AI in Teaching and Learning: A Toolkit for the Texas A&M University System

Developed by the CATIE AI, Innovation & Emerging Technologies Work Group

Executive Summary

This toolkit provides a practical guide for using artificial intelligence (AI) effectively in teaching and learning across the Texas A&M University System while adhering to system-level and institutional governance and data security requirements. It is designed for faculty, instructional designers, academic leaders, and support staff who want to integrate AI ethically and effectively to improve pedagogy, accessibility, and student engagement. This toolkit focuses on instructional use of AI and does not cover research, student success initiatives, or administrative/operational AI applications. The toolkit is designed to be adaptable to individual institutions, agencies, and various academic units.

How to Use This Toolkit

- Use the "Guiding Principles" section to set norms for ethical classroom use.
- Use the "Teaching & Learning Applications" section to identify instructional use cases and prompt examples.
- Use the "Assessment & Integrity" section to design AI-aware assignments and clarify expectations for students.
- Use the "Data Management & Privacy" section as a checklist before adopting tools, entering content into web-based AI applications, or requesting student use.
- Use the "Implementation" and "Continuous Improvement" sections to pilot and evaluate use cases.

1. Introduction

AI is changing how educators design learning experiences, differentiate instruction, provide feedback, and prepare students for their lives post-graduation. When used intentionally, AI can save time, improve accessibility, and create new opportunities for engagement. When AI is used carelessly, the results can include privacy risks, unfair outcomes, and users' over-reliance. This toolkit offers guidance and examples for integrating AI in ways that are pedagogically sound, mission-aligned, and transparent.

2. Guiding Principles & Governance

Guiding Principles

- Mission-Aligned Innovation: Use AI to strengthen teaching effectiveness and student learning outcomes.
- Human-Centered Approach: AI should support and not replace faculty expertise and student judgment.
- Accessibility and Fairness: Choose practices and tools that reduce barriers and avoid reinforcing bias.
- Transparency & Explainability: Be clear with learners about when and how AI is used; prioritize tools that can be described and evaluated.
- Privacy & Security: Protect student and institutional data and follow FERPA, HIPAA, and other information security policies and practices relevant to educational settings.
- Continuous Learning: Treat AI integration and literacy development as iterative and reflective.

Governance: Practical Actions

- Start with existing system and/or institutional guidance (IT/security, privacy, accessibility, academic integrity).
    - Texas A&M University System Cybersecurity: Artificial Intelligence: Offers guidance to system members on managing systems that have AI or AI-like capabilities and references the System Regulation 29.01.05 Artificial Intelligence.
    - Texas A&M University System Cybersecurity: Data Categorization: Confidential Information, Internal Use, and Public Information: References the System Regulation 29.01.06 and links out to the Texas Department of Information Resources Covered Applications and Prohibited Technologies
    - Texas A&M University (College Station): Artificial Intelligence: Use Guidelines & Ethics
    - Texas A&M University (College Station) Aggie Honor System Office: Student Rule 20. The rule explains the definitions of academic misconduct to include cheating; fabrication; falsification; multiple submissions; plagiarism; complicity; abuse and misuse of access and unauthorized access to computers/information during academic exercises; and more.
- Prefer institution-approved tools (LMS-integrated or vendor-contracted) when student data is involved.
    - Examples of AI Services/Tools Availability through Texas A&M University (College Station): Texas A&M AI Services Comparison
    - Texas A&M University (College Station) Technology Services: TAMU AI Chat (BETA): Provides an overview of the secure system-approved platform being offered to system member institutions

- If guidance is unclear, route questions through teaching/learning centers or IT before adopting tools for required course use.
- Document course-level decisions: what AI is allowed, what is prohibited, and how students must disclose use.

Classroom Ethics: A Quick Self-Check

Before using an AI tool in instruction, ask:

- Does this tool meaningfully support the learning outcomes, or is it only saving time?
- Does the intended use case align with university/system data security policies?
- Who could be disadvantaged (limited access, multilingual learners, disability accommodations, cost barriers)?
- What could go wrong ("hallucinations," bias, privacy risk, over-reliance, loss of student voice, distraction)?
- What human review or oversight will I apply before sharing outputs with students?
- How will I promote students' agency and human oversight of their AI use in assignments?

Practice: Keep a short reflection log when piloting AI (what worked, what didn't, what concerns arose, what you changed). Remember that AI capabilities can vary widely across platforms and change frequently so tracking the dates of use and specific application settings (model names/numbers, web search, deep research, etc.) can be useful. If students are using AI, noting their feedback to AI-enabled assignments is also likely to be helpful.

Transparency with Students

- Disclose when you use AI to create course materials (examples, quizzes, prompts, etc.).
- Explain when and how students may use AI—and when they may not.
- The AI Assessment Scale by Mike Perkins, Leon Furze, Jasper Roe, and Jason MacVaugh is licensed for re-use under CC BY-NC-SA 4.0. See the website for research articles detailing the development and use of the scale.
- Red Light, Yellow Light, Green Light approach to designating when AI can be used in assignments. The Center for the Advancement of Teaching & Learning at the University of Wisconsin-Green Bay provides a succinct overview of this approach.
    - Michael D'Addario's (Columbia University) proposed taxonomy of generative AI use cases table in the article A taxonomy of standardized terms for generative AI use in the composition classroom
- Model an "AI use statement" and provide a template students can reuse.
    - Sample AI Disclosure Template for Journalism/News Reporting by Trusting News. In addition to a basic adaptable template, Trusting News offers examples of language to describe different types of AI assistance.

    - Model, Input, Evaluate Framework (MInE) indicated in The use of AI disclosure statements in teaching: Developing skills for psychologists of the future by Acacia L. Overono and Annie S. Dittag
    - Sample Process for Student AI Use Disclosure by Jennifer Garcia Ramos as part of Development and introduction of a document disclosing AI-use: exploring self-reported student rationales for artificial intelligence use in coursework: a brief research report (NSF-funded project)

- Clarify Consequences of misuse

    - Explain how unauthorized AI use will be treated under your academic misconduct policy. For example, *Submitting AI-generated work as your own without disclosure violates our academic integrity policy and may result in a failing grade or further disciplinary action."*

Practice: Begin the term with a short discussion or activity to set shared norms for AI use. Review your syllabus in detail with students so they are aware of when they may and may not use AI for assignments.

- Discuss AI and Integrity Early and Often
- Dedicate 10–15 minutes during the first week to talk about academic integrity and AI.
    - Frame it as a conversation about trust, learning, and growth, not just surveillance or punishment.
    - Ask students about their understanding of course learning outcomes and how generative AI fits in.
    - What should students be able to do with or without AI as a result of completing the course?

Minimizing Bias & Illogical or Untraceable Results

AI systems can reflect biases in their training data. With some AI tools and systems, users cannot easily see or explain how it produces results. For high-stakes uses (grading decisions, major feedback, accommodations), prefer tools that allow you to review, justify, and revise outputs.

- Test tools with varied prompts and student contexts to check for stereotyping, misinformation, or uneven performance.
- Avoid using opaque AI outputs as the sole basis for grading or major decisions.
- Review AI-generated examples and cases for cultural inclusivity and accuracy **before assigning.**

Practice: Create a short "bias check" routine (accuracy, tone, inclusivity, citations/traceability). See Barnard College's AI Literacy Framework and reflection questions related to bias as reported by EDUCAUSE. Student reflection questions could include: What other perspectives should be considered in assessing the possible uses of AI

tools? Where might AI biases in AI tools and outputs come from? How does AI use align with or diverge from your personal values?

Aligning AI Use with Learning Outcomes & Integrity

- Use AI only when it helps students meet learning objectives (not just for convenience).
- Define course-level academic integrity expectations related to AI use.
- Provide concrete examples of acceptable vs. unacceptable AI assistance.
- Require disclosure when AI contributes to student work (when allowed).

Practice: Include an AI policy in the syllabus and revisit it after the first major assignment.

3. Teaching & Learning Applications

Use cases below focus on instructional design, teaching workflows, accessibility, and student learning supports.

A. Faculty Teaching Applications

1) Content Creation (Instructor-Facing)

- Draft lecture outlines and summaries
- Generate quiz or practice questions (with instructor review)
- Create glossaries and study guides
- Design visuals, slides, or storyboards for short videos

Sample Prompts (Edit to Fit Your Course)

- Lecture notes: "Summarize the main points of Piaget's stages of cognitive development for a 45-minute lecture. Include 3 discussion questions and 1 short in-class activity."
- Quiz generation: "Create 5 multiple-choice questions and 2 short-answer questions based on the following text. Provide an answer key and brief rationales."
- Slide deck: "Create a 7-slide presentation on digital literacy in higher education with speaker notes and one interactive prompt per section."
- Glossary: "Generate a glossary of 15 key terms from this week's readings on learning theories. Provide concise definitions and one example per term."

Practice: Treat AI output as a draft. Verify accuracy, adjust reading level, and ensure examples are inclusive and aligned to outcomes.

2) Instructional Design & Course Planning

- Draft or refine learning objectives (e.g., SMART outcomes aligned to Bloom's Taxonomy)
- Create course outlines and weekly schedules
- Suggest assessment formats aligned to skills (critical thinking, analysis, synthesis)

- Generate scaffolded explanations at multiple levels
- Support accessibility work (alt text drafts, captions/transcripts with review)

Practice: Use AI to generate options, then select and revise using your disciplinary standards and student context.

Resources:

- See article by Omaima Almatrafi and Aditya Johri Leveraging generative AI for course learning outcome categorization using Bloom's taxonomy in the influential *Computers and Education: Artificial Intelligence journal*
- See North Carolina State University's suggestions in Using AI to assist with course design from their Teaching Resources site.

3) Personalized, Adaptive, and Scaffolded Learning

- Tiered explanations by skill level (foundational → advanced)
- Choice boards aligned to a learning objective (Watch / Read / Create / Reflect)
- Practice questions with feedback at different difficulty levels
- Simplified explanations or analogies for students who need additional scaffolding

Practice: Pair AI-generated practice with human-designed checks (quick polls, minute papers, or short oral explanations) to confirm understanding.

4) Multilingual and Accessibility Support

- Translation and clarification support for multilingual learners (with caution about accuracy)
- Plain-language rewrites to support comprehension
- Text-to-speech and speech-to-text to support diverse learning needs
- Captioning workflows (auto-captions plus editing)

Example tools: DeepL/Google Translate; Microsoft Immersive Reader; Otter.ai/Descript; YouTube/Panopto auto-captions; QuillBot/Wordtune/Hemingway-style readability tools.

Practice: For accommodations and accessibility, follow institutional disability services guidance and verify AI outputs for accuracy and tone.

B. Student Learning Applications (When Allowed)

Study and Review Supports (Student facing)

- Summarize readings or lecture notes for review (students should verify accuracy)
- Generate flashcards or practice quizzes
- Create study plans or retrieval-practice schedules
- Use tutoring-style explanations for practice problems

Note: Encourage these tools primarily for independent study—not for producing graded submissions—unless you explicitly permit it.

Language and Comprehension Supports

- Translation and vocabulary clarification
- Rephrasing to support learning academic English (with disclosure if used in assignments)
- Text-to-speech / speech-to-text to support access and drafting

Feedback, Formative Assessment, and Reflection

- Draft feedback for grammar and clarity (student remains responsible for content)
- Self-review checklists or structure critiques generated from student drafts
- Reflection prompts to deepen metacognition
- Code explanation and debugging support in programming courses

Incomplete Outputs, Bias Assessment

Practice (Student Activities):

- Demonstrate limitations (e.g., In response to an assignment, show an AI output that is incomplete or biased and revise it together).
- Have students follow a short "bias check" routine (accuracy, tone, inclusivity, citations/traceability).
    - See Barnard College's AI Literacy Framework and reflection questions related to bias as reported by EDUCAUSE.
    - Student reflection questions could include: What other perspectives should be considered in assessing the possible uses of AI tools? Where might AI biases in AI tools and outputs come from? How does AI use align with or diverge from your personal values?
- Image generation activity: Have students use an AI image generation tool and ask it to create images of doctors, nurses, scientists, construction workers, etc. Ask students to identify patterns and/or stereotypes that they see in the images produced.

4. Assessment & Academic Integrity (AI-Aware Design)

Design Principles for AI-Aware Assessment

- Design tasks that reveal student thinking (process, drafts, reflections, oral explanations).
- Use authentic problems tied to local contexts, data, or lived course activities.
- Assess the process as well as the product (planning notes, checkpoints, peer review).
- Make expectations explicit: when AI is allowed, what must be disclosed, and what is prohibited.

- Require and model AI use disclosure and accountability statements. See **Transparency with Students** section

Approach 1: Make AI Part of the Task (Responsible Use)

Goal: Help students learn to use AI critically by comparing, evaluating, and revising AI outputs.

How to do it:

- Have students generate an AI response and then create their own response.
- Ask students to evaluate differences (accuracy, evidence, voice, bias).
- Require a short reflection describing how AI was used and what was changed.

Sample assignment: "Use an AI tool to summarize a key idea from today's reading. Then write your own summary. Compare the two and explain what the AI did well and where it fell short."

Approach 2: Assessments That Show Thinking

Goal: Design assignments that AI alone cannot complete convincingly without student reasoning.

Suggestions for how to do it:

- Use real-world, discipline-specific problems and local constraints.
- Assign longer-term projects with milestones and instructor feedback.
- Include an oral component (presentation, defense, interview, demo).
- Require disclosure when AI is used. See the Transparency with Students section for examples of disclosure statements and templates.

Sample assignment: "Write a research proposal on a current issue in your field. Submit a draft, receive feedback, then present your final version orally. Emphasize your original rationale and decisions."

Approach 3: Course AI Policy and Integrity Language

Goal: Provide clear guidance about acceptable AI use and consequences of misuse.

- Define what is allowed (e.g., brainstorming, outlining) and what is not (e.g., submitting AI-generated work as final without permission).
- Require disclosure when AI is used. See the Transparency with Students section for examples of disclosure statements and templates.
- Explain consequences consistent with academic misconduct policies.

Syllabus and Assignment Templates Add these to your course materials and adapt to your discipline:

- Syllabus Statements:

    - Generative AI Syllabus Statement Considerations by Texas A&M University Center for Teaching Excellence
    - Generative AI Syllabus Statement Examples from Texas A&M University-Kingsville
- The AI Assessment Scale and related content created by Mike Perkins, Leon Furze, Jasper Roe, and Jason MacVaugh is licensed for re-use under CC BY-NC-SA 4.0
- Arizona State University Library provides an overview of the key components of an AI Disclosure Statement and examples: Acknowledging AI Usage in Your Work

Use Case Snapshots

- First-Year Composition: AI can support early-stage drafting feedback and revision planning; final evaluation remains instructor-led.
- Gateway Math: Adaptive practice platforms can support targeted practice while instructors monitor progress and intervene.

5. Data Management & Privacy (Instructional Focus)

Why Data Privacy Matters

AI tools can improve teaching and learning but also introduce risks to student privacy and institutional confidentiality. Faculty should not enter personally identifiable student information (PII) into public AI tools, as this may violate FERPA and institutional policies. When possible, use institution-approved tools with appropriate contracts and protections.

Key Policies and Frameworks

- FERPA and student privacy expectations:
    - Texas A&M University System Policy 16. 01.02: Privacy
    - Texas A&M University Data Classification | Technology Services
- Institutional data governance policies: Texas A&M University System Policy 29.01.03: Information Security
- Intellectual property and instructional materials guidance:
    - Texas A& M University System 17.01 Intellectual Property Management and Commercialization
    - Texas A&M University Policies: Aggie Honor Code, Intellectual Property, etc.

What You Can and Cannot Upload

Do NOT upload to external, non-institutional AI tools:

- Student work or submissions (including drafts, reflections, discussion posts)
- Grades, feedback tied to identifiable students, or LMS records
- Human subjects research data or other regulated data
- Sensitive internal documents or proprietary materials (unless approved and protected)

Generally safe to upload (after removing identifiers and confidential information):

- De-identified examples and anonymized samples
- Hypothetical scenarios or fictional case studies
- Assignments, rubrics, syllabi, and general course descriptions

Resources: Texas A&M University Technology Services: Data Classification

Guiding Students on Safe AI Use

- Explain what students should not share (personal data, private stories tied to identity, identifiable coursework from other classes).
- Teach safe prompting: use general descriptions instead of personal details.
- If a tool requires personal accounts, provide alternatives when possible.

Practice: Provide a short "safe prompting" handout and review it before the first AI-enabled assignment. [Link Placeholder: Safe Prompting Handout]

Designing Assignments with Data Risk Minimization

- Do not require students to input sensitive or identifiable data into external tools.
- Provide de-identified datasets or fictional cases instead of requiring personal uploads.
- Offer an alternative assignment if AI use is optional or if students cannot create accounts.

Evaluating AI Tools (Privacy Lens)

- Review the privacy policy: data storage, model training, sharing with third parties, and deletion options.
- Confirm whether the tool is institution-approved, LMS-integrated, or SSO-enabled.
- Consult IT or instructional support units when uncertain. See Texas A&M University Technology Services: IT at Texas A&M

Best Practices for Generative AI in Research

Before Using an AI Tool

- Review institutional AI, data governance, and FERPA policies.
- Check whether the tool is institution-approved or integrated through LMS/SSO.
- Verify the privacy policy (storage, training, third-party sharing). Are prompt and other input data used in AI model training processes, etc.?
- Confirm account requirements and consider alternatives if students must create accounts.
- Confirm data deletion options, if needed.

Before Uploading Content

- Remove all personally identifiable information (PII).

- De-identify examples, datasets, or writing samples.
- Do not enter grades, submissions, feedback, or LMS content.
- Avoid uploading sensitive institutional documents without approval.

When Designing AI-Related Assignments

- Ensure students are not required to enter sensitive information into external tools.
- Provide de-identified scenarios or datasets.
- Offer an alternative for students who opt out.
- Include safe-use instructions ("Do not input personal information…").

During Instruction

- Discuss safe data practices early in the term.
- Model responsible AI use with anonymized examples.
- Use hypothetical or anonymized prompts during demonstrations.

Syllabus & Transparency

- Include an AI use policy.
- Clarify acceptable and unacceptable uses.
- Provide guidance on safe inputs.
- State whether and how students must disclose AI use.

Ongoing Review

- Revisit privacy policies regularly (tools change quickly).
- Re-evaluate assignments if privacy risks change.

Encourage student questions when unsure.

See links under Governance: Practical Actions, Key Policies and Frameworks, and Syllabus and Assignment Templates for more specific guidance

6. Implementation Guidelines (Instruction-Focused)

Assessment and Selection of Tools

- Identify instructional needs and goals first (what problem are you solving?).
- Evaluate tools for privacy/security, accessibility (ADA), fairness, and alignment with learning objectives.
- Consider whether the AI use augments learning or unintentionally replaces essential cognitive work.
- Pilot with instructional support teams and gather student/faculty feedback.

Customization Framework for Institutions or Units

- Align adoption with institutional mission and teaching values (e.g., active learning, critical thinking).
- Prioritize departments based on readiness (infrastructure, AI fluency, leadership support).
- Build communities of practice (CoPs) to share use cases, prompts, and assignments.

7. Assessment & Continuous Improvement (Instruction-Focused)

Track Outcomes and Engagement

- Define AI-linked learning outcomes (e.g., feedback quality, writing fluency, conceptual understanding).
- Collect multi-modal evidence: scores, engagement/usage data, and student reflections.
- Use satisfaction surveys to assess perceived usefulness and trust in AI assistance.

Monitor Fairness and Accessibility Impacts

- Analyze outcomes using disaggregated data where appropriate (race/ethnicity, first-generation status, disability, language background).
- Conduct digital access audits (access to devices, bandwidth, paid vs. free tools).
- Audit AI-generated materials for bias and consider student feedback loops that include marginalized voices. (multiple perspectives?)

Revise Tools and Training as Conditions Change

- Establish feedback loops after tool use (mid-semester and end-of-term).
- Conduct tool lifecycle reviews each term to ensure alignment with outcomes and policies.
- Update professional learning based on new features and emerging risks.

Continuous Improvement Cycle

1. Implement: Pilot AI use aligned to outcomes; collect baseline feedback.
2. Assess: Track outcomes and engagement; check for disparate impacts among demographic groups
3. Reflect & Review: Reflect on AI use cases in assignments and how they impacted student motivation and completion, your preparation, and instructional practices; review tool performance.
4. Refine & Iterate: Update tools, instruction , and policies; scale or sunset tools.

8. AI Use in the Development of this Toolkit

The authors of this toolkit used generative AI for brainstorming, draft creation, structuring, web research, and condensing of information for this website. The authors reviewed and revised AI outputs. The AI tools used were Claude 3.7 Sonnet, Microsoft Copilot 365 version 2.20260115.41, Google Gemini 3 (Thinking),