



**STEVENS**  
INSTITUTE of TECHNOLOGY  
THE INNOVATION UNIVERSITY

Wesley J. Howe  
School of Technology Management

MASTER OF SCIENCE  
Business Intelligence & Analytics (BI&A)



## SOFTWARE BOOTCAMP

March 2, 9 and 23, 2013

**Financial Services Center, Hanlon Lab  
4<sup>th</sup> Floor, Babbio Center**

### PROGRAM

Classes are held from 9:00 am – 5:00 pm on each day.

Saturday, March 2: R  
Saturday, March 9: SAS  
Saturday, March 23: Python

**Saturday, March 2**

## **Introduction to R**

**Instructor:** Dr. Ionut Florescu, Stevens Institute of Technology  
[ifloresc@stevens.edu]

### Objectives

- Understand the background and objectives of R
- Install R on a laptop
- Perform basic statistical analyses in R
- Develop a self-learning program of study to master R

### Agenda

9:00 – 9:15 am    Installing R

9:15 – 9:45 am    Introduction to R

9:45 – 10:15 am    Importing and Entering Data

10:15 – 12:00 pm    Data structures in R. Descriptive Statistics and data visualization

12:00 – 1:00 pm    Lunch Break

1:00 – 3:00 pm    Inferential Statistics (basics of testing and confidence intervals for one and multidimensional statistics). Basic regression.

3:00 – 4:30 pm    Creating Functions (Monte Carlo simulations in R)

4:30 – 5:00 pm    Developing a self-learning program of study to master R. Instructions for installing SAS on personal computers. Questions and Answers.

**Saturday, March 9**

## **Introduction to SAS**

**Instructor:** Dr. Dragos Bozdog, Stevens Institute of Technology  
[dbozdog@stevens.edu]

### **Objectives**

- Understand the background and objectives of SAS
- Install SAS on a laptop
- Perform basic statistical analyses in SAS
- Develop a self-learning program of study to master SAS

### **Agenda**

9:00 – 9:30 am     Introduction to SAS – Basic concepts

9:30 – 10:30 am    Data manipulation techniques

10:30 – 12:00 pm   Descriptive Statistics and introduction to procedures (macros)

12:00 – 1:00 pm    Lunch Break

1:00 – 4:00 pm     One and two-variable analysis. Regression, ANOVA, Logistic regression

4:00 – 4:30 pm     Advanced techniques – SQL

4:30 – 5:00 pm     Developing a self-learning program of study to master SAS (and Q&A).

Saturday, March 23

## Introduction to Python

Instructor: Dr. Viorel Dragnea, Brown Bros Harriman [V\_Dragnea@gmail.com]

### Objectives

- Understand the background and objectives of Python
- Install Python on a laptop
- Perform basic web analyses in Python
- Develop a self-learning program of study to master Python

### Agenda

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|-----------------|--|
| 9:00 – 9:30 am  | Introduction to Python   |
| 9:30 – 10:00 am | Installing Python  |
| 10:00 – 10:30am | Using easy_install / pip to install required packages<br>[ <i>numpy, scipy, ipython, matplotlib, pandas, mechanize, beautifulsoup, twitter, boto, json</i> ] |
| 11:00 – 12:00pm | Familiarizing with Python: writing a “hello world”, running from interactive Python, command-line, and iPython   |
| 12:00 – 1:00 pm | Lunch Break  |
| 1:00 – 3:00pm   | Python basics: Data structures, string manipulation  |
| 3:00 – 4:30 pm  | Intermediate Python: Functions & modules, file I/O   |
| 4:30 – 5:00 pm  | Develop a self-learning program of study to master Python  |

# **BI&A Software Bootcamp Instructors**

## **Dr. Dragos Bozdog**

Dragos Bozdog is an Adjunct Professor in the Financial Engineering Program and System Administrator at the Hanlon Financial Systems Lab at Stevens Institute of Technology. He received his Ph.D. and M.S. in Mechanical Engineering from The University of Toledo and he is currently working towards his 2nd Ph.D. in Applied Mathematics in Finance. His research interests include quantitative finance, high-frequency data analysis, algorithms, and optimization. Prior to joining Stevens, Dragos was a Post-Doctoral Fellow at Rutgers Center for Operations Research.

## **Dr. Viorel Dragnea**

Dr. Viorel Dragnea is currently a consultant at Brown Brothers Harriman. Prior to joining Brown Brothers Harriman, he held positions as a software engineer at Syncsort and Genrom. Viorel holds a Ph.D. degree in Computer Science from Stevens Institute of Technology and a master's degree from the Universitatea Politehnica, Bucharest.

## **Dr. Ionut Florescu**

Dr. Ionut Florescu is the Director of the Hanlon Financial Systems Lab since September 2012 and has been with Stevens since the Fall of 2005. His Ph.D. is in Statistics from Purdue University and his research is concentrated in Stochastic Processes and their applications. He has published articles in Mathematical Finance, Ecosystem dynamics, Computer Vision, Geophysics, Cryptography, Sensor detection and other areas. He is very interested in interdisciplinary activities, in particular in applying sound fundamental probability and statistics principles to other areas of science and engineering.