Today's class: relational design theory; dependencies. §§3.{1,2}.

Next class: schema design §§3.{4,5}.

1. List the members of your group below. Underline your name.

2. Refer to our running example of a student-course-enrollment database. Provide, with brief explanation, the smallest possible instance of the Students relation that violates the functional dependency id→name, year.

3. Provide, with brief explanation, the smallest possible instance of the Courses relation that violates both the functional dependencies id→title and ta, title→id.
4. Provide simple English descriptions of the dependencies in Questions 2 and 3.

5. List all superkeys and all keys of Courses, given the dependencies in Question 3.

6. Compute \{title\}^+ and \{id, ta\}^+ given the dependencies of Question 3.
7. Consider $R(A, B, C, D, E)$ with dependencies

\[
\begin{align*}
AB & \rightarrow C \\
BC & \rightarrow A \\
D & \rightarrow E \\
CE & \rightarrow B
\end{align*}
\]

List all keys of $R$

8. Project the dependencies of Question 7 onto the relation $R'(A, B, C)$. 