CSE 198: Introduction to Data Science

Fall 2015 – 1:10pm-2:25pm Tue/Thu – Location TBD

Draft Catalog Description
Data Science is a fast-growing interdisciplinary field, focusing on the analysis of data to extract knowledge and insight. This course will introduce students to the collection, preparation, analysis, modeling and visualization of data, covering both conceptual and practical issues. Examples and case studies from diverse fields will be presented, and hands-on use of statistical and data manipulation software will be included.

Learning Outcomes
After taking CSE 198, you will:

i. Recognize the various disciplines that contribute to a successful data science effort.
ii. Understand the processes of data science: identifying the problem to be solved, data collection, preparation, modeling, evaluation and visualization.
iii. Be aware of the challenges that arise in data science.
iv. Develop an appreciation of the many techniques for data modeling and mining.
v. Be cognizant of ethical issues in many data science tasks.
vi. Be comfortable using commercial and open source tools such as the R language and its associated libraries for data analytics and visualization

Prerequisites
CSE 2 or CSE 12 or equivalent introductory programming experience

Contact Information
Professor
Dr. Brian D. Davison
E-mail: davison@cse.lehigh.edu
Office Hours: TBD (or by appointment) in Packard Lab 514C

Online Resources
http://coursesite.lehigh.edu/

Textbooks (required)
Topics expected to be covered
Introduction to the field of data science; data collection; experimental design; data attributes; data cleaning; data characterization and analysis; data modeling and mining techniques; model evaluation; visualization; applications of data science; R scripting. Maybe: privacy, security and social impacts.

The course will also include a number of guest lecturers to introduce students to the variety of applications of data science.

Academic Honesty
The work you submit must be entirely your own. While we encourage you to discuss basic concepts and strategies with friends and classmates, the copying or sharing of solutions to homework, in whole or in part, is never acceptable. Both the person receiving the copied work and the person providing the copied work are equally responsible. Such cases will be referred to the University Committee on Discipline and, if found guilty, you may be given a failing grade in the course (or worse).

If you have questions about this policy at any point throughout the semester, ask. It is far better to be safe than sorry when your academic career may be on the line.

Grading
Grades will be a function of homework, projects, class participation and exams. Attendance is required and pop quizzes may occur at any time. You are responsible for everything that occurs in class as well as assigned readings. Late assignments will be penalized 10% per day, up to three days late.

There will be two in-class exams and a final project. Missed exams without a legitimate excuse will result in a score of 0 on that exam.

Accommodations for Students with Disabilities
If you have a disability for which you are or may be requesting accommodations, please contact both your instructor and the Office of Academic Support Services, University Center C212 (610-758-4152) as early as possible in the semester. You must have documentation from the Academic Support Services office before accommodations can be granted.

Principles of Equitable Community
Lehigh University endorses The Principles of our Equitable Community (http://www4.lehigh.edu/diversity/principles). We expect each member of this class to acknowledge and practice these Principles. Respect for each other and for differing viewpoints is a vital component of the learning environment inside and outside the classroom.