# Course program and reading list

Semester 2 Year 2024

**School:** Arison School of Business B.A

## Introduction to Data Science

**Lecturer:**

Dr. Moses Miller    moses.miller@runi.ac.il

**Teaching Assistant:**

Mr. Or Dabach    or.dabach@post.runi.ac.il

| Course No.: | Course Type : | Weekly Hours : | Credit: |
|---|---|---|---|
| 2366 | Lecture | 2 | 2 |

| Course Requirements : | Group Code : | Language: |
|---|---|---|
| Final Paper | 242236602 | English |

**Prerequisites**

**Prerequisite:**

4995 – Python Programming **OR** 2370 – Introduction to Programming

**Students who took one of the courses listed below will not be allowed to register to the course Introduction to Data Science (2366):**

2414 – Data Science for Business

## Course Description

In today's business world, managers are constantly surrounded by data. This is the same

data considered the new oil of the 21<sup>st</sup> century, and in many cases, this flood of Data is overwhelming. To obtain greater business value from the firm's data resources, managers are expected to understand the capabilities of Data Science and how they can be integrated with their business strategy.

## Course Goals

The course has two main objectives. The first is to comprehend how managers can utilize Data Science techniques in order to increase value to the firm. This goal will be achieved by learning how Data Science techniques can be used to answer business related problems.

The second goal is to learn and practice some of the fundamental theoretical concepts in Data Science. Achieving this goal will ensure students have a solid understanding of the principles that will allow then to excel in more advanced Data Science related courses. Course work and projects will be implemented in Python.

## Grading

**Course Evaluation Criteria:**

**Final Project Requirement:** Achieving a passing grade on the final project is mandatory to pass this course. This significant project shows your comprehensive understanding and application of the course material.

**Submission Guidelines and Deadlines:** All coursework must be submitted via Moodle by the specified deadlines. Just so you know, late submissions will incur a penalty in terms of credit reduction and, in some cases, may not be accepted.

**Assessment Breakdown:**

1. **Homework Assignments (Individual) – 30% of Final Grade:**

   ◦ Assignments will be assigned throughout the course, focusing on various topics covered.
   ◦ All homework must be completed individually and submitted through Moodle.

2. **Midterm Project Deliverable (Group Submission) – 20% of Final Grade:**

   ◦ This aspect involves applying the concepts and techniques learned to a practical project, showcasing your programming abilities in demonstrating course concepts on an applied problem.
   ◦ Specific guidelines will be provided during the course.
   ◦ The deliverable, in the form of a PDF of Google Colab document, must be submitted on Moodle.

3. **Final Project Deliverable (Group Submission) - 20% of Final Grade:**

   ◦ This aspect involves applying the concepts and techniques learned to a practical project, showcasing your programming abilities in demonstrating course concepts on an applied problem.
   ◦ You will define the project's scope and desired outcomes. Specific guidelines will be provided during the course.
   ◦ The deliverable, in the form of a PDF of Google Colab document, must be submitted on Moodle.

4. **Final Course Defense (Individual via Zoom) - 30% of Final Grade:**

   ◦ Following submitting your final project deliverable, you will arrange a Zoom meeting with the course lecturer.
   ◦ During this session, you will present a defense of your projects done in the course, explaining your approach and answering questions related to your work and the course content.

## Learning Outcomes

Selected course topics include:

- From Business Statistics to Data Science
- Observing (big) data
- Becoming a data detective
- Algorithms in Data Science
- Regression
- The classification problem
- Machine Learning
- Text Mining
- Experiments
- Data storytelling
- The business value of data

## Lecturer Office Hours

By request.

Dr. Moses (Moshik) Miller

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## Teaching Assistant

Or Dabach

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## Reading List

Optional reading:

1. Cole Nussbaumer Knaflic (2015), "Storytelling with Data – A Data Visualization Guide for Business Professionals", Wiley
2. Foster Provost, Tom Fawcett (2013), "Data Science for Business." , O'Reilly
3. Jake VanderPlas (2017) "Python Data Science Handbook" , O'Reilly
4. Allen B. DowneySecondEditionThink (2021) "Think Bayes. Bayesian Statistics in Python,  O'Reilly
5. Ethan Weed, "Learning Statistics with Python", https://ethanweed.github.io/pythonbook/landingpage.html