

REPUBLIQUE ALGERIENNE DEMOCRATIQUE ET POPULAIRE  
MINISTERE DE L'ENSEIGNEMENT SUPERIEUR ET DE LA RECHERCHE SCIENTIFIQUE

Université de M'sila  
Faculté des Mathématiques et de l'Informatique  
Département d'informatique



جامعة المسيلة  
كلية الرياضيات والإعلام الآلي  
قسم الإعلام الآلي

# Algorithmic and data structures 2

الخوارزميات وهياكل البيانات 2

**Domaine** : Mathematics and IT  
**Sector** : computer science

**Presented by** : Dr. Benazi Makhoulouf  
**Academic year** : 2023/2024



# Practical information

- **Subject title** : Algorithms and Data Structures 2
- **Teaching unit** : Fondamental (UEF22)
- **Semestre** : 02
- **Coefficient** : 4
- **Credits** : 6
- **V.H.** 1.5h lecture, 1.5h TD, 1.5h TP 3 Personal work
- **Evaluation mode** : TD :20%, TP:20%, Final exam: 60%.
- **Teacher responsible for the subject** : Benazi Makhlouf
- **Email** : [makhlouf.benazi@univ-msila.dz](mailto:makhlouf.benazi@univ-msila.dz)
- **Useful websites** : <https://elearning.univ-msila.dz/moodle/>
- **Facebook**: قسم الإعلام الآلي - جامعة محمد بوضياف المسيلة

## **Teaching objectives**

Introduce the notions of algorithm and data structure and enable students to acquire the basic concepts of programming.

## **Prerequisite knowledge :**

To benefit from this course, the student must have grasped the basic concepts of algorithms and data structures from the first semester (ASD1), as this course is considered a continuation of those.

# Content of the Course:

## 1. **Chapter 1** :Sub-programs: Functions and Procedures

1. Introduction
2. Definitions
3. Local and global variables
4. Parameter Passing
5. Recursivity

## 2. **Chapter 2** : Files

1. Introduction
2. Definitions
3. File types
4. File handling
5. Example

## 3. **Chapter 3**: Linked Lists

1. Introduction
2. Pointers
3. Dynamic memory management
4. Linked lists
5. Operations on linked lists
6. Doubly Linked Lists
7. Special Linked Lists
  1. Stacks
  2. Queues