



**MSIS 5633 – Business Intelligence Tools and
Techniques
(Sections 001, 801, 603 & 604)
(Fall 2007)
Syllabus**

Instructor	Prof. Ramesh Sharda
Office	BUS 104D
Phone/Fax	Phone - (405) 744-8850; Fax - (405) 744-5180
E-mail	ramesh.sharda@okstate.edu (use only to ask questions that relate to you individually. Please use discussion boards for all class related questions to ensure a timely response).
Class Website	http://oc.okstate.edu
Class Hours	Tuesdays 7:20-10:00 PM (Cordell 127)
Office Hours	In Person: Wednesday, 1:00 pm to 4:15 pm (in Stillwater) Virtual: Through class website

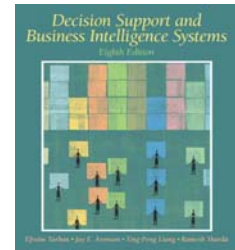
Course Objectives	<p>The main objective of this course is for the student to develop an understanding of the role of computer based information systems in direct support of managerial decision making (nowadays commonly referred to as business intelligence). Specifically, at the end of this course each student should develop:</p> <ul style="list-style-type: none">√ knowledge about managerial decision making, business intelligence, decision support systems and how they relate to other types of information systems√ knowledge about DSS architectures, development methodologies and enabling technologies (such as Analytical Hierarchy Process, Expert Systems, Neural Networks, Knowledge Management, Data Warehousing and Data Mining)√ knowledge about DSS enabling software packages – a general understanding and some hands-on capabilities.
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Pre-requisites	<p>Even though there are no pre-requisites for this course, having the basic understanding of the following concepts would improve your experiences:</p> <ol style="list-style-type: none">1. One or more programming languages (such as Visual Basic, Java, C, Smalltalk, etc.) for analytical and structural thinking and reasoning purposes only. Note that there will not be any programming in this class.2. Artificial intelligence, relational databases, web-based Information systems and general business functions.
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Required Text

Decision Support Systems and Intelligent Systems
8th Edition, ©2007, by
Efraim Turban,
Jay E. Aronson,
Ting-Peng Liang, and Ramesh Sharda
Prentice Hall: Upper Saddle River, NJ.
ISBN: 0-13-198660-0
http://wps.prenhall.com/bp_turban_dsbis_8

**Other Material**

Because the field of Decision Support Systems is changing so fast, there will be additional handouts (technical journal papers and other written materials) for you to read throughout the semester. This material will be posted on the class web site or will be distributed in class.

Additional Texts (for Reference)

- ❑ Decision Support Systems: Frequently Asked Questions by Daniel J. Power, iUniverse, Inc. 2005.
- ❑ Decision Support Systems in the 21st Century, 2nd Edition by George M. Marakas, Prentice Hall, 2003.
- ❑ Decision Support Systems: Concepts and Sources for Managers by Daniel J. Power, Quorum, 2002.
- ❑ Decision Support and Data Warehouse Systems by Efram G. Mallach, McGraw Hill, 2000.
- ❑ Decision Support Systems, 1st Edition by Vicki Sauter, John Wiley & Sons, 1997.
- ❑ Data Mining: Concepts and Techniques, 2nd Edition by Jiawei Han and Micheline Kamber, Morgan Kaufmann, 2006.
- ❑ Data Mining: Practical Machine Learning Tools and Techniques by Ian H. Witten and Eibe Frank, Morgan Kaufmann, 2005.
- ❑ Introduction to Data Mining by P-N. Tan, M. Steinbach and V. Kumar, Addison Wesley, 2005.
- ❑ Data Mining Techniques (for Marketing, Sales and CRM), by Michael J.A. Berry and Gordon S. Linhoff, Wiley 2004.
- ❑ Principles of Data Mining by David Hand, Heikki Mannila, and Padhraic Smyth, MIT 2001.
- ❑ Data Preparation for Data Mining by Dorian Pyle, Morgan Kaufmann, 1999.

Software

1. Statistica Data Miner by StatSoft Inc.
2. SPSS Clementine
3. Rapid Miner
4. Expert Choice (demo version) by Expert Choice, Inc.
5. ExSys Expert System Software (demo version) by ExSys Inc.
6. Microsoft Excel (w/ solver add-in).
7. CART by Salford Systems
8. Planners Lab



Examination	There will be two mid-term exams and one final exam. The exams will include a mix of multiple-choice, fill-in-the-blanks, short answer essay questions and numerical problems.
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, 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 DSS 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 two to three students. 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 class at the end of the semester. Generally, (unless a compelling argument is given to suggest otherwise) the term project will be involved in analyzing and solving a data mining driven business problem of your choice. Peer evaluation forms will be used to measure each member's contribution. Individual grades may be adjusted based upon these evaluations
Technology Review Paper (Team-based)	You will write a short paper about the problem you are planning to address though your term project. You are expected to utilize technical journals, books, magazine articles and whatever is available to you on the Internet. In essence, you will get credit for doing something that you should do in any case for your term project. This study will give you a good understanding about the nature of the problem you will be analyzing for your term project. It will also give you an understanding of what others have done to solve this (or similar) kind of business problems.
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 D2L's "Assignments" submission procedure) by 5:30 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. I will "spot-grade" the homework. In addition, if I select your answer to be posted on D2L, you will receive extra credit, at my discretion. This could add up to 10% toward course grade.
Late Assignments	Late assignments will only be accepted when prior permission is granted by the instructor.
Participation and Professionalism	5% of your final grade will be based upon your class participation, regular attendance, discussion board participation and the way in which you conduct yourself in class.
Attendance	Attendance to the class is not required but highly recommended (cannot



participate without attendance). In any case, you will be held accountable for all that is covered in the class despite valid reasons for your absence.

Grading Policy

Mid-Term Exams:	35%	(First mid term 15%, second mid-term 20%)
Final Exam:	20%	
Homework Assignments:	20%	
Technology Review Paper:	5%	
Term Project:	15%	
<u>Participation & Professionalism:</u>	<u>5%</u>	
TOTAL:	100%	+ Bonus Points

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 (if needed) will be made only at the end of the semester

Special Accommodations for Students

According to the Americans with Disabilities Act, each student with a disability is responsible for notifying the University of his/her disability and requesting accommodations. If you think you have a qualified disability and need special accommodations, you should notify the instructor and request verification of eligibility for accommodations from the Office of Student Disability Services. Please advise the instructor of your disability as soon as possible, and contact Student Disability Services, to ensure timely implementation of appropriate accommodations. Faculty have an obligation to respond when they receive official notice of a disability but are under no obligation to provide retroactive accommodations. To receive services, you must submit appropriate documentation and complete an intake process during which the existence of a qualified disability is verified and reasonable accommodations are identified. Go to http://sds.okstate.edu/component/option,com_frontpage/Itemid,1/ or call 405-744-7116.

On campus and Tulsa students can watch recorded lectures on the web by purchasing access to this facility. Please contact SSB's Distance Learning Coordinators at 405-744-4048.

Academic Integrity Policy

Oklahoma State University is committed to maintaining the highest standards of integrity and ethical. 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. For details, please check OSU Guidelines at <http://academicintegrity.okstate.edu/>. I plan to use turnitin.com to check and make sure your writing is original, and properly credited where appropriate.

PLEASE TURN OFF CELL PHONES DURING CLASS!!!



Really Tentative Course Outline

Date	Topic	Reading Assignment
August 21	Introduction to each other and to the course	Ch 1
August 28	Essentials of Business Intelligence	Ch S
September 4	Decision Making Systems, Modeling, and Support	Ch 2 & 3
September 11	Decision Support Systems Overview, Software demo Form your project teams	Ch 3-4
September 18	Modeling and Analysis, Software demo	Ch 4
September 25	Mid Term Exam I, Submit a brief project proposal	
October 2	Data, Text and Web Mining - Overview	Ch 7
October 9	Fall-Break – NO CLASS	
October 15	Data Mining - Algorithms	Ch7
October 23	Data Warehousing and Visualization; Submit Technology Review Paper	Ch 5 and 6
October 30	Neural Networks	Ch 8
November 6	Neural Networks Continued , Submit a project progress report	Ch 8 and handouts
November 13	Mid Term Exam II + business intelligence conclusion	Handouts
November 20	Knowledge Management	Ch. 11
November 27	Artificial Intelligence and Expert Systems, Knowledge Acquisition, Representation & Reasoning	Ch 12 and Ch 18 (Online)
December 4	Project Summary Presentations; Project Reports Due	
December 11	Final Exam (7:20 PM, Same Classroom)- Comprehensive (50% new topics, 50% prior to Mid Term II)	

* Handout

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.

