ITMD/IT-D 529 Data Analytics

Fall 2016 Adjunct Ind. Professor Suemee Shin

Syllabus

Professor: **Suemee Shin**
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Office(s): via Appointment Only
Office Hours: As Needed, Room TBD

Lecture Days, Time & Place: Tuesdays and Thursdays 10:00 to 11:15 AM, Hermann Hall 003 on IIT's Main Campus, or online via IIT Online.

Course Description: This course assumes that the student has taken the 527 Introduction to Data Analytics course, has the ability to analyze data sets in Excel, SAS, and R. Also, the student is able to summarize analysis and information in a presentation. The course assumes intermediate knowledge of SQL and data modeling to run queries and process data sets. The course will introduce advanced topics in data analysis and implementation methodologies built upon the 527 course. The course will additionally cover financial services analytic topics. Lastly, the course will further introduce analytic topics in Big Data and its applications. **Credit:** 3-0-3

Course Outcome: Upon completion of the course, the student will be able to:

- Understand advanced data analysis and data management concepts, theories, and implementation methodologies e.g., regression analysis and forecasting
- Source, process, and model data sets for predictive analysis
- Use tools and technologies available for data analysis e.g., Excel, SAS, R
- Perform analysis and summarize findings in a presentation

Schedule of Topics/Readings: ***You should do all readings prior to class.***

Session	Date	Topic
1	August 23/25	Week 1 topics: Course Overview & Basics
2	Aug/Sept 30/1	Week 2 topics: SAS and R Statistics
3	September 6/8	Week 3 topics: Regression Analysis and Forecasting I
4	September 13/15	Week 4 topics: Regression Analysis and Forecasting II
5	September 20/22	Week 5 topics: Regression Analysis and Forecasting III
6	September 27/29	Week 6 topics: Midterm project workshops
7	October 4/6	No classes – Prepare for Midterm submission
8	October 11/13	Week 8 topics: Midterm - Submission & Optional Presentations
9	October 20	Week 9 topics: (No classes on Oct 18) Financial Services Analytics I
10	October 25/27	Week 10 topics: Financial Services Analytics II
11	November 1/3	Week 11 topics: Big Data Analytics I
12	November 8/10	Week 12 topics: Big Data Analytics II
13	November 15/17	Week 13 topics: Big Data Analytics III
14	November 22	Week 14 topics: Final Project Workshops
15	November 29/1	Week 15 topics: Final Project - Optional Presentations
Final	December 5	Final Project Submission

Textbook:

There are no Mandatory text books for this course:

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The following textbooks for this course are **Optional:**

1. SAS and R by Ken Kleinman, Nicholas J Horton. ISBN-13: 978-1420070576 ISBN-10: 1420070576
2. Data Smart: Using Data Science to Transform Information into Insight 1st Edition by John W. Foreman. ISBN-13: 978-1118661468 ISBN-10: 111866146X
3. Data Mining: The Textbook by Charu Aggarwal. ISBN-13: 978-3319141411 ISBN-10: 3319141414
4. Microsoft Excel 2013 Data Analysis and Business Modeling 1st Edition by Wayne Winston. ISBN-13: 978-0735669130. ISBN-10: 0735669139
5. Data Science for Business: What you need to know about data mining and data-analytic thinking 1st Edition by Foster Provost and Tom Tawcett. ISBN-13: 978-1449361327 ISBN-10: 1449361323

Readings/Videos: Readings for the class will be assigned from the textbook, course handouts, as well as in the form of online reading. Course handouts and online resources and videos will be linked from or embedded in a Blackboard page. It is essential that you do all readings and/or view the videos before coming to class on the assigned date. These materials are a necessary and integral part of the class and will form the basis for any class discussions on the topic. Specific readings are assigned by class and are available in Blackboard.

Course Notes: Copies of the course lecture notes in the form of a PDF of the PowerPoint presentation accompanying each lecture will be provided for each student on Blackboard. This should be useful if you must miss a class. You should be aware that note taking is encouraged and should help your understanding of the material.

Course Web Site: http://blackboard.iit.edu/

Blackboard: The course will make intensive use of Blackboard (http://blackboard.iit.edu/) for communications, assignment submissions, group project coordination, providing online resources and administering examinations. All remote students will view the course lectures online via Blackboard, and online readings will be found on Blackboard.

Guest Lectures: Guest lecturers may be featured as part of course topics. When a guest speaker is expected you should make an extra effort to be seated and ready prior to class time. Guest lectures, if scheduled, will occur during class hours. A question & answer/ discussion period will be held at the end of each lecturer's presentation.

Attendance: If you are in a live section of the class and will not be able to attend class, please notify me via email prior to class time. Live section students who miss a class should always watch the lecture online.

Assignments: There will be class exercises assigned throughout the semester that may require hands on data analysis and a summary in a presentation format. Instructions on these will be handed out as scheduled.

Midterm and Finals: Midterm grades will be assigned according to grading criteria below after completion of Week 8. Midterm and Final projects will consist of a presentation and supporting analysis work. Details and deadline for project submissions will be discussed in class.

Academic Honesty:

Plagiarism: All work you submit in this course **must be your own**. You must fully attribute **all** material directly quoted in assignments and you must document all sources used in the preparation. If you submit plagiarized material you **WILL** receive a grade of **ZERO** for the assignment, an Academic Honesty Violation Report will be filed, and it may result in your expulsion from the course with a failing grade as per the IIT and ITM academic honesty policies. **There is no excuse for not understanding this policy** and if you do not understand it please let me know and I will be happy to discuss it with you.

Grading: Grading criteria for ITMD 529 students will be as follows:

A *Outstanding work reflecting substantial effort* 90-100%

B *Adequate work fully meeting that expected of a graduate student* 80-89.99%

C *Weak but marginally satisfactory work not fully meeting expectations* 65-79.99%

E *Unsatisfactory work* 0-64.99%

The midterm grade for the class will be calculated as follows:

Midterm Project **60%**
Class Exercises & Participation **40%**

The final grade for the class will be calculated as follows:

Midterm Project **30%**
Final Project **40%**
Class Exercises & Participation **30%**

Other Class Resources: Online readings and other class resources may be found on Blackboard.

Our Contract: This syllabus is my contract with you as to what I will deliver and what I expect from you. If I change the syllabus, I will issue a revised version of the syllabus; the latest version will always be available on Blackboard. Revisions to readings and assignments will be communicated via Blackboard.

Disabilities: Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. My office hours are listed on the first page of the syllabus. The Center for Disability Resources (CDR) is located in 3424 S. State St., room 1C3-2 (on the first floor), telephone 312.567.5744 or disabilities@iit.edu.