BUSA 532 – Data Warehouse

Spring 2024

INSTRUCTOR INFORMATION

Instructor:	Son Bui
Office Location:	DAL 2060 or Zoom ID:2395126950 Pass: busa
Office Hours:	5:00 pm – 6:00 pm Tue and Wed
Office Phone:	903-886-5692
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University Email Address:	son.bui@tamuc.edu
Preferred Form of Communication:	email
Communication Response Time:	within 24 hours

COURSE INFORMATION

ISBN: 9780470462072 - Data Warehousing Fundamentals: A Comprehensive Guide for IT Professionals (2nd Edition).

ISBN: 9780471200246 - The Data Warehouse Toolkit: The Complete Guide to Dimensional Modeling (2nd Edition)

Access to SQL Server 2019. Instructions to access to SQL Server 2019 can be found in first week learning material folder in D2L.

Access to Tableau and Artificial Intelligence – Machine Learning software. Instructions to install Tableau and Artificial Intelligence – Machine Learning software can be found in last week learning material folder in D2L.

Course Description

In this course, you will develop and gain an understanding of the principles, concepts, functions and uses of data warehouses, data modeling and data mining in business.

Learning Outcomes

This course covers the fundamentals of data warehousing architecture and the issues involved in how IT tools and techniques can allow managers to extract analytics and patterns from numeric data. Specific topics covered include the logical design of a data warehouse, the data staging area and extract-transformload processing, the use of multi-dimensional analysis using OLAP techniques, and other techniques. The course will explore how to support informed decision making and extract predictive analytics and patterns from nonnumeric data by leveraging tools and techniques to analyze unstructured data. Other big data topics such as Tableau and Hadoop/MapReduce are also introduced to further train students with current skills and knowledge.

Student Learning Outcomes

Upon successful completion of the course, the student should be able to:

1. Differentiate the components of a data warehouse.
2. Construct a multi-dimensional data warehouse.
3. Use a data warehouse to provide solutions for business problems.

COB Student Learning Outcomes (SLOs)	Course Outcomes - After successfully completing this course, students will be able to:	Measurement Methods (Outcome Assessments)
SLO 2, 3	• Differentiate the components of a data warehouse. • Construct a multi-dimensional data warehouse. • Use a data warehouse to provide solutions for business problems.	• Individual assignments

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Experience in using SQL. If you want to refresh your SQL skills, it is recommended to check out SQL Tutorial from W3School: https://www.w3schools.com/sql/

Please note that completion the SQL training is optional, and there is no credit assigned for completion the training.

Instructional Methods

Each week learning materials are opened on Monday at 12:00 am in D2L. Weekly lecture will be conducted in class based on class schedule. Students are required to participate in class discussion, and complete multiple assignments and exams throughout the whole semester.

Student Responsibilities/Tips for Success in the Course

1. Students are expected to:
    a. Read text assignments as scheduled
    b. Watch tutorial videos as scheduled
    c. Work the homework assignments independently. Submit the homework assignments in the appropriate D2L assignment submission folder.

2. This syllabus is tentative for the semester. Certain topics maybe stressed more or less than indicated in schedule. Depend on class progress, certain topics may be omitted or added.

3. Homework assignments are graded bi-weekly. **Many assignment solutions are not posted in D2L. Instead, detail assignment walkthroughs are provided during online class discussion.** It is highly recommended for students to attend the online meeting to ask questions.

4. Feel free to ask questions through email or during online discussion. I am accessible 24/7 through these channels even during weekends or holidays. You can ask any questions related to course topics, assignments, and exams and I try to answer them within few hours (maximum 24 hours). In online discussion, you can also try to answer others' questions. But you are expected to maintain etiquette and decency in your responses.

5. Behavior: "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment."

(See Student's Guide Book). During your collaboration with me and your fellow students online or in class, professionalism and respect will be expected. I encourage you to assist one another, but always respect one another's opinion and communicate professionally with each other and with me.

6. **Any form of cheating – copying, sharing files, submitting the work of another as your own – is not permitted.** Students who participate (as givers/receivers) in any form of cheating will fail the course.

7. Attendance Policy: regular attendance will be taken. There is no penalty for absence but opportunity for any grace points based on class participation will lost if there is too much absence. You are yourself responsible for getting class notes from friends for missed classes due to unavoidable circumstances. However, assignments and tests have corresponding due dates which will not be extended for your personal excuses.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%
B = 80%-89%
C = 70%-79%
D = 60%-69%
F = 59% or Below

Assignments/Projects	Percentage
Application Assignments	40%
Exam	30%
Group Project	30%

Assessments

Exam: There will be 1 exam during the semester. The exam will be counted as 30% of your final grade. **The exam will be open-book, open-note, and open-internet. However, it is not open-neighbor, and you can't discuss with your friends including people who are and aren't taking the class**. **No late exam will be accepted.**

Application Assignments: You will have 7 required assignments and 1 optional assignment that help you to master materials in class. It is strongly recommended to attend class or watch recorded lecture weekly, if we have, when class materials are presented. In addition, the lowest assignment score will be dropped. These application assignments will be counted as 40% of your final grade. **Late assignments are highly discouraged. For each day an assignment is late it will be deducted 10%. Under NO circumstances will I accept an assignment more than a week late.**

Group Project: You're required to complete a group project in this class. Class members will organize themselves into teams of 4 or 5 persons per team. Each team is required to present your project by the end of the semester. **Each team member is also required to rate other team members by submitting Peer Evaluation Form before the semester ends.**

Curving Grade: Your final grade will be adjusted relatively based on your performance against the performance of the class as a whole. To curve the class, the average class final percentage will be set as 90% (an 'A' for the class), and all students' final percentage will be adjusted based on how far their performance to the class average. For example, if class average is 85% then all student's grades will be added 5% bonus.

Extra Credit: A maximum of 2% will be added toward your final percentage based on your participation in COB activities, MKBUSA Student Organization activities, Career Fair, and Class Survey. Email will be sent to all students when opportunities are available.

Certification: In a competitive environment, businesses are always looking for certified and skilled professionals. There is no better way to show this than to earn a new wellregarded certification. As such, the class will encourage you to take the following certifications for future career. **Please keep in mind that earning a certification is totally optional activities. It is not necessary to get a good grade for the class. The class might cover a certain portion of the exam, but it rests in your hand to prepare thoroughly for the exam. All the learning materials and exam fees are your responsibility. Please do not email me to ask for learning materials. Copy of your certification must be emailed before the last day of class to earn credits**:

- IBM Certified Solution Architect – Data Warehouse V1 (C1000-067): automatically pass the class with an 'A' grade
- Tableau Desktop Specialist: bonus 5% toward final grade

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements: https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support: https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements: https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-SystemRequirements

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

I generally response to students' questions in a few hours (maximum 24 hours), and feedback on assignments is provided bi-weekly.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

Missed homework assignment will result in 0 points while missing the exams will results in grade 'F'. There will be no make-up exam, or make-up assignment. No late exam will be accepted. Late assignments are highly discouraged. For each day an assignment is late it will be deducted 10%. Under NO circumstances will I accept an assignment more than a week late.

Regular attendance will be taken. There is no penalty for absence but opportunity for any grace points based on class participation will lost if there is too much absence. You are yourself responsible for getting class notes from friends for missed classes due to unavoidable circumstances. However, assignments and tests have corresponding due dates which will not be extended for your personal excuses.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&MCommerce campuses. Report violations to the University Police Department at 903886-5868 or 9-1-1.

STATEMENT ON AI USE IN COURSES [MAY 2023]:

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

COURSE OUTLINE

Week	Topic	Reading Assignment	Homework Assignment
WEEK 1:	• Review Syllabus • PP #0: Overview of SQL and ERD • **Mandatory online discussion**	• Reading Articles in D2L	• Submit Academic Dishonesty Policy
WEEK 2:	• PP #1: Data Warehouse Concepts and Components • **Mandatory online discussion**	• Ch. 1 & 2 Ponniah	• List of Group Project Team Members
WEEK 3:	• PP #2: Dimensional Modeling of OLAP and Data Warehouse Development Process • **Mandatory online discussion**	• Ch. 4, 10, 11 & 15 Ponniah Reading Articles in D2L	
WEEK 4:	• PP #2.5: Ethics and Global Strategies • **Mandatory online discussion**		• HW #1 – Ethics and Global Strategies
WEEK 5:	• PP #3: Refining Dimensional Model Part 1 • PP #4: Refining Dimensional Model Part 2 • **Mandatory online discussion**	• Ch. 2 & 3 Kimball & Ross • Ch. 8 & 13 Kimball & Ross • Reading Articles in D2L	• HW #2 – Modeling OLAP Database
WEEK 6:	• PP #5: Extraction, Transformation, and Loading Part 1 • **Mandatory online discussion**	• Ch. 12 Ponniah	• HW #3 – ETL for Simple Dimensional Tables
WEEK 7:	• PP #6: Extraction, Transformation, and Loading Part 2 • **Mandatory online discussion**	• Reading Articles in D2L	• HW #4 – ETL for Simple Enterprise Data Warehouse

WEEK 8:	• PP #7: Extraction, Transformation, and Loading Part 3 • **Mandatory online discussion**	• Reading Articles in D2L	• HW #5 – ETL for Periodic Snapshot Enterprise Data Warehouse
WEEK 9:	• PP #8: Extraction, Transformation, and Loading Part 4 • **Mandatory online discussion**	• Reading Articles in D2L	• HW #6 – ETL for Accumulating Snapshot Enterprise Data Warehouse
WEEK 10:	• Spring Break – No Class		
WEEK 11:	• Exam		
WEEK 12:	• PP #10: Data Warehouse Deployment Part 1 • PP #11: Data Warehouse Deployment Part 2 • **Mandatory online discussion**	• Reading Articles in D2L	• HW #7 – Creating Data Warehouse Cubes
WEEK 13:	• PP #12: Information Delivery – Tableau • **Mandatory online discussion**	• Reading Articles in D2L	• HW #8 – Creating Tableau Report (bonus assignment – not required)
WEEK 14:	• Advanced Lectures – Tensor Flow (tentative) • **Mandatory online discussion** • **Mandatory online meeting with each team**	• Reading Articles in D2L	
WEEK 15:	• Advanced Lectures – Tensor Flow (tentative) • **Mandatory online discussion** • **Mandatory online meeting with each team**	• Reading Articles in D2L	
WEEK 16:	• Group Project Presentation • Peer Evaluation Report due		