# SE course: SE488 AI-Driven Software Development

Instructor: Wael Kessentini
Communication:
Microsoft Teams : SE488 Fall 2024 **Team Code :** 230gdk0

Office Hours: Monday 2:30 – 4:00 pm
Office Hours Zoom ID: 927 8887 4370

Class Room Location: CDM 0200 at Loop Campus

## Course Description

The course will cover the integration of AI systems in the software development life cycle, including the use of AI in requirements gathering and analysis, software design and architecture, testing, and maintenance and evolution. The students will gain hands-on experience through tools/projects.
By the end of the course, students will have a comprehensive understanding of AI in software engineering and will be able to apply their knowledge to real-world software development projects.
**Prerequisites:** SE 450 or SE456

## Learning Objectives

Upon completion of this course, students should be able to:

1. Understand and define various AI algorithms such as : Metaheuristics algorithms, machine learning algorithms, neural network algorithms.

2. Design and apply metaheuristics and machine learning techniques to solve optimization problems related to the software engineering field

3. Analyze the performance and behavior of metaheuristics.

4. Stay current with recent developments and trends in AI-driven software development through readings, research papers, discussions

## Course Plan/Schedule (May change during the quarter , depends on our progress)

| Week | Lecture Topics | Assignment/Project Release date | Student s Presentations (Schedule will be added in a separate document |
|---|---|---|---|
| 09/05/2024 | • Introduction to AI-driven Software Development | | |
| 09/12/2024 | • Algorithms in AI : Learning Algorithms I | | |
| 09/19/2024 | • Algorithms in AI : Learning Algorithms II<br>• Problem solving, Searching | • Assignment 1 | |
| 09/26/2024 | • Local Search Algorithms | | |
| 10/03/2024 | • Population-Based Algorithms I | • Assignment 2 (miniproject1) | |
| 10/10/2024 | • No lecture (Quizz) | | |
| 10/17/2024 | • Population-Based Algorithms II | | |
| 10/24/2024 | • Neural Networks/ Deep learning | • Assignment 3 (miniproject2) | |
| 10/31/2024 | • Diverse AI algorithms applied to SE | • Paper Presentations | |
| 11/7/2024 | • Review | • Paper Presentations | |
| 11/14/2024 | • Final Exam | | |

## Grading:

- Homework assignments 50%
  - Assignment 1 : 10%
  - Assignment 2 : 20%
  - Assignment 3 : 20 %
- Quizz 15%
- Final exams 15%
- Research Paper review and presentation 15%
- 5 % participation (answering other student's questions on Microsoft Teams, Filling the peer review for each presentation)

## Late Policy:

- **Assignments/Mini project** Late policy:
  - Late assignments/mini project will be accepted with penalties of **10%** penalty per **day** for up to **2 days.**

    - After 2 days, no late submission will be accepted unless with a prior approval from the instructor
- **Exams/Research papers (review and presentation)**
    - No late submission will be accepted unless with a prior approval from the instructor.

## Integrity:

Any sort of collaboration in the assignments/exams with others without an explicit approval of the instructor will not be tolerated and may result in a failing grade.

## References:

No textbook required. In general, the slides of the different lectures with the external reading links, videos, etc. are enough to cover all the required knowledge.

## Communication

For questions and discussions, you need to use Microsoft Teams channel.
**Team Name :** SE488 Fall 2024
**Team Code :** 230gdk0
Please use the discussion public channel for questions related to the course. Any student can answer the posted questions, and I will intervene if necessary. For questions that are addressed to me in the public channel, **please tag me using the @.**
For private questions, concerns, and requests for an appointment, you can use the private chat of Microsoft Teams.

Students should be sure their email listed under "demographic information" at http://campusconnect.depaul.edu is correct.

## Academic Integrity Policy

This course will be subject to the academic integrity policy passed by faculty. More information can be found at http://academicintegrity.depaul.edu/

## Plagiarism

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

## Incomplete

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the College of Computing and Digital Media. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.

## Resources for Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential. To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at: Student Center, LPC, Suite #370, Phone number: (773)325.1677 Fax: (773)325.3720 TTY: (773)325.7296