

## **AI Fundamentals**

EEL 3872 - Section EED1, Class Number: 26007

**Class Periods:** N/A

**Location:** 100 % On-line

**Academic Term:** Fall 2021

### ***Instructor:***

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

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

Office location: 307 Nuclear Science Building (NSB)

Office Hours: TBD (or by appointment)

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

Please contact through the Canvas website

- TBD

### ***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: see the Undergraduate Catalog***

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

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

### ***Course 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                                |
| Week 5:  | AI First Activities                       |
| Week 6:  | Machine Learning                          |
| Week 7:  | Machine Learning – Supervised Learning    |
| Week 8:  | Machine Learning – Unsupervised Learning  |
| Week 9:  | Machine Learning – Reinforcement Learning |
| Week 10: | Machine Learning – Neural Networks        |
| Week 11: | Machine Learning – Project                |
| Week 12: | Hacking / IoT / AI Robotics               |
| Week 13: | AI today                                  |

Week 14: AI today  
Week 15: Responsible AI and E-safety

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

- The class is 100% online so there is no attendance – however, you are responsible for the announcements made on Canvas and all the material on Canvas.
- Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: <https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/>
- 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 END OF THE FOLLOWING WEEK.
  - 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 watching the following video.

**Homework and Other Assignments**

Homework assignments will be given regularly. 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.

**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.

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:

| Assignment  | Percentage of Final Grade |
|---|---------------------------|
| Homework / In-class Assignments / Quizzes / Discussions | 60%                       |

|            |      |
|------------|------|
| Project #1 | 20%  |
| Project #2 | 10%  |
| Project #3 | 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 who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

### **Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.

### **In-Class Recording**

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

### ***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 Conduct Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. 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
- Jennifer Nappo, Director of Human Resources, 352-392-0904, [jpennacc@ufl.edu](mailto:jpennacc@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:** <https://counseling.ufl.edu>, 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/>.

#### **COVID-19**

- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

Academic Resources

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

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling; <https://career.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://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>; <https://care.dso.ufl.edu>.

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