

Intentional Infusion of AI

Course Subject:	Human-Machine Systems (HMS)
Student Level:	Senior
Number of Students:	60
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What Students Did

Students were allowed to use generative AI to help them prepare (in teams) an “Expert Seminar” that they delivered to classmates. Each team selected from 28 established Human-Systems integration topics with a goal of becoming “experts” in their topic and teaching the class about the subject matter in a ~15-minute module that included an educational activity. Content was required to be based on properly referenced scholarly research. Students were asked to reflect on the value of AI tools in the process of preparing their Seminars. Part of the Expert Seminar assignment required the students to outline all the tools they used, from AI to scholarly resources. They needed to provide the name of the AI tools and the exact prompts they used, along with a full list of their research references.

Learning Goals and Purpose

The learning goals for this activity were for the students to:

- Develop expertise in a Human-Systems Integration construct related to course content.
- Prepare and deliver a teaching module that educates and engages the class using learning principles and examples covered in the course.
- Incorporate and infuse productive use of generative AI into the process of exploring HMS topics and organizing presentations.
- Rely on and refer to scholarly research and share findings with the class in a relatable, organized, engaging, memorable and applicable manner.

Assessment

There were two components to the assessment process. First, presentations were graded according to several criteria that aligned with academic course outcomes. Second, the instructor administered a qualitative survey to gather students' impressions of using AI in their work. The primary prompt for the survey was:

Consider the effect that using generative AI had on your Expert Seminar development and delivery; what aspects of using the tool were effective and helpful? What aspects were concerning or less effective?

Responses were received from 56 out of 60 students, who offered 115 suggestions for how AI was an effective tool in their seminar preparation and 121 suggestions for how it was ineffective. Analysis of these responses is summarized in the document titled Human-Machine Systems Survey Analysis (see related materials below).

Faculty Reflections

It was encouraging to see our engineers owning their seminars, exploring, exercising discretion, and making up their own minds about their use of AI. They evaluated its expediency, authenticity, and value in the process. Further, they reflected on their own creativity and potential biases, and considered the temptations of yielding to unvetted AI-based compositions as they filtered through benefits and limitations that AI-generated offerings might present. This approach encouraged student autonomy and critical thinking. It also highlighted the importance of understanding AI's capabilities and implications in their own usage profiles and decision-making processes.

Step-by-Step Directions

Step 1	Topic Selection <ul style="list-style-type: none">● Review the list of 28 established topics and select the top 7 of interest to your team.● Use the starter links and resources provided for each topic area. You may use generative AI to explore topics and narrow down your interests.● Topics will be selected by each team when we meet in Lab, a different one for each group.
Step 2	Exploration, Reflection, and Ideation <ul style="list-style-type: none">● Once you have selected your Seminar topic and have explored it, brainstorm effective learning activities.● Reflect on previous experience with effective learning activities, especially those from this class, to devise an activity you think will engage your classmates.
Step 3	Seminar Research and Preparation <ul style="list-style-type: none">● Use Lab time to research, create an outline, and develop an educational activity. During this time, consult with Professor Jaeger-Helton on your ideas.● At this point you MAY use any generative AI to explore and help prepare your presentation and talking points. Take every opportunity to learn from these sources in this case, provided you trust and/or verify their validity. Assignment Guidelines <ul style="list-style-type: none">● Provide a list of at least 5 distinct prompts that you/your team entered into the AI tool (that were successful).● State which tool you used in your AI search(es).● All additional (re)sources must be in LINK format and be accessible for inspection.

	<ul style="list-style-type: none"> ● Do not use ANY notes when presenting; thoroughly understand your information so that you can summarize the findings and big ideas in 3-4 minutes. ● Slides should not be text-heavy; they should enhance and illustrate the presentation.
Step 4	<p>Conduct Seminar and Activity</p> <ul style="list-style-type: none"> ● Present the Seminar to the class using PowerPoint without notes. ● Conduct the learning activity during the seminar.
Step 5	<p>Reflection on the Value of Using Generative AI</p> <p>In Top Hat [online response platform] – Consider the effect that using generative AI had on your Expert Seminar development and delivery and respond to the following prompts:</p> <ul style="list-style-type: none"> ● What aspects of using the tool were effective and helpful? ● What aspects were concerning or less effective?

Related Materials

- [Jaeger-Helton 10.3 Labs 7-9 Expert Seminars ASMT HMS Sp 24](#)
- [Human-Machine Systems Survey Analysis](#)