



Jordan University of Science and Technology
Faculty of Computer & Information Technology
Data Science Department

DS101 Fundamentals Of Data Science And Artificial Intelligence - JNQF Level: 7

First Semester 2025-2026

Course Catalog

3 Credit Hours. This course provides students with key concepts in data science. Specific topics include definition of data science and its relationships with other fields; importance of data science and its driving forces. The course also introduces core AI topics for building intelligent systems capable of learning, prediction, and decision-making. Also, this course will introduce programming and problem-solving using Python including data types, procedures and functions, conditional statements, iteration, and recursion.

Teaching Method: On Campus

Text Book

| | |
|--------------------------|---|
| Title | Intro to Python for Computer Science and Data Science |
| Author(s) | Deitel & Deitel |
| Edition | 1st Edition |
| Short Name | Deitel |
| Other Information | |

Instructor

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|------------------------|--|
| Name | Dr. Ahmad Mustafa |
| Office Location | - |
| Office Hours | Sun : 10:00 - 12:00 Tue : 10:00 - 12:00 Wed : 10:00 - 11:30 Thu : 10:00 - 12:00 |
| Email | ammustafa@just.edu.jo |

Class Schedule & Room

Section 1:

Lecture Time: Mon, Wed : 12:00 - 13:30

Room: SF12

Tentative List of Topics Covered

| Weeks | Topic | References |
|---------------|---|--------------------|
| Weeks 1, 2, 3 | Introduction to Computers and Python | From Deitel |
| Weeks 4, 5 | Introduction to Python Programming | From Deitel |
| Week 6 | Basic Descriptive Stats | From Deitel |
| Weeks 7, 8 | Control Statements and Program Development | From Deitel |
| Week 8 | Measures of Central Tendency-Mean, Median, Mode | From Deitel |
| Weeks 9, 10 | Functions | From Deitel |
| Week 10 | Basic Statistics Measures of Dispersion | From Deitel |
| Weeks 10, 11 | Lists and Tuples | From Deitel |
| Weeks 12, 13 | Dictionaries and Sets | From Deitel |
| Weeks 13, 14 | Strings and Regular Expressions | From Deitel |
| Weeks 15, 16 | Array-Oriented Programming with NumPy | From Deitel |

| Mapping of Course Outcomes to Program Outcomes and NQF Outcomes | Course Outcome Weight (Out of 100%) | Assessment method |
|---|-------------------------------------|-------------------|
| Develop Python procedures and functions to implement modular and reusable code. [1SO2] [1L7S2] | 20% | |
| Explain the foundational concepts of data science [1SO6] [1L7K1] | 20% | |
| Write Python programs using appropriate data types, including numbers, strings, lists, and tuples, to solve basic computational problems [1SO2] [1L7S2] | 20% | |
| Construct Python programs using conditional statements, iteration, and recursion to solve complex problems [1SO2] [1L7S2] | 20% | |
| Apply core Artificial Intelligence concepts to design simple intelligent systems capable of learning, prediction, and decision-making. [1SO6] [1L7K1] | 20% | |

Relationship to Program Student Outcomes (Out of 100%)

| SO1 | SO2 | SO3 | SO4 | SO5 | SO6 | MSO1 | MSO2 | MSO3 | MSO4 | MSO5 | MSO6 |
|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|
| | 60 | | | | 40 | | | | | | |

| Relationship to NQF Outcomes (Out of 100%) | |
|--|------|
| L7K1 | L7S2 |
| 40 | 60 |

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