**BDA 503 Essentials of Data Analytics**

**Syllabus**

**Office**

**Office Hours** by appointment

**Contact** Email: orbayb@mef.edu.tr

**Reference Materials**

* **B1: *An*** *Introduction to Data Science* (2013) version 3 by Stanton
* **B2:** *Business Analytics for Managers* (2011)by Jank
* **U:** Udacity Course – Data Analysis with R: https://classroom.udacity.com/courses/ud651
* Big Data @ Work: Dispelling the Myths, Uncovering the Opportunities by Davenport
* Introduction to Statistical Learning by Gareth et al.
* R for Data Science by Wickham

*More recommended references on online platforms (Blackboard + Course Page).*

**Course Expectations**

* Proven ability to manipulate data sets and creating summary tables
* Proven ability to visualize data with the proper choice of tools (e.g. histogram, scatterplot, pie charts)
* Proven ability to code with R and related packages (e.g. tidyverse)
* Proven ability to perform input/output operations
* Proven ability to perform reproducible research
* Proven ability to apply basic data mining algorithms (e.g. regression, logistic regression) and interpret the output
* Proven ability to communicate findings of analyzed data in a coherent and understandable way

**Course Format**

The lectures will be formatted as readings and video tutorials; these will be available on Udacity. You will be responsible for going over these class materials on your own, prior to our class meetings. The R files/PowerPoint presentations/notes will also be available on Blackboard prior to (or after) each class, when necessary.

During class meetings, there will be very little lecturing (no more than 45 minutes). Instead, you will tackle different problems individually or in groups under my supervision using R and other software.

*HW Assignments:* Before every class, you will be required to complete an elementary HW assignment that will ensure that you have gone over the material. The HW assignment will be due 8AM every Monday before class. Your answers to these assignments will help structure that evening's classroom discussion.

*Quizzes:* Throughout the semester, there will be about 5 quizzes, to check on your progress with the course material.

*Final Exams:* The exam will be 120-180 minutes, it will be primarily problem solving with written and R components. It will require extensive use of R, and be “open notes”. You may not share books, materials, computers or electronic devices during an exam. You may not use any electronic communication tools such as email, IM, cell phones, pagers, etc.

*Group Project:* There will be one group project. For this project, all group members will receive the same score. In general, students may freely communicate within their group and between groups. Collaboration is endorsed.

Students are responsible for forming and managing their groups. It is expected that students will manage their groups so that everyone performs a fair share of the work, and that all perspectives are heard and considered. The assignments should be turned in electronically by 5PM of the due date.

*Correspondence:* If you want to get response to your e-mails, always include your name, your course name. Observe grammatical rules while composing your e-mails.

**Grading**

Final course grades will be based on:

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| Quizzes | 15% |
| HW | 15% |
| Group Project | 35% |
| Final Examination | 35% |

No late assignments will be accepted.

**TENTATIVE SCHEDULE**

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| WEEK 1 | 09/26 |
| Topics Covered: | INTRO |

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| WEEK 2 | 10/10 |
| Due: | U: What is EDA?  U: R Basics  U: Explore One Variable *(start)*  B2 Chapter 2 |
| Topics Covered: | Basics of EDA |

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| WEEK 3 | 10/24 |
| Due: | U: Explore One Variable *(complete)* and Problem Set  U: Explore Two Variables *(start)*  B2 Section 3.1 - 3.3 |
| Topics Covered: | Simple Regression |

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| WEEK 4 | 11/07 |
| Due: | U: Explore Two Variables *(complete)* and Problem Set  U: Explore Many Variables *(start)*  B2 Chapter 4.1 and 4.2 |
| Topics Covered: | Flexible Regression Models |

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| WEEK 5 | 11/21 |
| Due: | U: Explore Many Variables *(complete)* and Problem Set  U: Diamonds & Price Predictions *(start)*  B2 Chapter 5 |
| Topics Covered: | Selective Regression Models |

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| WEEK 6 | 12/05 |
| Due: | U: Diamonds & Price Predictions *(complete)* |
| Topics Covered: | Logistic Regression Models |

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| WEEK 7 | 12/19 |
| Due: | PROJECT PRESENTATIONS |