

## **AI Fundamentals**

EGN 4932 - Section CAMP, Class Number: 26323

**Class Periods:** MWF 5<sup>th</sup> Period, 11:45 a.m. – 12:35 p.m.

**Location:** On-line

**Academic Term:** Fall 2020

### ***Instructors:***

Diego Alvarado, M.E. M.R.E.

Email Address: [dalvaradopalma@ufl.edu](mailto:dalvaradopalma@ufl.edu)

Office location: 530 Nuclear Science Building (NSB)

Office Hours: TBA am (or by appointment)

Hans van Oostrom, Ph.D.

Email Address: [oostrom@ufl.edu](mailto:oostrom@ufl.edu)

Office location: Nuclear Science Building (NSB)

### ***Teaching Assistant/Peer Mentor/Supervised Teaching Student:***

- N/A

### ***Course Description***

An overview of Artificial Intelligence (AI), approaching the concept from its origins to expectations for the future. The course will focus on various AI technologies, how to build Machine Learning models, and how to apply AI tools to solve real world problems. Some of the concepts that will be introduced in the course are types of AI and Machine Learning, Hacking and the IoT, AI today and its outlook for the future.

### ***Course Pre-Requisites / Co-Requisites***

Junior standing or above, or instructor permission.

### ***Course Objectives***

This 3-credit course intends to introduce you to the fundamental concepts of Artificial Intelligence. You will gain experience in:

- Understanding the history and types of AI
- Explaining the different methods of Machine Learning and its uses
- Creating your own Machine Learning models
- Being an informed user of AI tools

### ***Materials and Supply Fees***

N/A

### ***Required Textbooks and Software***

Notes will be derived from different sources and developed by the instructors.

### ***Course Schedule (Tentative Schedule)***

Week 1: Class Introduction / AI Introduction  
Week 2: Programing / Programing vs AI  
Week 3: What is AI and why is it important  
Week 4: AI History and Types – Heuristic Systems  
Week 5: AI Types – Machine Learning  
Week 6: Machine Learning – Supervised Learning  
Week 7: Machine Learning – Unsupervised Learning  
Week 8: Machine Learning – Build a Machine Learning Model with Watson  
Week 9: Machine Learning – Teach Alli

- Week 10: Machine Learning – Create a Machine Learning Model with Google Teachable Machine
- Week 11: Hacking / IoT – AI Robotics
- Week 12: Hacking / IoT and AI today
- Week 13: AI today
- Week 14: Responsible AI and E-safety
- Week 15: Final Project Presentations

### ***Online Course Recording***

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

### ***Attendance Policy, Class Expectations, and Make-Up Policy***

- Attendance is required - you are responsible for the announcements made in class.
- Excused absences must be consistent with university policies in the Undergraduate Catalog and require appropriate documentation.  
(<https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/#absencestext> )
- University and Departmental guidelines will be applied to categorize excused and unexcused absences.
  - Students unable should notify the instructor of excused absences via email IN ADVANCE of the planned absence; in emergency situations the notification should occur BEFORE THE NEXT SCHEDULED LECTURE.
  - Regardless of whether an absence is excused or unexcused, students are responsible for any coursework missed as a result of the absence. As most assignments will be posted in advance, students should have sufficient time to complete and submit these assignments in spite of excused activities/absences, unless otherwise discussed and approved by the professor. For excused absences, students are expected to be aware of all announcements made in class and know all previously covered material when attending the following class.
- Class Rules:
  - Cell Phones MUST be turned off or placed on a silent mode. Texting during class time is not permitted nor condoned. It is expected that students will avoid surfing the internet, using phone apps, and checking e-mail during class to prevent distracting others.

### ***Homework and Other Assignments***

Homework assignments will be given regularly. Other assignments may be given periodically to reinforce course content covered or to introduce additional/complementary course content.

Not all assignments will be graded. Instead, one or more aspects of the assignment may be randomly selected and graded. These may be in the form of pop quizzes, in-class group assignments based on the reading, homework assignments, or lecture material. Hard-copy assignments will be collected at the beginning of the class period in which they are due. Soft-copy assignments will be due by the posted e-Learning submission deadline. These are assumed to be individual work unless the specific assignment specifies a group activity. Group assignments will not be accepted from a single individual unless special permission is given by the instructor (e.g. for make-up).

### ***Late Assignments and Exam Make-Up Policy***

Late homework assignments will be accepted for 24 hours after the due date with a 30% deduction.

In general, there will be no makeup assignments given. However, a student is permitted to make up a missed assignment without penalty if he/she/they has/have a conflict between an assignment and a scheduled University-approved activity (please do not ask for a make-up exam to attend a job interview). A student needing a make-up assignment due to schedule conflicts must notify the instructor at least one week before the day the assignment is scheduled for. Excused absences are consistent with university policies in the undergraduate catalog (<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

You are expected to be present without exception and to plan any travel around these dates accordingly. Medical emergencies are of course excluded if accompanied by a doctor's note. A note indicating that you were seen at the health center the day of the assignment is not sufficient documentation of a medically excused absence. The note must say that you were medically unable to complete the assignment.

If you fail to complete the assignment by the assigned day and do not have a valid excuse, there will be no make-up and you will be given a zero (0) on the assignment. Employment interviews, employer events, weddings, vacations, etc. are not excused absences.

### ***Evaluation of Grades***

Your performance in the course will be evaluated based on regular assignments, and group projects as follows:

<b>Assignment</b>	<b>Percentage of Final Grade</b>
Homework Sets	30%
In class Assignments	10%
Group Project #1	25%
Group Project # 2	25%
Individual Project	10%
	100%

### ***Grading Policy***

<b>Percent</b>	<b>Grade</b>	<b>Grade Points</b>
93.4 - 100	A	4.00
90.0 - 93.3	A-	3.67
86.7 - 89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### ***Students Requiring Accommodations***

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

### ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### ***Commitment to a Safe and Inclusive Learning Environment***

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto:nishida@eng.ufl.edu)

### ***Software Use***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

### ***Campus Resources:***

#### ***Health and Wellness***

##### **U Matter, We Care:**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

**Sexual Discrimination, Harassment, Assault, or Violence**

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the **Office of Title IX Compliance**, located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

**Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

*Academic Resources*

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu).  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.  
<https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers.  
<https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.