Think It. Do It. Defend It: A New Model for AI-Era Assessment

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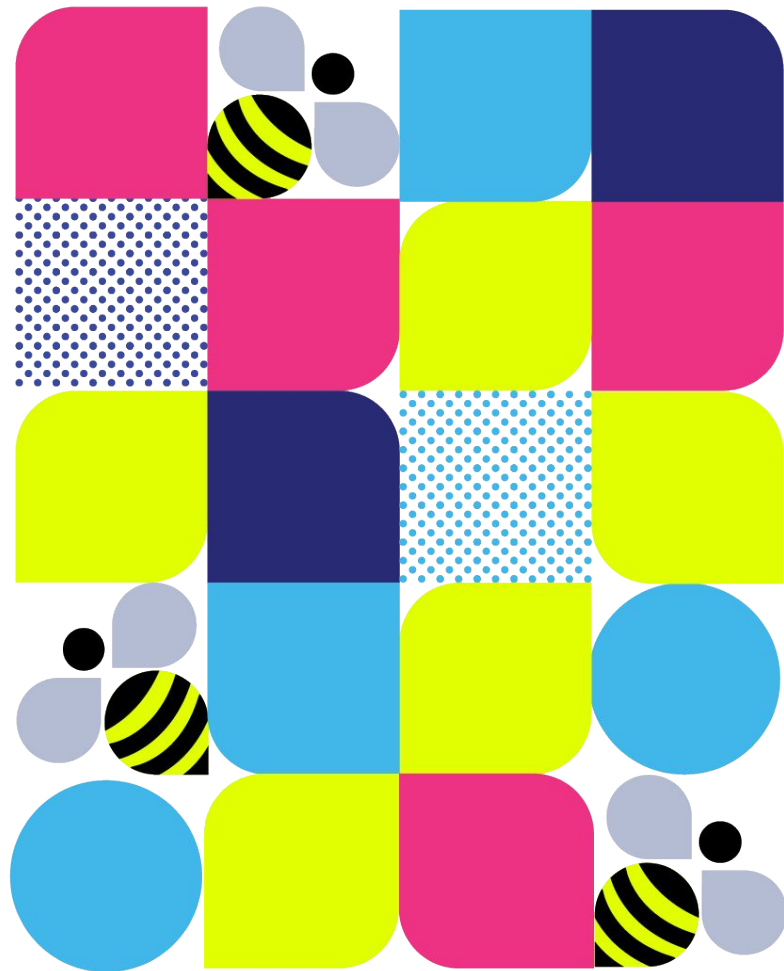
Today's speakers

Lisa Blue

Director of AI Strategies, Eastern
Kentucky University

Jennifer Duncan

Associate Professor of English, Georgia
State University Perimeter College

Irosha Nawarathne

Professor of Chemistry and Director of
Undergraduate Research, Lyon College

Today's webinar

Agenda

1. Demonstrate the process of designing for AI awareness
2. An overview of notable frameworks and personal examples
3. Assessment Clinic: Spot the Risk
4. Panel Discussion
5. Q&A

Today's webinar

What we will do…

- Keep an open mind and curiosity about AI's role in learning
- Share ideas and experiences in the chat and Q&A
- Focus on creative, practical approaches to authentic assessment
- Be kind and supportive of each other's perspectives

What we won't do…

- Pretend we can completely "AI-proof" every assignment
- Promote or debate AI plagiarism checkers
- Take an anti-AI stance (this is about adaptation, not avoidance)
- Talk at you the whole time (your participation matters)

Designing for AI Awareness

Lisa Blue

Assignment Redesign Types

AI-Resistant Assignment

An assignment intentionally structured to *minimize the usefulness of unauthorized AI assistance*, reinforcing independent human effort.

✦ Emphasizes personal experience, lab data, drawing from private class content or local contexts.

AI-Aware Assignment

An assignment designed with the understanding that students **may use AI**, so it intentionally centers **process, originality, and transparency of thinking.**

✦ Process over product
✦ Checkpoint submissions
✦ Reflection of choices
✦ Disclosure & critique of AI use
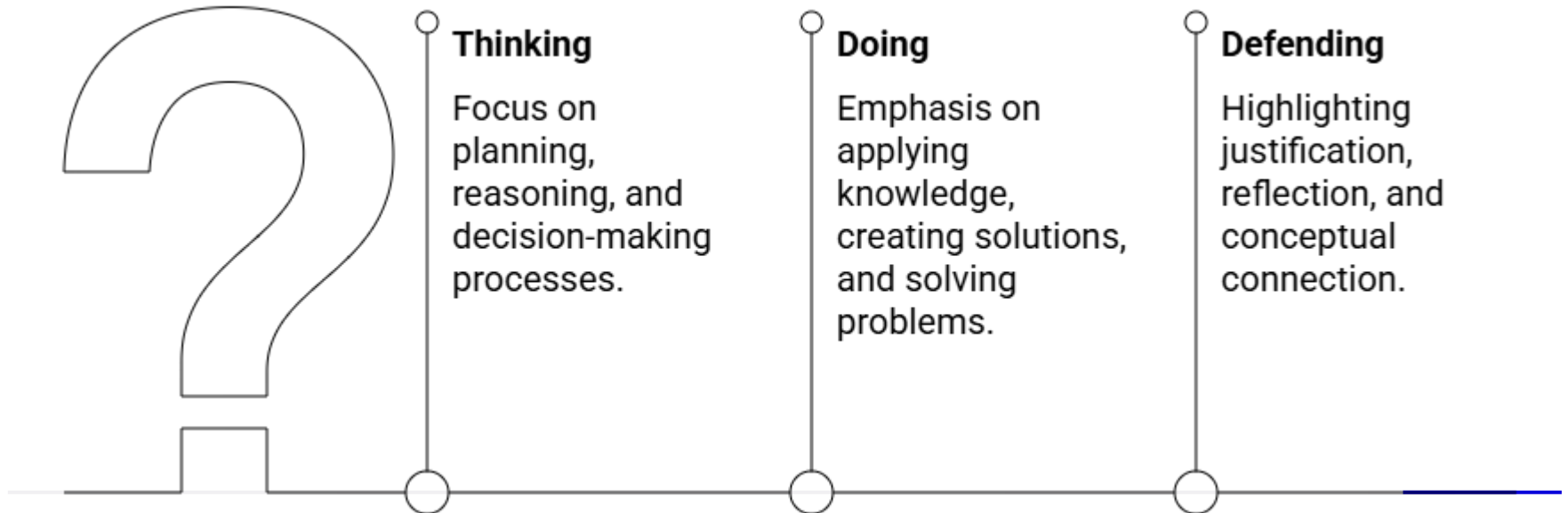✦ May utilize alternative grading

AI-Embracing Assignment

An assignment that explicitly *invites and teaches responsible AI tool use*, positioning GenAI as a collaborator in the learning process.

✦ Prompt design and revision
✦ Evaluate and cite AI outputs
✦ Models real-world AI usage
✦ Fosters metacognition about what students & AI each contribute

The AI-Aware Mindset

Final Product Assessments Hide Student Thinking

Thinking

Focus on planning, reasoning, and decision-making processes.

Doing

Emphasis on applying knowledge, creating solutions, and solving problems.

Defending

Highlighting justification, reflection, and conceptual connection.

AI-Aware Design Levers

- Stage the work (drafts or checkpoints): planning, drafts, annotated sources
- Show your reasoning or choices
- Build in reflection or justification
- Allow AI, but require critique or disclosure
- Use authentic context: current data, local examples, personal experiences (AI struggles to fake relevance)
- Consider alternative grading: grade to proficiency, ungrading, grading contracts

These moves shift the focus from "What did you write?" to "How did you THINK?"

What Students Won't Outsource

Students WILL outsource when...

- Prompts are generic
- Only final draft matters
- No personal stake
- One right answer
- Fail to see value

Students WON'T outsource when...

- It connects to them
- It requires judgment
- They must defend decisions
- Process is visible
- Understand how it contributes to learning

Yes, this is Scalable

Rubrics to assess thinking, justification, process
Peer review focused on defending choices
AI helps you draft examples/feedback

AI-aware design isn't *more* work, it's *different* work

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Pedagogical Frameworks

Jennifer Duncan

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Image Credit: Westend61/Getty Images

Pedagogical Frameworks

Transparency in Teaching Learning (TILT)

https://www.tilthighered.com/

Key Principle - Promoting students' conscious understanding of how they learn

High Impact Practices (HIPs)

https://www.aacu.org/trending-topics/high-impact

Key Principle - Evidence-based practices that reach underserved students

Pedagogical Frameworks

Universal Design for Learning (UDL)

https://udlguidelines.cast.org/

Key Principle - All learners are able to access and participate in meaningful, challenging learning opportunities

Authentic Assessment

https://teaching.uic.edu/cate-teaching-guides/assessment-grading-practices/authentic-assessments/

Key Principle -Student-centered learning experience that providing students opportunities to problem-solve, inquire, and create new knowledge and meaning

Where the Magic Happens

Pedagogical Alignment

Framework	TILT	UDL	HIPs	Authentic Assessment
Transparency	✅	✅		✅
Engagement		✅	✅	✅
Equity	✅	✅	✅	✅
Real-World Relevance		✅	✅	✅

Elements of Great Assessments

- Application of learning to real-world context
- Collaboration
- Multiple ways to demonstrate knowledge
- Connections to the community
- Experiencing multiple perspectives
- Structured reflections

Pedagogical Frameworks

Irosha Nawarathne

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Image Credit: Westend61/Getty Images

What Matters in Teaching and Learning?

Major Categories & Definitions		Major Process Questions
Attention	Capturing the interest of learners; stimulating the curiosity to learn	"How is this learning valuable and stimulating to my students?"
Relevance	Meeting the personal needs/goals of the learner to effect a positive attitude	
Confidence	Helping the learners believe/feel that they will succeed and control their success	"How can I (via instruction) help students succeed and allow them to control their outcomes?"
Satisfaction	Reinforcing accomplishment with rewards (internal and external)	

- Strategies for Stimulating the Motivation To Learn

- Development and Use of the ARCS Model of Instructional Design

- Motivation and Instructional Design: A Theoretical Perspective

Keller, J. M. Motivation and Instructional Design: A Theoretical Perspective. Journal of Instructional Development 1979, 2 (4), 26−34.
Keller, J. M. Development and use of the ARCS model of instructional design. Journal of Instructional Development 1987, 10 (3), 2.
Keller, J. M. Strategies for stimulating the motivation to learn. Performance & Instruction 1987, 26 (8), 1−7.

Circular Economy Shark Tank
CHM 182 – Conservation and Recycling (ST)

CHM 182

In-Class Activity Quiz 3

Welcome to Circular Economy Shark Tank! Today, you are entrepreneurs pitching innovative solutions to global waste problems. Your goal is to create a product or service that follows circular economy principles, meaning it reduces, reuses, or recycles waste while making a profit!"

Step 1: Form Teams

· 4 teams of 2-3 students each.

· Each team will be assigned a "Waste Problem Card."

Step 2: Brainstorm & Develop Your Pitch

· Your task: Design a product, service, or process that solves your waste problem using the 5Rs or chemical recycling.

· Think about:

o What is the problem? (e.g., too much plastic, food waste, e-waste)

o What is your solution? (A new product, a recycling method, a reuse system?)

o Who will buy or use it?

o Why is it better than what exists today?

○ Sketch your idea.

Step 3: The Pitch

· Each team gets 2-3 minutes to pitch.

· Pitches should cover:

o What your product/service is

o How it works

o Why it helps the environment & circular economy

o Why it would make money or be successful

· The judges will ask one quick question per team.

Step 4: Voting & Wrap-Up

· Everyone votes on:

o Most innovative idea

o Most realistic idea

· Discuss and reflect: What did we learn? Could any of these ideas work in real life?

Scientific Misconduct
CHM 490 – Senior Seminars (CHM Majors)

CHM 490

In-Class Quiz 4

Today, you will research real-world cases of scientific misconduct, analyze their severity, and engage in structured mini debates on each case to critically assess accountability in science.

Part 1 - Case Investigations

Research all the following individuals and their involvement in scientific misconduct:

1. Patrick Harran

2. Annie Dookhan

3. Terry Bateman, Bradley Rowland

4. Ranga Dias

5. Polloneal "Jym" Ocbina

6. Missy Yvonne Woods

Step 1: Research Using ChatGPT

- Use ChatGPT to look up the details of each case.
- Identify key facts: Who was involved? What happened? What were the consequences?

Step 2: Severity Analysis

- Rank each case on a scale of 1-5 (1 = minor mistake, 5 = major misconduct/criminal offense).
- Make simple notes/hints to remind you why those rankings were made.
- Justify your ranking by comparing it to other forms of scientific misconduct.

Scientific Misconduct
CHM 490 – Senior Seminars (CHM Majors)

<u>**Part 2: Mini-Debates on Each Case**</u>

1. Debate Topic for Each Case is "**Did this case of scientific misconduct deserve a lifetime ban from research?**"
2. Each case will be debated for about 5 minutes using a roundtable format rotating roles between cases.
- **Pro-Ban Advocate** – Argues that the individual's misconduct was severe enough to warrant a lifetime ban from research.
- **Against the Ban** – Argues that the punishment should be less severe, and that the individual deserves a second chance.
- **Neutral Moderator** – Asks questions, challenges both sides, and summarizes key points.

Make sure to consider the following debate structure before you start the debates.
- Opening Arguments (1 min total)
- Cross-Examination & Discussion (3 mins total)
- The Moderator can ask 1-2 key questions to both sides and the two debaters challenge each other's arguments and respond with counterpoints. The Moderator may introduce ethical dilemmas or real-world implications.

- **Final Statements & Vote** (1 min total)

Each debater gives a closing remark then the Moderator (30 sec) summarizes the debate and leads a quick vote on "Should this individual have received a lifetime ban? If not, what should have been their punishment?"

- **Final Reflection Discussion**

After all mini debates are completed, we will discuss overarching ethical questions as time permits.

- Which case was the most deserving of a lifetime ban? Why?
- Should intent (accidental vs. intentional misconduct) change how someone is punished?
- Do current scientific misconduct policies do enough to prevent future cases?
- What are better ways to enforce ethical standards in research?

Scientific Misconduct
CHM 382 – Biocatalysis: Life to Medicine (ST)

CHM 382
In-Class Quiz on Oct 2nd (10 points)

If you wanted to change the substrate specificity of AADAC, which residues in or near the active site might you consider mutating, and why?

Example: Finding catalytic residues in Lipase B from *Candida antarctica* (CALB)

1. **Find the sequence and annotation**

   o Go to **UniProt**: CALB is UniProt entry P41365.

   o Scroll to the "Function" and "Active site" sections → you'll see annotated catalytic residues.

2. **Check conserved motifs via sequence alignment**

   o Do a BLAST search of CALB against other lipases.

   o Look for highly conserved residues; often these are part of the catalytic triad (Ser, His, Asp/Glu).

3. **Look at a structure**

   o In UniProt, click the 3D structure link → it connects to PDB. For CALB, see **PDB: 1TCA**.

   o Open in a viewer (like PyMOL or RCSB Mol*). Highlight the catalytic triad (Ser105, Asp187, His224).

   o Notice how they cluster in the active site pocket.

4. **Interpretation**

   o These residues form the "catalytic triad" common to serine hydrolases.

   o Mutating any of these usually disrupts activity. Mutating pocket-lining residues can change

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Assessment Clinic: Spot the Risk

Let's Diagnose Some Assignments

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About the Activity

In this "Assessment Clinic," we'll look at examples of assignments and ask:

🧠 Where is each task most vulnerable to AI misuse?

💡 How could we redesign it to assess real student understanding?

Join the iClicker event by scanning the QR code or going to
join.iclicker.com/EAGC

Want to make sure it's working? Tell us your name to start!

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Assignment 1: Exploring Daphne du Maurier's Craft

Text: *"Don't Look Now"* by Daphne du Maurier
 Length: 750–1000 words

Instructions:
Read Daphne du Maurier's short story *"Don't Look Now."* Then write a response analyzing how du Maurier uses setting, suspense, and tone to explore human emotion and the supernatural.

Prompt:
Du Maurier's fiction is known for its eerie atmosphere, emotional depth, and psychological tension. In your response, discuss how these elements appear in *"Don't Look Now."* Consider:

- How does the Venice setting contribute to the mood of unease and loss?
- How does du Maurier blend realism with hints of the paranormal?
- What does the story suggest about grief, perception, and fate?

Where might students be most tempted to use AI on this assignment?

A.   To summarize the plot of the story

B.   To describe the mood and tone of Venice

C.   To interpret themes like grief and fate

D.   All of the above

Which revision would most strengthen this assignment by emphasizing process over product?

A. Students use an online tool to collaborate on annotating passages from the story

B. Require a final essay only, graded solely on style and structure

C. Allow AI tools to draft the essay as long as sources are cited

D. Focus grading entirely on grammar and formatting

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Assignment 2: Drawing Earth's Timeline

Length: 1 page

Instructions:
Create a visual timeline of Earth's history, highlighting major events covered in our unit on **evolution and biodiversity.** Your timeline should illustrate both the vastness of geologic time and the progression of key biological milestones.

Include:

- Major geologic eons, eras, and periods (e.g., Precambrian, Paleozoic, Mesozoic, Cenozoic)
- At least **8–10 key evolutionary or biodiversity events** (e.g., origin of life, Cambrian explosion, first land plants, rise of mammals, mass extinctions)
- Labels, dates (approximate in millions or billions of years), and brief annotations for each event

Which part of this assignment could AI complete most convincingly, undermining the learning goal?

A. Generating a colorful, perfectly scaled digital timeline with labeled events
B. Explaining how biodiversity expanded after each extinction event
C. Describing the importance of geologic time as a concept
D. Comparing different theories of evolution across eras

Which change could make this timeline project more authentic?

A. Have students justify why they chose particular events as milestones

B. Ask students to explain how life forms became more complex over time

C. Include a short written reflection linking patterns in biodiversity to environmental change

D. Allow students choice in how to display their timeline, encouraging connection with their personal interests

E. Other (share your idea in the chat)

Assignment 3: "The Heart of the Matter" Case Analysis

Case: *"The Heart of the Matter: Understanding the Electrical Conduction Pathway"* by Gina Priscella, Shreya Kurella, and Nalini V. Broadbelt

Source: National Center for Case Study Teaching in Science (NSTA)

Instructions:
Read the section of the case study introducing **April, the pediatric nurse**, and review **Table 1** showing her vital signs. Then, answer the questions below in complete sentences using the appropriate physiological terminology.

Questions:

1. Study Table 1. Based on what you find in the table, define **tachypnea** and **tachycardia.**
2. What does **normal oxygen saturation** indicate about April's respiratory and cardiovascular function?
3. April presents with severe tachycardia (heart rate > 150 bpm). Stroke volume and cardiac output are affected when ventricular rate exceeds 160 bpm. Assuming her ventricular rate equals her heart rate:
   - (a) How would this affect **stroke volume** and **cardiac output**? Explain using the formulas
     $SV = EDV - ESV$ and $CO = HR \times SV.$
   - (b) In her conversation with Dr. Allie, April described several symptoms. Which of those symptoms is associated with **tachypnea**, and why?

Because this assignment is built around a clinical case, it is inherently a process-based assignment and AI cannot be used to complete it.

A. True
B. False

Q&A