



AI Opportunities @ UF

How you can get involved in
Artificial Intelligence at UF

Honors Involvement
Conference 2024

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WHAT IS AI?



THE AI
UNIVERSITY



AI ACROSS THE
CURRICULUM



AI CERTIFICATE



AI COURSES



AI RESEARCH

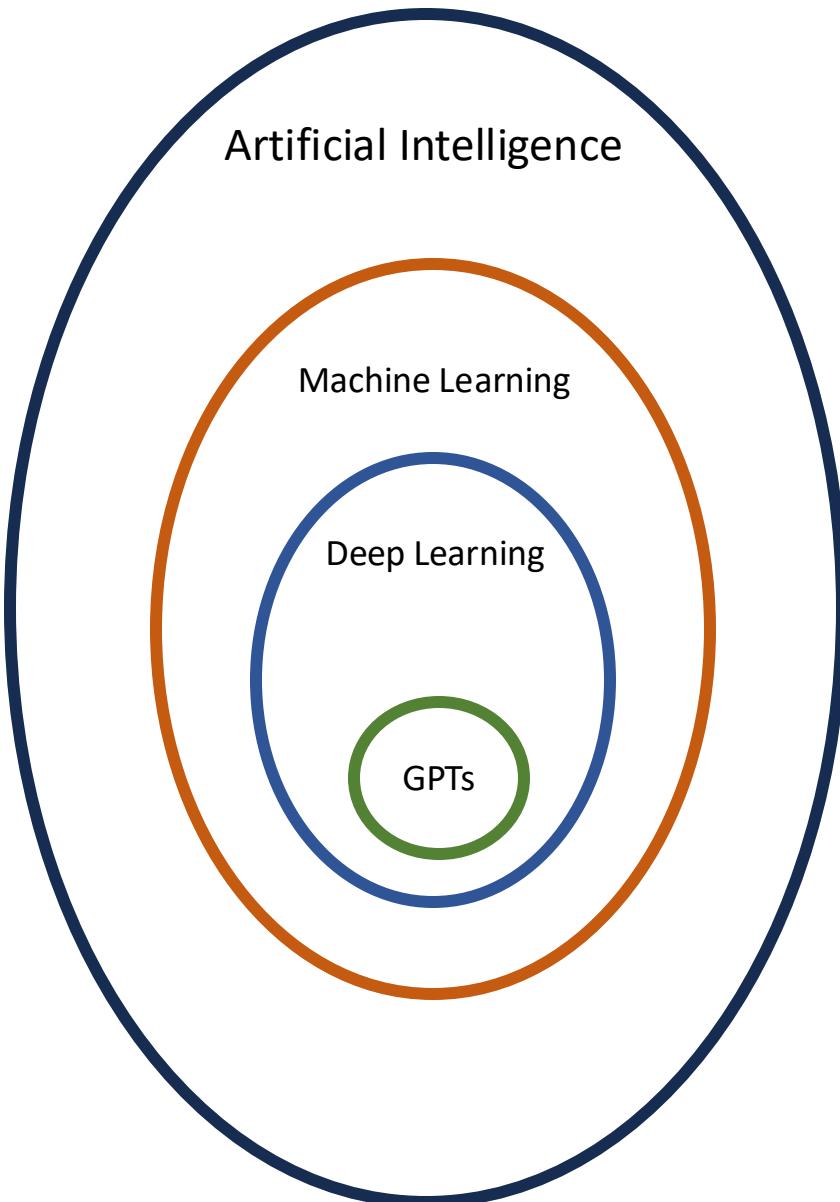


AI SCHOLARS



EXAMPLE
PROJECTS

What is Artificial Intelligence?



- **AI** is a machine's ability to perform cognitive functions we associate with human minds. This includes functions like perceiving, reasoning, learning, interacting with an environment, and even exercising creativity.¹
- **Machine learning (ML)** is a subfield of artificial intelligence (AI) that focuses on the development of algorithms and statistical models that enable computers to perform tasks by learning from data, rather than being explicitly programmed for each specific task.²
- **Deep learning** is a subset of machine learning that involves the use of artificial neural networks with multiple layers to progressively extract higher-level features from raw input.³
- **GPTs**, or Generative Pre-trained Transformers, are a family of neural network models that use the transformer architecture.⁴ Sometimes these models are called Large Language Models (**LLMs**) or Foundation Models.

1. McKinsey – [Hyperlink](#)
2. IBM - [Hyperlink](#)

3. IBM – [Hyperlink](#)
4. Amazon AWS - [Hyperlink](#)

The AI University

[ABOUT](#)[STUDENTS](#)[FACULTY](#)[RESEARCH](#)[RESOURCES](#)[EVENTS](#)[AI NEWS](#)[CONTACT](#)

BUILDING AN AI UNIVERSITY



The University of Florida is one of the nation's first universities to offer its students AI Across the Curriculum with courses in artificial intelligence available in all 16 colleges. Our nation's need for a skilled AI workforce grows daily and can only be met by reaching new learners as well as upskilling existing workers. At UF, AI is for everyone with no need for backgrounds in engineering or data science. The university currently offers 230 AI and data science courses at the undergraduate, graduate and professional levels with many more in the developmental stages. These courses are in every college, from the arts to agriculture.

The AI University

[ABOUT](#)[STUDENTS](#)[FACULTY](#)[RESEARCH](#)[RESOURCES](#)[EVENTS](#)[AI NEWS](#)[CONTACT](#)

**YOUR
PATHWAY
TO AI**

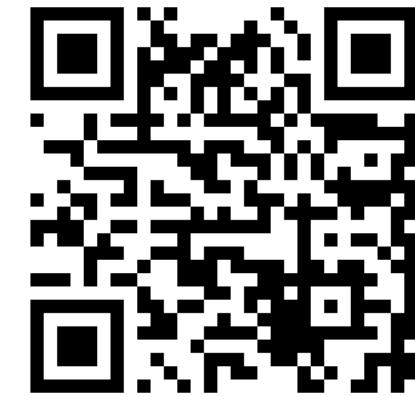
DISCOVER YOUR PATHWAY TO AI
THROUGH THE MANY OPPORTUNITIES
FOR LEARNING AT UF, PROVIDING
EVERY STUDENT, REGARDLESS OF
MAJOR, AN OPPORTUNITY TO LEARN
ABOUT ARTIFICIAL INTELLIGENCE.

PHI 3681

EEL 3872

CAP 3032

ALS 3200C

A large banner on the left side of the slide features the text 'YOUR PATHWAY TO AI' in large white letters. Below it, a paragraph encourages students to discover opportunities through various courses. To the right, a line graph shows a path from 'ALS 3200C' at the bottom to 'PHI 3681' at the top, with other courses like 'EEL 3872' and 'CAP 3032' along the way. The background image shows students in a classroom, with one student's hand raised.

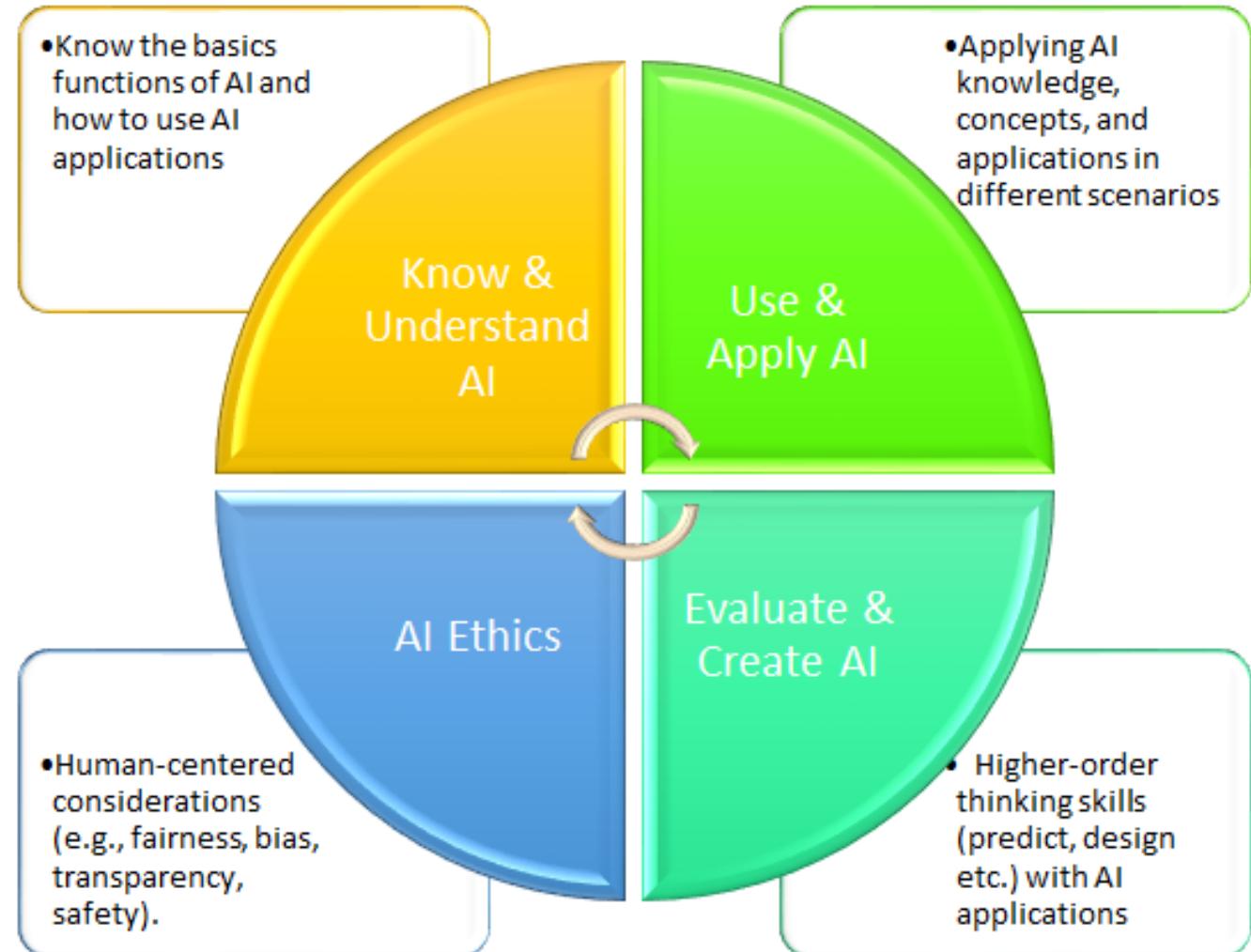
Student Opportunities

The AI University

Schools Commission on Colleges (SACSCOC)



Quality Enhancement Plan



AI Across the Curriculum



About AI @ UF

AI ACROSS THE CURRICULUM

UF students can begin their AI learning with our signature course, Fundamentals of AI, which requires no prior knowledge of artificial intelligence, engineering or computer science. Students can continue with more advanced AI courses in UF's many disciplines or enroll in [UF's nine-credit certificate program in artificial intelligence](#). This model of teaching AI broadly across all disciplines is the foundation for Building an AI University and results in a larger and more diverse group of students who will graduate UF with AI knowledge. The goal of AI Across the Curriculum is the creation of an interdisciplinary AI-ready workforce as well as preparing our students for the jobs of the future, many of which will require AI knowledge.

AI 9 Credit Hour Certificate

[Home](#) / [Undergraduate Catalog](#) / [Colleges and Schools](#) / [Engineering | Herbert Wertheim College of](#)
/ Artificial Intelligence Fundamentals and Applications Certificate

The AI Fundamentals and Applications Certificate is intended for undergraduates of all majors (both technical and non-technical) to understand fundamentals of artificial intelligence, its applications to real world problems in various disciplines, and ethical and professional responsibilities of these technologies. The certificate consists of a required fundamentals course, a college specific application course and an ethics course. Students use high level AI tools and apply them to problems in their disciplines.

REQUIRED COURSES

EEL 3872	Artificial Intelligence Fundamentals	3
PHI 3681	Ethics, Data, and Technology	3

Example Elective

<i>Business</i>
QMB 3302 Foundations of Business Analytics & Artificial Intelligence (AI)

AI 9 Credit Hour Certificate

- **ARTIFICIAL INTELLIGENCE FUNDAMENTALS AND APPLICATIONS
CERTIFICATE**

- 9 Credit Hours
- Junior level of any major
- Apply before you take the classes
- 2 required courses
- 1 elective course



AI Certificate

https://youtu.be/R_aGbtgFgmE

AI Courses

STUDENTS • AI COURSES

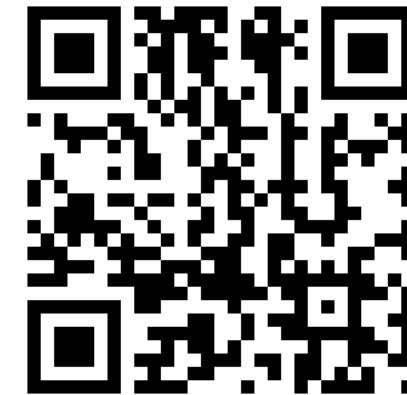
AI COURSES

AI COURSES AVAILABLE

If you are interested in gaining AI experience in your major, visit [ONE.UF](#) and search the schedule of courses to learn more information. Make sure to indicate the term and program you are looking to register in. Then, scroll down to the bottom of the page and open the drop-down “Additional Attributes.” Click “AI courses” and then “search” to see the variety of courses you can start taking.

This video illustrates how to find AI Courses on ONE.UF and search the schedule of courses to learn more information.

The screenshot shows a video player interface. At the top, it says "How to search for AI courses at ONE.UF" and "University of Florida Schedule of Courses". Below this is a dropdown menu labeled "Term" with "Spring 2022" selected. To the right of the dropdown is a "Get started!" button with a gear icon. Further right are search and filter icons. At the bottom of the video player are standard video controls: play/pause, volume, settings, and a progress bar indicating "00:20".



Looking up AI courses

AI Research

AI RESEARCH

UF's strong and diverse research portfolio is incorporating and applying AI and data science across disciplines. This infusion of technology will supercharge the university's successful research and development portfolio. In 2020, the university stimulated AI research activity by awarding 20 faculty teams in varied disciplines \$50,000 each to pursue AI-related projects. With [HiPerGator](#) at their disposal, UF faculty can analyze vast amounts of data and predict solutions to health, agriculture, engineering and educational challenges. To support student research, the AI2 Center is funding stipends for student AI Scholars to support their research with an AI faculty mentor.



HiPerGator AI
UNIVERSITY OF FLORIDA

<https://www.rc.ufl.edu/about/hipergator/>

Cluster Information

- 140 NVIDIA DGX A100 nodes
- 17,920 AMD Rome cores
- 1,120 NVIDIA Ampere A100 GPUs
- 2.5 PB All-Flash storage
- Over 200 HDR Infiniband and various Ethernet switches for connectivity
- Double precision LinPack (HPL): 17.2 Petaflops
 - TOP500 June 2021: Ranked #22
 - Green500 June 2021: Ranked #2
- AI Floating Point Operations: 0.7 Exaflops

AI Research – AI Scholars

STUDENTS • AI SCHOLARS

AI SCHOLARS

ARTIFICIAL INTELLIGENCE SCHOLARS

Undergraduate students who are interested in pursuing AI-related research with a UF faculty member are invited to apply for the AI Scholars Program through the Center for Undergraduate Research. The center manages the successful University Scholars Program that introduces UF undergraduates to partnerships with faculty in research endeavors across campus. Artificial intelligence is ubiquitous in the world around us, from voice-activated devices to autonomous vehicles; thus, there is a wealth of research potential in every UF department.

Twenty AI Scholars will be named to join at least 200 other students who are participating in the University Scholars Program who will be undertaking a research project under the guidance of a faculty researcher.

Scholars are selected to participate through a competitive process, which occurs in the spring. Students may apply to the AI Scholar Program without having first identified a faculty mentor; however, applications with AI faculty support are considered more competitive.



Information on AI Scholars

AI Research – Example AI Project



[HOME](#)

MISSION

HOW IT WORKS

OUR VISION

OUR PROGRAMS

CONTACT US

Fighting Hunger With Technology

| DEDICATED TO ENDING FOOD INSECURITY IN FLORIDA |

Fighting Hunger with AI



[feedFL.Ai Website](#)

AI Research – Example AI Project



UF Men's Basketball
research projects



A screenshot of the Basketball Reference website. The header includes the Sports Reference logo and links for Baseball, Football (college), Basketball (college), Hockey, Football, Blog, Stathead®, and Immaculate Grid®. A search bar says "Enter Person, Team, Section, etc". Below the header is a navigation menu with links for Players, Teams, Seasons, Leaders, Scores (with a red notification dot), WNBA, Draft, Stathead, Newsletter, and Full Site Menu. The "About Basketball Reference" link is highlighted in a dark box.

Four Factors

How do basketball teams win games? While searching for an answer to that question, [Dean Oliver](#) identified what he called the "Four Factors of Basketball Success":

Shooting (40%)
Turnovers (25%)
Rebounding (20%)
Free Throws (15%)

The number in parentheses is the approximate weight Mr. Oliver assigned each factor. Shooting is the most important factor, followed by turnovers, rebounding, and free throws. These factors can be applied to both a team's offense and defense, which in a sense gives us eight factors. Let's take a closer look at how these factors are measured, using the [2004-05 Phoenix Suns](#) as an example.

Shooting

The shooting factor is measured using [Effective Field Goal Percentage](#) (eFG%). The formula for both offense and defense is $(FG + 0.5 * 3P) / FGA$. For the Suns offense this is $(3351 + 0.5 * 796) / 7018 = .534$, and for the defense it is $(3328 + 0.5 * 494) / 7485 = .478$.

Turnovers

The turnover factor is measured using [Turnover Percentage](#) (TOV%). The formula for both offense and defense is $TOV / (FGA + 0.44 * FTA + TOV)$. On offense, the Suns turnover percentage was $1125 / (7018 + 0.44 * 2080 + 1125) = .124$, while on defense it was $1131 / (7485 + 0.44 * 1775 + 1131) = .120$.

Rebounding

The rebounding factor is measured using [Offensive](#) and [Defensive](#) Rebound Percentage (ORB% and DRB%, respectively). The formula for offense is $ORB / (ORB + Opp DRB)$, while the formula for defense is $DRB / (Opp ORB + DRB)$. In 2004-05, the Suns offensive rebound percentage was $967 / (967 + 2550) = .275$, and their defensive rebound percentage was $2652 / (1233 + 2652) = .683$.

Free Throws

Learning more about AI

- The [AI² Center](#)
- [AI Days Conference](#)
- [UF Informatics Institute](#)
- [Business Analytics & AI Center](#)
- Coming soon:
UF Sports Analytics



The screenshot shows the homepage of the AI2 Center. At the top, there is a navigation bar with links for "ABOUT" and "AI2 CENTER". The main title "AI2 CENTER" is prominently displayed in large blue capital letters. Below the title, there is a detailed paragraph describing the center's mission and activities.

ABOUT • AI2 CENTER

AI2 CENTER

The Artificial Intelligence Academic Initiative Center, known as AI² (AI squared), is the UF focal point for academic initiatives related to AI and data science. The center coordinates the development of AI academic programs and certificates, identifies opportunities for faculty and students to engage with AI, organizes seminars and conferences, and partners with UF's Career Connections Center, Florida's colleges and universities, and private industry in collaborations to best train an AI-ready workforce that will contribute to our nation's economy and security. The center is also a guiding force in the university's re-accreditation process and its five-year comprehensive work plan as it pertains to AI Across the Curriculum that will be submitted to the university's accreditor. This plan will address AI curriculum development, academic programs and pathways to AI learning, AI student scholars and their research, and AI professional pathways and career readiness.



Questions?

1996 2006 NATIONAL CHAMPIONS 2008