

# SQL: Outer Joins etc.

## Schema

Student( <u>sID</u> , surName, firstName, campus, email, cgpa)	Offering[dept, cNum] $\subseteq$ Course[dept, cNum]
Course( <u>dept</u> , cNum, name, breadth)	Took[sID] $\subseteq$ Student[sID]
Offering( <u>oID</u> , dept, cNum, term, instructor)	Took[oID] $\subseteq$ Offering[oID]
Took( <u>sID</u> , <u>oID</u> , grade)	

## Questions

- Which of these queries is legal?
  - `SELECT count(distinct dept), count(distinct instructor)  
FROM Offering  
WHERE term >= 20089;`
  - `SELECT distinct dept, distinct instructor  
FROM Offering  
WHERE term >= 20089;`
  - `SELECT distinct dept, instructor  
FROM Offering  
WHERE term >= 20089;`
- Under what conditions could these two queries give different results? If that is not possible, explain why.

```
SELECT surName, campus  
FROM Student;
```

```
SELECT distinct surName, campus  
FROM Student;
```

- For each student who has taken a course, report their sid and the number of different departments they have taken a course in.

4. Suppose we have two tables with content as follows:

```
SELECT *
FROM One;
```

a	b
1	2
6	12
	100
20	

(4 rows)

```
SELECT *
FROM Two;
```

b	c
2	3
100	101
20	21
2	4
2	5

(5 rows)

(a) What query could produce this result?

a	b	c
1	2	3
1	2	4
1	2	5
	20	21
	100	101

(5 rows)

(b) What query could produce this result?

a	b	c
1	2	3
1	2	4
1	2	5
6	12	
	100	101
20		

(6 rows)