

ITMD/IT-D 527 Data Analytics

Spring 2016

Adjunct Ind. Professor Suemee Shin

Syllabus

Professor: Suemee Shin*Address:* Perlstein Hall 10 W 33rd St, Room 233, Chicago IL 60616*Telephone:* (773) 492-1321*Email:* sshin17@iit.edu*Office(s):* via Appointment Only*Office Hours:* As Needed, Room TBD

Lecture Days, Time & Place: Tuesdays and Thursdays 10:00 AM to 11:15 AM, TBD,
10 W. 33rd Street on IIT's Main Campus, or online via IIT Online.

Course Description: This course will introduce the student to fundamental concepts in data analysis and implementation methodologies. The course assumes knowledge of SQL and data modeling to run queries and process data sets. The course will introduce/use Excel, SAS, and R to apply analysis techniques and concepts for various use cases. The course will also cover data management concepts e.g., data warehousing, to set the foundation for analytic reporting. Application of analytic techniques will span several industries. Lastly, the course will introduce concepts in Big Data and its applications. **Credit:** 3-0-3

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

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

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

Session	Date	Topic	Reading
1	January 12/14	Week 1 topics: Course Overview	Readings 1
2	January 19/21	Week 2 topics: Analysis in Excel/Basic Statistics	Readings 2
3	January 26/28	Week 3 topics: Analysis in Excel/Optimization Modeling I	Readings 3
4	February 2/4	Week 4 topics: Analysis in Excel/Optimization Modeling II	Readings 4
5	February 9/11	Week 5 topics: Cluster Analysis (in Excel) I	Readings 5
6	February 16/18	Week 6 topics: Cluster Analysis (in SAS) II	Readings 6
7	February 23/25	Week 7 topics: Cluster Analysis (Case Study in SAS) I	Readings 7
8	March 1/3	Week 8 topics: Cluster Analysis (Case Study in SAS) II	Readings 8
9	March 8/10	Week 9 topics: Midterm Quiz/Case Study Wrap up	Readings 9
10	March 15/17	No classes/Spring Break	
11	March 22/24	Week 11 topics: Big Data Analytics I	Readings 11
12	March 29/31	No classes (Self Study Assignments)	
13	April 5/7	Week 13 topics: Special Topic: Kx Systems	Readings 13
14	April 12/14	Week 14 topics: Big Data Analytics II	Readings 14
15	April 19/21	Week 15 topics: Big Data Analytics III	Readings 15
16	April 26/28	Week 16 topics: Final Reviews	None
Finals	May3 Week	Final Exam	None

Textbook:

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

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1. Data Smart: Using Data Science to Transform Information into Insight 1st Edition by John W. Foreman. ISBN-13: 978-1118661468 ISBN-10: 111866146X

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 Mining: The Textbook by Charu Aggarwal. ISBN-13: 978-3319141411 ISBN-10: 3319141414
3. Microsoft Excel 2013 Data Analysis and Business Modeling 1st Edition by Wayne Winston. ISBN-13: 978-0735669130. ISBN-10: 0735669139
4. 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. Points will be deducted for absences.

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. No late submissions will be accepted.

Midterm and Finals: Midterm and Final grades will be assigned according to the grading criteria below. Midterm Quiz will be administered during Week 8. Midterm grades will be posted by March 11th. Final Exam will be administered during Finals week. Final grades will be posted by May 6th.

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.

ITMD/IT-D 527 Data Analytics**Spring 2016****Adjunct Ind. Professor Suemee Shin****Grading:** Grading criteria for ITMD 527 students will be as follows:

A	<i>Outstanding work reflecting substantial effort</i>	90-100%
B	<i>Adequate work fully meeting that expected of a graduate student</i>	80-89.99%
C	<i>Weak but marginally satisfactory work not fully meeting expectations</i>	65-79.99%
E	<i>Unsatisfactory work</i>	0-64.99%

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

Midterm Quiz	30%
Class Exercises & Participation.....	70%

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

Final Exam	30%
Midterm Quiz, Class Exercises & Participation.....	70%

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.