AI-Based Methods for Effective Teaching and Evaluation

Day 2: Teaching Methodology & AI Integration

Faculty Development Program | 3-Day Intensive Workshop

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SPEAKER NOTES:
Welcome back, everyone! Great to see you all again for Day 2. Yesterday we laid the foundation -- the research, the frameworks, and your first hands-on experience with AI tools. Today we shift from understanding to applying. This is the practical day. We'll master prompt engineering, explore how AI super
flipped learning, learn the GEMS model for designing assignments AI can't shortcut, and I'll give you 10 ready-to-use teaching strategies. By the end of today, you'll have a redesigned lesson plan in your hands. Let's get started.

Day 2 Agenda

Session Duration: 60 Minutes

10 min	**Part 1**	Prompt Engineering Mastery -- The CRAFT Framework
12 min	**Part 2**	Flipped Learning with Generative AI
13 min	**Part 3**	The GEMS Model for AI-Resilient Assignments
25 min	**Part 4**	10 Active Learning Plays with AI + Workshop

SPEAKER NOTES:
Today's 60-minute session has four parts. We start with Prompt Engineering -- the single most important skill for using AI effectively. Then we explore how flipped learning is supercharged by generative AI. Part 3 introduces the GEMS model, a framework I'm really excited about for designing assignments th
WITH AI rather than being defeated by it. Finally, Part 4 gives you 10 active learning strategies and dedicated workshop time to redesign a lesson from your own course. Notice the balance: about 35 minutes of content and 25 minutes of hands-on work. Today is about DOING.

Quick Recap -- What We Covered Yesterday

1

The AI Landscape

92% of students use AI; 61% of faculty -- we're closing that gap

2

Research Evidence

30+ peer-reviewed papers: impact depends on HOW, not WHETHER

3

Three Frameworks

Intelligent-TPACK | Bloom's + AI | AI-CoACT

4

Hands-On Tools

ChatGPT, Claude, NotebookLM -- you tried them yourself

SPEAKER NOTES:

Quick recap of Day 1. First, the AI landscape: 92% of students are using AI, only 61% of faculty -- there's a gap, and we're here to close it. Second, the research is clear: AI's impact depends on HOW you integrate it -- support, pedagogy, agency, and purpose matter. Third, we learned three frameworks: Inte
TPACK for the knowledge we need, Bloom's + AI for where to focus human vs. AI effort, and AI-CoACT for our growth journey. Fourth, you got hands-on with actual tools. Some of you were amazed, some were skeptical, and both reactions are valid. Today we build on all of this with practical methodology.

Learning Objectives for Day 2

By the end of today's session, you will be able to:

- ✓ Write effective AI prompts using the CRAFT framework
- ✓ Design a flipped learning module powered by generative AI
- ✓ Apply the GEMS model to create AI-resilient assignments
- ✓ Select and implement active learning strategies that integrate AI

SPEAKER NOTES:
Four measurable learning objectives for today. Notice these are at the Apply and Create levels of Bloom's -- we're moving up the taxonomy from Day 1's Understand and Identify. By the end of this session, you'll write effective prompts using a structured framework, design a flipped learning module with AI, a
GEMS model to make your assignments AI-resilient, and have a toolkit of 10 active learning strategies. These aren't theoretical -- you'll practice each one today.

Part 1

Prompt Engineering Mastery

SPEAKER NOTES:
Transition: Let's start with the foundation of everything we'll do today and tomorrow. Prompt engineering is the single most important skill for using AI effectively in education. The difference between a mediocre AI output and a brilliant one is almost always the prompt.

Why Prompt Engineering Matters

Vague Prompt

"Give me a lesson plan about research"

Result: Generic, shallow, unusable

Engineered Prompt (CRAFT)

"You are an expert educator. Create a 55-min lesson plan for undergrads on Research Methodology using flipped learning..."

Result: Structured, Bloom's-aligned, ready to use

Research shows that structured prompting improves AI output quality by 40-60% (Liu et al., 2024; White et al., 2025)

- Same AI, same model -- dramatically different results based on prompt quality
- Prompt engineering is a teachable, learnable skill -- not a talent
- You saw this yesterday in Demo 1 -- today we master it

SPEAKER NOTES:
This is the most important slide of Day 2. The difference between these two prompts is enormous. The vague prompt gives you generic, shallow content that you'd never use. The engineered prompt gives you a structured, Bloom's-aligned, ready-to-use lesson plan. Same AI, same model -- the only differen
asked. Research from Liu et al. and White et al. shows that structured prompting improves output quality by 40 to 60 percent. And here's the good news: prompt engineering is a learnable skill, not a talent. You saw this yesterday when we compared the initial prompt with the refined version. Today, I'll give y
framework that makes it systematic.

The CRAFT Framework for Effective Prompts

C

Context

Set the scene -- subject, level, constraints, student profile

R

Role

Assign the AI a persona -- expert educator, tutor, curriculum designer

A

Action

State exactly what you want -- create, analyze, evaluate, compare

F

Format

Specify the output format -- table, bullet list, rubric, lesson plan

T

Tone

Define the communication style -- academic, conversational, encouraging

SPEAKER NOTES:
Meet CRAFT -- your framework for writing effective AI prompts every time. C is for Context: set the scene. Tell the AI about your subject area, student level, class size, and any constraints. R is for Role: assign the AI a persona. 'You are an expert curriculum designer' produces very different output than a bla prompt. A is for Action: state exactly what you want using a strong verb -- create, analyze, evaluate, compare. F is for Format: specify how you want the output -- as a table, bullet points, a rubric, a lesson plan with timing. T is for Tone: define the communication style -- academic for a syllabus, conversationa for a study guide, encouraging for student feedback. When you include all five CRAFT elements, your prompts go from mediocre to excellent.

CRAFT in Action -- A Complete Example

[C] Context: I teach Introduction to Psychology to 60 first-year undergrads.
Students have completed a pre-reading on cognitive biases.

[R] Role: You are an experienced psychology professor who uses active learning.

[A] Action: Create a 50-minute lesson plan on cognitive biases that includes
Bloom's-aligned objectives and one AI-integrated activity.

[F] Format: Present as a table with columns: Time | Activity | Bloom's Level | Resources.

[T] Tone: Professional but approachable, suitable for a faculty workshop example.

Each CRAFT element is color-coded above. Copy this structure for ANY teaching prompt.

SPEAKER NOTES:
Here's CRAFT in action with a real example. Context in teal: I teach psychology to 60 first-years, they've done a pre-reading on cognitive biases. Role in orange: you are an experienced psychology professor who uses active learning. Action in green: create a 50-minute lesson plan with Bloom's-aligned obje
an AI-integrated activity. Format in purple: present as a table with Time, Activity, Bloom's Level, and Resources columns. Tone in red: professional but approachable. When you combine all five elements, the AI has everything it needs to produce exactly what you want. I encourage you to save this slide as a
-- just swap in your own subject, topic, and preferences.

Advanced Prompting Techniques

Chain-of-Thought

Ask AI to explain its reasoning step by step

"Think through this step by step: How would you assess critical thinking in a history course?"

Few-Shot

Give examples of what you want before asking

"Here is an example of a good discussion question: [example]. Now create 5 more like this."

Iterative Refinement

Build on outputs through follow-up prompts

"Good, but make it more suitable for ESL students and add visual learning supports."

SPEAKER NOTES:
Three advanced techniques beyond CRAFT. Chain-of-Thought: when you need the AI to reason through something complex, ask it to think step by step. This dramatically improves quality for tasks like assessment design or rubric creation. Few-Shot: instead of describing what you want, show the AI an exa it one excellent discussion question, then ask it to create 5 more like it. The AI pattern-matches to your example. Iterative Refinement: you saw this yesterday -- don't accept the first output. Build on it. Make it more suitable for ESL students, add visual supports, adjust the difficulty. Think of it as a conversation, not a vending machine. These three techniques, combined with CRAFT, make you an advanced prompt engineer.

Live Demo: Prompt Engineering in Action

DEMO

Step 1: Show a VAGUE prompt and its output
"Make a quiz about research methods"

Step 2: Show a CRAFT prompt on the SAME topic
Full CRAFT prompt with all 5 elements

Step 3: Show ITERATIVE REFINEMENT
"Now add case-study questions relevant to Oman's context"

- Watch the dramatic difference in output quality
- Same AI model -- the only variable is the prompt
- You'll practice this yourself in 30 minutes

SPEAKER NOTES:
Time for a live demo. I'll show you the dramatic difference that prompt engineering makes. First, I'll type a vague prompt: 'Make a quiz about research methods.' We'll see the generic output. Then I'll use the CRAFT framework on the exact same topic -- same AI, same model -- and watch the quality jump. Fi
I'll show iterative refinement by asking for Oman-specific context. The key message: you don't need a better AI tool, you need a better prompt. If the AI gives you something mediocre, the first question should be: how can I improve my prompt?

Part 2

Flipped Learning with Generative AI

SPEAKER NOTES:
Transition: Now that you can write effective prompts, let's see how AI transforms one of the most powerful teaching methodologies: flipped learning. This is where AI goes from being a tool to being a teaching partner.

The Flipped Classroom -- Supercharged by AI

Flipped Learning: Students learn content BEFORE class (via AI-generated materials) so class time is used for higher-order activities -- discussion, application, creation

Research Evidence:

74%

of students prefer flipped classrooms

12%

improvement in exam scores

89%

of faculty report higher engagement

Generative AI makes flipped learning dramatically easier to implement:

- AI generates pre-class materials in minutes (summaries, study guides, videos scripts)
- AI creates differentiated content for diverse student levels
- AI designs in-class activities and assessment checkpoints automatically

SPEAKER NOTES:
Flipped learning is not new, but generative AI makes it dramatically easier to implement. The traditional barrier was time: creating pre-class materials, recording lectures, designing in-class activities. Research shows impressive results: 74% of students prefer flipped classrooms, exam scores improve by 12% average, and 89% of faculty report higher engagement. Now here's where AI changes the game: what used to take days of preparation, AI can help you generate in minutes. Pre-class summaries, differentiated study guides, in-class activity designs, assessment checkpoints -- all generated through the CRA just learned. Let me show you the model.

The Flipped + AI Model -- Three Phases

PRE-CLASS

AI as Content Curator

AI generates summaries, study guides, pre-reading questions, concept explainers

IN-CLASS

AI as Learning Accelerator

Class time for discussion, analysis, creation
AI assists real-time activities & scaffolding

POST-CLASS

AI as Reflection Partner

AI generates review materials, practice problems,
personalized feedback, reflection prompts

SPEAKER NOTES:
The Flipped plus AI model has three phases. Pre-Class: AI serves as your content curator. Use it to generate reading summaries, study guides, pre-reading questions, and concept explainers at multiple levels. Students engage with this material before coming to class. In-Class: AI becomes a learning accel
that students have the foundational knowledge, class time is used for higher-order activities -- discussion, analysis, creation, problem-solving. AI can assist in real-time during activities. Post-Class: AI is a reflection partner. It generates review materials, practice problems, personalized feedback, and
reflection prompts. Each phase uses a different AI capability, and together they create a complete learning experience.

Pre-Class: AI as Content Curator

Reading Summaries	AI summarizes textbook chapters at different comprehension levels	NotebookLM, ChatGPT
Concept Explainers	AI explains complex topics in 3 ways: beginner, intermediate, analogy	ChatGPT, Claude
Pre-Class Quizzes	AI generates quick-check questions to verify pre-reading completion	ChatGPT, Quillionz
Audio Overviews	AI converts readings into podcast-style discussions for accessibility	NotebookLM
Vocabulary Guides	AI generates key term definitions with discipline-specific examples	ChatGPT, Claude

Pro Tip: Generate pre-class materials for the ENTIRE semester in one sitting using batch prompts

SPEAKER NOTES:
Let me show you five specific pre-class use cases. Reading summaries: use NotebookLM or ChatGPT to summarize textbook chapters at different comprehension levels -- one for struggling students, one for advanced. Concept explainers: use the 'explain in 3 ways' prompt from Day 1 -- beginner, intermed
Pre-class quizzes: generate quick-check questions that verify students actually did the pre-reading. Audio overviews: this is NotebookLM's killer feature -- turn any reading into a podcast. Vocabulary guides: generate discipline-specific definitions with examples. Pro tip: you can generate pre-class materials f
an entire semester in one sitting by batching your prompts. One hour of prompt engineering can produce 15 weeks of pre-class content.

In-Class: AI as Learning Accelerator

■ AI-Generated Case Studies

AI creates discipline-specific scenarios; students analyze in groups

■ Real-Time Debate Partner

AI argues one side; students argue the other -- develops argumentation skills

■ Socratic Dialogue

Students use AI as a Socratic tutor that asks questions, never gives answers

■ Comparative Analysis

Students and AI both analyze the same problem; class compares approaches

■ Error Detection Exercise

AI deliberately generates content with errors; students find and fix them

Key: In-class activities should target Bloom's Analyze, Evaluate, and Create levels

SPEAKER NOTES:
Now the magic happens. With students arriving having already learned the foundational content, class time is freed for higher-order activities. Five powerful examples: AI-generated case studies that are discipline-specific and students analyze in groups. Real-time debate where AI argues one position and st must argue the other. Socratic dialogue where the AI only asks questions, never gives answers -- this builds critical thinking beautifully. Comparative analysis where both students and AI tackle the same problem and the class compares approaches. And error detection where you deliberately ask AI to gene with errors and students must find and fix them. Remember: all in-class activities should target the top three Bloom's levels -- Analyze, Evaluate, Create.

Post-Class: AI as Reflection Partner

Personalized Practice

AI generates unlimited practice problems at the student's level

Reflection Prompts

AI creates structured reflection questions about learning process

Feedback Drafts

AI generates first-draft feedback on student work for faculty review

Study Guides

AI synthesizes class discussion into comprehensive review materials

"The post-class phase is where AI truly personalizes learning at scale" -- Guo et al., 2025

SPEAKER NOTES:
The post-class phase is where AI personalizes learning at scale. Personalized practice: AI generates unlimited practice problems calibrated to each student's level -- struggling students get scaffolded problems, advanced students get challenges. Reflection prompts: AI creates structured questions about the process itself -- metacognition. Feedback drafts: this is a huge time-saver -- AI generates first-draft feedback on student work, which you then review and personalize. You're not replacing your judgment, you're getting a starting point. Study guides: AI synthesizes the class discussion into comprehensive rev materials. As Guo et al. noted in their 2025 study, the post-class phase is where AI truly enables personalization at scale -- something that was impossible before.

Live Demo: Building a Complete Flipped Module

DEMO

Step 1

Generate Pre-Class Materials

AI creates a reading summary + 5 pre-check questions

Step 2

Design In-Class Activity

AI designs a comparative analysis activity (Bloom's: Analyze)

Step 3

Create Post-Class Reflection

AI generates reflection prompts + personalized practice set

Result: A complete flipped learning module created in under 5 minutes

SPEAKER NOTES:
Let me show you how fast this is. I'll build a complete flipped learning module in three prompts. Step 1: I'll ask AI to generate pre-class materials -- a reading summary and 5 pre-check questions for a topic. Step 2: I'll ask it to design an in-class activity targeting the Analyze level of Bloom's -- a comparative analysis exercise. Step 3: I'll ask for post-class materials -- reflection prompts and a personalized practice set. Three prompts, under 5 minutes, and you have a complete flipped module. I'll use the CRAFT framework for each prompt so you can see it in practice. The topic: Research Methodology, so we can what we used yesterday.

Part 3

The GEMS Model for AI-Resilient Assignments

SPEAKER NOTES:
Transition: Now the question many of you have been thinking about since yesterday -- if AI can generate lesson plans and quizzes, what stops students from using it to do their assignments? The answer is not banning AI. The answer is designing better assignments. Enter the GEMS model.

Why Traditional Assignments Fail in the AI Era

"Write a 1000-word essay on the causes of World War I"	"Solve these 20 calculus problems"	"Summarize Chapter 5 of the textbook"
AI writes this in 30 seconds with perfect grammar	AI solves them step-by-step with full working shown	AI summarizes better than most students

The problem is not AI. The problem is that these assignments test what AI does best -- recall, summary, and basic application.

The solution: Design assignments that AI CANNOT shortcut. That's what GEMS does.

SPEAKER NOTES:
Let's face the uncomfortable truth. Traditional assignments are broken in the AI era. A 1000-word essay on World War I? AI writes it in 30 seconds with perfect grammar. Twenty calculus problems? AI solves them step by step. Summarize a chapter? AI does it better than most students. But here's the crucia
the problem is not AI. The problem is that these assignments test exactly what AI does best -- recall, summary, and basic application. These are the lower levels of Bloom's that we said yesterday AI excels at. The solution is not banning AI or trying to detect it. The solution is designing assignments that requ
what AI cannot do -- personal experience, local context, process reflection, and authentic creation. That's what the GEMS model does.

The GEMS Model -- AI-Resilient Assignment Design

G

Ground in Personal Context

Require students to connect to their own experience, local community, or specific data

E

Elevate Cognitive Demands

Target Bloom's Analyze, Evaluate, Create -- what AI struggles with in authentic contexts

M

Make the Process Visible

Require process documentation: drafts, reflections, decision logs, revision history

S

Scaffold AI Collaboration

Make AI use explicit, required, and assessed -- students show HOW they used AI and WHY

SPEAKER NOTES:
Here's the GEMS model -- your framework for designing assignments that AI cannot shortcut. G is Ground in Personal Context: require students to connect their work to personal experience, local community data, or specific observations. AI doesn't know what happened in their internship, their neighborhoo
campus. E is Elevate Cognitive Demands: target the top three levels of Bloom's -- Analyze, Evaluate, Create -- in authentic contexts. AI can generate generic analysis, but it struggles with nuanced evaluation of real-world situations. M is Make the Process Visible: require process documentation -- drafts, reflections, decision logs, revision history. This makes the journey matter, not just the destination. S is Scaffold AI Collaboration: don't ban AI -- make its use explicit, required, and assessed. Students must show how they used AI and explain why they made certain choices. When you apply all four GEMS el
you get assignments that develop genuine learning whether or not students use AI.

G -- Ground in Personal Context

Instead of:

"Analyze the effects of inflation on developing economies"

↓

Try:

"Interview 3 local business owners about how inflation has affected their business this year. Compare their experiences with macroeconomic theory."

Instead of:

"Write about leadership styles"

↓

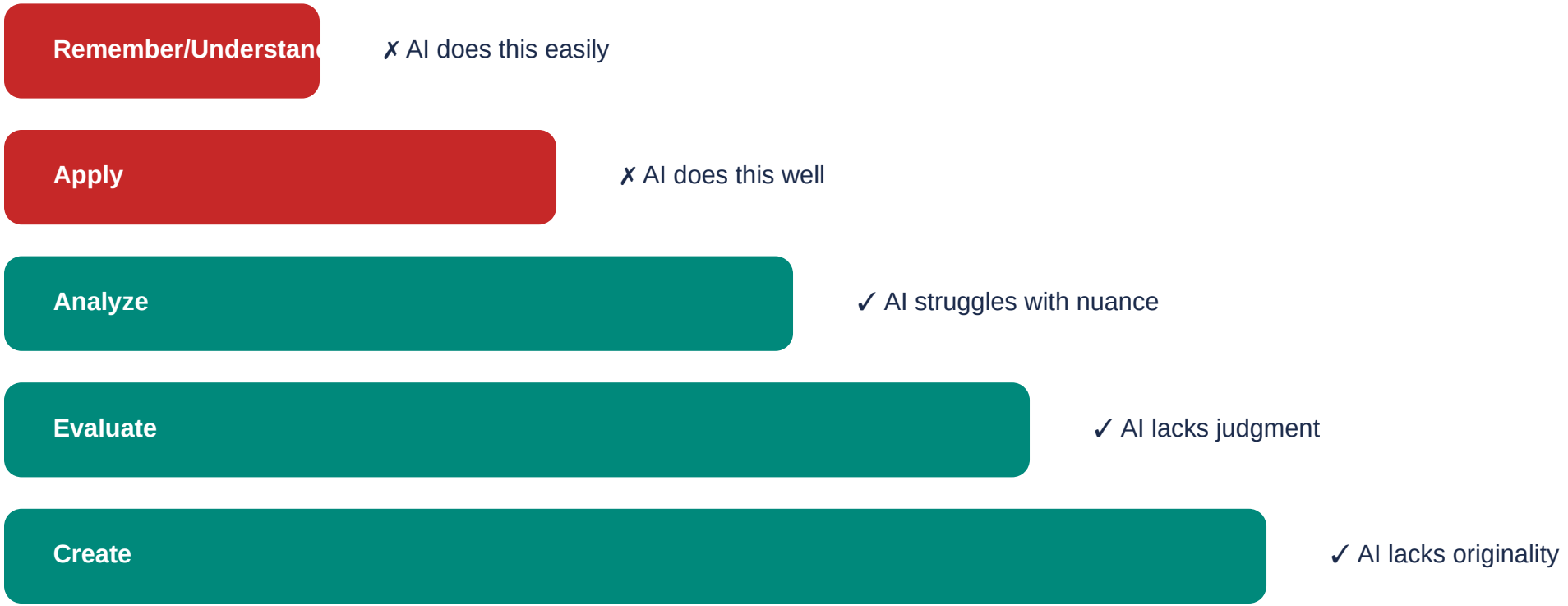
Try:

"Observe and document the leadership style of a leader in your community. Analyze using the frameworks from class."

Why it works: AI has no access to local, personal, or current lived experiences

SPEAKER NOTES:
Let me show you G in action with concrete examples. Instead of 'Analyze the effects of inflation on developing economies' -- which AI writes beautifully -- try: 'Interview 3 local business owners about how inflation has affected their business this year. Compare their experiences with macroeconomic theory.' A can't interview local business owners. Instead of 'Write about leadership styles' -- try: 'Observe and document the leadership style of a leader in your community. Analyze using the frameworks from class.' AI can't observe your community. The key: grounding assignments in personal, local, and current conte them AI-resilient because AI has no access to these experiences. The students must do real work.

E -- Elevate Cognitive Demands



GEMS Strategy: Use verbs like "evaluate," "critique," "design," "defend"
Avoid verbs like "list," "define," "summarize," "describe"

SPEAKER NOTES:
E for Elevate maps directly to Bloom's Taxonomy, which we covered on Day 1. AI excels at Remember, Understand, and Apply -- the lower levels. It can define terms, explain concepts, and solve standard problems. But AI struggles with Analyze when nuance and real-world context are involved. It lacks the needed for Evaluate. And its Create outputs lack true originality in authentic contexts. The GEMS strategy: design your assignments using higher-order verbs. Use evaluate, critique, design, defend, synthesize. Avoid list, define, summarize, describe. If your assignment prompt uses lower-order verbs, AI can If it uses higher-order verbs in authentic contexts, students must do the real thinking.

M -- Make the Process Visible

1

Draft Documentation

Require multiple drafts with annotations showing changes and reasoning

2

Reflection Journals

Students document their thinking process, decisions, and struggles

3

AI Interaction Logs

Students submit their AI conversation history as part of the assignment

4

Oral Defense

Students present and defend their work -- they must truly understand it

5

Revision Rationale

For each revision, students explain WHY they changed what they changed

When the process is assessed, not just the product, AI becomes a tool -- not a shortcut

SPEAKER NOTES:
M is Make the Process Visible. This is powerful. Five concrete strategies: Draft documentation -- require multiple drafts with annotations. Reflection journals -- students document their thinking, decisions, and struggles. AI interaction logs -- this is key: students submit their AI conversation history as part of the assignment. You can see exactly how they used AI and whether they engaged critically. Oral defense -- students present and defend their work. If they didn't truly understand it, this becomes immediately apparent. Revision rationale -- for each revision, students explain WHY they changed what they cha
you assess the process, not just the product, AI becomes a tool for learning rather than a shortcut around it.

S -- Scaffold AI Collaboration

Approach 1:

AI as Research Assistant

Students use AI to gather information, then critically evaluate and synthesize with their own analysis

Approach 2:

AI as First Draft Generator

Students use AI for a first draft, then substantially revise, add original thinking, and document changes

Approach 3:

AI as Peer Reviewer

Students complete work independently, then use AI to get feedback, and respond to that feedback critically

Assessment Requirement for All Three Approaches:

Students submit an "AI Collaboration Statement" describing: what AI tools they used, what prompts they gave, what they accepted/rejected, and what they added themselves.

SPEAKER NOTES:
S is Scaffold AI Collaboration. Three approaches for integrating AI into assignments. Approach 1: AI as Research Assistant -- students use AI to gather information, then critically evaluate and synthesize with their own analysis. Approach 2: AI as First Draft Generator -- students use AI for a rough first draft, then substantially revise, add original thinking, and document all changes. Approach 3: AI as Peer Reviewer -- students complete the work independently first, then use AI to get feedback, and respond to that feedback critically. For ALL three approaches, require an AI Collaboration Statement where student what AI tools they used, what prompts they gave, what they accepted and rejected from the AI, and what they added themselves. This makes AI use transparent, assessed, and educational.

GEMS in Action -- Before & After

BEFORE GEMS (AI can do 100% of this)

"Write a 2000-word essay analyzing the impact of social media on mental health among university students. Cite at least 5 academic sources."

GEMS Transform

AFTER GEMS (Requires genuine student work)

[G] Interview 3 students on YOUR campus about their social media habits and mental health perceptions.

[E] Evaluate whether the research literature matches their lived experiences. Where does theory align? Where does it diverge?

[M] Submit interview notes, 2 drafts with revision annotations, and a reflection on your analytical process.

[S] Use AI to find additional research. Submit your AI Collaboration Statement.

SPEAKER NOTES:
Here's the before and after. BEFORE: 'Write a 2000-word essay analyzing the impact of social media on mental health. Cite 5 sources.' AI does 100% of this in 30 seconds. AFTER, with GEMS applied: G -- Interview 3 students on YOUR campus about their social media habits. E -- Evaluate whether the res their lived experiences -- where does theory align and diverge? M -- Submit interview notes, 2 drafts with revision annotations, and a reflection on your analytical process. S -- Use AI to find additional research and submit your AI Collaboration Statement. The GEMS version develops the exact same learning objectives but requires genuine student engagement. AI can help with parts of it, but it cannot do the whole assignment. This is the paradigm shift.

Live Demo: GEMS Assignment Redesign with AI

DEMO

CRAFT Prompt for GEMS Redesign:

[C] I teach Research Methodology to 3rd-year undergrads at a university in Oman.
[R] You are an expert in AI-resilient assessment design.
[A] Redesign this traditional assignment using the GEMS framework:
Original: "Write a report comparing qualitative and quantitative research"
[F] Present as: Original Assignment | GEMS-Redesigned | Which GEMS element applies
[T] Professional, suitable for a faculty workshop demonstration.

- Watch AI apply each GEMS element to transform a traditional assignment
- You'll do this with YOUR assignment in the workshop

SPEAKER NOTES:
Now let me demonstrate GEMS redesign using AI itself as the tool. I'll use a CRAFT prompt that asks AI to act as an expert in AI-resilient assessment design and redesign a traditional assignment using the GEMS framework. The original assignment: 'Write a report comparing qualitative and quantitative res
methods.' Watch how AI applies each GEMS element to transform this. The output will show the original, the redesigned version, and which GEMS element applies to each change. This is meta -- we're using AI to design AI-resilient assignments. And in 15 minutes, you'll do the same with your own assignm
course.

Part 4

10 Active Learning Plays with AI

SPEAKER NOTES:
Transition: You now have two powerful frameworks -- CRAFT for prompts and GEMS for assignments. Let's add a third dimension: specific teaching strategies you can implement immediately. I call these 'plays' because they're ready to run, like a coach's playbook.

The AI Active Learning Playbook -- Plays 1-5

1	**AI Error Detective**	AI generates content WITH deliberate errors; students find & fix them	**Bloom's: Evaluate**
2	**Prompt Engineering Challenge**	Students compete to write the best prompt for a given task	**Bloom's: Create**
3	**Comparative Analysis**	Students and AI analyze the same case; class compares approaches	**Bloom's: Analyze**
4	**AI Debate Partner**	AI argues one position; students must argue the opposite with evidence	**Bloom's: Evaluate**
5	**Reverse Engineering**	Given an AI output, students figure out what prompt created it	**Bloom's: Analyze**

SPEAKER NOTES:
Here are Plays 1 through 5. Play 1, AI Error Detective: deliberately ask AI to generate content with errors -- tell it to include 3 mistakes. Students must find and fix them. This builds critical evaluation skills. Play 2, Prompt Engineering Challenge: give students a task and have them compete to write the best prompt. They learn both the subject matter and prompt engineering. Play 3, Comparative Analysis: give the same case study to both students and AI. Then compare approaches in class. Where did AI miss nuance? Where did students miss breadth? Play 4, AI Debate Partner: AI argues one position, studen opposite with evidence. Develops argumentation and critical thinking. Play 5, Reverse Engineering: show students an AI output and ask them to figure out what prompt created it. This develops deep understanding of both the content and AI capabilities.

The AI Active Learning Playbook -- Plays 6-10

6	**Socratic AI Tutor**	Students use AI set to only ask questions, never give answers	**Bloom's: Analyze**
7	**AI-Assisted Peer Review**	AI generates feedback criteria; students use them for peer review	**Bloom's: Evaluate**
8	**Concept Translation**	Students explain a topic; AI translates to different audience levels	**Bloom's: Understand+**
9	**AI Case Study Generator**	AI creates discipline-specific scenarios; students solve them	**Bloom's: Apply/Analyze**
10	**AI Reflection Journal**	Students document weekly AI interactions & learning insights	**Bloom's: Create**

SPEAKER NOTES:
Plays 6 through 10. Play 6, Socratic AI Tutor: give AI the instruction to only ask questions, never give answers. Students must reason through problems themselves. Play 7, AI-Assisted Peer Review: AI generates the feedback criteria and rubric, then students use those criteria to review each other's work. T doesn't do the review -- it structures it. Play 8, Concept Translation: students explain a concept, then AI translates it for different audiences -- a child, a professional, a peer. Students evaluate which translation is best and why. Play 9, AI Case Study Generator: AI creates realistic, discipline-specific case studies on demand. Infinite practice scenarios. Play 10, AI Reflection Journal: a semester-long activity where students document their AI interactions, what they learned, and how their AI use evolved. This builds metacognition. You don't need all 10 -- pick 2 or 3 that fit your course and start there.

Play Deep Dive: AI Error Detective

One of the most powerful active learning strategies with AI

Setup

Prompt AI: 'Generate an explanation of [topic] that contains 3 factual errors. Do not identify which parts are wrong.'

Activity

Students read the AI output and identify the errors.
They must explain WHY each is wrong and provide corrections.

Discussion

Class compares findings. Did everyone catch the same errors?
Were there additional subtle errors the AI didn't intend?

Reflection

Students reflect: 'What did this teach me about critical evaluation of AI-generated content?'

Develops: Critical thinking | AI literacy | Subject mastery | Healthy skepticism

SPEAKER NOTES:
Let me walk through AI Error Detective in detail because faculty love this one. Setup: you prompt AI to generate an explanation that contains 3 factual errors, without identifying which parts are wrong. Activity: students read the output and must identify the errors, explain why each is wrong, and provide corrections with sources. Discussion: the class compares findings -- this is where it gets rich. Students often catch different errors, and sometimes they find errors the AI didn't intentionally include -- real hallucinations. Reflection: students write about what this taught them about evaluating AI content. This single activity develops critical thinking, AI literacy, subject mastery, and healthy skepticism. It works in ANY discipline. Try it with a topic from your course.

Play Deep Dive: Prompt Engineering Challenge

1. Define the Task

Choose a subject-specific task: 'Get AI to create a rubric for
a persuasive essay that assesses both content and argumentation'

2. Students Write Prompts

Each student (or team) writes their best prompt
using the CRAFT framework

3. Run All Prompts

Show 3-4 prompts live -- run them through AI on screen
and compare the outputs

4. Class Votes

Which output is most useful? Why?
What made that prompt better than the others?

Why this works: Students learn the subject matter deeply because they must understand it well enough to engineer a prompt that produces excellent output.

SPEAKER NOTES:
The Prompt Engineering Challenge is brilliant because it teaches subject matter AND AI skills simultaneously. Step 1: define a subject-specific task that has a clear quality bar. Step 2: students write their best CRAFT prompts individually or in teams. Step 3: run 3-4 prompts live on screen and compare the A
outputs side by side. Step 4: class votes on which output is most useful and discusses why. The deeper insight: to write a great prompt about rubric design, students must deeply understand what makes a good rubric. To write a great prompt about research methodology, they must understand research met
prompt becomes a vehicle for deep learning. You can run this in 15 minutes and it generates incredible discussion.

INTERACTIVE MOMENT

Which play would work best in YOUR classroom?

Think about your specific course, your students, your challenges.

Type in the chat: the play number + your course name
Example: "Play 1 (Error Detective) -- Introduction to Sociology"

1-Minute Quick Response | Type in Chat

SPEAKER NOTES:
Quick interactive moment. Ask participants to type in the chat which play they'd try first and for which course. Give them 60 seconds. Read out 3-4 responses and briefly comment on why that's a great fit. This serves two purposes: it gets them thinking about application to their own context, and it creates a s
resource in the chat that everyone can see. You might say something like: 'I see Play 3, Comparative Analysis, for a Marketing course -- that's perfect because you could have students and AI both analyze a real ad campaign.' Keep it energetic and brief -- 2 minutes total.

Workshop Time

Redesign YOUR Lesson with AI

Time to put it all together!

SPEAKER NOTES:
Transition: This is what you came for. You have the frameworks -- CRAFT, Flipped+AI, GEMS, and 10 Active Learning Plays. Now let's apply them to YOUR course. Remember the homework from yesterday: bring a lesson topic you'd like to redesign. Let's do this.

YOUR TURN!

Hands-On Workshop | 15 Minutes

1. Open ChatGPT or Claude (links in chat)
2. Choose ONE of the following tasks:

A) Use CRAFT to write a prompt for your lesson topic

B) Use GEMS to redesign one of your current assignments

C) Build a flipped learning module for your next class

3. Use the prompt templates on the next slide
4. Be ready to share your redesign with the group

SPEAKER NOTES:
This is the heart of Day 2 -- hands-on application. Give participants 15 minutes. They choose ONE of three tasks: A) Use CRAFT to write a prompt for their lesson topic, B) Use GEMS to redesign a current assignment, or C) Build a flipped learning module. Share the links and prompt templates in the Google
Walk around virtually -- check the chat frequently for questions. At the 5-minute mark, do a check-in. At the 10-minute mark, warn them to start wrapping up. At the 12-minute mark, ask for volunteers to share. The goal: every participant leaves with at least one tangible redesigned artifact they can use in the
next class.

Workshop Prompt Templates -- Copy & Customize

Template A: CRAFT Lesson Design

[C] I teach [SUBJECT] to [LEVEL] students. [CONTEXT].
[R] You are an expert [DISCIPLINE] educator.
[A] Create a [DURATION]-minute lesson plan including Bloom's-aligned objectives.
[F] Table format: Time | Activity | Bloom's Level | Materials.
[T] Professional, practical, ready to implement.

Template B: GEMS Assignment Redesign

[C] I currently assign: [PASTE YOUR CURRENT ASSIGNMENT].
[R] You are an expert in AI-resilient assessment design.
[A] Redesign this using the GEMS framework (Ground, Elevate, Make visible, Scaffold).
[F] Show: Original | GEMS Redesign | Which element applies.
[T] Academic, suitable for a university syllabus.

Template C: Flipped Module

[C] My next class topic is [TOPIC] for [LEVEL] students.
[R] You are a flipped learning specialist.
[A] Design a complete flipped module: pre-class materials, in-class activities, post-class.
[F] Three sections with timing, resources, and Bloom's levels.
[T] Clear, organized, teacher-friendly.

SPEAKER NOTES:
Share these three templates in the Google Meet chat so participants can copy-paste them directly. Template A is for CRAFT lesson design -- they fill in their subject, level, context, and duration. Template B is for GEMS assignment redesign -- they paste their current assignment and the AI transforms it. Tem is for building a flipped module. Encourage them to pick just one template and customize it with their own course content. The brackets show what to replace. Remind them: these are starting points. They should refine the AI output just like we demonstrated. The goal is not a perfect product in 15 minutes -- experiencing the process.

Group Sharing & Discussion

5 Minutes | Share Your Redesign

"What did you redesign?"

"Which framework did you use -- CRAFT, GEMS, or Flipped?"

"What will you use in your next class?"

SPEAKER NOTES:
Get 3-4 volunteers to share. For each person, ask the three questions on screen: What did you redesign? Which framework did you use? What will you use in your next class? Validate every contribution. If someone used GEMS, highlight which element was most impactful. If someone built a flipped module they found most valuable. If someone struggled, that's also valuable -- ask what they'd do differently and offer quick suggestions. The sharing creates a sense of community and cross-pollination of ideas across disciplines.

Key Takeaways from Day 2

1

CRAFT transforms prompts from mediocre to excellent:
Context | Role | Action | Format | Tone

2

Flipped + AI = more class time for higher-order thinking
Pre-class, In-class, Post-class all enhanced by AI

3

GEMS makes assignments AI-resilient:
Ground | Elevate | Make visible | Scaffold

4

10 Active Learning Plays give you ready-to-use strategies
Pick 2-3 and start experimenting

SPEAKER NOTES:
Four key takeaways. First, CRAFT transforms your prompts from mediocre to excellent -- Context, Role, Action, Format, Tone. Use it every time you prompt AI. Second, Flipped plus AI frees class time for higher-order thinking by using AI for all three phases: pre-class content curation, in-class acceleration, post-class reflection. Third, GEMS makes your assignments AI-resilient: Ground in personal context, Elevate cognitive demands, Make the process visible, Scaffold AI collaboration. Fourth, you now have 10 active learning plays -- pick 2 or 3 that fit your course and start experimenting. You don't need all 10 small, iterate, and build your confidence.

COMING UP NEXT

Day 3: AI-Powered Assessment & Evaluation + Ethics

- AI-Powered Grading and Feedback Tools
- Designing Authentic Assessments for the AI Era
- AI Ethics: Bias, Privacy, and Academic Integrity
- Building Your AI Policy Statement

HOMEWORK: Bring one assessment (exam, assignment, or rubric) that you'd like to redesign for the AI era

SPEAKER NOTES:
Preview of Day 3 -- the big finale. We'll cover AI-powered grading and feedback tools that can save you hours. We'll design authentic assessments for the AI era -- building on GEMS. We'll tackle the ethics head-on: AI bias, data privacy, and academic integrity. And you'll walk away with a draft AI policy state for your syllabus. The homework: bring one assessment -- an exam, assignment, or rubric -- that you'd like to redesign. We'll work on it live. Day 3 is where everything comes together: the frameworks from Day 1, the methodologies from Day 2, and the assessment and ethics focus of Day 3.

Thank You!

Roshni Mohandas

AI & Data Science Expert | Educator | Entrepreneur

Today You Learned: CRAFT + Flipped AI + GEMS + 10 Plays

Questions & Discussion

See you tomorrow for Day 3!

SPEAKER NOTES:
Wrap up with energy. Recap what they accomplished today: they mastered prompt engineering with CRAFT, learned how AI supercharges flipped learning, applied the GEMS model to make assignments AI-resilient, and got 10 active learning plays for their toolkit. Remind them of homework: bring one asse
to redesign. Open the floor for 2-3 questions. Thank the organizers and participants. Remind them: Day 3 tomorrow, same time, same place. Day 3 brings it all together with assessment, grading tools, and the ethics conversation. See you tomorrow!