# COP 4710 – Database Systems – Fall 2013

# Practice Problems for Exam #1

## Problem #1 – ER Diagram

Construct an ER diagram for the following situation.

A hospital has a large number of registered physicians. Attributes of physicians include an id number and specialty. Patients are admitted to the hospital by physicians. Attributes of patients include a patient id and name. Any patient who is admitted must have exactly one admitting physician. A physician may optionally admit any number of patients. Once admitted, a given patient must be treated by at least one physician. A particular physician may treat any number of patients, or may not treat any patients. Whenever a patient is treated by a physician, the hospital wishes to record the details of the treatment which include the date, time, and results.

## Problem #2 – ER Diagram

Construct an ER diagram for the following situation.

Each semester, each student must be assigned an advisor who counsels students about degree requirements and helps students register for classes. Each student must register for classes with the help of an advisor, but if the student's assigned advisor is not available, then the student may register with any advisor. We want to keep track of students, the assigned advisor for each, and the name of the advisor with whom the student registered for the current term.

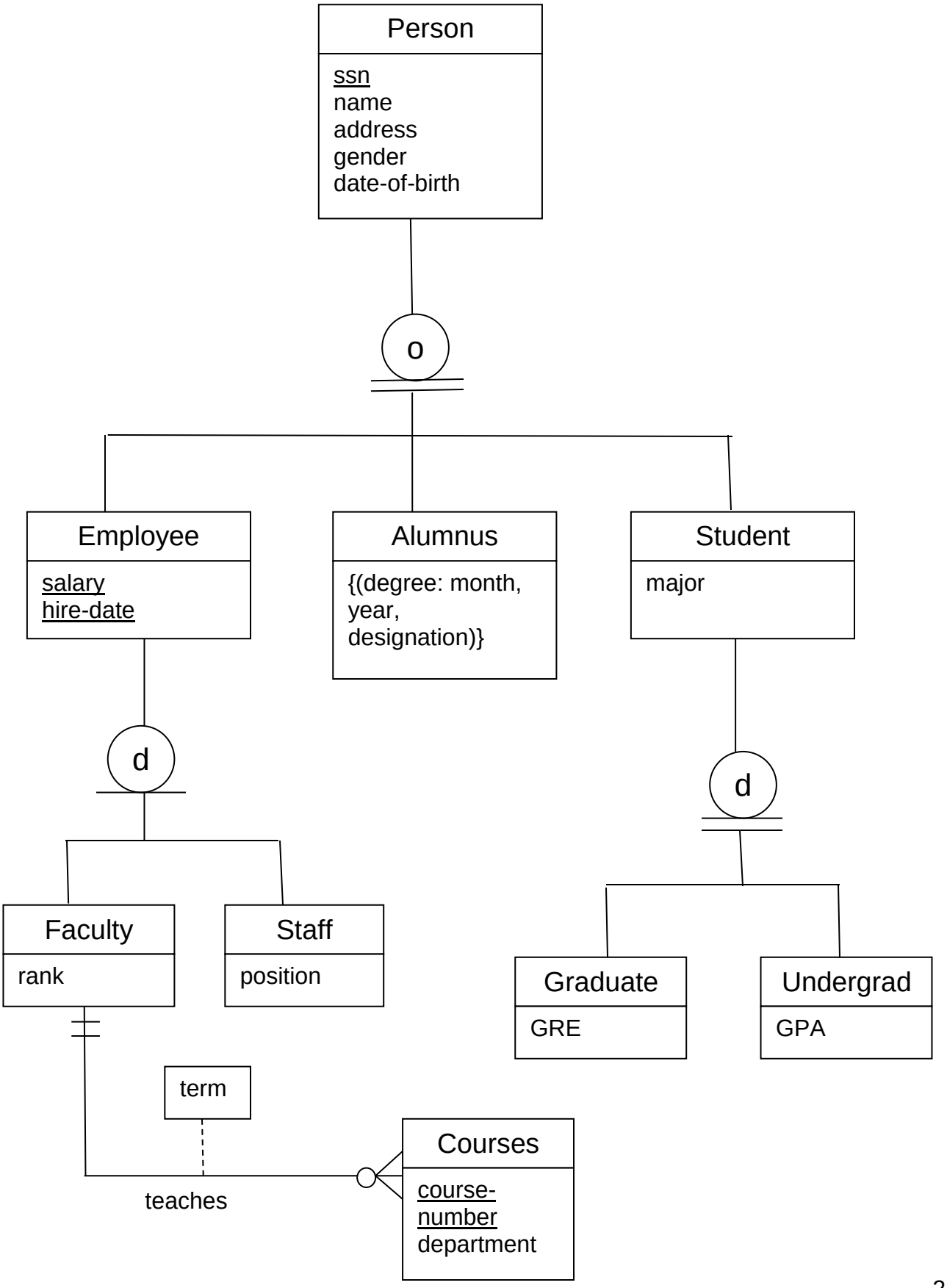
## Problem #3 – ERD To Relational Schema Conversion

Convert the ERD on the next page into a set of relational schemas using the guidelines from the lecture notes.

## Problem #4 – ERD To Relational Schema Conversion

Convert the ERD on the last page into a set of relational schemas using the guidelines from the lecture notes.

ERD for Problem #3



ERD for Problem #4