**CSE 6331, Section 001**                                               **Spring 2016**
## Advanced Topics in Database Systems
## Moving Objects Databases: Spatial, Temporal, and Spatio-Temporal

**Instructor:** Professor Ramez Elmasri        **Office:** 654 ERB        **Phone:** (817)272-2348
**Office Hours:** Monday and Wednesday: 3-3.30pm                    **Email:** elmasri@uta.edu
**Class Time:** Monday, Wednesday: 5.30-6.50pm                **Class Room:** WH 221
**Course Topic:** Spatial, Temporal, Map, and Moving Objects Databases     **Section Number:** 001
**Prerequisites:** Database Systems 1 and 2 (CSE5330 and CSE5331) or equivalents
**Course Web Page: On blackboard.** (Also will be on: crystal.uta.edu/~elmasri/adb/)
**Textbook:** Moving Objects Databases, by Guting and Schneider, Morgan-Kaufman, 2005.
**Reference books:**
(1) Spatial Databases, by Shekhar and Chawla, published by Prentice-Hall, 2003.
(2) Spatial Databases with Applications to GIS, by Rigaux, Scholl, and Voisard Morgan Kaufmann 2002.
**GTA:** Neelabh Pant.                                **GTA Office and Hours:** TBD.


**Course Content:**
This course is divided into two parts.

In the first part, we will cover concepts of Spatial, Temporal and Moving Objects (Spatio-Temporal) Databases. The topics to be covered include:
1.  Overview of Spatial Database Concepts.
2.  Overview of Temporal Database Concepts.
3.  Overview of Spatio-Temporal (Moving Objects) Database Concepts.
4.  Previous Spatio-Temporal Models.
5.  Modeling and Querying Current Movement.
6.  Modeling and Querying Movement History.
7.  Additional Topics (if time permits).

Following this, there will be a **test**. This is the *only test*, and will count for *35%* of the course grade.

In the second part of the course, each student will: (1) make one presentation on a recent database research topic related to spatial, temporal, or moving objects databases, (2) write a report on the topic of the presentation, and (3) do a programming project. The programming project can be done in a group of 2 students, or individually.

**Paper Presentation:** The research topic for each student will be based on papers from the latest database conferences. Papers will be assigned during the first three weeks of class. A schedule for paper presentations will be made available once the papers are assigned. Each student will present on one primary research topic, and is responsible for reading related papers in order to understand the background and related research (a list of other related papers *must be referenced* in the presentation). Your presentation should concentrate on describing one primary paper in detail, with reference to other closely related papers if needed to give the background for the research and to make the presentation clear.

**Report on Research Topic:** You will write a report summarizing the research topic you studied. You must read *at least 2 related papers* and include their references/summary in the research report. However, the report should focus on the primary paper. The report should be between 6 and ten pages.

**Programming Project:** This will be related to some aspect of spatial, spatio-temporal, map, or moving objects databases, and can be done individually or in a group of two students. A list of possible project topics will be made available as the topics are being covered in the first part of the course.

**Grading:**
Attendance and class participation: 10%.
Midterm Test: 35%.
Research Presentation: 20%.
Research Report: 10%.
Project demo: 15%.
Project report: 10%.


**Additional information will be posted on Blackboard system with a copy on the course Web site.**



**Disability:**
If any student needs special accommodations because of a disability, please contact the Instructor during the first week of classes.

**Academic Honesty:**
You are expected to adhere to the highest standards of academic integrity. This means that plagiarism in any form is unacceptable. Plagiarism will be assumed, until disproved, on work that is essentially the same as that of other students. Your work must be your own. This refers to tests and programming projects. Should you be found to be cheating, at a minimum, you will fail that assignment and a letter will be sent to the Department, the College of Engineering, and to the Graduate School. The Instructor reserves the right to stronger action should the situation warrant it.