

# CSEN403: Concepts of Programming Languages

## Lecture 1: Introduction

Prof. Dr. Slim Abdennadher  
Dr. Nada Sharaf

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# General Information

- Lecturer: Dr. Nada Sharaf.
- TAs: Hadeel Mostafa, Nourhan Ibrahim and Nourhan ElFaransawy
- Textbook: Programming Language Concepts and Paradigms by David A. Watt (Prentice-Hall, 1990).
- [Share your questions through piazza:](https://piazza.com/guc.edu.eg/spring2021/csen403)  
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Credits and a Huge Thank You to Prof. Dr. Slim Abdennadher

# Tentative Grading

- 5% for In-class assignments
- 10% for Quizzes
- 20% for Projects
- 25% for midterm exam
- 40% for final exam

# Programming Paradigms

- Style of programming
- NOT a language but a way to classify programming languages according to specific features

# Examples

- Imperative Programming
  - ▶ State how the program works
  - ▶ Big focus on control and the flow (HOW)
- Declarative Programming
  - ▶ Describe what you want to get
  - ▶ Logic Programming
    - ★ Prove / Disprove
    - ★ Facts and rules
    - ★ Focus on the WHAT
  - ▶ Functional Programming
    - ★ Everything reduced to 'functions'
- Object-Oriented
- Event-Driven

Are there more paradigms?

# Why study different paradigms

- After this course, you should be able to judge the programming style that best fits a specific problem.
- All studied languages are turing-complete.
- Same power

# More on Languages and Paradigms

- Some languages can fall in the intersection of multiple paradigms
- e.g. Java is both imperative and object-oriented
- e.g. Python supports Object-oriented, functional programming and other features