficiently and

effectively utilize AI tools. From the standpoint of equity, the instructor may want to go beyond allowing AI tools for assignments and provide educational materials or lessons explaining how to use AI tools. This is especially important if the instructor raises the expectations in the course because AI tools are being allowed.

3.3.5 Student's Overreliance on AI

One ethical issue that instructors may be concerned with is students becoming overly reliant on AI technology in writing, problem-solving, and critical thinking (Li 2024; Williams 2024).

While AI can be a useful tool to assist students in their educational development, they can become overly reliant upon it, like a calculator. Bastani et al. (2025) provide evidence that students who use AI can benefit in the short run and outperform their peers, but the same students perform worse when the tool is taken away than those who never had access to the tool. Williams (2024) shares concerns that the overuse of AI technologies can lead to lower individual self-efficacy. For an AAEP student, this can come in the form of using an AI tool to summarize a reading assignment for the individual rather than reading the assigned work and struggling with text to understand its key points.

4 Current State: Syllabus Statement Guidance Provided by AAEP Universities

A multitude of resources are available to assist instructors with developing course policies for their syllabi. Ali et al. (2025) provide guidelines for syllabi related to computer science courses by examining syllabi from multiple instructors. Eaton (2023) has created a dynamic repository of syllabi statements by many disciplines. Heard (n.d.) provides a syllabus-generating tool for instructors wanting to build AI syllabus course policies and statements.

One of the first places faculty members may look for guidance when building their syllabus statements regarding the use of AI is within their own universities. Given the emerging

nature of AI in education, this guidance can typically be found in university centers focused on teaching and learning. The purpose of this section is to analyze the current guidance that AAEP universities provide faculty members regarding statements that can be added to syllabi to manage the use of AI in the classroom. Specifically, example syllabi statements are examined through the lens of the ethical considerations discussed in the previous section.⁴

A review was conducted of 95 universities that house AAEP departments regarding syllabus statement guidance. The list of universities came from the Agricultural & Applied Economics Association (n.d.) website. This website currently has the most comprehensive list of programs associated with agribusiness and applied economics programs across the US and Canada. This list has a cross section of institutional types and geographic regions providing bachelors and post baccalaureate degrees and includes programs housed at land grant, private research-oriented, and teaching-focused universities that have AAEP departments. All websites were reviewed and data collected from December 17, 2024, to December 31, 2024.

Each university site was systematically searched for AI syllabus statements using its internal search engine. The two key search terms entered were AI syllabus statement and artificial intelligence syllabus statements. If no results were found through the universities' internal search tool, a second search was conducted using Google's search engine. Statements

⁴ The emphasis of this analysis is on the example syllabus statements provided by the universities rather than on all the information provided on the university websites. Some websites provide more guidance on ethical considerations for a syllabus but curiously do not incorporate that guidance into their sample statements.

were reviewed and analyzed based on their incorporation of the ethical considerations provided by the literature review.

Of the 95 universities investigated, three universities had inaccessible information due to university firewalls or the author's language translation limitations. These three were the Université Laval; the University of Puerto Rico at Mayagüez; and the University of Tennessee, Knoxville. Of the 92 remaining universities, 80 universities (87 percent) provided sample syllabi statements that instructors could use to develop course policies regarding student usage of AI. This percentage is higher than what both McDonald et al. (2025) and Wang et al. (2024) found in their studies. Seventy-three universities provided in-house statements, while seven pointed faculty to statements that were outside of the university. These statements run the gamut from one or two sentences to multiple paragraphs.

Table 1 provides a summary of the universities that provide syllabi statements for different levels of AI use in the classroom. There were 65 universities providing internal syllabus statement examples for prohibited usage of AI, 72 universities providing limited/restricted usage statements, and 60 universities providing statements for broad usage. Fifty-seven universities have examples of all three usage types. The seven universities that only provide links to external syllabus statements all offer links that had examples of all three AI usages.⁵ While most universities provided examples for three levels of usage, 13 universities either presented more than three levels of usage or provided multiple examples from faculty who created syllabus statements for the use of AI.

⁵ The purpose of delineating between internal and external syllabus statements is that there is no guarantee regarding what sites an instructor visits to find syllabus statements.

Table 1. Universities providing syllabi statements for different AI usage levels

Usage Statement Levels	No. of Universities	Percentage of Total (N = 92)
Syllabus statements for AI usage (internal and external to the university)	80	87%
Syllabus statements for AI usage (internal)	73	79%
Syllabus statements for prohibited usage of AI (internal)	65	71%
Syllabus statements for limited/restricted usage of AI (internal)	72	78%
Syllabus statements for broad usage of AI (internal)	60	65%
Syllabus statements covering all three AI usage levels (internal)	57	62%

Table 2 provides information regarding the number of universities that mentioned the five ethical considerations discussed above for the 73 universities that had internal syllabus statements for the use of AI. Due to the nonstandard ways in which each statement was phrased, a heuristic approach was utilized to identify whether a syllabus statement covered a specific ethical consideration. Each statement was reviewed for key words that could be associated with the key ethical consideration.

Table 2. Universities mentioning ethical considerations in syllabi statements

Ethical Consideration	No. of Universities	Percentage of Universities with Internal Syllabi Statements (N = 73)
Academic honesty	69	95%
Bias or inaccuracies in AI output	35	48%
Data privacy	9	12%
Equity/accessibility	4	5%
Student overreliance on AI	1	1%

A syllabus statement was considered to discuss academic honesty if it mentioned academic honesty or academic integrity directly or indirectly in the statement. Some universities framed academic honesty in terms of academic misconduct or academic dishonesty. Others mentioned academic honesty by explaining the appropriate ways for students to cite their usage

of AI. In all, 69 of the 73 universities, or 95 percent, referred to academic honesty in their statements on their websites.⁶

When examining the 73 statements for text regarding biased or inaccurate information from AI, 35 universities (48 percent) provided some sort of wording or guidance regarding this ethical consideration. This advice came in many forms, including telling the students that (1) they needed to check for factual information from AI, (2) AI has biases, (3) AI has inaccuracies, and/or (4) AI can hallucinate.⁷

Many fewer universities mentioned ethical consideration regarding data privacy, equity/accessibility, and student overreliance. Nine universities discussed data privacy issues in their syllabi, which typically warned students to not enter any personal information into an AI tool. While 56 universities mentioned some sort of AI tool in their syllabus statement, only four provided information from an equity/accessibility standpoint. When the university did provide an example, the most common tools cited were OpenAI's ChatGPT, followed by Microsoft's Copilot and Bing, then OpenAI's Dall-E, and Google's Bard/Gemini. Mentioning AI tools was done more to provide an example of what an AI tool is rather than restricting a set of tools so that

⁶ It should be noted that universities that pointed to outside websites were classified as not meeting the criteria. This was done because there is no guarantee that the instructor who visits the outside site for the example will come across information pertaining to the ethical consideration.

⁷ It should be noted that some universities used multiple phrases in their syllabus statements (e.g., a university syllabus statement may state that the student should check factual information for inaccuracies).

every student had access to the same set of tools. Only one university mentioned that students should not become overly reliant on AI. While not necessarily related to overreliance, six universities prohibited the usage of AI specifically so that students could develop their own voices when writing. While the literature identifies overreliance as an ethical consideration, it does not appear to be a key concern for AAEP universities and may not be even considered an ethical concern by most instructors.

5 A Way Forward: A Checklist of Considerations for Managing AI Usage in Courses

Given the nascent nature of AI tools, many universities are in the early stages of developing a complete set of university-level policies regarding their usage. While some universities that house AAEP in this study have some sort of policy related to the usage of AI in the classroom, most of the statements provided do not account for all of the key ethical considerations discussed in Section 2. This puts the onus on instructors to develop a set of course policies for the acceptable usage of AI. Figure 1 provides a checklist of key considerations for building a set of course policies for AI usage based on the five ethical issues discussed in Section 3. The checklist is divided into four sections: Key Ethical Themes, Learning Objective Considerations, AI Usage Considerations, and Other Course Considerations. This checklist can be used for both graduate and undergraduate courses. The appendix provides an example of how this checklist can be applied to a data analytics course.

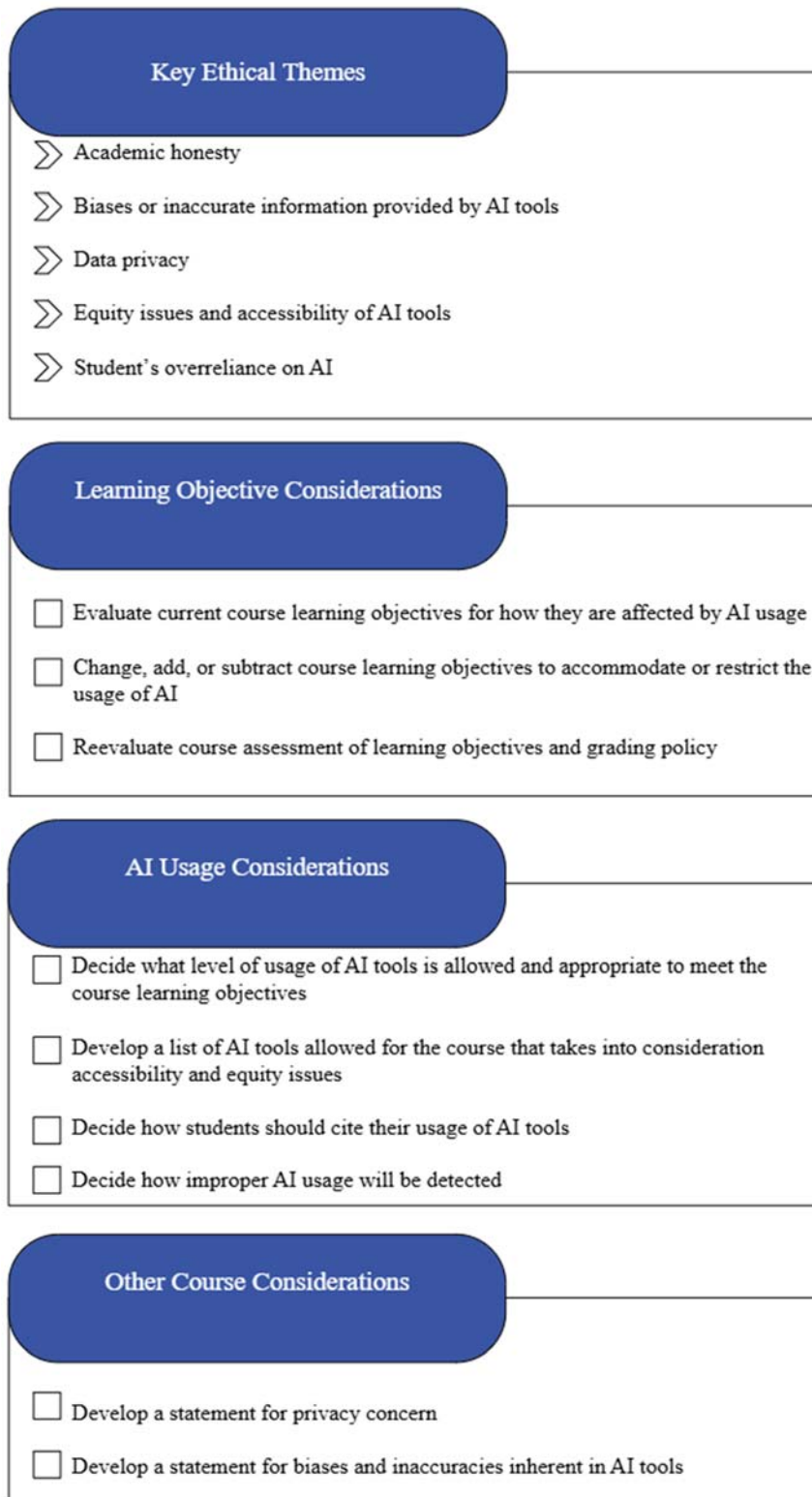


Figure 1. Key considerations for building course policies for AI usage

The first place instructors should start when developing their AI course usage policy is their learning objectives for the course. Three key considerations need to be explored, including

- evaluating current course learning objectives,
- changing, adding, or subtracting course learning objectives, and
- reevaluating course assessment of learning objectives and grading policy.

Once the learning objectives have been examined and refined to account for the existence of AI, instructors need to consider AI usage that is appropriate for the course and its learning objectives. Usage considerations should include

- deciding on a level of AI usage appropriate to meet course learning objectives,
- identifying AI tools allowed for the course considering accessibility and equity issues,
- deciding on an acceptable reference style for students' AI usage, and
- deciding on appropriate methods used for detecting inappropriate AI usage.

While learning objectives and usage considerations cover most of the main considerations regarding developing course policies for managing the use of AI, instructors should also develop appropriate statements for privacy concerns and biases inherent in how AI tools were trained.

5.1 Consideration 1: Evaluate Current Course Learning Objectives

When designing course policies regarding the use of AI, the first key consideration is related to how students' use of AI affects the current learning objectives. This consideration should dictate how the instructor views all the other key considerations for developing course policies for managing AI usage. For example, if the key learning objective is to develop the ability to analyze policy implications of a particular agricultural policy, an instructor may want to ban AI usage because the individual wants the student to acquire the skill of being able to analyze policy without the assistance of technology. If the instructor has the learning objective of describing a

particular agricultural industry, then an instructor may allow the usage as a tool for collecting and/or synthesizing the information regarding the industry. In both these examples, the learning objectives do not have to change. Rather, an instructor needs to lay out policies in the syllabus and instructions in the assessments when AI tools are appropriate to use.

5.2 Consideration 2: Change, Add, or Subtract Course Learning Objectives

Once an instructor has decided how the use of AI affects the course's current learning objectives, the next consideration is to add, subtract, or change learning objectives to accommodate the use of AI by students.⁸ Returning to the agricultural policy example, an instructor may change the learning objective to “the student will develop the ability to identify correct policy implications of an agricultural policy.” Changing the learning objective in this way can allow for the usage of AI tools to come up with policy implications and puts the onus on the student to identify correct policy implications.

While an instructor may want to change current learning objectives to account for AI usage, another route is to design a set of learning objectives specifically for the use of AI. Southworth et al. (2023) explain how the University of Florida has developed an AI Across the Curriculum Initiative for the university where students are exposed to AI throughout their studies. These authors advocate that AI should be integrated across the curriculum. Since many course policies and syllabi were developed before AI tools were widely utilized, the instructor

⁸ It should be noted that any changes to learning objectives for the course may need to go through higher levels of review (e.g., curriculum committees). As part of this consideration, it is assumed that the instructor goes through the appropriate process to change learning objectives for the course.

may want to add specific learning outcomes to the syllabus regarding AI. For example, an instructor teaching a marketing course may want to add the following learning objective to the course: “the student will utilize AI tools to generate an executive summary for a marketing plan.” As another example, an instructor of an agribusiness management course could add the following learning objective: “utilize AI tools to generate human resource policies for an agribusiness operation.” Both learning outcomes focus on learning to utilize AI tools to do a specific task.

While some instructors may want to add or change learning objectives, others may find it necessary to delete learning objectives that are quickly becoming outdated. Given the rapid advancement of AI, it is anticipated that some learning objectives will become obsolete and replaced with more AI-centric learning objectives.

5.3 Consideration 3: Update Course Assessment of Learning Objectives and Grading Policy

AI tools have the potential to extend students’ academic capabilities. Instructors can adapt to these tools by rethinking how they assess and evaluate student learning (Steponenaite and Barakat 2023). Rudolph et al. (2023) recommend that faculty employ more “authentic” assessments and avoid “formulaic” assignments that can be easily generated by AI tools. Instructors need to reevaluate what they consider plagiarism and academic honesty regarding students’ use of AI tools. If AI tools can be viewed much like any statistical software package or mathematical solver commonly used by AAEP, using AI tools does not need to be considered cheating if students properly attribute how AI was used.

Given that AI has the potential to improve the academic performance of students, instructors need to decide whether they will need to change grading standards. Some instructors may want to raise their expectations for students’ work if AI tools are allowed. Careful thought

needs to be given to increasing expectations, which can increase student anxiety and cause students to become more reliant on AI tools, which may be counter to the intentions of instructors who consider students' overreliance on AI as an ethical issue. Even if instructors do not change their expectations, they may want to assess a new set of skills, which may include assessing students' ability to use prompt engineering to create new ideas and insights and work more efficiently.

5.4 Consideration 4: Choosing a Level of Usage of AI Tools Appropriate to Meet Course Learning Objectives

Once instructors understand how AI affects their learning objectives, they should consider the level of AI usage appropriate to meet the course learning objectives on a spectrum from absolutely no use to a laissez faire attitude of using it for every aspect of the course. Most AAEP universities categorize usage into the three areas, defined similarly to McDonald et al. (2025), which include no usage, usage with limitations, and broad usage. Perkins et al. (2024) categorizes AI usage in the classroom on five scales: (1) "no AI," (2) "AI-assisted idea generation and structuring," (3) "AI-assisted editing," (4) "AI task completion, human evaluation," and 5) "full AI." The key for Perkins et al. (2024) is delineating between AI used as an assistive tool and as a generative tool. The assistive tool view sees AI more like a writing assistant (e.g., Grammarly), while generative AI creates actual ideas, writes the paper, or does the problem for the student (e.g., ChatGPT, Solvely).

Four levels of AI use are proposed for consideration: (1) no use, (2) limited usage only for assistive purposes, (3) limited usage for both assistive and generative purposes, and (4) open usage with proper citation. In the next couple of years, it is expected that AI capabilities will be built into most products that students utilize to do their work, creating a challenge for instructors

to enforce a policy requiring students not to use AI. The second use level is based on using AI tools as an assistive technology. Assistive usage could include but is not limited to using AI grammar checkers, AI-assisted rewriting of drafts already developed by the student, AI-created example test questions for studying, AI-assisted tutoring, and AI-assisted searches. The third level allows the student to utilize AI as a generative tool. This includes allowing AI tools to generate ideas, create text or pictures, analyze and summarize data, synthesize and create summaries of readings, and generate code for data analysis. The fourth level allows students to utilize AI tools in whatever matter they would like if they properly cite their usage of the tool based on an acceptable method prescribed by the instructor.⁹

While the outright ban and the complete usage with proper citations levels have predefined restrictions, most instructors will limit the use of AI. Under this limited usage scope, instructors need to decide whether students can use AI tools as an assistive technology only or as assistive and generative tools. In either case, instructors need to clearly define assistive and generative usage since students will be exposed to various definitions. For example, some instructors may consider the generation of an outline for a paper as assistive usage to the writing process, while others may consider this type of use as generative. Instructors who use online quizzes that can be taken multiple times as formative assessments may consider the use of AI as

⁹ It should not be construed that proper citation of usage is only for open usage. Instructors who allow AI for generative purposes will also require students to properly cite their usage. The assistive technology usage may or may not require citation.

assistive. Instructors who give quizzes as summative assessments might consider this usage as academic dishonesty.¹⁰

5.5 Consideration 5: Identifying AI Tools Allowed for the Course Considering Accessibility and Equity Issues

Given the vast number of AI tools that have been developed, this paper proposes as a best practice in terms of equity and accessibility that instructors provide a predefined list of acceptable AI tools. This ensures that students have equitable access to tools that have the same capability. For some instructors, this task is straightforward because their universities provide guidance regarding which tools they can require students to use. For example, Dalhousie University requires instructors to use Microsoft's Copilot and restricts instructors from requiring the usage of other AI tools (Dalhousie University Centre for Learning and Teaching 2025).

While some universities that house AAEPs do not require a specific AI tool to be used, some provide a set of enterprise AI tools. In this case, instructors can limit students' use to the in-house tools provided. For those instructors at universities that do not specifically offer AI tools, instructors should limit students to a defined set of free versions. If instructors are concerned that students will not use the prescribed tool, they can require a printout of the prompt the student used along with the output provided.

An outright ban on AI tools could be challenging without completely banning technology in the course. This is because all the major technology companies are introducing AI capabilities

¹⁰ In a production economics course taught by the author, he allows students to utilize AI tools to assist them with formative homework assignments but prohibits their usage for the summative exams.

into their software and search engines (Wilkes 2024). When the instructor chooses an outright ban on the use of AI, the individual should provide a general definition of AI tools or a set of examples. Since it is improbable that an instructor can provide a comprehensive list of AI tools not allowed, the following can be added to the syllabus: “If you are unclear whether an assistive technology is an AI tool, please ask the instructor before using the technology.”

5.6 Consideration 6: How Should Students Cite Usage of AI Tools

One key method that instructors can utilize to maintain academic honesty is having their students cite the usage of AI tools. The AI world is changing how individuals cite their work. The MLA (Modern Language Association n.d), the APA (McAdoo 2024), and the *Chicago Manual of Style* (n.d.) offer different guidelines on citing AI usage in papers. This implies that instructors should provide students with guidance on which method should be used. While students are accustomed to citing their sources in research papers, instructors may now want them to cite how they used AI tools in homework assignments for transparency purposes. These citations may not need to be formal, but students should inform instructors regarding their AI usage. The author of this paper requires students to provide the AI tool used, the prompt given, and the output for homework assignments where they use AI tools.

5.7 Consideration 7: Methods Used to Detect Inappropriate AI Usage

As a way of handling academic honesty issues with AI, an instructor may consider using an AI tool to detect the use of AI. Some outputs from AI tools are obvious to detect by an instructor and do not necessarily need a tool. For example, when ChatGPT was first introduced, it was noticed that some students were creating advanced formulas that seemed beyond their capabilities in a data analytics course. Some formulas were so complex and off the mark, it was straightforward to detect that the formulas were created using an AI tool. With more

sophisticated prompts, students can develop prose that is more difficult to detect. To handle this issue, an instructor may want to utilize AI detector tools (e.g., GPTZero, ZeroGPT, and Quillbot). Instructors need to be cautious regarding the usage of these detectors for a few reasons. AI detector tools can be unreliable and give vastly different results regarding the level of AI-generated content. Students can use AI detection tools to evade detection by rephrasing the output (Ibrahim et al. 2023). Uploading students' work into an AI detection tool may compromise their intellectual property. This requires instructors to be cognizant of the AI detector tool's usage policy to avoid inadvertently giving the students' intellectual property to the tool. The policy statement on AI detection tools should be clear as to how the tools will be used. If detection tools are used, it is recommended that they be used as a starting point for figuring out whether the student has violated the AI policy. As a best practice, it is recommended that instructors notify students before using these tools.¹¹

5.8 Consideration 8: Develop a Statement for Privacy Concerns

Instructors changing their courses to manage students' use of AI tools need to explore the privacy concerns that arise. One key concern of privacy is students entering assignments directly into an AI tool. Instructors should decide whether this is allowable or is a violation of the instructor's intellectual property. Instructors could develop a course policy that bans students

¹¹ While this detection consideration can be relevant to both undergraduate and graduate courses, it can be argued that it is more pertinent at the graduate level for AAEPs. This is because more graduate-level assignments may require students to come up with original thoughts. Since graduate students are more likely to work with proprietary datasets, some aspects of data privacy may be more important to mention in graduate courses.

from just copying and pasting a homework assignment and rather requires a student to paraphrase the questions. Even with the policy, it may be difficult to stop students from copying and pasting homework questions or assignments into AI tools. To stay ahead of the curve, this may require instructors to update authentic learning assignments every term.

Another key concern of privacy can come from the data that instructors use in their courses. If instructors are using proprietary data, it is important for students to be notified of this, and strict limitations should be spelled out to the students. If instructors cannot limit students from entering the data into an AI tool, they may consider providing students only with publicly available data for their assignments.

A third concern regarding privacy is students entering private information into an AI tool to complete an assignment. The author of this paper participated in a course designed to teach about using AI in the classroom. One assignment had the author upload a picture of himself to see how an AI tool would transform the picture. In essence, the assignment required the author to enter private information. Instructors need to be cognizant that students should not be required to enter private information. The course policy should provide guidance to students about uploading personal information to AI tools.

5.9 Consideration 9: Develop a Statement for Biases and Inaccuracies Inherent in AI Tools

Instructors should consider providing key information regarding AI usage that goes beyond course policy. While LLMs tools were developed from a large body of knowledge, they have biases, which can come from how images are generated to what texts the AI tool is pulling from or provides. It is important for instructors to highlight in their syllabi the potential biases the student may encounter when using AI tools. Students should also be made aware of AI tools'

potential for hallucination. Instructors should stress the importance of students verifying the output of AI tools.

6. Conclusions

This paper examines the key considerations that instructors should address when managing the use of AI in their courses. A checklist is presented that can be used to develop a set of course policies and syllabus statements for handling this usage. It assumes an instructor has reviewed university policies regarding students' use of AI and has had the necessary critical conversations with colleagues regarding incorporating AI into the instructor's course. While some of the checklist considerations advocated in this paper may be completely at the instructor's discretion, others may need to be discussed at higher administrative levels. Curriculum committees may need to be consulted before learning objectives of a course are changed. Faculty members need to have critical debates regarding what is a definition of academic honesty in the context of AI and what is acceptable usage of AI tools. In some cases, universities may dictate what AI tools can be used and the methods that can be used to detect inappropriate use of AI.

Yusuf et al. (2024) point out that using AI tools in a course is going to be a balancing act between using their potential and mitigating their risk. The checklist developed in this paper could be a valuable tool to assist instructors with developing a well thought out AI course policy that considers key ethical considerations. This will allow instructors to guide their students to utilize AI tools ethically during their university years and beyond.

References

- Abeyssekera, I. 2024. "ChatGPT and Academia on Accounting Assessments." *Journal of Open Innovation: Technology, Market, and Complexity* 10(1): 1-10.
<https://doi.org/10.1016/j.joitmc.2024.100213>
- Agricultural & Applied Economics Association. (n.d.). *Agricultural & Applied Economics Departments*. Retrieved December 12, 2024, from <https://www.aaea.org/about-aaea/agricultural-and-applied-economics-departments>
- Ali, A., A. H. Collier, U. Dewan, N. McDonald, and A. Johri. 2025. "Analysis of Generative AI Policies in Computing Course Syllabi." *Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE TS 2025)*, February 26-March 1, 2025, Pittsburgh, PA, USA:2410.22281: 18-24.
<https://doi.org/10.1145/3641554.3701823>
- Bastani, H., O. Bastani, A. Sungu, H. Ge, Ö. Kabakçı, and R. Mariman. 2025. "Generative AI Without Guardrails Can Harm Learning: Evidence from High School Mathematics." *Proceedings of the National Academy of Sciences* 122(26), e2422633122.
<https://doi.org/10.1073/pnas.2422633122>
- Bickley, S. J., H. F. Chan, and B. Torgler. 2022. "Artificial Intelligence in the Field of Economics." *Scientometrics* 127(4): 2055-2084. <https://doi.org/10.1007/s11192-022-04294-w>
- Buchanan, J., S. Hill, and O. Shapoval. 2024. "ChatGPT Hallucinates Non-existent Citations: Evidence from Economics." *The American Economist* 69(1): 80-87.
<https://doi.org/10.1177/05694345231218454>

Dalhousie University Centre for Learning and Teaching. (April 16, 2025) Gen A.I. in Teaching and Learning. https://www.dal.ca/dept/clt/e-learning/AI_Resource.html

Chen, B., C. M. Lewis, M. West, and C. Zilles. 2024. “Plagiarism in the Age of Generative AI: Cheating Method Change and Learning Loss in an Intro to CS Course.” In *Proceedings of the Eleventh ACM Conference on Learning@ Scale, July 18–20, 2024, Atlanta, GA, USA*: 75-85. <https://doi.org/10.1145/3657604.3662046>

Chicago Manual of Style. (n.d.). How Do I Cite a Website in Chicago Style? Chicago Manual of Style.

<https://www.chicagomanualofstyle.org/qanda/data/faq/topics/Documentation/faq0422.html>

Cotton, D. R., P. A. Cotton, and J. R. Shipway. 2024. “Chatting and Cheating: Ensuring Academic Integrity in the Era of ChatGPT.” *Innovations in Education and Teaching International* 61(2): 228-239. <https://doi.org/10.1080/14703297.2023.2190148>

Cowen, T., and A. T. Tabarrok. 2023. “How to Learn and Teach Economics with Large Language Models, Including GPT.” George Mason University Department of Economics, Working Paper No. 23-18. <http://dx.doi.org/10.2139/ssrn.4391863>

Cribben, I., and Y. Zeinali. 2023. “The Benefits and Limitations of ChatGPT in Business Education and Research: A Focus on Management Science, Operations Management and Data Analytics.” *Operations Management and Data Analytics* (March 29, 2023). <http://dx.doi.org/10.2139/ssrn.4404276>

De Fine Licht, K. 2024. “Generative Artificial Intelligence in Higher Education: Why the ‘Banning Approach’ to Student use is Sometimes Morally Justified.” *Philosophy & Technology* 37(3), 113. <https://doi.org/10.1007/s13347-024-00799-9>

- Denial, C. J. 2024. "Wrestling with AI." In B. Buyserie and T. N. Thurston (Eds.) *Teaching and Generative AI: Pedagogical Possibilities and Productive Tensions*, Utah State University: 193-199. <https://doi.org/10.26079/e204-acc5>
- Denkin, R. 2024. "On Perception of Prevalence of Cheating and Usage of Generative AI." *arXiv preprint arXiv:2405.18889*. <https://doi.org/10.48550/arXiv.2405.18889>
- Eaton, L. 2023. *Classroom Policies for AI Generative Tools*. [Syllabi Polices for Generative AI - Google Sheets](#)
- Federiakina, D., D. Molerov, O. Zlatkin-Troitschanskaia, and A. Maur. 2024. "Prompt Engineering As a New 21st Century Skill." *Frontiers in Education* 9, 1366434. <https://doi.org/10.3389/feduc.2024.1366434>
- Firth, D. R., M. Derendinger, and J. Triche. 2024. "Cheating Better with ChatGPT: A Framework for Teaching Students When to Use ChatGPT and Other Generative AI Bots." *Information Systems Education Journal* 22(3): 47-60. <https://doi.org/10.62273/BZSU7160>
- Geerling, W., G. D. Mateer, J. Wooten, and N. Damodaran. 2023. "ChatGPT Has Aced the Test of Understanding in College Economics: Now What?" *The American Economist* 68(2): 233-245. <https://doi.org/10.1177/05694345231169654>
- Heard, Chris. Generative AI Syllabus Statement. (n.d.). Pepperdine University. https://courses.pepperdine.edu/access/content/user/cheard/Twine/Generative_AI_Syllabus_Statement.html
- Heaven, W. D. 2023. "ChatGPT Is Everywhere. Here's Where It Came From." *MIT Technology Review*, 10.

Hultberg, P. T., D.S. Calonge, F. Kamalov, and L. Smail. 2024. "Comparing and Assessing Four AI Chatbots' Competence in Economics." *PLoS One* 19(5): 1-20.

<https://doi.org/10.1371/journal.pone.0297804>

Ibrahim, H., F. Liu, R. Asim, et al. 2023. "Perception, Performance, and Detectability of Conversational Artificial Intelligence Across 32 University Courses." *Scientific Reports* 13(1), 12187. <https://doi.org/10.1038/s41598-023-38964-3>

Korinek, A. 2023. "Generative AI for Economic Research: Use Cases and Implications for Economists." *Journal of Economic Literature* 61(4): 1281-1317.

<https://doi.org/10.1257/jel.20231736>

Laker, L. F. and M. Sena. 2023. "Accuracy and Detection of Student Use of ChatGPT in Business Analytics Courses." *Issues in Information Systems* 24(2), 153-163.

https://doi.org/10.48009/2_iis_2023_113

Li, Z. 2024. "Generative AI in Higher Education Academic Assignments: Policy Implications from a Systematic Review of Student and Teacher Perceptions." Doctoral dissertation, Massachusetts Institute of Technology.

Li, Z., A. Dhruv, and V. Jain. 2024. "Ethical Considerations in the Use of AI for Higher Education: A Comprehensive Guide." In *2024 IEEE 18th International Conference on Semantic Computing (ICSC)*, Laguna Hills, CA, USA, 2024: 218-223.

<https://doi.org/10.1109/ICSC59802.2024.00041>

McAdoo, T. 2024. How to Cite ChatGPT. APA Style. <https://apastyle.apa.org/blog/how-to-cite-chatgpt>

McDonald, N., A. Johri, A. Ali, and A. Hingle. 2025. "Generative Artificial Intelligence in Higher Education: Evidence from an Analysis of Institutional Policies and Guidelines."

Computers in Human Behavior: Artificial Humans 3, 100121.

<https://doi.org/10.1016/j.chbah.2025.100121>

Mhlanga, D. 2023. "OpenAI in Education, the Responsible and Ethical Use of ChatGPT Towards Lifelong Learning." In *FinTech and artificial intelligence for sustainable development: The role of smart technologies in achieving development goals*. Sustainable Development Goals Series. Palgrave Macmillan: 387-409. https://doi.org/10.1007/978-3-031-37776-1_17

Modern Language Association (n.d.). How Do I Cite Generative AI in MLA style? | MLA Style Center, <https://style.mla.org/citing-generative-ai/>

Mollick, E. R. and L. Mollick. 2023. "Using AI to Implement Effective Teaching Strategies in Classrooms: Five Strategies, Including Prompts." *The Wharton School Research Paper*. <http://dx.doi.org/10.2139/ssrn.4391243>

Murray, D. and K. Williams. 2023. "Exploring Business Students' Views of the Use of Generative AI in Assignment Writing: An Examination of Generative AI Use through Students' Own Ethical Perspectives." In T. Cochrane, V. Narayan, C. Brown, K. MacCallum, E. Bone, C. Deneen, R. Vanderburg, & B. Hurren (Eds.) *People, partnerships and pedagogies*. Proceedings ASCILITE 2023, Christchurch: 167-174. <https://doi.org/10.14742/apubs.2023.662>

Nikolic, S., C. Sandison, R. Haque, et al. 2024. "ChatGPT, Copilot, Gemini, SciSpace and Wolfram Versus Higher Education Assessments: An Updated Multi-Institutional Study of the Academic Integrity Impacts of Generative Artificial Intelligence (GenAI) on Assessment, Teaching and Learning in Engineering." *Australasian Journal of Engineering Education* 29(2): 126-153. <https://doi.org/10.1080/22054952.2024.2372154>

- Oravec, J. A. 2023. "Artificial Intelligence Implications for Academic Cheating: Expanding the Dimensions of Responsible Human-AI Collaboration with ChatGPT." *Journal of Interactive Learning Research* 34(2), 213-237. <https://doi.org/10.70725/304731gmmvhw>
- Perkins, M., L. Furze, J. Roe, J. MacVaugh. 2024. "The Artificial Intelligence Assessment Scale (AIAS): A Framework for Ethical Integration of Generative AI in Educational Assessment." *Journal of University Teaching and Learning Practice* 21(6), 49-66. <https://doi.org/10.53761/q3azde36>
- Plakias, Z. 2024. "Engaging Students in Open Dialogue about Use of AI Tools in Economics Courses." *Applied Economics Teaching Resources*, in press.
- Raiaan, M. A. K., M. S. H. Mukta, K. Fatema, M. Fahad, et al. 2024. "A review on large Language Models: Architectures, applications, taxonomies, open issues and challenges." *IEEE Access* 12: 26839-26874. <https://doi.org/10.1109/ACCESS.2024.3365742>
- Roshanaei, M., H. Olivares, and R. R. Lopez. 2023. "Harnessing AI to Foster Equity in Education: Opportunities, Challenges, and Emerging Strategies." *Journal of Intelligent Learning Systems and Applications* 15: 123-143. <https://doi.org/10.4236/jilsa.2023.154009>
- Rudolph, J., S. Tan, and S. Tan. 2023. "ChatGPT: Bullshit Spewer or the End of Traditional Assessments in Higher Education?" *Journal of Applied Learning and Teaching* 6(1): 342-363. <https://doi.org/10.37074/jalt.2023.6.1.9>
- Sadasivan, V. S., A. Kumar, S. Balasubramanian, W. Wang, and S. Feizi. 2023. "Can AI-Generated Text Be Reliably Detected?" *arXiv preprint arXiv:2303.11156*. <https://doi.org/10.48550/arXiv.2303.11156>

- Shear, H. E., L. L. Britton, K. A. Schaefer, B. Thapa, and J. Bergtold. 2023. “Artificial Intelligence and the Future of Learning and Assessment in Agricultural and Applied Economics.” *Journal of the Agricultural and Applied Economics Association* 2(4): 838-850. <https://doi.org/10.1002/jaa2.98>
- Simmons, A. B. and S. G. Chappell. 1988. “Artificial Intelligence-Definition and Practice.” *IEEE Journal of Oceanic Engineering* 13(2): 14-42. <https://doi.org/10.1109/48.551>
- Southworth, J., K. Migliaccio, J. Glover, D. Reed, C. McCarty, J. Brendemuhl, and A. Thomas. 2023. “Developing a Model for AI Across the Curriculum: Transforming the Higher Education Landscape Via Innovation in AI Literacy.” *Computers and Education: Artificial Intelligence* 4, 100127. <https://doi.org/10.1016/j.caeai.2023.100127>
- Steponenaite, A., and B. Barakat. 2023. “Plagiarism in AI Empowered World.” In: M. Antona and C. Stephanidis (Eds.) *Universal Access in Human-Computer Interaction*. International Conference on Human-Computer Interaction 2023, Copenhagen, Denmark, July 23–28, Springer Nature: 434-442. https://doi.org/10.1007/978-3-031-35897-5_31
- Terwiesch, C. 2023. “Would Chat GPT3 Get a Wharton MBA? A Prediction Based on Its Performance in the Operations Management Course.” *Mack Institute for Innovation Management at the Wharton School, University of Pennsylvania*.
- Turing, A. 1950. “Computing Machinery and Intelligence.” *Mind*, 59(236), 433-60.
- Vázquez, A. F. D. C., and E. C. Garrido-Merchán. 2024. “A Taxonomy of the Biases of the Images Created by Generative Artificial Intelligence.” *arXiv preprint arXiv:2407.01556*. <https://doi.org/10.48550/arXiv.2407.01556>

- Von Eschenbach, W. J. 2021. "Transparency and the Black Box Problem: Why We Do Not Trust AI." *Philosophy & Technology* 34(4): 1607-1622. <https://doi.org/10.1007/s13347-021-00477-0>
- Wang, H., A. Dang, Z. Wu, and S. Mac. 2024. "Generative AI in Higher Education: Seeing ChatGPT through Universities' Policies, Resources, and Guidelines." *Computers and Education: Artificial Intelligence* 7, 100326. <https://doi.org/10.1016/j.caeai.2024.100326>
- Wang, P. 2019. "On Defining Artificial Intelligence." *Journal of Artificial General Intelligence*, 10(2): 1-37. <https://doi.org/10.2478/jagi-2019-0002>
- Weber-Wulff, D., A. Anohina-Naumeca, S. Bjelobaba, et al. 2023. "Testing of Detection Tools for AI-Generated Text." *International Journal for Educational Integrity* 19(1), 26. <https://doi.org/10.1007/s40979-023-00146-z>
- Wilkes, L. 2024. "Some Ethical Considerations for Teaching and Generative AI in Higher Education." In B. Buyserie and T. N. Thurston (Eds.) *Teaching and Generative AI: Pedagogical Possibilities and Productive Tensions*, Utah State University: 35-50. <https://doi.org/10.26079/e204-acc5>
- Williams, R. T. 2024. "The Ethical Implications of Using Generative Chatbots in Higher Education." *Frontiers in Education* 8, 1331607. <https://doi.org/10.3389/feduc.2023.1331607>
- Yusuf, A., N. Pervin, and M. Román-González. 2024. "Generative AI and the Future of Higher Education: A Threat to Academic Integrity or Reformation? Evidence from Multicultural Perspectives." *International Journal of Educational Technology in Higher Education* 21, 21. <https://doi.org/10.1186/s41239-024-00453-6>

Zhang, S., X. Zhao, T. Zhou, and J. H. Kim. 2024. "Do You Have AI Dependency? The Roles of Academic Self-Efficacy, Academic Stress, and Performance Expectations on Problematic AI Usage Behavior." *International Journal of Educational Technology in Higher Education* 21, 34. <https://doi.org/10.1186/s41239-024-00467-0>

Appendix: Applying the Key Considerations Checklist to a Syllabus for a Data Analytics Course

To demonstrate how to use the checklist for a course, this section presents a case study from a data analytics course taught by the author. This course teaches students how to manage, analyze, and present data using Excel as the analysis tool. The key assessments for the course are several in-class activities, three short data analysis papers, and two exams. Given that the class is taught in a computer lab and students are already using AI to complete the assessments, it provides an excellent backdrop for using the checklist in Figure 1 for building a set of syllabus statements for managing AI usage in the course.

The first set of considerations for managing the use of AI is to reexamine the course learning objectives. The class has the following learning objectives (LO), which when built did not consider students' using AI:

LO 1: Synthesize data using spreadsheet tools,

LO 2: Utilize basic and advanced functions and formulas for Excel,

LO 3: Develop an intermediate level of mastery for using Excel,

LO 4: Develop professional looking documents summarizing data,

LO 5: Develop logical skills for analyzing data, and

LO 6: Develop a base understanding of Excel that can be built upon.

Under the premise that AI is an important tool that students will utilize in their future work, these course learning objectives need revision to incorporate learning objectives for AI.

The following are a new set of LO:

LO 1: Synthesize and analyze data using spreadsheet tools,

LO 2: Utilize basic functions (e.g., SUM(), AVERAGE(), COUNT()) and advanced functions (e.g., XLOOKUP(), OFFSET(), SUMIFS()) to manipulate and summarize data in Excel,

LO 3: Create professional business documents that summarize and visualize data using Excel and AI,

LO 4: Apply logical reasoning to build advanced functions to analyze data in Excel and verify AI-generated recommendations,

LO 5: Apply AI to troubleshoot incorrect Excel formulas

LO 6: Utilize AI to generate macro code to automate Excel tasks

The third checklist item requires updating course assessments and grading policies for the LO. As an experiment, a graph was uploaded to ChatGPT from some data analyzed in the course. ChatGPT was asked to summarize this data. Within seconds, the AI tool generated an A worthy analysis under the old grading rubric. Given that AI is going to be used by students in the class, the expectation on what constitutes A-level work needs to be increased if AI is allowed to be used to assist with writing the paper. While much of the assessment of the paper was on the writing component including spelling and grammar, a new focus of the grading should be on the insight that can be discovered from the analysis. While these papers accounted for 30 percent of the course's grade, the existence of AI is causing the author to reduce this weight.

The next checklist items are associated with policies related to the use of AI in the course. Since AI usage is built into the learning objectives, it will be assumed for this example that AI usage will be set at the restricted usage level for assistive and generative purposes. Given this level of usage, the following statement could be added to the syllabus regarding its usage:

Key learning objectives for this class have you using AI for analyzing and summarizing data. Certain activities will require you to utilize AI tools.

Instructions will be provided on the activities that require you to use these tools.

Unless specified in the instructions, you are not allowed to use AI tools to generate answers in any other parts of the course. Unauthorized use of AI tools or failure to properly cite AI assistance will be treated as a violation of academic integrity. All violations will be reported to the Office of Student's Rights and Responsibility for appropriate disciplinary actions.

The fifth checklist item requires the instructor to identify the AI tools that can be utilized in the course with equity and accessibility considered. The following statement could be used regarding the AI tools allowed for the course:

You are limited to using Microsoft's CoPilot or OpenAI's ChatGPT, which is offered by the university for free. You are not allowed to use any other AI tools for this course without the instructor's consent. Built-in AI features in university-approved tools, such as search engines, spreadsheets, and word processors (e.g., Microsoft Excel or Word), are permitted unless explicitly stated. If you are unsure whether a tool qualifies as an AI tool or whether a tool is allowed, you should consult the instructor for guidance.

Since the use of AI is allowed in this example course, the sixth checklist item requires a statement regarding how the instructor would like students to cite their use. The following is an example of a statement that could be given:

Proper citation of any use of AI is mandatory for this course. For papers, you must cite the use of AI according to either the MLA guidelines

(<https://style.mla.org/citing-generative-ai/>) or APA guidelines

(<https://apastyle.apa.org/blog/how-to-cite-chatgpt>). When working with spreadsheets, you must document the name of the AI tool and the specific prompt you used in a comment within the spreadsheet.

Since the level of usage allows students to only utilize AI tools when specifically instructed, the seventh checklist item has the instructor notifying students what methods will be utilized for detecting the use of AI. The following statement is one example of a policy statement:

The instructor reserves the right to check your work with an AI detector when a violation of academic integrity is suspected. The instructor will notify and ask for your consent before any of your submitted work is entered into a detector.

Given that this class has an assignment that asks students to find and analyze a set of data, it is appropriate to have a privacy statement. A syllabus statement for consideration 8 could be the following:

When using an AI tool, you should exercise caution regarding information that you provide it since AI tools typically incorporate information provided to it into its model. You should not input proprietary, sensitive, personal, or confidential information into any AI system. For example, if you collect data from your family business or another sensitive source, you should not upload that information into any AI platform.

The final checklist consideration requires a statement informing students regarding the biases that are inherent in the system and the inaccuracies that can be produced by the tool. The following statement is an example that could handle the consideration:

AI tools can produce biased, incorrect, or entirely fabricated information (hallucinations). As a student, you are responsible for carefully verifying the accuracy and reliability of any content generated by AI.

If this checklist is followed the instructor can be sure that all the ethical themes at the top of the checklist have been considered.