

**MIDSTATE COLLEGE**  
**411 W. NORTHMOOR RD. PEORIA, IL 61614**  
**(309) 692-4092 (800) 251-4299**  
**Winter 2010**

**Course number & Name:** CIS 340 File Organization and Management

**Credit hours:** 4 Quarter Hours                      **Method of Delivery:** Online

**Course Description:** This course is an introduction to file organizations and access methods. Topics include sorting and merging operations as well as hashing schemes for storage and retrieval. Projects involve data validation, data creation and updating files, simulation and/or implementation of direct and indexed files.

**Prerequisite:** Concurrent enrollment or completion of CIS 250 Data Structures

**Text(s) & Manual(s):** Modern Database Management 10<sup>th</sup> Ed. 2011

**Author(s):** J. Hoffer, V. Ramesh, H. Topi

**Publisher:** Prentice Hall, ISBN 13:978-0-13-608839-4

**Materials needed for this course:** None

**Topics:** Relationship management, data warehousing, design problems, logical models, physical implementation, project management, conceptuality, and data mining.

**Learning Objectives:** Upon completion of this course, the student will be able to:

- Compare and utilize various sorting methods.
- Implement various data structures using pointers, dynamic memory allocation, linked lists
- Utilize stacks, queues, and trees
- Determine when to use a data structure and when not to
- Develop software solutions based upon the data structures
- Work with appropriate data structure for a given realistic situation
- Design and build efficient file structures

**Midstate Grading scale:**

90 - 100 A  
80 - 89 B  
70 - 79 C  
60 - 69 D  
0 - 59 F

**Midstate Plagiarism Policy:**

Plagiarism is using another person's words without giving credit to the author. Original speeches, publications, and artistic creations are sources for research. If students use the author's words in a paper or assignment, they must acknowledge the source. Plagiarism is strictly against the academic policy of the college and is grounds for failing the course. If repeated, plagiarism may result in suspension from the college. (See the Midstate College catalog and/or Student Handbook for additional information.)

In courses containing writing assignments, the college promotes the use of an electronic resource which compares the student's writing against previously submitted papers, journals, periodicals, books, and web pages. Students and instructors can use this service to reduce the incidence of plagiarism. This electronic resource has been found to conform to legal requirements for fair use and student confidentiality. It is able to provide a report to the student indicating the parts of the assignment that match.

**Instructor Information:**

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**Participation Requirements:**

- 1) **Assignments**: Homework is due by noon on Monday. All homework is to be turned in with your name, date, and the name of the assignment at top. 70% is the highest score that late or make up work can earn.
- 2) **Exams**: Must be taken on the dates scheduled by the instructor. Failure to take in the allotted time will result in a grade of "F" (0 points). Make-up exams will be given only when special circumstances are approved by the instructor.
- 3) **Attendance**: Regular attendance is expected through timely posting of assignments and posting to the discussion forum twice per week. You must post your own discussion thoughts as well as responding to two classmates postings per week. It is the student's responsibility to notify the instructor when a class will be missed. If you know of a conflict ahead of time, please advise the instructor.
- 4) **Academic Dishonesty**: Plagiarism and cheating are serious offenses and may be punished by failure on exam, paper or project; failure in course; and/or

expulsion from the college. For more information refer to the “Academic Dishonesty” policy in the student handbook.

- 5) **Grades:** It is the students’ responsibility to keep copies of all assignments turned in for a letter grade until the end of the quarter when a final grade has been earned. If a document is lost and no copy is available, the student will not receive credit.
- 6) **Behavior:** Rules regarding online posting etiquette will be adhered.

**Methods of evaluating student performance:** Homework assignments are used to assess students’ critical thinking skills.

**Examination Information:** The quizzes/exams will be a combination of fill-in the blank, true/false, multiple-choice questions, matching, and a hands-on practicum.

**Instructor’s Grading Scale:**

30%	Exams (midterm and final)
25%	Discussion Questions
25%	Written Communication Assignments
20%	Attendance and Participation

**Schedule**

<b>Class</b>	<b>Topics</b>	<b>Quiz / Exams</b>
<b>Week 1</b>	Introduction and Overview. Read Chapter 1 The Database Environment and Development Process	Pre-test
<b>Week 2</b>	Read Chapter 2 Modeling Data in the Organization	
<b>Week 3</b>	Read Chapter 3 The Enhanced E-R Model	
<b>Week 4</b>	Read Chapter 4 Logical Database Design and the Relational Model	
<b>Week 5</b>	Read Chapter 5 Physical Database Design and Performance	
<b>Week 6</b>	Mid-Term followed by Christmas Vacation	Mid-Term

<b>Week 7</b>	Read Chapter 6 Introduction to SQL and 7 Advanced SQL	
<b>Week 8</b>	Read Chapter 8 Database Application Development	
<b>Week 9</b>	Read Chapter 9 Data Warehousing	
<b>Week 10</b>	Read Chapter 10 Data Quality and Integration and Chapter 11 Data and Database Administration	
<b>Week 11</b>	Read Chapters 12-14 which are Overviews	<b>Study for Final Exam</b>
<b>Week 12</b>	<b>FINAL EXAM</b>	<b>FINAL EXAM</b>

## WEEK 1:

### Objectives

Upon completion of this week the student will be able to:

1. Name several limitations of conventional file processing systems
2. Explain ten advantages of the database approach compared to traditional file processing
3. List and describe nine components of a typical database environment.
4. Describe the life cycle of a systems development project

### Assignments

1. Reading Assignment
  - a. Read Chapter 1 The Database Environment and Development Process
2. Written Assignments
  - a. Case study Mountain View Community Hospital
3. Take Pre-test

### Weekly Summary

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Please submit a one-paragraph weekly summary to the Weekly Summary Drop Box. This is also a time to relay questions or problems you are having in the course. You are always invited to send the instructor an e-mail with problems or questions at any time.

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## WEEK 2:

### Objectives

Upon completion of this week the student will be able to:

5. State reasons why many system developers believe that data modeling is the most important part of the systems development process.
6. Distinguish unary, binary, and ternary relationships and give a common example of each.
7. Draw an E-R diagram to represent common business situations.
8. Convert a many-to-many relationship to an associative entity type.

### Assignments

3. Reading Assignment
  - a. Read Chapter 2 Modeling Data in the Organization
4. Written Assignments
  - Case study Mountain View Community Hospital
  - Respond to discussion question

### Weekly Summary

Please submit a one-paragraph weekly summary to the Weekly Summary Drop Box. This is also a time to relay questions or problems you are having in the course. You are always invited to send the instructor an e-mail with problems or questions at any time.

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## Week 3

### Objectives

Upon completion of this week, the student will be able to:

- Recognize when to use supertype/subtype relationships in data modeling
- Apply the concept of hierarchy
- Use both specialization and generalization as techniques for defining supertype/subtype relationships
- Recognize major advantages and disadvantages of the specific model types

## Assignments

(NOTE: Unless otherwise indicated, all assignments are to be posted by Day 7 of the weeks in which they appear.)

1. Reading Assignment:
  - Chapter 3 – The Enhanced E-R Model
2. Written Assignment:
  - Case study- Mountain View Community Hospital
  - Discussion Question

## Weekly Summary

Each week you will present a brief report (2-3 paragraphs) to the box summarizing what was learned from the readings, discussions, assignments, projects and conferencing activities. Each weekly summary is due at the end of the week. Thread your weekly summary in the Weekly Summary Drop Box, replying to the instructor's message.

### Week 4:

## Objectives

Upon completion of this week, the student will be able to:

- List five properties of relations.
- State two essential properties of a candidate key.
- Describe four problems that may arise when merging relations

## Weekly reading:

Reading assignment:

Chapter 4: Logical Database Design and the Relational Model

## Written Assignment:

Case Study: Mountain View Community Hospital

## Discussion Forum:

Respond to the discussion in the Discussion Forum Box

**Weekly Summary:**

Post a summary in the Weekly Summary Drop Box.

**Week 5:****Objectives**

Upon completion of this week, the student will be able to:

- Describe the physical database design process, its objectives, and its deliverables.
- Select an appropriate file organization by balancing various important design factors.
- Describe the purpose of indexes and the important considerations in selecting attributes to be indexed.

**Weekly Reading:**

Chapter 5: Physical Database Design and Performance.

**Written Assignment:**

Case Study: Mountain View Community Hospital

**Discussion Forum:**

Respond to the discussion question in the Discussion Forum Box.

**Weekly Summary:**

Post your weekly summary in the Weekly Summary Drop Box.

**Week 6:****Mid-Term Exam**

## **Week 7:**

### **Objectives**

Upon completion of this week, the student will be able to:

- Interpret the history and role of SQL in database development.
- Establish referential integrity using SQL.
- Define three types of join commands and use SQL to write these commands
- Write noncorrelated and correlated subqueries and know when to write each.

### **Weekly Readings:**

Read Chapter 6: Introduction to SQL and Chapter 7: Advanced SQL.

### **Written Assignment:**

Case Study: Mountain View Community Hospital both Chapters 6 and 7

### **Discussion Forum:**

Respond to the discussion question.

### **Weekly Summary:**

Post your weekly summary in the Weekly Summary Drop Box

## **Week 8:**

### **Objectives**

Upon completion of this week, the student will be able to:

- Distinguish between two-tier and three-tier architectures
- Describe the key components of a Web application and the information flow between the various components.
- Explain the purpose of XML and its uses in standardizing data exchange across the Internet.

### **Weekly Readings:**

Read Chapter 8: Database Application Development

### **Written Assignment:**

Case Study: Mountain View Community Hospital

**Discussion Forum:**

Respond to the discussion question.

**Weekly Summary:**

Post your weekly summary in the Weekly

**Week 9:****Objectives**

Upon completion of this week, the student will be able to:

- Give two important reasons why an “information gap” often exists between an information manager’s need and the information generally available.
- Describe the key components of a star schema.
- Develop the requirements for a data mart from questions supporting decision making

**Weekly Readings:**

Read Chapter 9:Data Warehousing

**Written Assignment:**

Case Study: Mountain View Community Hospital

**Discussion Forum:**

Respond to the discussion question.

**Weekly Summary:**

Post your weekly summary in the Weekly

## **Week 10:**

### **Objectives**

Upon completion of this week, the student will be able to:

- Describe the importance of data governance and identify key goals of a data governance program.
- Describe the purpose and role of master data management.
- Compare the optimistic and pessimistic systems of concurrency control.
- Describe the problem of database security and list five techniques that are used to enhance security

### **Weekly Readings:**

Read Chapter 10: data Quality and Integration and Chapter 11: Data and Database Administration

### **Written Assignment:**

Case Study: Mountain View Community Hospital in Chapter 10 only.

### **Discussion Forum:**

Respond to the discussion question.

### **Weekly Summary:**

Post your weekly summary in the Weekly

## **Week 11**

### **Weekly Reading:**

Read Chapters 12, 13, and 14.

### **Written Assignment:**

There is no written assignment other than the Weekly summary.

### **Weekly Summary:**

Post a weekly summary of the logical model readings in the Weekly Summary Drop Box.

## **Week 12:**

Complete final exam.