



**GRAY**<sup>TM</sup>  
DECISION INTELLIGENCE

# The AI Advantage

*Driving Insights, Student Success, and Institutional Efficiency*

September 17, 2025

## Today's Moderator



**Mary Pahissa Upchurch**  
**Executive Vice President**  
**Customer Success**





**“AI as a tool in music-making is fine, but it’s always going to be the humanity in music that makes people want to listen to it.”**

– Jacob Collier

# Embracing Innovations: Advanced Analytics and AI in Higher Education



## Research, Planning & Analysis

Value Proposition and Pricing  
Enrollment Probability and Forecasting  
Predict Program Size  
Pro Forma Financials  
AI Agents for Analysis, Strategy and Insights



## Academics & Students



Course Companion  
Career Companion  
Communication Companion



## Operations and Marketing

Location Optimization  
Geographic Marketing Optimization

## **Advanced analytics and artificial intelligence have many applications in Higher Education.**

It can help answer questions like:

- How will changes to our institution's value proposition and pricing affect program demand and margin?
- Where should I launch a new campus or site, or target marketing and recruiting efforts?
- How many students will enroll in the next term/academic year?
- What admissions activities lead to a higher probability of enrollment?
- How do I predict size for a new program, and how much opportunity is there for my current programs?
- How can AI help student learning and outcomes?
- How can I use Artificial Intelligence to help analyze and democratize data?

## Our Presenters



**G. James Daichendt**  
Provost  
Chief Academic Officer



**Dr. Justin "Jay" Miller**  
Dean  
Social Work



**Elaine Millar**  
Associate Vice President  
Research



**Elaine Millar**  
**Associate Vice President**  
**Research**





**“You don’t have to be an AI expert, but you must be an AI explorer.”**

– Andrew Ng, Founder of Coursera, AI Pioneer

## **Use Case: Literature Search**

**AI Tool: Google Gemini Deep Research**

what types of new academic degree programs will be emerging over the next five to ten years?

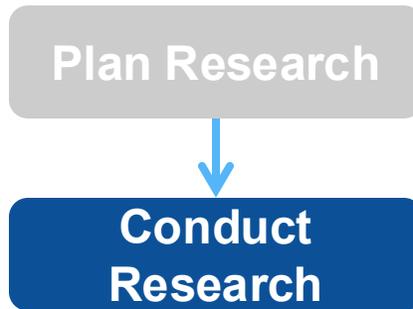
## Use Case: Literature Search

### Plan Research

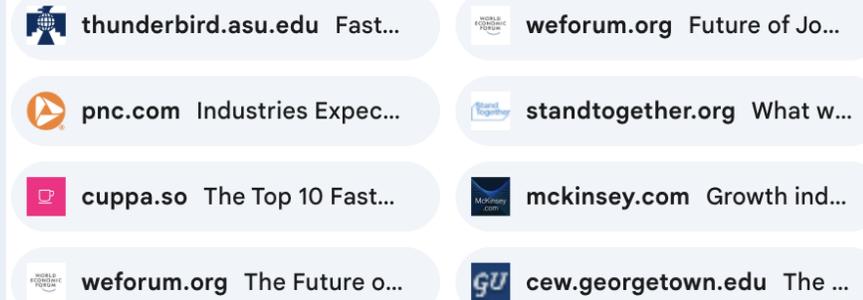
what types of new academic degree programs will be emerging over the next five to ten years?

- (1) **Research current trends and future projections** in technology, such as artificial intelligence, biotechnology, and renewable energy, to identify potential new academic degree programs.
- (2) **Investigate evolving societal needs and challenges**, including climate change, healthcare innovation, and social justice, that might lead to the development of new academic fields of study.
- (3) **Analyze emerging industries and the skills and knowledge** they will likely demand in the next five to ten years to anticipate related academic programs.
- (4) **Investigate pressing global challenges** such as climate change, cybersecurity, and ...

## Use Case: Literature Search



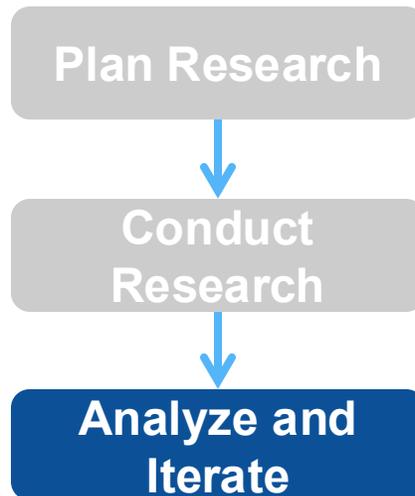
### Researching websites



### Technology's Growing Influence

*I'm noticing a strong trend in the job market towards technology-related roles, especially fields like AI, big data, cybersecurity, and software development. This suggests we'll likely see more specialized academic programs in these areas, possibly with a focus on specific AI applications or ethical considerations surrounding these technologies. The importance of skills like data analysis and digital literacy across various professions also indicates that future programs will probably integrate...*

## Use Case: Literature Search



### **Societal Needs Drive New Programs**

*I've observed that significant societal challenges like climate change, the need for innovation in healthcare, and the focus on social justice are leading development of new academic programs...*

### **Next Steps: Deeper Program Analysis**

*To gain a more detailed understanding of these emerging programs, I will now examine specific curricula and focus of climate change programs at ...*

 [highereducationdigest.com](http://highereducationdigest.com)

 [graduate.northeastern.edu](http://graduate.northeastern.edu)

 [sites.arizona.edu](http://sites.arizona.edu) How AI I...

 [awis.org](http://awis.org) How Universities ...

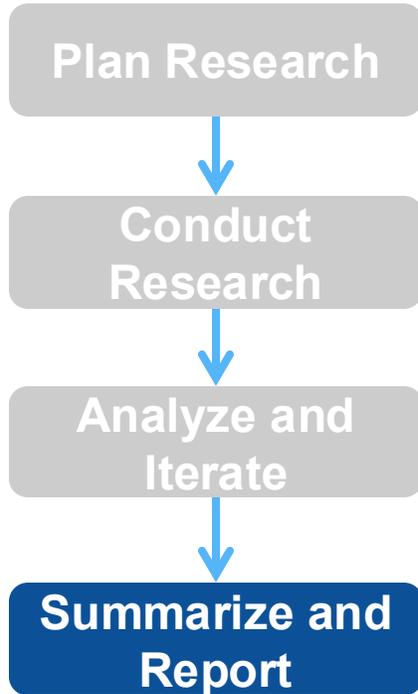
 [unthsc.edu](http://unthsc.edu) Biotechnology...

 [temple.edu](http://temple.edu) Biotechnology...

### **AI and Biotech Specializations**

*I'm noticing that universities are increasingly offering specialized programs in Artificial Intelligence and Biotechnology. In AI, the focus is shifting towards practical applications and development, while in Biotechnology...*

# Use Case: Literature Search



## The Future of Higher Education: Emerging Academic Degree Programs Over the Next Decade

### I. Executive Summary

The landscape of higher education is on the cusp of significant transformation, driven by rapid technological advancements, evolving societal needs, and a dynamic global economy. This report analyzes the emerging trends that will shape academic degree programs over the next five to ten years, identifying key areas where new curricula are likely to develop. The pervasive influence of artificial intelligence across industries necessitates a workforce equipped with specialized AI skills and ethical understanding. The burgeoning fields of biotechnology and renewable energy are demanding professionals with focused expertise to power future innovation and sustainability efforts. Simultaneously, pressing societal challenges such as climate change, healthcare innovation, and the pursuit of social justice are fostering the growth of academic programs designed to address these complex issues. The traditional structure of academic disciplines is also evolving, with interdisciplinary studies gaining prominence and established fields adapting through specialization and convergence. Furthermore, the increasing impact of automation and artificial intelligence on the job market underscores the critical need for higher education to prepare graduates with the skills demanded in this changing environment. By understanding these emerging trends, institutions can strategically develop new academic programs to remain relevant, attract future students, and contribute meaningfully to addressing the challenges and opportunities of the coming decade.

### II. The Technological Imperative: Degrees for an AI-Driven World

#### A. The Pervasive Influence of Artificial Intelligence:

Artificial intelligence is no longer a futuristic concept but a tangible force reshaping industries across the globe 1. From personalized learning experiences and streamlined administrative tasks in education 3 to revolutionizing healthcare, finance, and manufacturing 1, AI's impact is far-reaching. Its rapid evolution touches nearly every discipline at academic institutions, influencing research methodologies and course design 4. The widespread adoption of AI-powered automation necessitates a workforce with advanced protection skills in cybersecurity 1, proficiency in AI and machine learning 6, and the ability to develop and implement AI solutions across various sectors 9. This demand extends beyond traditional technology companies, as businesses in healthcare, finance, and even the arts are increasingly integrating AI into their operations, creating a broad need for AI-literate professionals 10. The transformative potential of AI presents both opportunities and challenges for higher education, requiring institutions to adapt their curricula to prepare students for an AI-driven world 3.

artificial intelligence  
ams combining AI  
rhythmic trading and  
ss optimization 34.  
disciplines, such as  
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#### Program Launches:

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Education launched the  
master's program  
tion in education 79.

## Use Case: Literature Search

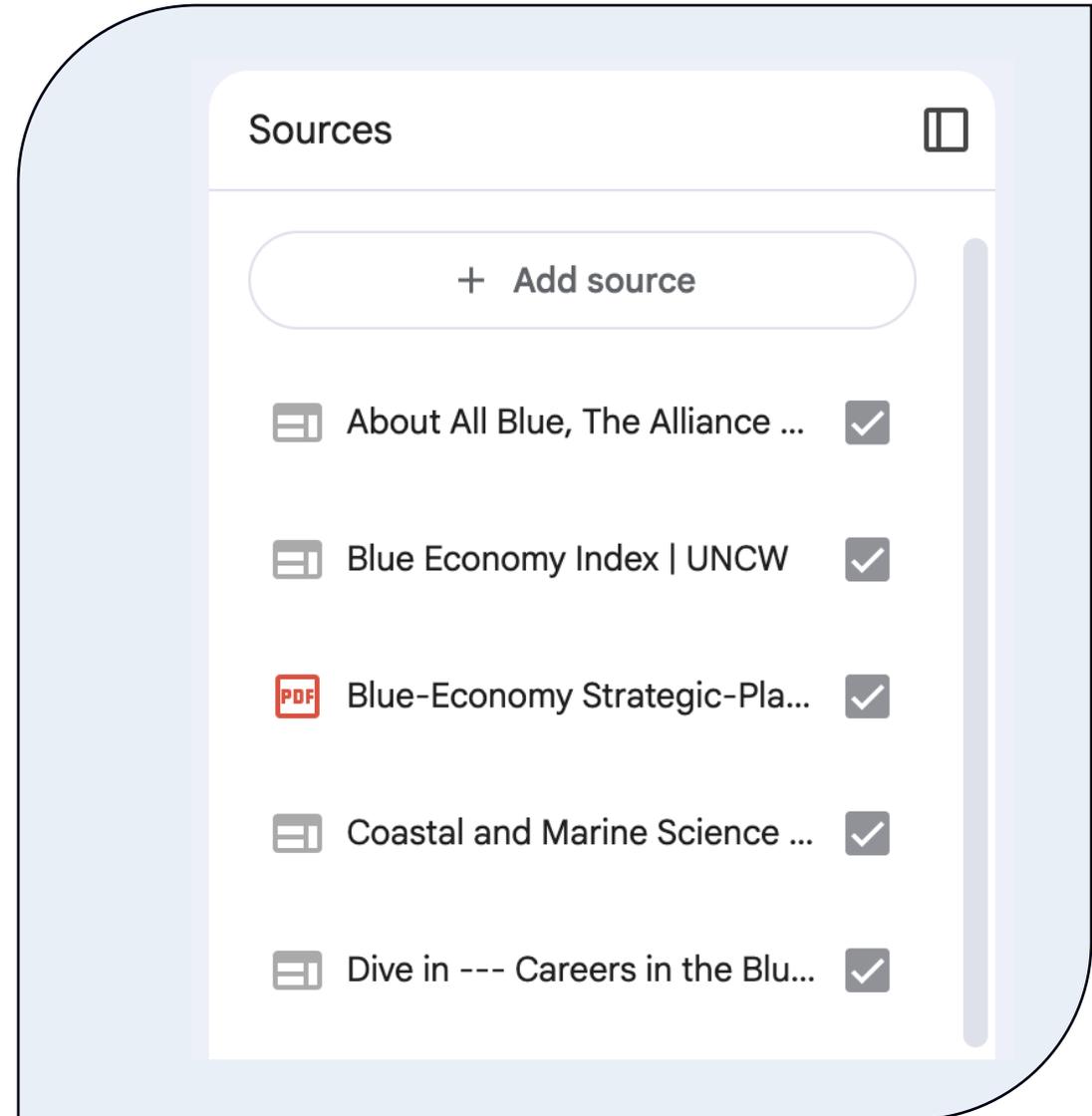
- **12 minutes**
- **674+ websites consulted**
- **109 sources cited**
- **11-page research report**

## Use Case: Focused Research

AI Tool: Notebook LM

Load Data

# The Blue Economy



## Use Case: Focused Research

Load Data

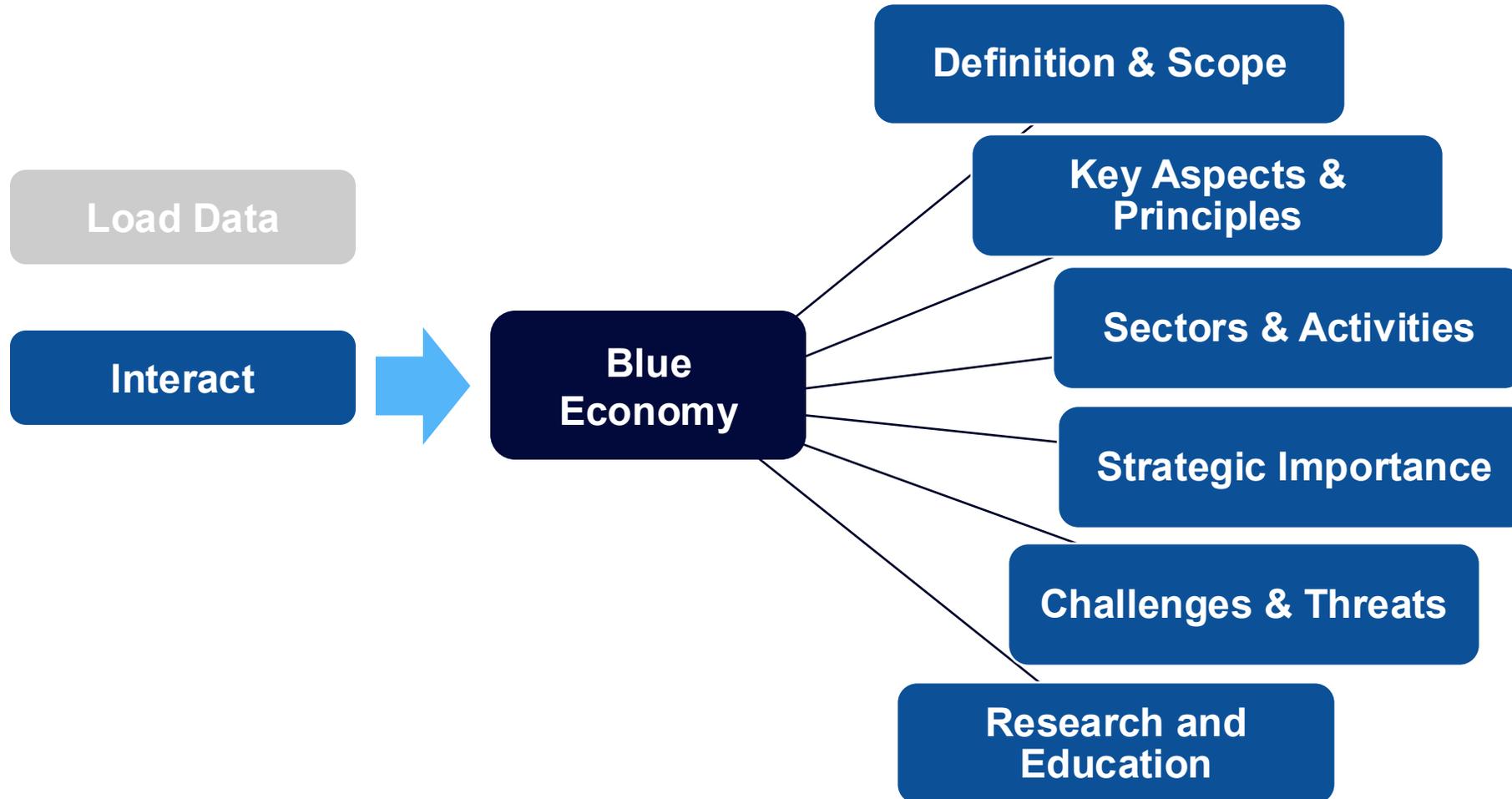
Interact

### *What colleges and universities are involved in research and programs?*

Based on the provided sources and our conversation history, several colleges and universities are involved in research and programs related to the Blue Economy:

- **UNC Wilmington (UNCW)** is heavily involved in various aspects of the Blue Economy <sup>1</sup> ...
  - It has established the **Alliance for the Blue Economy ("All Blue")**, a multidisciplinary initiative to establish Wilmington and southeastern North Carolina as a leader in the Blue Economy <sup>1</sup>.
  - UNCW is home to over **100 faculty members engaged in marine sciences and ocean/coastal preservation**, making it a key institution for advancing Blue Economy science and technologies <sup>2</sup> ...
  - It developed the **UNC Wilmington Blue Economy Index** in collaboration with its Center for Innovation and Entrepreneurship (CIE), the Cameron School of Business, and FactSet, aiming to measure economic activities in oceans and waterways with an environmental focus <sup>4</sup> ...
  - UNCW collaborates with **NCPorts** for commercial application and deployment and **Cape Fear Community College** for workforce training in the Blue Economy <sup>2</sup>. These are listed as partners of All Blue <sup>9</sup>.

## Use Case: Focused Research



## Use Case: Focused Research



## Use Case: Focused Research

Load Data

Interact

**Summarize**



 Study guide

 Briefing doc

 FAQ

 Timeline

### Understanding the Blue Economy: Core Principles and Opportunities

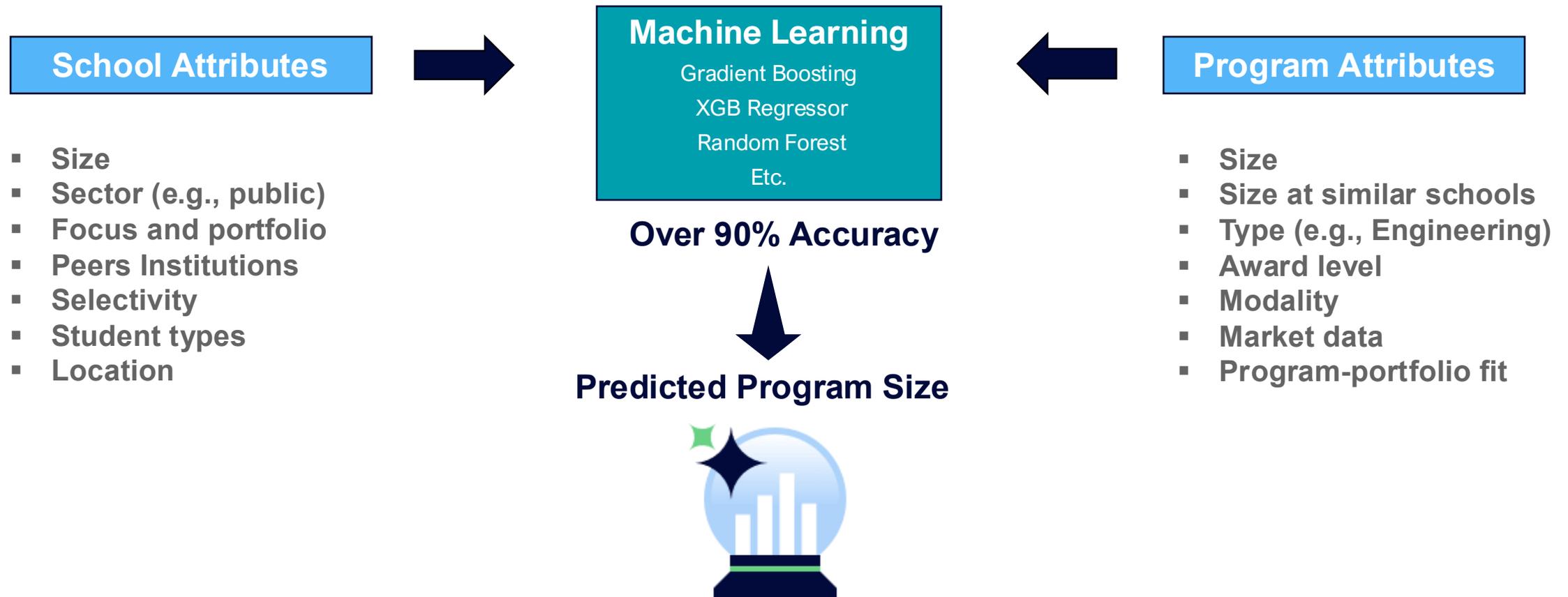
**1. What is the Blue Economy and what are its core principles?** The Blue Economy encompasses economic activities associated with oceans, seas, and coastal regions. While there isn't one universally agreed-upon definition, it broadly relates to a *sustainable* ocean economy. Core principles include utilizing marine resources for economic growth, improved livelihoods, and jobs, while simultaneously preserving the health of marine ecosystems. This interdisciplinary field seeks to balance economic development with environmental conservation, often emphasizing clean technologies, renewable energy, and circular material flows to reduce waste and promote recycling. Activities within a blue economy should provide social and economic benefits for current and future generations, and restore, protect, and maintain the diversity, productivity, resilience, core functions, and intrinsic value of marine ecosystems.

**2. What are some key sectors and opportunities within the Blue Economy?** The Blue Economy encompasses a wide range of established and emerging sectors. Key areas include:

- **Marine Living Resources:** Sustainable fisheries and aquaculture, marine biotechnology and bioprospecting (pharmaceuticals, cosmetics, etc.).
- **Marine Non-Living Resources:** Offshore minerals, oil and gas (with increasing focus on sustainable extraction), and renewable ocean energy (wind, wave, tidal).
- **Marine Transportation and Trade:** Shipping, shipbuilding, ports and related services, marine navigation.
- **Coastal Tourism and Recreation:** Eco-friendly tourism, recreation facilities, maritime museums.
- **Marine Research and Education:** Scientific research, educational programs, marine

## Use Case: Predictive Analytics

### AI Tool: Gray DI Predict Program Size



## Use Case: Predictive Analytics

How large could this program be?

### Bachelor's Degree in Cinematography Program Size Predictions - Completions at Maturity

CIP (Bachelor's)	Institution	2023 Graduates	Status
50.0602 Cinematography and Film/Video Production	Small-Medium Size, Art and Design Focus	850	New Program
50.0602 Cinematography and Film/Video Production	Large, State University Broad Portfolio	2,930	New Program

## Use Case: Predictive Analytics

**A smaller school with an arts focus can produce 3x the completions of a larger state school.**

**Bachelor's Degree in Cinematography**  
 Program Size Predictions - Completions at Maturity

CIP (Bachelor's)	Institution	2023 Graduates	Status	On-Ground Prediction	Online Prediction	Both Prediction
50.0602 Cinematography and Film/Video Production	Small-Medium Size, Art and Design Focus	850	New Program	<b>76</b>	<b>75</b>	<b>75</b>
50.0602 Cinematography and Film/Video Production	Large, State University Broad Portfolio	2,930	New Program	22	26	24

## Use Case: Predictive Analytics



Predicted  
Size

+



Benchmark Cost  
per Student

=

**Pro Forma Financials**

# Program Opportunity

Bachelors: 50.0602 Cinematography and Film/Video Prod  
On-Ground  
4-Year Program

Year 3

96

\$0.80M

\$2.10M

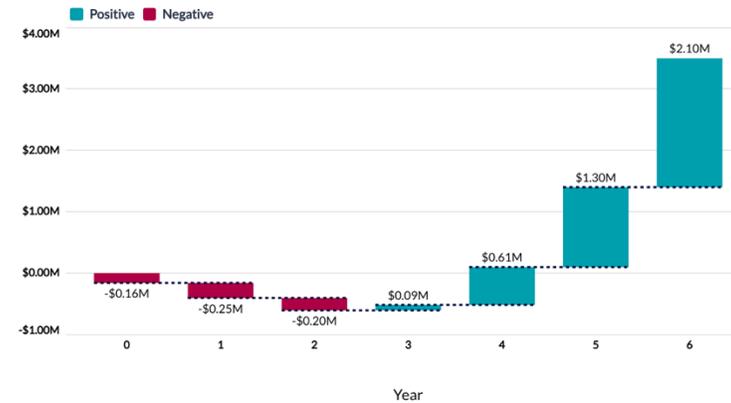
Breakeven Point

Enrollment at Maturity

Gross Margin at Maturity

Cumulative Cashflow

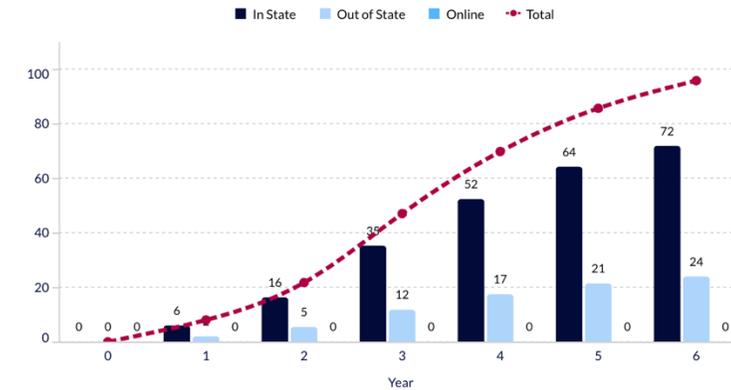
Cumulative Cash Flow by Year



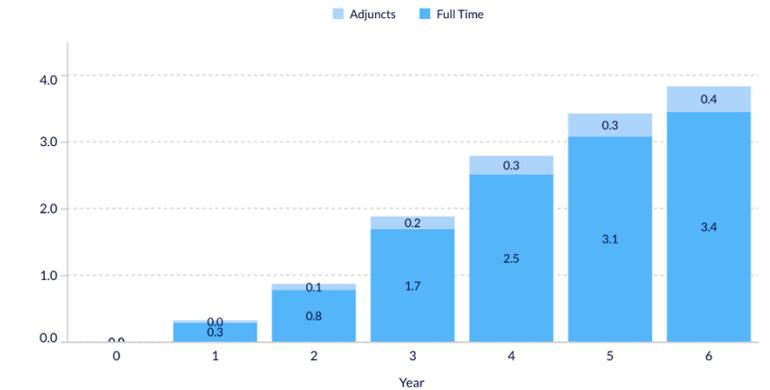
Year 6 Margins



Enrollment by Year



Faculty & Adjunct FTEs by Year



**Use AI tools to...**

**Find information**

**Organize and summarize information**

**Use data to inform decisions**

***And don't forget to validate!***



**Dr. Justin “Jay” Miller**  
**Dean**  
**College of Social Work**  
**Dorothy A. Miller Research**  
**Professor in Social Work Education**





University of  
Kentucky

DO  
MORE  
BE  
MORE

# Overview



What We Know



What We Did



What We Found



What It Means

# What We Know

## The New, New Frontier: AI

- AI is EVERYWHERE.
- Misnomers, Misperceptions, Myths  
Experiences
- Lack of awareness/knowledge



# What We Did

## The Problem: Operational Efficiency

- Growing/Evolving Operations
- Personnel
- Initiatives



# What We Did

## Use Case: Research Ops

- Reframe
- Rename
- Reclaim



# What We Found

## Ongoing Outcomes

- Efficiency Increases
- Wellness Impact
- Production Increases



# What It Means

## Practices, Protocols, & Possibilities

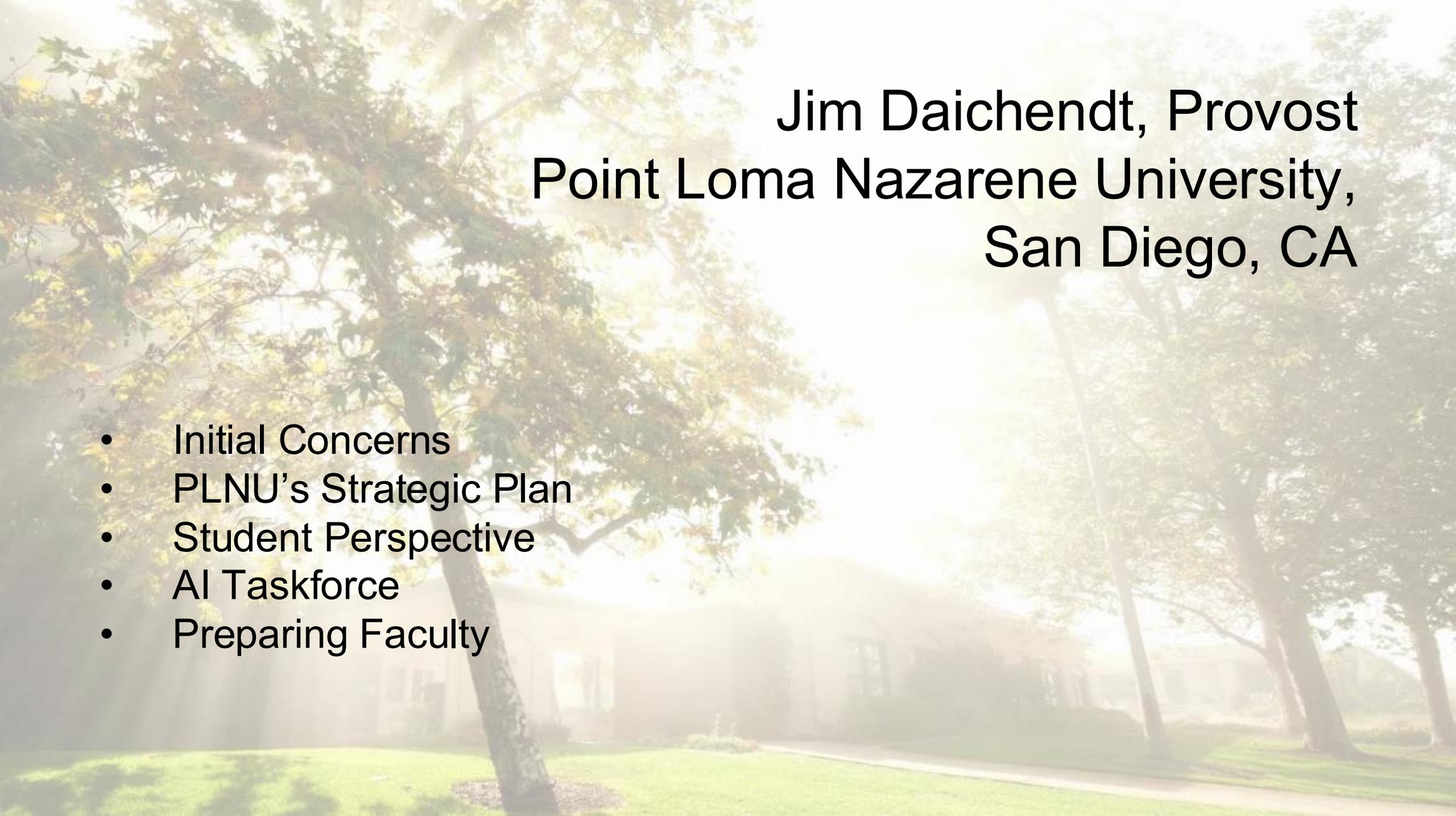
- The “Sell” Is Imperative
- Understand via Personification
- Closed-System AI (Safeguards)
- Avoid “Shiny Toy” Syndrome





**G. James Daichendt**  
**Provost**  
**Chief Academic Officer**





Jim Daichendt, Provost  
Point Loma Nazarene University,  
San Diego, CA

- Initial Concerns
- PLNU's Strategic Plan
- Student Perspective
- AI Taskforce
- Preparing Faculty

## Initial Concerns

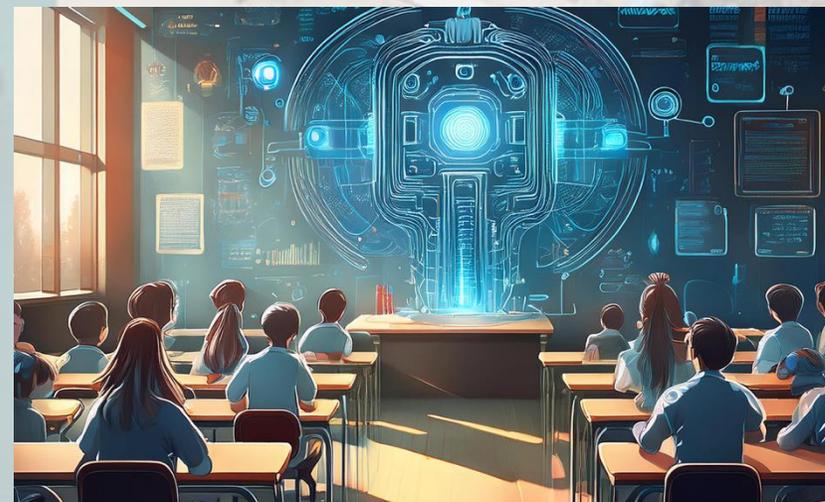
- Speed of utilization
- Hesitation or resistance
  - Workshop(s)
- How do we use AI as a tool for teaching and learning?

## Strategic Plan

- Tomorrow's Academy
  - PLNU's strategic goals
- Employer data (graduates equipped to use AI)

## Student Perspective

- Initially a tool to create
- Uptick in academic misconduct cases



## **AI Taskforce**

- ITS, Office of Educational Effectiveness, Academic Affairs, Office of Technology, Center for Teaching and Learning, Online and Hybrid Education, Educational Access Center, and Faculty Representation (TUG, AUG, & GPS)

## **Urgent need to have a campus wide discussion**

- Policy recommendations
  - Data governance (privacy, security, transparency and accountability)
  - Inclusive and equitable access
  - Professional development (training and support)
  - Academic integrity
  - Clear communication to students regarding AI expectations
  - Developing student AI competencies and skills/workforce preparation
  - Learner accessibility

## **Preparing Faculty**

- Faculty teaching faculty
  - What are some ways we can use AI in your classes?

## Examples: Using AI for Class Prep

### Remember:

- An LLM is trained on massive amounts of text data, learning patterns and structures of language
- It works by predicting what words or phrases are most likely to come next
- They are trained on data that may contain biases or errors

### Some ways to get the high-quality responses:

- Be clear and specific
- Check multiple sources
- Understand the limitations, especially memory within a conversation
- Practice critical thinking

**JM** I'm planning an online machine learning with Python course and I need to write learning outcomes. The course is five weeks long and I have a list of topics per week. Help me write the learning outcomes using verbs from Bloom's taxonomy for each week. Keep in mind that each week finishes with a project covering the topics, except for the last project which encompasses the whole course. Here's the list of topics with a project at the end of each week:

Here are the learning outcomes for each week of the online machine learning with Python course, using verbs from Bloom's taxonomy:

Week 1: Introduction to Python and Colab

- Explain the fundamental concepts of Python programming language.
- Implement basic Python scripts in Colab.
- Manipulate numerical data using NumPy.
- Visualize data using Pyplot.
- Analyze and manipulate tabular data using Pandas.
- Create a project demonstrating the application of Python, NumPy, Pyplot, and Pandas.

# Examples: Rubrics

**Prompt to ChatGPT:** Develop a rubric (in a chart, using the following 4 categories: excellent, meets expectations, needs improvement, does not meet expectations) based on the following:

- Your team will select a scenario from one of the course learning objectives. Describe how the team leader will lead the team through the situation based on the readings from the class, research to identify 3-4 additional sources, and your own experiences.
- For your presentation, the team will be expected to explain and teach about the topic, establish the need for improving this skill, share tips for improving this skill, and provide specific examples to validate your approach.
- Each team member will be expected to contribute equally to the content of the presentation and material and will need to record their part of the presentation that is submitted for the final team project.

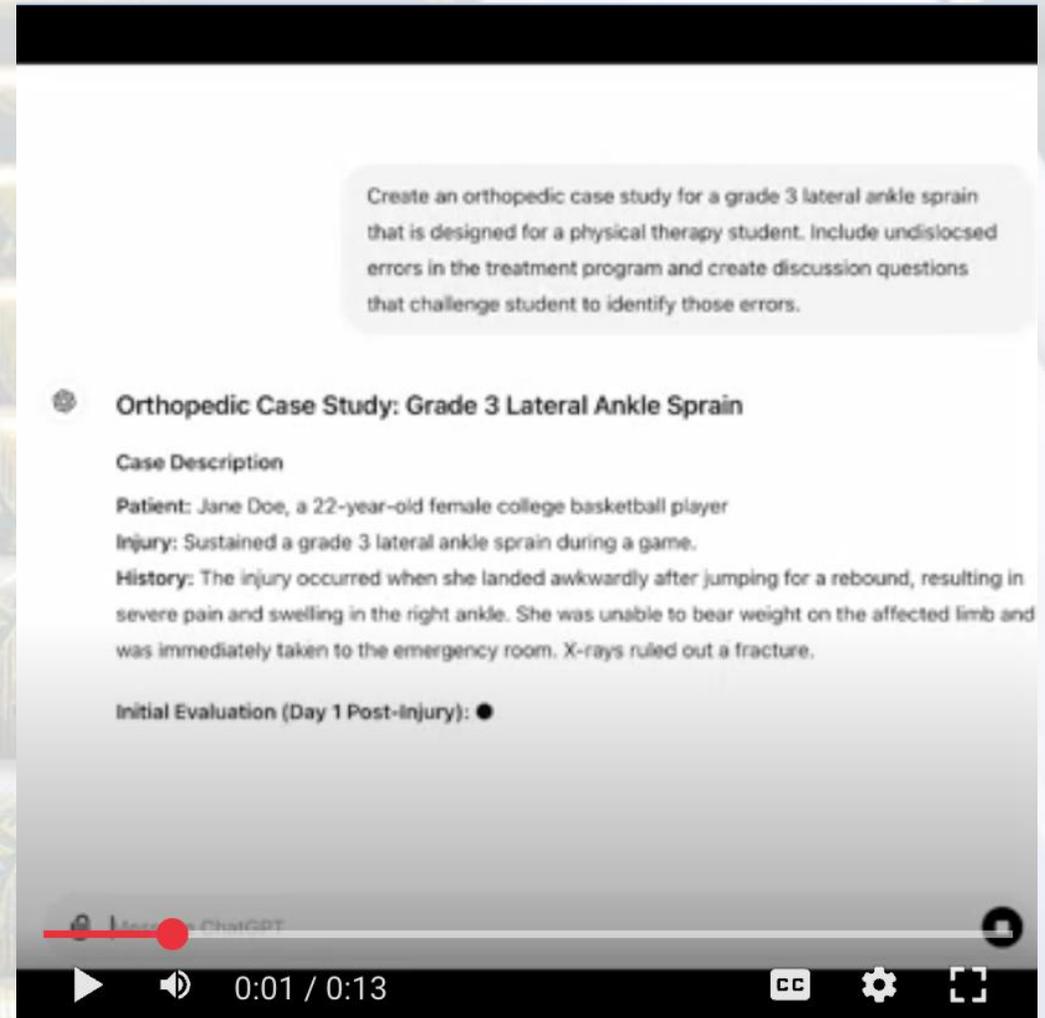
Suggest new criteria titles

Here are suggested new criteria titles:

Criteria	Excellent (4)	Meets Expectations (3)	Needs Improvement (2)	Does Not Meet Expectations (1)
1. Leadership Strategy	Thorough description of how the team leader will lead through the scenario based on class readings, 3-4 additional sources, and personal experiences. Clear, detailed plan demonstrating deep understanding and application.	Adequate description of leadership through the scenario based on class readings, additional sources, and personal experiences. Plan shows understanding and application.	Limited description of leadership through the scenario with minimal integration of class readings, additional sources, and personal experiences. Plan shows some understanding but lacks depth.	Incomplete or unclear description of leadership. Little to no integration of class readings, additional sources, or personal experiences. Plan shows little understanding or application.
2. Content Delivery	Comprehensive explanation and teaching of the topic. Strong establishment of the need for improvement. Practical tips and specific, well-chosen examples. Engaging and well-organized presentation.	Adequate explanation and teaching of the topic. Clear establishment of the need for improvement. Useful tips and relevant examples. Organized and clear presentation.	Basic explanation and teaching of the topic. Limited establishment of the need for improvement. Some tips and examples, but lacks depth or relevance. Presentation needs better organization.	Incomplete or unclear explanation and teaching of the topic. Weak or no establishment of the need for improvement. Few or irrelevant tips and examples. Disorganized presentation.
3. Team Collaboration	Each team member contributes equally to content and material. All parts are well-integrated into the final presentation. Clear evidence of collaboration and equal effort.	Most team members contribute equally to content and material. Parts are integrated into the final presentation. Evidence of collaboration and effort.	Unequal contribution from team members. Some parts are not well-integrated into the final presentation. Limited evidence of collaboration.	Significant imbalance in contribution from team members. Poor integration of parts into the final presentation. Little to no evidence of collaboration.

## Examples: Chatbots

- AI should augment or enhance your pedagogy, not replace it
- Introductory Assignment - AI discussion board
- Prompt granularity is key!
- Course Chatbot
  - Syllabus, course schedule, assignments & instructions, due dates
  - Upload lecture content and PowerPoint slides
  - Place for students to ask questions, study, interact with content in a NEW way
- Discipline-specific expert custom-GPT
  - Studying & certification exam prep
  - Case studies
- Advising chatbot



The screenshot shows a video player interface. At the top, a white chat bubble contains the prompt: "Create an orthopedic case study for a grade 3 lateral ankle sprain that is designed for a physical therapy student. Include undiscovered errors in the treatment program and create discussion questions that challenge student to identify those errors." Below the chat bubble, the video content displays the following text:

**Orthopedic Case Study: Grade 3 Lateral Ankle Sprain**

**Case Description**

**Patient:** Jane Doe, a 22-year-old female college basketball player

**Injury:** Sustained a grade 3 lateral ankle sprain during a game.

**History:** The injury occurred when she landed awkwardly after jumping for a rebound, resulting in severe pain and swelling in the right ankle. She was unable to bear weight on the affected limb and was immediately taken to the emergency room. X-rays ruled out a fracture.

**Initial Evaluation (Day 1 Post-Injury):** ●

At the bottom of the video player, there is a progress bar showing 0:01 / 0:13, along with standard video controls like play, volume, and full screen.

## Please Contact Us!

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