

# DSCI 6006 : Data Science for Business: Translating Business Questions into Data ROI

## Instructors:

- Nir Kaldero ([nir@galvanize.com](mailto:nir@galvanize.com))
- Dr. Donatella Taurasi ([donatella.taurasi@berkeley.edu](mailto:donatella.taurasi@berkeley.edu))

**Class Location:** San Francisco Campus - gU Classroom, 3rd Floor

## Class Time:

- Monday 3-5 PM
- Tuesday 3-5 PM
- Thursday 3-5 PM

## Description of the Course:

This course is designed for anyone interested in understanding how decisions are made using data. You will learn how to identify, evaluate, and capture business opportunities that drive value, and how to translate these business questions into data questions. You will be exposed to a variety of businesses and case studies. By the end of this course you will also be able to communicate data science results and provide actionable recommendations in an effective and efficient way.

## Prerequisites:

- DSCI600-1/2/3/4

## Supplementary Materials:

There is no required textbook for this course. Here is a list of recommended readings:

- Will share before each lecture

## Course Requirements:

### Attendance

Students are expected to be present and on time for all class meetings.

### Class Participation

You will learn more easily and enjoyably if you actively participate. Student contribution to class discussions is highly valued and is critical to the learning process. Students will be asked to

participate in class activities designed to encourage open conversation about and involvement in course material.

### **Home Exercises / Case Studies**

Participation in and completion of lab exercises is a requirement for this course. Each unit includes exercises to provide practice applying techniques discussed in class and to reveal deficiencies in understanding in preparation for skills tests. Some of these will be individual efforts, some will be pairs and group programming.

### **Final Project**

More details on this later.

### **Academic Integrity**

The University of New Haven is an academic community based on the principles of honesty, trust, fairness, respect, and responsibility. Academic integrity is a core University value which ensures respect for the academic reputation of the University, its students, faculty and staff, and the degrees it confers.

The University expects that all students will learn in an environment where they work independently in the pursuit of knowledge, conduct themselves in an honest and ethical manner and respect the intellectual work of others. Each member of the University community has a responsibility to be familiar with the definitions contained in, and adhere to, the Academic Integrity Policy. Violations of the Academic Integrity Policy include, but are not limited to:

1. Cheating -- *i.e.* Don't read off of your neighbors exams
2. Collusion -- Group work is encouraged *except* on evaluative exams\*. When working together (on exercises, etc.) acknowledgment of collaboration is required.
3. Plagiarism -- Reusing code presented in labs and lectures is expected, but copying someone else's solution to a problem is a form of plagiarism (even if you change the formatting or variable names).
4. Facilitating academic dishonesty

Students who are dishonest in any class assignment or exam will receive an "F" in this course. More information regarding UNH's official academic integrity policies are outlined in [here](#).

### **Grading**

The breakdown of the grade will be as follows:

- Participation: 25%
- Case studies: 45%
- Final Project: 30%

**Learning objective:**

- Identify opportunities to apply data science to achieve business ROI
- Start developing a business-oriented data science mindset
- Be able to identify key actions that will allow you to transform business problems into data questions
- Identify businesses' strengths and weaknesses in the data-driven era
  - Marketing
  - Operations
  - Finance
- Learn how to communicate in an effective & efficient way

**Class Topics:****Week 1: Introduction to Data ROI (1/19)**

- 1.1 The importance of Data Driven Organizations
  - Management Culture Data Driven
  - Data ROI
  - Obama Case (in class) Activity

**Week 2: Data Visualization (Guest Lecture): (1/23-24 and 26)**

- 2.1 Data Visualization Part I (w/ Guest Lecturer)
- 2.2 Data Visualization Part II (w/ Guest Lecturer)
- 2.3 Data Visualization Part III (w/ Guest Lecturer) + Case

**Week 3: Effective Communication (1/30-31 and 2/2)**

- 3.1 Data Science Ethics (Taught by Alessandro)
- 3.2 Effective Communication Skills
  - Persuasive Presentation Skills - Technical / Non Technical
  - Stating the stage, Voice Modulation, Body Language, and the Power of Data Storytelling
- 3.3 Data Science Team Building (Pillars of Data Science)

**Week 4: Marketing Analytics - Experimental Design and A/B Testing (2/6)**

- 4.1 Design of experiments - A/B Testing
- 4.2 Bayesian A/B testing + Case study
- 4.3 Case Presentations & Discussion

### **Week 5: Customer Segmentation Management (RFM) (2/13)**

- 5.1 Computing Recency, Frequency, Monetary value, Churn
- 5.2 Customer Analytics Case - FlipKart (Markov Chain)
- 5.3 Case Presentations & Discussion

### **Week 6: Finance Analytics (Nomis A-B) (2/20)**

- 6.1 Finance applications in Data Science
- 6.2 Nomis Case
- 6.3 Case Presentations & Discussion

### **Week 7: Autonomous Corporation: Intro to Artificial intelligence (2/27)**

- 7.1 Intro to Artificial Intelligence (Deep Learning)
  - Specific vs. Generalized AI
  - Human vs. Machine
  - AI Moral Problems
- 7.2 Self Driving Car Case
- 7.3 Case Presentations & Discussion

### **Week 8: Final Project Week (Tahoe HealthCare) (3/6)**

- 8.1 Tahoe Model Presentation *Technical*
- 8.2 Tahoe Model Presentation *Non-Technical*
- 8.3 Executive Summary for the Course (what's next?)