Course Syllabus
MIS 7660-001 – Advanced Data Management
Spring Semester, 2019
3.0 Credit Hours
(Last updated: 1/02/2019)

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Office Hours: MW 3:30-5:00PM.

Course Overview:
This course will focus on the latest data management paradigms for both transactional and business intelligence applications. This includes NoSQL database, NewSQL database, blockchain technology, and data lakes.

Pre-Requisites/Co-Requisites:
MIS 7605, an equivalent introductory database course, equivalent knowledge of data modeling, logical and physical database design, and relational database management including the SQL language, or permission of the instructor.

Required Texts (and Related Materials):

Recommended Texts (and Related Materials):

Location of Course Materials:
elearn.memphis.edu.
Course Objectives:

By successfully completing this course, students will be able to:

- Analyze a data management situation and determine the applicability of the four NoSQL database paradigms: key-value database, document database, big table database, and graph database.
- Analyze a data management situation and determine the applicability of the NewSQL database paradigms.
- Design databases using the NoSQL and NewSQL paradigms.
- Discuss specific NoSQL and NewSQL products on the market.
- Discuss blockchain and other advanced data management technologies.

Fogelman College: Learning Outcomes for Your Degree

This course is designed to help you to meet the overall learning objectives for the MS in BIT, MSBA/MIS, MS in Accounting, or MBA degree offered by the Fogelman College. You should take the time to become familiar with the overall learning objectives as a student in your degree program.

The Fogelman College has established the following learning goals for all students successfully completing the MSIS/MSBA degree:

- Graduates will be competent in the use of technology.
- Graduates will be effective communicators.
- Graduates will be knowledgeable about threats and opportunities in a global society.
- Graduates will be problem solvers.

Course Methodology

Lectures, guest lectures from the business community, case studies, homework, exams, and projects.

Professor’s Expectations of Students:

In general, you should assist the instructor in creating a positive, supportive environment for learning by staying engaged in the course and actively participating in all classroom discussions.

Student's Expectations of the Professor:

In my role as your instructor, there are certain things you can expect from me including: a well-organized and engaging learning experience, response to emails within two (2) business days, and feedback on all work submitted within two (2) weeks.
Grading and Evaluation Criteria

Over the semester, you will have a variety of opportunities to earn points towards your final (overall) letter grade in this course. This section of the syllabus describes the assessed work you will be doing and how overall (final) letter grades will be computed.

Final Course Grades

Final course grades will be based on a curve to be determined at the end of the course. The following point ranges represent the grade basis prior to a curve being applied:

<table>
<thead>
<tr>
<th>Point Range</th>
<th>Assigned Grade</th>
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<tbody>
<tr>
<td>90-100 Points</td>
<td>A</td>
</tr>
<tr>
<td>80-89 Points</td>
<td>B</td>
</tr>
<tr>
<td>70-79 Points</td>
<td>C</td>
</tr>
<tr>
<td>60-69 Points</td>
<td>D</td>
</tr>
<tr>
<td>Under 60 Points</td>
<td>F</td>
</tr>
</tbody>
</table>

Your overall grade for the semester is based on how well you perform on a mixture of activities including class participation, exams, homework, and projects. A detailed description of each of the assessed activities can be found after the scoring summary table below.

Summary of Graded Activities

Points earned on the assessed activities will be distributed as follows:

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Total Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two Exams</td>
<td>40</td>
</tr>
<tr>
<td>Research Project</td>
<td>40</td>
</tr>
<tr>
<td>Homework</td>
<td>10</td>
</tr>
<tr>
<td>Class Participation</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100 pts</strong></td>
</tr>
</tbody>
</table>

Course Topics:

Unit 1 Topics: Overview of the four NoSQL paradigms. Readings: Chapters 1-14 in the Sullivan textbook.

Unit 2 Topics: Introduction to NoSQL database management. Readings: Chapters 1-2 in the Sullivan textbook.
Unit 3 Topics: Key-value database. Readings: Chapters 3-5 in the Sullivan textbook.
Unit 5: Column family (or big table) database. Readings: Chapters 9-11 in the Sullivan textbook.
Unit 6: Graph database. Readings: Chapters 12-14 in the Sullivan textbook and the Graph Databases pdf.
Unit 8: NewSQL database. Readings: To be assigned.
Unit 10: Data Lakes: Readings: To be assigned.

Additional topics and readings may be added as the course progresses.

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**Final Exam Schedule**

There is no final exam in this course.

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**Course Policies**

**E-MAIL:**

All students are required to maintain and access their University of Memphis (@memphis.edu) email account. You will receive all official course correspondence at this email account. Any inability to receive incoming mail in a timely fashion (e.g., not regularly checking your email, having a “full mailbox” condition, etc.) is the student’s responsibility.

**Attendance:**

Attendance is required in this course. If you have a reason for missing a class meeting, please email the instructor in advance.

**Adding / Dropping:**

If you have questions about adding or dropping classes, please refer to this page on the Registrar’s website (opens in new window).

**Academic Integrity:**

The University of Memphis has clear codes regarding cheating and classroom misconduct. If interested, you may refer to the Student Handbook section on academic misconduct for a
discussion of these codes. Note that using a “Solutions Manual” is considered cheating. Should your professor have evidence that using a “Solutions Manual” has occurred, he/she may take steps as described on the campus’ Office of Student Conduct website (opens in new window). If you have any questions about academic integrity or plagiarism, you are strongly encouraged to review the Fogelman College’s Website on Academic Integrity (opens in new window).

Participation:

To be successful in this course as a student, you must stay active and involved throughout the entire semester. Students are expected to participate in all interactive aspects of the course.

Classroom Behavior:

All participants in the course should be considerate of the other course participants and treat them (as well as their opinions) with respect. The class will operate under the assumption that any and all feedback offered is positive in nature and that the intentions of the person(s) providing feedback are strictly honorable. Insensitivity in this area will not be tolerated. If you have any questions about online communication, you should review the Fogelman College’s Netiquette website (opens in new window).

Late Assignments:

Assignments and projects may be submitted anytime up to and including the date due. Please review all information in this syllabus and related “Course Activity Summary / Schedule” for all due dates for formally assessed work. If your work is not submitted on time, the instructor reserves the option to deduct up to 20% of the grade value for tardiness depending upon the circumstances and appropriate communication between the student and the instructor.

Extra Credit:

There is no extra credit offered in this course. Your final grade will be computed based on your work on the formal/assessed activities previously described in this syllabus.

Reporting Illness or Absence:

Due dates and deadlines have been established for each graded assignment. In this course, deadlines are taken very seriously. If an emergency should arise, it is the student’s responsibility to contact the instructor prior to the deadline to discuss the matter. A deadline extension will be considered only if all of the following conditions are met:
(1) Extreme emergency and (2) Instructor contacted prior to the due date.
All class absences must be reported to the instructor in advance.

Inclement Weather:

In the event that inclement weather requires the cancellation of classes at The University of Memphis, local radio and television media will be immediately notified. Additionally, The University of Memphis has established an Inclement Weather Hotline at 678-0888 as well as TigerText (opens in new window), an emergency alert text messaging service to students, faculty and staff. This optional service is used in the event of an on-campus emergency, an
unscheduled university closing, or a delay or cancellation of classes due to, for instance, inclement weather. Additional information on TigerText (opens in new window).

Syllabus Changes:

The instructor reserves the right to make changes as necessary to this syllabus. If changes are necessitated during the term of the course, the instructor will immediately notify students of such changes both by individual email communication and posting both notification and nature of change(s) on the online course management system.

Student Services

Please access the FCBE Student Services (opens in new window) page for information about:

- Students with Disabilities
- Tutoring and other Academic Assistance
- Advising Services for Fogelman Students
- Technical Assistance