Business School
UNIVERSITY OF COLORADO DENVER

Information Systems Program

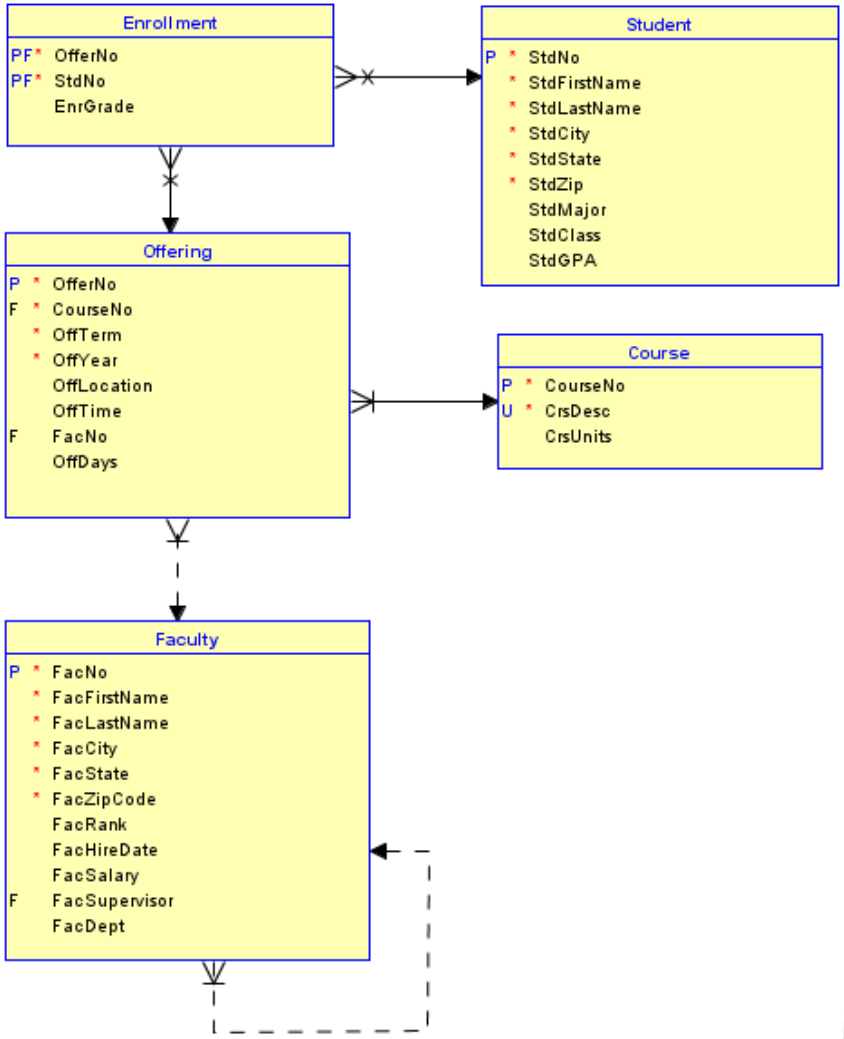
Module 5
Extended Query Formulation with SQL

Lesson 2: Multiple Table Problems

Lesson Objectives

- Use the critical questions to analyze more complex problem statements
- Apply a statement pattern to write SELECT statements for more complex problems involving more than 2 tables
- Analyze SELECT statements using the statement pattern for major query formulation errors

University Database Diagram



SELECT Statement Pattern (CP)

```
SELECT <ColumnList>
FROM Table1, Table2, … TableN
WHERE <JoinCondition1>
   AND <JoinCondition2>
… AND <JoinConditionN-1>
   AND RowCondition1 … AND RowConditionP
   AND ( RowConditionP+1 … OR RowConditionP+M );
```


SELECT Statement Pattern (JO)

```
SELECT <ColumnList>
FROM <JoinOperation1>
     <JoinOperation2>
…    <JoinOperationN-1>
WHERE RowCondition1 … AND RowConditionP
  AND ( RowConditionP+1 … OR RowConditionP+M );
```


Combining 3 Tables

Example 1: List Leonard Vince's teaching schedule in fall 2019. For each course, list the offering number, course number, number of units, days, location, and time.

```
SELECT OfferNo, Offering.CourseNo, CrsUnits, OffDays,
       OffLocation, OffTime
 FROM Faculty, Course, Offering
 WHERE Faculty.FacNo = Offering.FacNo
   AND Offering.CourseNo = Course.CourseNo
   AND OffYear = 2019
   AND OffTerm = 'FALL'
   AND FacFirstName = 'LEONARD'
   AND FacLastName = 'VINCE';
```


Combining 4 Tables

Example 2: List Bob Norbert's course schedule in spring 2020. For each course, list the offering number, course number, days, location, time, and faculty name.

```
SELECT Offering.OfferNo, Offering.CourseNo, OffDays,
       OffLocation, OffTime, FacFirstName,
       FacLastName
 FROM Faculty, Offering, Enrollment, Student
 WHERE Offering.OfferNo = Enrollment.OfferNo
   AND Student.StdNo = Enrollment.StdNo
   AND Faculty.FacNo = Offering.FacNo
   AND OffYear = 2020
   AND OffTerm = 'SPRING'
   AND StdFirstName = 'BOB'
   AND StdLastName = 'NORBERT';
```


Combining 5 Tables

Example 3: List Bob Norbert's course schedule in spring 2020. For each course, list the offering number, course number, days, location, time, course units, and faculty name.

```
SELECT Offering.OfferNo, Offering.CourseNo, OffDays,
       OffLocation, OffTime, CrsUnits, FacFirstName,
       FacLastName
 FROM Faculty, Offering, Enrollment, Student, Course
 WHERE Faculty.FacNo = Offering.FacNo
   AND Offering.OfferNo = Enrollment.OfferNo
   AND Student.StdNo = Enrollment.StdNo
   AND Offering.CourseNo = Course.CourseNo
   AND OffYear = 2020
   AND OffTerm = 'SPRING'
   AND StdFirstName = 'BOB'
   AND StdLastName = 'NORBERT';
```


Summary

- Have a mental image of the query formulation process
- Use critical questions and statement pattern for converting a problem statement into a database representation
- Use a database diagram for connections among tables