

[MCTE 630 Syllabus](#)

## **MCTE 630: Database Systems**

### **Syllabus**

**Fall Term 2005**

**September 19 to December 9, 2005**

Download a printer friendly (Adobe Acrobat® \*.pdf) version of the MCTE 630 syllabus [here](#) .

[Dr. Albert's Home Page](#)

Comments or suggestions?  
Please forward them to:  
[Dr. Raymond T. Albert](#)  
Adjunct Faculty, SCIS, NSU

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This syllabus is divided into several sections:

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#### **NEW AND IMPROVED COURSE ELEMENTS!**

The following new and/or improved course elements have been introduced into the course since the last time it was offered. You may click on the corresponding "Details" button to learn more.

- More Capstone Project examples from past graduates are now available.

[Details](#)

- New Internet links and supplemental resources are included [Details](#)
- New application-oriented textbook [Details](#)

These improvements are based in part on the experiences and suggestions of previous students and colleagues. Thanks go to all who have provided constructive suggestions for improvement. **Comments and/or suggestions from the public are also most welcome and may be directed to: [ralbert@nsu.nova.edu](mailto:ralbert@nsu.nova.edu)**

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## COURSE DESCRIPTION

This course covers fundamentals of database architecture, database management systems, and database systems. Principles and methodologies of database design, and techniques for database application development.

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## COURSE OBJECTIVES

Upon completion of this course, participants will have gained knowledge of database system concepts and the ability to:

- understand user requirements/views
- analyze existing and future data processing needs
- develop an enterprise data model that reflects the organization's fundamental business rules
- develop and refine the conceptual data model, including all entities, relationships, attributes, and business rules
- integrate and merge database views into conceptual model
- apply normalization techniques
- identify data integrity and security requirements
- derive a physical design from the logical design taking into account application, hardware, operating system, and data communications networks requirements
- utilize prototyping as a rapid application development (RAD) method to implement a PC database (e.g., Microsoft Access® for the PC)

A more complete list of learning objectives can be found in the preface to each textbook chapter.

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## COURSE OUTLINE

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Week*	Readings*	Topic(s)	Assignments*
1	MDM 1, 2	Introduction Database Environment Database Development Process	Review this syllabus
2	MDM 3, 4	Modeling Data in the Organization Enhanced E-R Model and Business Rules	HMWK1
3	MDM 5, 6  LSQL 0	Logical Database Design and the Relational Model Physical Database Design and Performance The Software Engineering Process and Relational Databases	Discussion1
4	MDM 7, 8  LSQL 1, 2	SQL Advanced SQL Getting Started with SQL in Access Beginning SQL Commands in Access	HMWK2
5	MDM 9, 10, 11  LSQL 3	Client/Server Database Environment Internet Database Environment Data Warehousing Creating and Populating Tables	Discussion2
6	LSQL 4, 5	SQL Joins SQL Functions	HMWK3 CAPSTONE Proposal Due
7	LSQL 6, 7	SQL Query Development and Derived Structures SQL Set Operations	Discussion3
8	LSQL 8, 9	SQL Joins versus Subqueries SQL Aggregation and GROUP BY	HMWK4
9	LSQL 10, 11	SQL Correlated Subqueries SQL Indexes and Constraints on Tables	Discussion4
10	MDM 12, 13	Data and Database Administration Distributed Databases	HMWK5
11	MDM 14, 15	Object-Oriented Data Modeling Object-Oriented Database Development	Discussion5
12		Capstone Project	CAPSTONE Project

**\* Week Key**

*Note: Week begins on Monday morning and concludes on Sunday evening.*

*Week 12 is a short week (5 days).*

Week#	Dates
1	Sept 19 - Sept 25
2	Sept 26 - Oct 2
3	Oct 3 - Oct 9
	Oct 10 - Oct 16

4	
5	Oct 17 - Oct 23
6	Oct 24 - Oct 30
7	Oct 31 - Nov 6
8	Nov 7 - Nov 13
9	Nov 14 - Nov 20
10	Nov 21 - Nov 27
11	Nov 28 - Dec 4
12	Dec 5 - Dec 9

**\* Readings Key**

MDM = Modern Database Management  
 LSQL = Learning SQL A Step-by-Step Guide Using Access

**\* Assignments Note**

All assignments are due by  
 12:00 Midnight Eastern time of the last day of the week indicated

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**COURSE TECHNOLOGY COMPETENCY PREREQUISITES**

Research comparing online to traditional face-to-face instruction indicates that teaching and studying online can be as effective as traditional instruction, when the method and technologies used are appropriate to the instructional tasks, there is student-to-student interaction, and when there is timely teacher-to-student feedback. This course has been designed and will be delivered with these factors in mind.

Research also suggests online students share basic characteristics that can influence their success in coursework. For example, most online students:

- Are voluntarily seeking further education
- Are highly motivated and self-disciplined
- Are older

Similar factors help to determine successful learning whether the students are distant or traditional. These factors include:

- Willingness to initiate contact with the instructor(s) for assistance
- Possessing a more serious attitude toward the courses
- Previous completion of a college degree

Those considering registering for this course are encouraged to consider these factors and carefully review the [Introduction to Online Pedagogy](#). They should also contact their advisor or myself for further assistance in determining the suitability of this online

course to their educational needs/objectives.

Participants are expected to be competent in the use of the following software tools required to complete the assignments:

- **Microsoft Word®**, or other word processor for written assignments
- **Microsoft Access®** for the implementation of the prototype database capstone project

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## REQUIRED TEXT(S)

1. Hoffer, Prescott & McFadden, (2005). *Modern Database Management (7th ed.)* Prentice-Hall, Inc. ISBN: 0-13-145320-3.
2. Bagui, S. & Earp, R (2004). *Learning SQL A Step-by-Step Guide Using Access®*. Addison-Wesley Publishing. ISBN: 0-32-111904-5.

## General Reference:

*Publication Manual of the American Psychological Association (Fifth Edition)*  
American Psychological Association, 2001. ISBN: 1-55798-790-4.

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## REQUIRED SOFTWARE

Word processor of choice (e.g., **Microsoft Word®**). This will be used to create responses to assignments. Must be capable of saving to a PC compatible file format . Check with the instructor for further assistance as needed.

A diagramming tool of choice (e.g., **Microsoft Visio®**). This will be used to create diagrams (e.g., entity-relationship diagrams). These diagrams can be created using the drawing tools available in **Microsoft Word®** hence it is not necessary to purchase Microsoft Visio®.

**Microsoft Access®** single user database management system will be used for implementation of a prototype database capstone project and for completion of other assignments.

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## RECOMMENDED SOFTWARE

**Microsoft Visio®** (a diagramming/modeling tool). The academic edition of the 'standard version' is available from many online retailers (e.g., <http://www.provantage.com>) for approximately \$85.00 U.S.

You may use another application that provides for the creation of ER diagrams. The application must be capable of saving to a PC compatible graphic file format. Check with the instructor for further assistance as needed.

Please note, Microsoft Access® provides a basic diagramming capability that is considered by most to be less sophisticated. Many word processors also provide less sophisticated diagramming capabilities. Such basic diagramming tools may be used if no better option is available to you provided you have received instructor permission.

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## SUPPLEMENTAL INTERNET RESOURCES

Please don't hesitate to use the Internet to find additional resources. You are encouraged to alert others in the course when you find a true gem. This is best accomplished through the use of the **Discussions** tool of WebCT. Please take the time to regularly (at least weekly) check for new posts.

### General Database System Information Sites:

<http://databases.about.com/>  
<http://searchdatabase.techtarget.com/>  
<http://database.ittoolbox.com/>  
[http://www.athree.com/db\\_basics/index.html](http://www.athree.com/db_basics/index.html)  
<http://www.devx.com/>  
<http://www.devx.com/dbzone/>  
<http://www.dcs.napier.ac.uk/~andrew/sql/>  
<http://www.411databases.com/>  
<http://www.sqlmag.com>  
<http://www.dbazine.com>  
<http://www.databasejournal.com>  
<http://www.sqlcourse2.com/>  
<http://www.vb-bookmark.com/vbDatabase.html>  
<http://www.quark.com/products/quarkdms/databases.html>  
<http://www.developer.com>

### Educational Database System Information Sites:

<http://www.askeric.org/Eric/>  
<http://ericae.net/search.htm>  
<http://sunsite.berkeley.edu/KidsClick!/>  
<http://enc.org/http://proquest.umi.com/pqdweb?RQT=403&TS=1002469252>  
<http://www.csu.edu.au/education/library.html>  
<http://www.sqlcourse.com/>  
<http://www.programmingtutorials.com/tutorial.asp?id=SQL>  
<http://www.teachnology.com/tutorials/databases/>  
<http://www.quasar.ualberta.ca/edpy202/tutorial/database/database.htm>  
<http://www.functionx.com/access/>  
<http://www.utexas.edu/its/windows/database/datamodeling/index.html>  
<http://leap.sourceforge.net/>  
[http://msdn.microsoft.com/library/default.asp?url=/library/en-us/fox7help/html/dgdesigning\\_databases.asp](http://msdn.microsoft.com/library/default.asp?url=/library/en-us/fox7help/html/dgdesigning_databases.asp)  
<http://www.education-world.com/>

### Sample Tutorials:

Richard Holowczak prepared Microsoft Access® Tutorial:

<http://cisnet.baruch.cuny.edu/holowczak/classes/2200/access/accessall.html>

University of North Carolina at Chapel Hill (Academic Technology and Networks):

<http://help.unc.edu/?trail=1146,1599&type=all&sort=score&page=1>

James Hoffman of the Yahoo! SQL Club has prepared a SQL Tutorial:

[http://www.highcroft.com/highcroft/sql\\_intro.pdf](http://www.highcroft.com/highcroft/sql_intro.pdf)

Other Yahoo! SQL Clubs can be accessed at:

[http://dir.clubs.yahoo.com/Computers\\_Internet/Programming\\_Languages/SQL/](http://dir.clubs.yahoo.com/Computers_Internet/Programming_Languages/SQL/)

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## INSTRUCTOR INFORMATION AND AVAILABILITY

Raymond T. Albert, Ph.D.  
114 Red River Road  
Eagle Lake, ME 04739  
E-mail: [ralbert@nsu.nova.edu](mailto:ralbert@nsu.nova.edu)



Please note that I am an adjunct faculty member with SCIS and have other full-time obligations, I will do my best to respond within 24 hours (48 on the weekends).

Please feel free to contact me should you have any questions/comments regarding this course or any previous course you have had with me.

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## ASSIGNMENT EXPECTATIONS

Participants are expected to do their own work and complete the capstone project and assignments on or before the due dates specified in this syllabus. The words or ideas of others, where used, must be properly credited according to accepted standards for professional publication. Refer to the latest edition of the *Publication Manual of the American Psychological Association (APA)* for more details.

Since this is a graduate course in database systems, you are expected to install and maintain the necessary database development environment and to submit your completed work, without syntax or logic errors, by the posted due dates.

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## ASSIGNMENT SUBMISSION GUIDELINES

Care should be taken in completing assignments to ensure that they reflect graduate

level work and contain appropriate documentation when the work of others is cited. Assignments will be accepted once and revisions will not be allowed.

To assure proper credit for your work, please indicate the following information on each assignment submission:

- School Name
- Course Number
- Your Name
- Week Number
- Assignment Number

### **Assignment Submission Protocol**

Assignment submission, receipt of feedback and grade will be achieved as follows:

1. Submit your assignment documents using the **Assignment** tool of WebCT.
2. Following the posted due date detailed feedback (if any) will be provided to you via the **Assignment** tool and your grade will be made available through the **My Grades** tool of WebCT. Sample solutions (rubric) may be provided for your reference.

**Assignments will NOT be accepted after the submission deadline.** However, each student is permitted to exercise the Family Emergency Option ONCE per term. It is essential for the instructor to be able to provide prompt feedback to all students in the course while preventing anyone from gaining an unfair advantage by accessing instructor feedback provided to fellow students prior to submitting their own responses. Students are expected to establish earlier personal deadlines to ensure timely completion and submission of assignments. This policy is required to permit timely posting of sample solutions (rubrics).

### **Family Emergency Option**

Each student is permitted to submit ONE assignment up to 3 days (72 hours) past the posted submission deadline without penalty. To exercise this option the student **MUST** clearly identify within their assignment submission that this option is to apply. This option is provided to enable students to focus on more urgent unexpected concerns (e.g., family illness/emergency) that may arise during the delivery of the course.

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## **GRADING**

Final grades will be based on the points accumulated from all assignments submitted throughout the term.

Assignments (5 @ 7 points each)	35 points
Forum Contributions (5 @ 7 points each)	35 points
Capstone Project	<u>30 points</u>
Total	100 points

Final letter grades will be based on the percentage of total points represented by your accumulated points. Letter grade assignment will be based on the following criteria:

A	93 to 100 percent
A -	90 to 92 percent
B+	87 to 89 percent
B	83 to 86 percent
B -	80 to 82 percent
C+	77 to 79 percent
C	73 to 76 percent
C -	70 to 72 percent
F	less than 70 percent

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## GENERAL COURSE GUIDELINES AND POLICIES

To achieve the learning objectives, participants are expected to carefully review the course text(s), complete course assignments and contribute in a scholarly fashion to course forum discussions.

### Standards of Academic Integrity

For complete policy, see Code of Student Conduct and Academic Responsibility, p. 45. Also see the sections on student misconduct, p. 10, and the NSU Student Handbook.

Each student is responsible for maintaining academic integrity and intellectual honesty in his or her academic work. It is the policy of the school that each student must:

- Submit his or her own work, not that of another person
- Not falsify data or records (including admissions materials)
- Not engage in cheating (e.g., giving or receiving help during examinations, acquiring and/or transmitting test questions prior to an examination)
- Not receive or give aid on assigned work that requires independent effort
- Properly credit the words or ideas of others according to accepted standards for professional publications.\*
- Not use term paper writing services or consult such services for the purpose of obtaining assistance in the preparation of materials to be submitted in courses or for theses or dissertations
- Not commit plagiarism (Webster's defines plagiarism as "stealing or passing off ideas or words of another as one's own" and "the use of a created production without crediting the source.")\*

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\*When using the exact words of another, quotation marks must be used for short quotations (fewer than 40 words), and block quotation style must be used for longer quotations. In either case, a proper citation must also be provided. When paraphrasing (summarizing, rewriting, or rearranging) the words or ideas of another, a proper citation

must be provided. The Publication Manual of the American Psychological Association, Fifth Edition, contains standards and examples on quotation methods (pages 117 and 292) and on citation methods (pp. 207-214).

Extreme caution must be exercised by students involved in collaborative work to avoid violation of this policy.

See Catalog for Policy on Acceptable Use of Computing Resources, and Policy on the Use of Material in Web Pages.

Participant conduct and academic honesty policies will be strictly enforced. It is essential for participants to contribute equally and independently (except when completing "group" activities) to the best of their ability. Please bear in mind that sophisticated resources exist to assist faculty in enforcement efforts (e.g., [www.plagiarism.org](http://www.plagiarism.org) ).

### **Writing Skills**

Each student must demonstrate proficiency in the use of the English language in all work submitted for this course. Grammatical errors, spelling errors, and writing that does not express ideas clearly will affect your grade. The professor will not provide remedial help concerning writing problems that you might have. Students who are unable to write correctly and clearly are urged to contact their program office for sources of remedial help.

### **Communication by Email**

Students must use their NSU email accounts when sending email to faculty and staff and must clearly identify their names and other appropriate information, e.g., course or program. When communicating with students via email, faculty and staff members will send mail only to NSU email accounts using NSU-recognized usernames. Students who forward their NSU-generated email to other email accounts do so at their own risk. SCIS uses various course management tools that use private internal email systems. Students enrolled in courses using these tools should check both the private internal email system and NSU's regular email system. NSU offers students Web-based email access. Students are encouraged to check their NSU email account daily.

### **The Temporary Grade of Incomplete (I)**

The temporary grade of Incomplete (I) will be granted only in cases of extreme hardship. Students do not have a right to an incomplete, which may be granted only when there is evidence of just cause. A student desiring an incomplete must submit a written appeal to the course professor at least two weeks prior to the end of the term. In the appeal, the student must: (1) provide a rationale; (2) demonstrate that he/she has been making a sincere effort to complete the assignments during the term; and (3) explain how all the possibilities to complete the assignments on time have been exhausted. Should the course professor agree, an incomplete contract will be prepared by the student and signed by both student and professor. The incomplete contract must contain a description of the work to be completed and a timetable. The completion period should be the shortest possible. In no case may the completion date extend beyond 30 days from the last day of the term for master's courses or beyond 60 days from the last day of the term for doctoral courses. The incomplete contract will accompany the submission of the professor's final grade roster to the program office. The program office will monitor each incomplete contract. If a change-of-grade form is not submitted by the scheduled completion date, the grade will be changed automatically from I to F. No student may graduate with an I on his or her record. The grade of I does not apply to master's thesis or doctoral dissertation registrations.

## Grade Policy Regarding Withdrawals

Course withdrawal requests must be submitted to the student's program office in writing (via postal mail or email) by the student. Requests for withdrawal must be received by the program office at least three weeks prior to the last day of the term. Program offices will publish specific withdrawal deadline dates for each term (see Academic Calendar on page ii of the catalog). Withdrawals sent by email must be sent from the student's assigned NSU email account. Requests for withdrawal received after 11:59 p.m. est on the withdrawal deadline date will not be accepted. Failure to attend classes or participate in course activities will not automatically drop or withdraw a student from the class or the university. Students who have not withdrawn by the withdrawal deadline will receive letter grades that reflect their performance in the course(s). When a withdrawal request is approved, the transcript will show a grade of W (Withdrawn) for the course. Students with a history of withdrawals risk dismissal. Depending on the date of withdrawal, the student may be eligible for a partial refund. For a complete list of withdrawal deadline dates, please see the academic calendars located at: [http://www.scis.nova.edu/NSS/pdf\\_documents/AcadCal.pdf](http://www.scis.nova.edu/NSS/pdf_documents/AcadCal.pdf)

Refer to the [Graduate Catalog](#) for additional policies, especially Policy on Acceptable Use of Computing Resources, and Policy on the Use of Material in Web Pages .

## Participation in the Course Forum

Discussion questions/statements will be posted by the instructor to the course forum (a threaded discussion group, referred to as the Discussions tool in WebCT). Each course participant is expected to post answers/responses to the discussion questions/statements in a timely fashion. **Responses must be made by the established deadline (usually within one week of the original post date). Unless otherwise directed, responses must consist of two to four well written paragraphs and must include at least one reference in support of the reply.** Reference citations must adhere to the formatting guidelines set forth in the Publication Manual of the American Psychological Association (Fifth Edition). In addition, course participants are expected to **respond/reply to posts from two other students in ways that foster learning** .

The purpose of the discussion questions/statements is twofold. First, and foremost, they are topic-related and intended to aid the participant in attainment of learning objectives. Second, they provide a forum for scholarly debate and contribution within the course thereby promoting a sense of class community.

Unless otherwise indicated, evaluation of forum contributions will be based on (1) the quality of your postings to each discussion question/statement for the period, (2) your responses/replies to other postings. Evaluation will emphasize quality over quantity. The instructor reserves the right to specify additional criteria.

Collaboration and sharing is encouraged to the extent that it fosters individual growth and learning of all participants.

## Academic Progress

It is essential to keep the instructor informed of your progress as well as any special difficulties you may be experiencing. Failure to do so may lead to a poor grade.

## Syllabus/Course Changes

The instructor reserves the right to make necessary changes to this syllabus and to the

delivery of the course in light of unforeseen circumstances provided such changes are announced.

### **Course Feedback**

Participants are encouraged to regularly provide constructive feedback regarding delivery of the course. Suggestions that will improve the quality of the course for the majority of participants enrolled will be considered for immediate implementation.

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