

Syllabus
EGGG 367: Data Science 1
FALL 2019

Instructor: Dr. Nii Attoh-Okine, 354 Dupont Hall/109 Evans Hall, email: okine@udel.edu

Time and Location: Th 3:30 pm - 6:30 pm [Dupont 350]

Tuesday 10:30am - 11:30 am

Office Hours: Wednesday 12:00 Noon - 1:30pm

Thursday 1:30pm - 2:30 pm

Textbook: Doing Data Science. Rachel Schutt and Cathy O’Neil. O’Reilly Publishers 2014
Making Sense of Data II. Glen Myatt and Wayne Johnson. Wiley 2009.

Grading: There will be weekly assignments and project. They will count toward the grade as follows.

Assignments	60%
Midterm	15%
Final	25%.

Description of the Course

Advances in technology have allowed us to collect massive amounts of data. A data scientist is a person who has the skills, knowledge, and ability to extract actionable knowledge from the data either for good of society, advancement of science and technology, promotes business, etc. The course will examine the central question of “what is Big Data” and the how can engineers, statisticians, health related specialists, computer scientists, social scientist and other professionals can employ tools and techniques of data science. This course will cover the topics needed to solve data science problems, which include data preparation, data characterization and presentation, data analysis, and data products. Enrolling in this course will help the student develop a deeper understanding of the various phases of Big Data.

Syllabus

Lecture Topics

- 1 Overview and Introduction
- 2 Getting Started with R (R-studio)
- 3 Exploratory Data Analysis (ggplot2)
- 4 Data Visualization (Univariate, Bivariate, Multivariate)
- 5 Clustering (Distance Measures, Hierarchical, Partitioned-Based Clustering)
- 6 Predictive Analytics (Predictive Modeling, Multiple Linear Regression, ROC curves)
- 7 Predictive Analytics (Logistic Regression, Naive Classifiers)
- 8 Deep Learning
- 9 Applications (Case Studies), Jupyter