OAKLAND UNIVERSITY

SCHOOL OF BUSINESS ADMINISTRATION

MIS 5560
Decision Support Systems

Winter Semester 2018

INSTRUCTOR:	**Dr. Ahmad Sobhani**
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CLASSROOM:	**EH 212**

Office hours

Day	Hours
Tuesdays*	**2pm – 5pm**
Wednesdays & Thursdays*	**3pm-5pm**

You can stop by any time within office hours. But, I highly recommend to make an appointment first to make sure I am available.

1. SCHOOL OF BUSINESS ADMINISTRATION MISSION STATEMENT:

The mission of Oakland University's School of Business Administration is to be a preeminent metropolitan school that provides a distinctive education with experiential learning and global understanding in order to create successful business professionals and leaders. To foster an environment for impactful research and active community engagement.

2. COURSE DESCRIPTION:

Organizations invest a significant part of their information technology (IT) budget to capture, store and analyze data. The return on these investments will depend on how effectively organizations analyze the data and use it to support managerial decision making. Business Intelligence or business analytics are common terms used to describe the process of building models to support decision making. The course is structured to give the students a conceptual understanding of various modeling techniques with a focus on their application to business problems. At the end of the course, the student should be able to: 1) Assess data needs to build a decision support model; 2) Prepare data for mining and decision support; 3) Build classification and clustering based decision support models ; 4) Interpret and Evaluate decision support models; and 5) Understand the advantages and pitfalls of different modeling techniques.

3. PREREQUISITES:

Basic Database skills, Knowledge of basic statistics

4. REQUIRED TEXT:

Data Mining for Business Analytics: Concepts, Techniques, and Applications with JMP Pro
Galit Shmueli, Peter C. Bruce, Mia L. Stephens, Nitin R. Patel
ISBN: 978-1-118-87743-2

5. REQUIRED SOFTWARE:

JMP 11 Pro/ JMP 13 Pro, Tableau, RapidMiner

Other Resources
- JMP/SAS: www.jmp.com/learn
- Data sources and articles at www.kdnuggets.com
- Government Data Source: data.gov
- Teradata University: http://www.teradatauniversitynetwork.com/tun/

6. GRADING DISTRIBUTION:

ACTIVITY	POINTS	PERCENT
Quiz	100	10%
Discussions	100	10%
In class case analysis / practice	100	10%
Mid-term exam	100	35%
Group project	100	35%
TOTAL	500	100%

All grades posted are to be verified within 7 days.

Grading

Considered "A"s		Considered "B"s		Considered "C"s		Considered "D"s	
4.0	100.% - 98.60	3.5	90.59 – 88.60	2.9	79.59 – 78.60	1.9	69.59 – 68.60
3.9	98.59 – 96.60	3.4	88.59 – 86.60	2.8	78.59 – 77.60	1.8	68.59 – 67.60
3.8	96.59 – 94.60	3.3	86.59 – 84.60	2.7	77.59 – 76.60	1.7	67.59 – 66.60
3.7	94.59 – 92.60	3.2	84.59 – 82.60	2.6	76.59 – 75.60	1.6	66.59 – 65.60
3.6	92.59 – 90.60	3.1	82.59 – 80.60	2.5	75.59 – 74.60	1.5	65.59 – 64.60
		3.0	80.59 – 79.60	2.4	74.59 – 73.60	1.4	64.59 – 63.60
				2.3	73.59 – 72.60	1.3	63.59 – 62.60
				2.2	72.59 – 71.60	1.2	62.59 – 61.60
				2.1	71.59 – 70.60	1.1	61.59 – 60.60
				2.0	70.59 – 69.60	1.0	60.59 – 59.60

Course activity details:

There is one quiz that will comprise of Multiple Choice and True/False questions. Duration: 60 minutes.

The discussions will be created and followed on Moodle.

Case studies will be presented in the class and students are working on them in their groups or individually. At least 5 case studies/ practices will be completed within the semester.

This mid-term exam could comprise of multiple choice questions and/or problems to be solved using JMP. It will be a 90-minute "open-book open-notes" exam.

The group project would be presented on the last week of the class. More details will be provide in the first session.

7. **COURSE POLICIES AND PROCEDURES:**

The course has been designed with the following principles in mind:

- Multi-disciplinary perspective: The core of the course is to build decision support models with applications in different functional areas of business.

- Teamwork: Students will collaborate in teams to do exercises and assignments.

- Action learning approach: The course relies heavily on learning by doing. Students will gain first-hand experience of building decision support models as part of the assignments and discussion forums.

- Peer learning: Students will play an active role in course by reading articles and discussing assignments with members within their teams. As such, learning from peers will be an important part of their exercises. Active participation and 'in-class' discussions are important elements for learning.

Class Attendance
It is imperative that you avoid missing classes. We will be covering a vast number of topics and materials across the fields of data analytics. All of the content covered in class or in the assigned readings is important, and any of it could be the subject of an exam question. Lectures will be used to focus and amplify selected text subjects, to provide examples and images, to discuss current events, and to answer questions.

Cell Phones
Please be conscientious to the instructor and other students. Cell phones are to be turned off during the class period. You may not leave the classroom to answer phone calls and return.

Academic Conduct
The University's regulations that relate to academic misconduct will be fully enforced. I insist on seeing your own work. Any student suspected of cheating by copying on exam and assignments, use of any previous student's course work, plagiarism, obtaining undeserved points on group work, or by other means will be referred to the Academic Conduct Committee. Students found guilty of academic misconduct face suspension or permanent dismissal. Anyone found by the Academic Conduct Committee to be guilty of misconduct will also receive a 0.0 grade for the course from the instructor in addition to whatever sanction(s) the Committee decides.

Special Considerations
Students who may require special considerations should work with Disabilities Support Services and the instructor to arrange accommodation.

8. COURSE SCHEDULE:

Week	Area of the lecture or tasks being completed in the class	Chapters
1 **(01/16/2018)**	• Review of the course syllabus • Overview of the course road map • Introduction to data mining • Overview of data mining processes • Introduction to data mining tools	1, 2
2	• Overview of data mining processes • Types of variables • Predictive modeling • Data visualization • Introduction to Tableau • Hands on experience with JMP and Tableau	2, 3
3	• Dimension reduction • Data summaries • Correlation analysis • Multidimensional visualization • PCA • Dimension reduction using regression models • Hands on experience with JMP and Tableau	4
4	• Multiple Linear Regression (MLR) • Performance measure in MLR • Logistic Regression (LR) • Performance measure in LR • Variable selection in LR • Hands on experience with JMP	6, 5, 10
5	• Recap of LR • Recap of performance measure • Introduction to Classification Trees • Hands on experience with JMP	5, 10, 9
6	**Recess week (no class)**	
7	• **Quiz** • Recap classification Trees • Introduction to KNN classification	7, 9

Week	Topics	Reading
8	• Recap KNN • Introduction to Naive Bayes Classifier • Comparing classification models • Hands on experience with JMP and RapidMiner	7, 8
9	• Neural Networks • Concept and Structure of Neural Networks • Hands on experience with JMP and RapidMiner	11
10	• Introduction to Clustering • Preparation for the Mid-Term Exam	14
11 (March 27th 2018)	**Mid-Term Exam**	
12	• Recap Clustering • Association rules	14
13	• Overview of data mining approaches • Brief intro to Ensemble models • Hands on experience with RapidMiner • Preparation for group projects	13
14 (April 17th 2018)	Group presentations	

o The course will be starting on January 16 2018.
o **The quiz will be on February 27 2018.**
o **The mid-term exam will be on March 27 2018.**
o **The last day of the course will be on April 17 2018.**
o Each group has 20 minutes to present their findings.
o The schedule of the course may be changed during the semester.