Reichman University

Course program and reading list
Semester 2 Year 2021

School: Adelson School of Entrepreneurship B.A

Data Science Implementation for Entrepreneurs

Lecturer:
Dr. Gail Gilboa Freedman  gail.gilboa@idc.ac.il

Tutors:
Mr. Pecani Efraim  efraim.pecani@post.idc.ac.il

Teaching Assistant:
Mr. Pecani Efraim  efraim.pecani@post.idc.ac.il

Course No.: 26006  Course Type : Lecture  Weekly Hours : 3  Credit: 3

Course Requirements:
Final Paper

Group Code : 212260069  Language: Hebrew

Prerequisites

Students who took one of the courses listed below will not be allowed to register to the course Data Science Implementation for Entrepreneurs (26006):

3078 - Data Science- group 1
3411 - Data Science Implementation for Entrepreneurs

Course Description
“Information is the resolution of uncertainty.” Claude Shannon, the father of Information Theory.

Indeed, information is a key business asset, and data analytic skills are crucial for solving many business problems.

This course serves as an introduction to Data Science. It covers selected methods for converting data sets into valuable information, including Evolutionary Optimization, Kmeans, Naïve Bayes, Decision Tree. It will also deal with important soft skills such as effective data visualization, and storytelling with data.

To make the learning contextual, we will apply these methods for business cases and real industrial data.

The lecturer:

Dr. Gail Gilboa Freedman  
gail.gilboa@idc.ac.il  
Gail's homepage

Course Goals

Getting familiar with selected algorithms, along with their applications to business problems.

Learning how to “think data” for the purpose of making better decisions on business actions.

Grading

Assignments – 60% (individual)

Final Project – 40% (teams of 4)

Up to 5 point may be added to your final grade, by submission of the additional tasks in Python.

The assignments:

All assignments are mandatory, and submitted via the Moodle platform. The grades are in the scale of 0–100.

1. Alignment with Excel (15%)
Learning by practice exercise, including 3 parts: basic commands; Pivot; Solver.

2. **Kmeans (15%)**

   Application of the algorithm to a problem of clustering.

3. **Naïve Bayes (15%)**

   Application of the algorithm to a problem of classification.

4. **Decision Tree (15%)**

   Application of the algorithm to a problem of classification.

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### Learning Outcomes

At the end of this course, you will be able to:

- Apply Machine Learning algorithms for solving business problems.
- Use Excel for solving clustering and classification problems.
- Explain the data analysis cycle from formulating a business problem to evaluating a proposed solution.
- Describe what data science is, and the skill sets needed for a data scientist.
- Prepare effective data presentations.

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### Lecturer Office Hours

By appointment

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### Tutor Office Hours

TBA

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### Teaching Assistant

Jonathan.Landau@post.idc.ac.il

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### Additional Notes

**Attendance Requirements:**

- Open camera
- You may miss up to 3 classes.
Tutorials:

1. Excel basics (and perpetration for HWA#1)
2. Kmeans (and perpetration for HWA#2)
5. Summary of material learnt so far
3. Naive Bayes practical example (and perpetration for HWA#3)
4. Decision tree practical example (and perpetration for HWA#4)
6. Preparation for the final project

Reading List

Algorithms:

- KM: Tan, Steinbach, Karpante, Kumar, Introduction to data mining, chapter 8
- NB: Foster and Fawcett, Data Science for Business, chapter 9.
- DT: Tan, Steinbach, Karpante, Kumar, Introduction to Data Mining, chapter 4

Tools:

- Excel: define and solve problems by using Excel solver
- Python: datacamp python-for-data-science

Platforms:

- Gephi: gephi documentation
- BigML: bigml documentation