

CIS319 –Decision Support Technology

Spring 2010

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COURSE CONTENT & GOAL

As the 21st century continues, computer literacy surrounds each of us. Just over a decade ago, computers on every desk in a small-business office or in a K-12 classroom were futuristic visions. Today, computers allow secretaries to create computer memorandums and the student explore new words courtesy of streaming multimedia. All of these examples are possible by technological advances.

Managers today are using computers in more sophisticated ways than thought possible in the same time frame. Systems created with key interactive user interfaces that allow users to view and process data and models with standard Web browsers with great flexibility. Many corporate decisions are based on rules and data collected and processed on a computer. Whether to hire new employees, purchase equipment, work overtime, etc., are examples of outputs from information systems. Decision Support Systems (DSS), in some definitions, is a collective term referring to all managerial information tools available. These range from collaboration (email, conferencing, etc.) tools to artificial intelligence systems.

This course introduces techniques and technologies that use computer resources to improve human decision making effectiveness. Theories of the human decision-making process, methodologies to develop decision support systems to assist these processes, knowledge-based systems augmenting human knowledge and expertise to increase productivity and enhance outcomes, and current developments in decision support systems, artificial intelligence, and expert systems are discussed

CREDIT VALUE

Three (3) credits

PREREQUISITE

CIS117 and a working knowledge of the Microsoft Office suite of products.

TEXTS AND MATERIALS

Decision Support Systems and Intelligent Systems, 8th Edition,

Efraim Turban, Jay E. Aronson, Ting-Peng Liang, & Ramesh Sharda;

ISBN 0-13-198660-0

looseleaf notebook

a network login

optional two 1 GB USB memory sticks (one for backup)

Textbook WebSite:

http://wps.prenhall.com/bp_turban_dsbis_8/59/15113/3869054.cw/index.html

COURSE EXPECTATIONS, OBJECTIVES, AND OUTCOMES

The goal of this course is to provide the student with competency surrounding the disciplines of management systems, decision support, artificial intelligence, and data analysis.

After completing this course you should be able to:

1. Understand concepts of a Decision Support System (DSS) and its affect on management
 - Define the purpose of a DSS.
 - Define data warehousing.
 - Define and differentiate between the data warehouse, data marts, and data mining.
 - Differentiate between OLAP and OLTP systems.
 - Contrast data, information, and knowledge as they apply to the DSS.
 - Define computer-based inferencing.
 - Discuss various tools assisting IT professionals surrounding DSS.
 - Define and describe the usefulness of the neural network.

Course Outcome: Students demonstrate quantitative reasoning skills and critical thinking surrounding the theory of DSS and related systems.

2. Application of DSS techniques to real-world scenarios and situations
 - Construct an expert system using a programming language or the Microsoft Office suite of tools.
 - Perform data analysis using Microsoft Excel pivot tables.
 - Apply the Nominal Group Technique (NGT) and the Delphi method.
 - Use linear programming methods to solve multivariate problems.
 - Research the effectiveness of Prolog, a computer language developed for artificial intelligence processing.

Course Outcome Students demonstrate qualitative and quantitative skills and critical thinking to demonstrate proficiencies in the application of theory surrounding the DSS and related systems.

COURSE OUTCOMES AND ASSESSMENT

Course objectives are quantitatively and qualitatively measured using the following criterion.

Understand concepts of a Decision Support System (DSS) and its affect on management

Assessment: Students will research the methods and results surrounding the DSS and related systems discussed. Students will demonstrate competencies through the thoroughness and relevance of the research results submitted and through standard examination procedures.

Application of DSS techniques to real-world scenarios and situations

Assessment: Students submit work applying knowledge researched surrounding the DSS and related systems. Students are assessed based on completeness, thoroughness, timeliness, and quality.

COMPUTER HARDWARE AND SOFTWARE

The course requires extensive work on IBM compatible computers similar to Cedar Crest College's micro labs located in the basement of the AD building and in Curtis. Labs are available whenever the building is open (and class is not in session in the room) and any computer in any lab or dorm lab may be used providing the necessary software is installed. Assignments must be completed in the specific software package and version discussed in class. Cedar Crest College does not provide software for use on personally owned computers. If the student wishes to purchase the software packages it is the student's responsibility to properly install such software. The instructor, peers, or Cedar Crest representatives are not responsible for supporting individual students' computers. Sharing diskettes for class assignments, sharing network accounts, and copying software are violations of the honor code. Sharing commercial programs is a violation of U.S. copyright laws.

All software used in the course will be available only on the local-area network. All students need to apply for an account to use the LAN and Internet. If you own the software required for the assignment (and the proper version/revision number) you may use it for class assignments. In the event you own a different version or a competitive product, you must obtain permission from the instructor *prior* to beginning your project. For example, Microsoft Excel is the spreadsheet on which Cedar Crest assignments are based. Using Microsoft Works is *not* acceptable. **Using Microsoft Works is not acceptable as its file formats are not compatible with Microsoft Office. Submitting assignments that cannot be opened by the instructor results in a grade of zero for that assignment.** Under no circumstances are you permitted to copy software from the Cedar Crest Labs for use at home.

Note: Saving work on the public hard disks (C:, desktop, "My Documents", etc.) is not advisable because there is no security on the local machines and your work may be deleted at any time. Work lost on the network disk may be recovered, in some instances, and Computing Services should be contacted immediately to schedule potential recovery. You should always backup (keep two copies) your work.

CCC HONOR CODE

Please be reminded of Cedar Crest College's Honor Philosophy during this course. The Honor Code applies to and is not limited to class assignments and examinations.

I fully support the Cedar Crest College Honor Code and the Classroom Protocol code as stated in the Customs Book.

CCC POLICY FOR LEARNING DISABILITIES

Students with documented disabilities who may need academic accommodations should discuss these needs with their professors during the first two weeks of class. Students with disabilities who wish to request accommodations should contact the Advising Center.

CCC LAB ASSISTANTS AND TUTORS

A lab assistant is assigned to do hardware and software maintenance at each dorm lab, and her name and room number are posted in the dorm. Additionally, there is a lab assistant on duty to provide more extensive help at the central site most days, evenings and weekends. They are trained to handle questions but are instructed not to provide help which would violate the honor code. **THE LAB ASSISTANTS ARE NOT RESPONSIBLE FOR ANY OF YOUR COMPUTER WORK; YOU SHOULD NOT EXPECT THEM TO TUTOR YOU OR MAKE UP FOR MISSED CLASS TIME OR POOR NOTES.** Specifics will be discussed in class. Hours and pictures are posted in Lab 1.

The Cedar Crest computer labs are at all times a work area and not an entertainment area. It is absolutely essential that all students find a comfortable, quiet atmosphere conducive to work. Violations in the form of loud, disruptive behavior of any kind will not be tolerated and will be handled according to established policy.

Tutors are available for most course offerings at Cedar Crest. *Tutors should be not relied upon to complete assignments.* Tutors should offer assistance when the student cannot resolve a particular difficulty. Students should attempt to the best of their ability to work through difficulties encountered. In this way the students' problem solving skills will be sharpened for post-academic employment.

ASSIGNMENTS

All assignments in this class are created on the computer using a tool – Excel or Access. Such assignments must be submitted with electronic media. That is, either diskette, CD-R/W, ZIP-100/250, USB Disk, or via the Cedar Crest Email system.

Printouts alone are not acceptable.



If assignments require printouts do not submit the assignment without including the electronic (Excel or Access file) version! You must prepare the assignment for printing (such as setting “rows to repeat” in Excel) but you do not need to print. If the assignment requires multiple printouts to illustrate your progress, you may save multiple versions of your work and submit all of them electronically.

Additionally, all assignments must adhere to the following specifications:

- Proprietary material **may not** be submitted as part of any course assignment. This is considered plagiarism and could result in severe penalties to the student.
- All course work may be submitted only once.
- All course work, unless designated as a group project, must be completed solely by the student. Sharing of work is considered breach of the Honor Philosophy.
- Handwritten assignments will be accepted (where applicable); however, it is the student's responsibility to verify the writing is legible or point deductions may occur.
- The tone of writing within documents submitted must be scholarly in nature and language.
- Writing style when submitting research papers must adhere to MLA guidelines.
- Some assignments use a data disk for completion. All files required are copied onto the Cedar Crest file server (T:) for convenience. The data disks are structured by application (Excel or Access) and then by project. The project number is associated with the project from which the assignment is located. For example, an assignment from project 5 in Excel will be found in the folder: Excel\Project5.
- It is your responsibility to secure your work from unauthorized duplication and taking precautionary steps to avoid corruption of your work.

If an assignment is not completed and turned in on the due date, five percent of the total value of the assignment value will be deducted PER DAY AFTER THE DUE DATE THAT I DO NOT HAVE THE ASSIGNMENT – NO EXCEPTIONS. If an assignment is handed in late it should be submitted into the DROPBOX or emailed for prompt reception of credit. Late assignments will be graded when the instructor *receives* them—not based on a date written by the student. If a student wishes to receive credit based on the date submitted, the assignment must be accompanied with a date and signature of the department secretary. Late assignments will be returned after on-time assignments are graded so it is possible that your late assignment will not be returned in time for studying for examinations. Submit your work on the due dates.

All work returned and graded you are encouraged to keep for reference. Your instructor will attempt to return the graded work by the next class. Assignments represent a high percentage of your grade. The student who is not willing to give a commitment of time and energy to the computer will almost certainly fail. Projects for this class will require a substantial dedication of time.

All assignments are designed for the average student's ability. The instructor will provide assistance in the event a student has difficulties with assignments. The degree of assistance and when the assistance occurs is at the sole discretion of the instructor. It is not the responsibility of the instructor, tutors, or peers to supply specific formulae or source code. Students must plan their time judiciously. It is the student's responsibility if assistance cannot be granted before the due date of an assignment causing late penalties to be incurred because of poor time management.

All assignments must adhere to the standards set forth by user interface design. Most of these are explicitly described in class while others will be implied based on related topics. These standards are *cumulative* throughout the course and the student must implement these. Failure results in point deductions on these assignments.

There are no "assignment/exam reviews" in this class. That is, you may not pre-submit your work and request your instructor to comment on your progress, accuracy, or exactness of your work prior to grading. Assignments or examinations are submitted for grading one time. There are no retries.

CLASS ATTENDANCE

Attendance at all classes is highly recommended, as we are covering an extensive amount of material which may seem disjointed and overwhelming without the continuity of classroom discussions. Some classroom discussions will require a "hands-on" approach and some will discuss material not covered in the text. While handouts will be provided, you will be responsible for the materials in the text and discussed in class.

If a student cannot attend a class meeting, it is solely the student's responsibility to complete all assignments by the designated due date using electronic mail, inter-office mail, hand-delivery, etc. Likewise it is the student's responsibility to obtain any course notes and information discussed in class. If handouts were provided the instructor will maintain copies for the student during the absence. *The instructor is not required to maintain or give details to a student of any material discussed in class. Likewise, students are not permitted to borrow or view the instructor's materials not designated for class use for any reason.*

Almost all computer assignments will be discussed in some detail in class and some may be modified, so your constant attention is required. Statistics on students who have been unable to motivate themselves to attend this class are dismal, but very revealing.

EXAMINATIONS

Attendance is mandatory on the exam dates listed on the syllabus. Failure to notify the instructor IN ADVANCE and produce a documented excuse will result in a grade of 0 for that exam. NO EXCEPTIONS.

Examinations are designed to assess the student's knowledge in the subject matter. This includes the ability to apply and critically think through problems. Therefore examinations will include questions based on application of theories. Wrote memorization will not constitute 100% of any examination. Technology changes at an extremely rapid pace and the ability to apply knowledge is critical to future success and exceeding expectations in the workplace.

The class meeting before an exam will have some time allotted for review. The review clarifies any questions the students may have based on materials to be included on the exam. The student should take careful notes during the semester as the exams focus on materials discussed in the classroom.

Please note: The late penalty (5% per day) for assignments does not apply to examinations. A late examination is a zero.

Cedar Crest Final Exam Policy: Your obligations for this course include attendance at the final exam, on the day and time scheduled by the Registrar's Office. You should not make travel arrangements until the final exam schedule is published; if you must make plans early, you should schedule your travel after the last final exam day



OFFICE HOURS

I will be available in my office in Curtis 204 or in the lab during this time or location and times may be scheduled by appointment. Office hours are provided on a first-come first-served basis unless previously scheduled. Please note that office hours are not a substitute for tutoring and this time should not be regarded as personal tutoring time. In this way all students will have potentially equal access to the instructor of this course.

Students should be considerate and not interrupt an existing session the instructor is leading while awaiting their time slice. Likewise, students should not attempt to impose deadlines on tutors, the instructor, or peers if assistance is desired.

Wednesday: 6:00 pm-7:00 pm

email: trmarasc@cedarcrest.edu

Phone: 610/437-4471 (ask for Rebecca Getz-Keller)

Course Webpage: <http://www.cedarcrestonline.net>

COURSE REQUIREMENTS AND GRADING

Exams (2 @ 100 pts)	A: 279	C+: 231
Assignments (100 pts)	A-: 270	C: 219
	B+: 261	C-: 213
	B: 249	D+: 201
Total – 300 pts.	B-: 240	D: 180

SYLLABUS*

Date	Lecture Topics [Corresponding Reading]	
Jan 20	Decision Support Systems and Business Intelligence	
Jan 27	Decision Making, Systems, Modeling, and Support	
Feb 3	Decision Support Systems: An Overview Modeling and Analysis	
Feb 10	Modeling and Analysis Data Warehousing	
Feb 17	Business Analytics and Data Visualization	
Feb 24	Data, Text, and Web Mining	
Mar 3	Business Performance Management	
Mar 10	SPRING BREAK—NO CLASS	
Mar 17	Collaboration, Communication Group Support Systems, and Knowledge Management	
Mar 24	Knowledge Management	
Mar 31	Artificial Intelligence and Expert Systems	
Apr 7	Advanced Intelligent Systems	
Apr 14	Intelligent Systems Over the Internet	
Apr 21	System Development and Acquisition	
Apr 28	Integration, Impacts, and the Future of Management Support Systems	
May 5	NO CLASS – FOLLOW FRIDAY SCHEDULE	
TBA	Final Exam	

* Dates subject to change