Oklahoma State University
MSIS 5633
Business Intelligence Tools & Techniques
Online/Distance Sections

Spring 2018 Syllabus (Version 1.0)

Instructor

Dr. Dursun Delen
Regents Professor of Management Science and Information Systems
Spears and Patterson Endowed Chairs in Business Analytics
Research Director for the Center for Health Systems Innovation

Office: T-NCB 302; **Phone:** (918) 594-8283; **Fax:** (918) 594-8281
Email: dursun.delen@okstate.edu; **Web:** http://spears.okstate.edu/delen

Class Web Site

http://online.okstate.edu/ (OSU's Brightspace/D2L LMS)

Class Hours
Office Hours

Online, anytime (no in-class meetings).
By appointment.

Syllabus Attachment

For more student resources, go to:
https://academicaffairs.okstate.edu/content/resources-students

Course Overview

The main objective of this course is for the student to develop an in-depth understanding of the role of business analytics and computer based information systems in direct support of managerial decision making (nowadays commonly referred to as business analytics, business intelligence, and data science). Specifically, at the end of this course students should develop knowledge and hands-on skills about:

- √ business intelligence, business analytics (descriptive, predictive and prescriptive), data science, Big Data, and decision support systems
- √ real-world data and data preprocessing
- √ descriptive statistics, data warehousing, and visual analytics
- √ data, text and Web mining methodologies and enabling technologies
- √ Big Data tools and technologies

Pre-requisites

Even though there are no explicitly specified pre-requisites for this course, having the basic understanding of the following concepts would greatly improve your learning experiences:

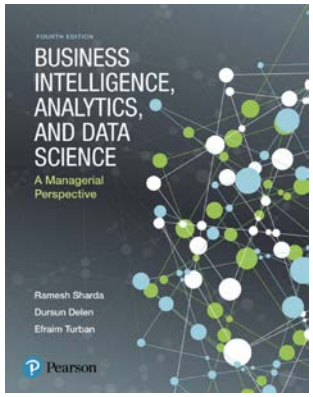
1. Familiarity with one or more programming languages (such as R, Python, Visual Basic, Java, C, Smalltalk, etc.) for analytical and structural thinking and reasoning purposes only. Note however that there will not be any required programming in this class.
2. Artificial intelligence, relational databases, web-based Information systems and general business functions.

Required Text

The course will use the following book:
Business Intelligence, Analytics, and Data Science: A Managerial Perspective, 4th Edition

Publisher: Pearson, ©2018
Authors: Ramesh Sharda, Dursun Delen and Efraim Turban

ISBN-13: 9780134635316 (US Edition)



Other Material

Because the field of Business Analytics is changing and redefining itself continuously, there will be additional handouts (technical journal papers and other written materials) for you to read and discuss. These material will be posted on the class web site.

Additional Texts (for Reference)

- Dursun Delen (2015). "Real-World Data Mining: Applied Business Analytics and Decision Making" (1st Ed.). Upper Saddle River, New Jersey: Financial Times Press (A Pearson Company).
- Ramesh Sharda, Dursun Delen & Efraim Turban. (2013). "Business Intelligence and Analytics: Systems for Decision Support" (10th Ed.). New Jersey: Prentice Hall.
- Ramesh Sharda, Dursun Delen & Efraim Turban (2013). "Business Intelligence: A Managerial Perspective on Analytics" (3rd Ed.). New Jersey: Prentice Hall.
- Dursun Delen, John Elder, Bob Nisbet, Tom Hill & Gary Miner. (2012). " Practical text mining and statistical analysis for non-structured text data applications. Academic Press (an Elsevier Publishing Co).
- David L. Olson & Dursun Delen. (2008). "Advanced Data Mining Techniques" (1st Ed.). New York: Springer Publishing.
- Daniel J. Power (2002). "Decision Support Systems: Concepts and Sources for Managers" (1st Ed.). Quorum.
- Ian H. Witten, Eibe Frank, Mark A. Hall & Christopher J. Pal (2016). "Data Mining: Practical Machine Learning Tools and Techniques" (4th Ed.). Morgan Kaufmann.
- Dorian Pyle (1999). "Data Preparation for Data Mining" (1st Ed.). Morgan Kaufmann.

Software

Primary Analytics Tool:
1. **KNIME** (Free Open Source Analytics Platform – http://knime.org)

Secondary (optional) Analytics Tools:
2. JMP (by SAS Institute – Available vis OSU Software Distribution)
3. SAS Visual Analytics Platforms (via TeradataUniversityNetwork.com)
4. IBM SPSS Modeler with Text Analytics, v18, 2017
5. R & Rattle; Simio; Excel/Solver, …

Computer Requirements

Computer requirements (required to view weekly video lectures):

- A broadband internet connection
- Windows 7 or Mac OS Mavericks or newer OS are preferred
- Google Chrome or Mozilla Firefox web browser needed
  Note: lecture videos are not compatible with Internet Explorer or Edge
- VLC Viewer video player (click on link to download)

Examination

There will be one mid-term exam. The exam will be paper-based/proctored, and may include a mix of multiple-choice, fill-in-the-blanks, short answer essay questions and numerical problems. You are expected to take the exam within the specifies 48-hour window.

ACTION for Online Learning Students: one week prior to course start date, go to the Spears School of Business Online Learning website to choose a testing center at: spearsonline.okstate.edu, and click on "Select Testing Center" at the top right of the page. Follow the instructions to identify your testing center. Up to one week before each exam start date, make your appointment directly with your testing center to take each exam while being monitored by a proctor for test security reasons. The exam and/or exam instructions will be sent to your testing center 3 days prior to the exam start date. Contact the Spears School Online Learning office at spearsonline@okstate.edu, or call (405) 744-4048 if you have any questions regarding the testing center sign up process. You may also visit http://spears.okstate.edu/online/guide. **Please note:** The format of the exams in this course are paper-based and must be taken at an approved testing center. There is a lack of certified testing centers outside of the United States. Per Spears School of Business Online Learning Office policy, paper based exams cannot be administered to a student in an international location. Therefore, if you know you are traveling internationally during the exam periods, you will be unable to take the exams abroad, and successfully complete the requirements for this course. You should drop this course and re-enroll in this course during a time you are within the U.S. and can take the exams at a certified testing center.

Missed Examinations

Only in extenuating circumstances such as family crisis, illness, births, etc. will makeup provisions apply. You are to advise your instructor in advance, or right after the fact, of your absence due to such matters.

Term Project (Team-based)

There will be a team project involving development of a complete business intelligence solution using one or more of the analytics tools and techniques. Specifics about the acceptable business problems, which you will be identifying, analyzing and solving, will be given later in the semester. Depending on the class size, each team will be made up of three or four people. You will be responsible for identifying, conceptualizing, designing and developing a valuable solution to a real-world business problem. Each team will submit a proposal, a progress report and a final report (documenting each and every step of their development effort), and, if time and venue permits, will present their project (as a team) in a recorded video at the end

of the semester. The term project will be involved in analyzing and solving a data and/or text mining related business problem.

Homework

Several homework assignments will be given over the course of the semester. Unless otherwise specified by the instructor, you will have one week to work on each. You have to turn in your typed, well-organized write-up **electronically** (using Brightspace's assignment submission procedure at http://online.okstate.edu) by 4:30 PM of the stated due date. The homework assignments are to be solved **individually**. This means that you are not to solve problems together or compare answers prior to turning in the work. Cooperative efforts on individual work will result in an immediate score of zero for all parties involved. The purpose of the homework assignments is to provide you with the kind of practice and exposure opportunities you need master the underlying concepts and techniques.

Late Assignments

Late assignments will **not** be accepted, unless a prior permission is granted by the instructor. That is, the submission procedure will automatically be disabled after the due date/time on the course Web site.

Participation and Professionalism

10% of your final grade will be coming from your participation in the discussion boards on Brightspace as well as the way in which you conduct yourself on the online forums. The success of this course depends on each participant (instructor and students) to actively contribute to the community of learners. For this reason, all participants are expected to facilitate the development of this learning community. Attendance in this course is not based on "seat time," but instead is based on course activity. Activities that represent attendance include constructive contributions to discussions and openly reflecting on the learning process.

The participation points for Online Learning student will come from their productive/informative participation/contribution/engagements on the online discussion forums. Please refer to the rubric as a guide for discussions (see Appendix I - Discussion Board Rubric).

Attendance

Since the class is online, there are no attendance requirements.

Grading Policy

Mid-Term Exam:	25%
Homework Assignments:	20%
Term Project:	25%
Weekly Online Mini Quizzes:	20%
Participation & Professionalism:	10%
Total Points:	100%

The final grade will be determined using a standard scale based on the total points: (>89%: A, 80-89%: B, 70-79%: C, 60-69%: D, <60%: F). A decision to "curve" (i.e., redefining/extending the ranges for letter grades) will be made only at the end of the semester.

Instructor Response

Either my Graduate Teaching Assistant or I will respond to student inquiries within 24 hours during business hours on Monday thru Friday. Students can expect all grades for assignments to be posted to the Gradebook in Brightspace within one week of turning in the assignment.

Special Accommodations for Students

Any student in this course who has a disability that may prevent him or her from fully demonstrating his or her abilities should contact the Office of Student Disability Services at 315 Student Union before the end of the first week of the class. For more information about OSU Student Disability Services, please go to: http://www.okstate.edu/ucs/stdis/.

Academic Dishonesty

Oklahoma State University is committed to maintaining the highest standards of integrity and ethics. This level of ethical behavior and integrity will be maintained in this course. Participating in a behavior that violates academic integrity (e.g., unauthorized collaboration, plagiarism, multiple submissions, cheating on examinations, fabricating information, helping another person cheat, unauthorized advance access to examinations, altering or destroying the work of others, fraudulently altering academic records, and similar behaviors) will result in a sanction. Sanctions include: receiving a failing grade on an assignment, examination or course, receiving a notation of a violation of academic integrity (F!) on your transcript, and being suspended from the University. Please familiarize yourself with the Oklahoma State University Academic Integrity Policies found at: http://academicintegrity.okstate.edu/.

Internet Netiquette Guidelines

A melding of the words "network" and "etiquette", netiquette refers to the manner in which communication is conveyed in an electronic environment. Here are some guidelines for communication within this course:

- REFRAIN FROM USING ALL CAPS. It is considered SHOUTING when communicating online.
- Do not post or forward offensive or racially insensitive jokes/comments.
- Be careful with humor and/or sarcasm.
- Don't respond to personal attacks: Contact the instructor for action.
- Always add in the subject line a concise statement describing the email or discussion post. Make sure your post has information value-add.
- Respect others' opinions. If you disagree with what another has said, post your thoughts in an objective, respectful manner. Do not make remarks that can be taken personally.
- Reflect upon the text you have entered before posting.
- Keep the discussion within the scope of the course material.
- Communication should be grammatically correct. Adhere to correct sentence structure, grammar, and spelling conventions. Proofread for errors before posting a message.
- Before you respond to a threaded message, read all the messages related to that message that have been previously posted.
- Send out an email to a group using the blind carbon copy field – BCC does not allow your recipients to view who was sent the email.

Tentative Course Outline

(Some alterations are likely)

Date	Topic	Reading Assignment
Week 1	Introduction to each other and to the course	Ch 1
Week 2	Descriptive Analytics I: Nature of Data and Statistics	Ch 2
Week 3	Descriptive Analytics II: DW & Visual Analytics	Ch 3 & HO
Week 4	Predictive Analytics I: Data Mining	Ch 4 & HO
Week 5	Predictive Analytics I: Data Mining Algorithms	Ch 4 & HO
Week 6	Predictive Analytics II: Text Mining	Ch 5 & HO
Week 7	Predictive Analytics II: Web & Social Media Mining	Ch 5 & HO
Week 8	**Mid-term Exam**	
Week 9	Prescriptive Analytics: Optimization	Ch 6 & HO
Week 10	Prescriptive Analytics: Simulation & Heuristics	Ch 6 & HO
Week 11	Big Data Analytics	Ch 7 & HO
Week 12	Future Trends and Privacy Concerns in Analytics	Ch 8 & HO
Week 13	Future Trends and in Analytics	Ch 8 & HO
Week 14	Project Presentations and Closing Comments	
Week 15	**Final Term Project Report and PPT Submissions**	

HO: Handout(s) posted on course Web site.

The instructor reserves the right, when necessary, to modify the syllabus: alter the grading policy, change examination dates, and modify the course content. Modifications will be announced and discussed in class and will be posted on the class website. Students are responsible for those changes.

Appendix I - Discussion Board Rubric

Rubric Components	Point Scale			
	4 **Exceeds** (beyond assignment scope, can teach others)	**3** **Proficient** (at standard, minor errors)	**2** **Developing** (emerging, needs some help)	**1** **Novice** (can't do independently, doesn't understand)
Quality of Post	Appropriate comments: thoughtful, reflective, and respectful of other's postings.	Appropriate comments and responds respectfully to other's postings	Responds, but with minimum effort. (e.g. "I agree with Bill")	No posting.
Relevance of Post	Posts topics related to discussion topic; prompts further discussion of topic	Posts topics that are related to discussion content	Posts topics which do not relate to the discussion content; makes short or irrelevant remarks	No posting.
Contribution to the Learning Community	Aware of needs of community; attempts to motivate the group discussion; presents creative approaches to topic	Attempts to direct the discussion and to present relevant viewpoints for consideration by group; interacts freely	Does not make effort to participate in learning community as it develops	No feedback provided to fellow student.