Data Science

Assoc. Prof. Dr. Bora Canbula

https://github.com/canbula/DataScience/

qfxx193

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Instructor

Assoc. Prof. Dr.
Bora CANBULA
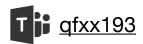
Phone

0 (236) 201 21 08

Email

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Office Location

Dept. of CENG

Office C233

Office Hours

4 pm – 5 pm, Mondays

Course Overview

Data Science (Teams Code: 42sbxhs)

We are going to try to develop practical data science abilities and programming skills for data science projects in this course. Python is preferred as the programming language for the applications of this course.

Required Text

Introduction to Data Science, Springer, *L. Igual - S. Segui*

Data Science Concepts and Practice, Morgan Kaufmann, *V. Kotu – B. Deshpande*

Course Materials

• Python 3.x (Anaconda is preferred)

• Jupyter Notebook from Anaconda

• Pycharm from JetBrains / Microsoft Visual Studio Code

• PC with a Linux distro or a Linux terminal in Windows 10/11.

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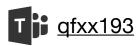## Assoc. Prof. Dr. Bora Canbula

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Course Schedule

Week	Subject	Week	Subject
01	Basic Concepts in Python	08	Midterm Project Presentations – Part 1
02	Introduction to Data Science with Python	09	Midterm Project Presentations – Part 2
03	Data Collections and Preprocessing	10	Advanced Machine Learning Techniques
04	Exploratory Data Analysis (EDA)	11	Model Deployment and Visualization
05	Feature Engineering and Selection	12	Real-time Data and Model Updating
06	Introduction to Machine Learning Models	13	Final Project Presentations – Part 1
07	Model Evaluation and Hyperparameter Tuning	14	Final Project Presentations – Part 2

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Project Themes

Sports

Economy

Health

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Examples

Sports
- ◎ Predicting Game Outcomes
- ◎ Injury Risk Prediction
- ◎ Player Market Value Prediction
- ◎ Fan Engagement Analysis
- ◎ Athlete Performance Comparison

Examples

Economy
- ◎ Stock Market Prediction
- ◎ Cryptocurrency Price Prediction
- ◎ Consumer Spending Analysis
- ◎ Predicting Unemployment Rates
- ◎ Credit Scoring Model

Examples

Health
- ◎ Disease Outbreak Prediction
- ◎ Personalized Health Recommendations
- ◎ Health Risk Prediction
- ◎ Hospital Readmission Prediction
- ◎ Nutritional Deficiency Prediction