# CS338—Computer Applications in Business: Databases
# Assignment 1 (Fall 2003)
# Due: October 07, 2003

## Question 1.

Assume your company is developing a student grade management system for sale to universities. An initial analysis phase of the project has resulted in the following (informal) description of relevant data for the system.

- In a given university, there are many departments, with each offering many courses.
- A course is offered by one and only one department.
- The properties of a department that are relevant include its name, its chair and the location of its department office.
- Every course is represented by its course number and the semester in which the course is offered. For example, the pair "CS338" and "95F" denotes the Computer Science 338 course offered in the fall term of 1995.
- Each course has at least one section and at most four sections.
- The name of a course is also relevant (e.g. "Introduction to Theory of Computation").
- Students can major in one department; each department can have any number of students majoring in it.
- Students can enroll in any number of courses (sections), with at most five taken per semester.
- For each course taken by a student, a grade is recorded.
- Each course can have a maximum of four hundred students enrolled.
- Each course section has an instructor.
- The properties of a student that are relevant include the student's name and identification number.
- Student identification numbers are unique within a given university.

Based on this requirements definition, construct an E-R diagram for the university system. An integral part of the assignment is to *resolve* under-specified portions of the requirements in a form additional *written* assumptions you made during the design process.

**Question 2.** Translate the E-R diagram you constructed in Question 1 to a collection of relational tables with the appropriate integrity constraints attached.

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*Submit*: an E-R diagram, written assumptions you made, and a relational schema corresponding to the E-R diagram.