Module 6
Notation for Entity Relationship Diagrams

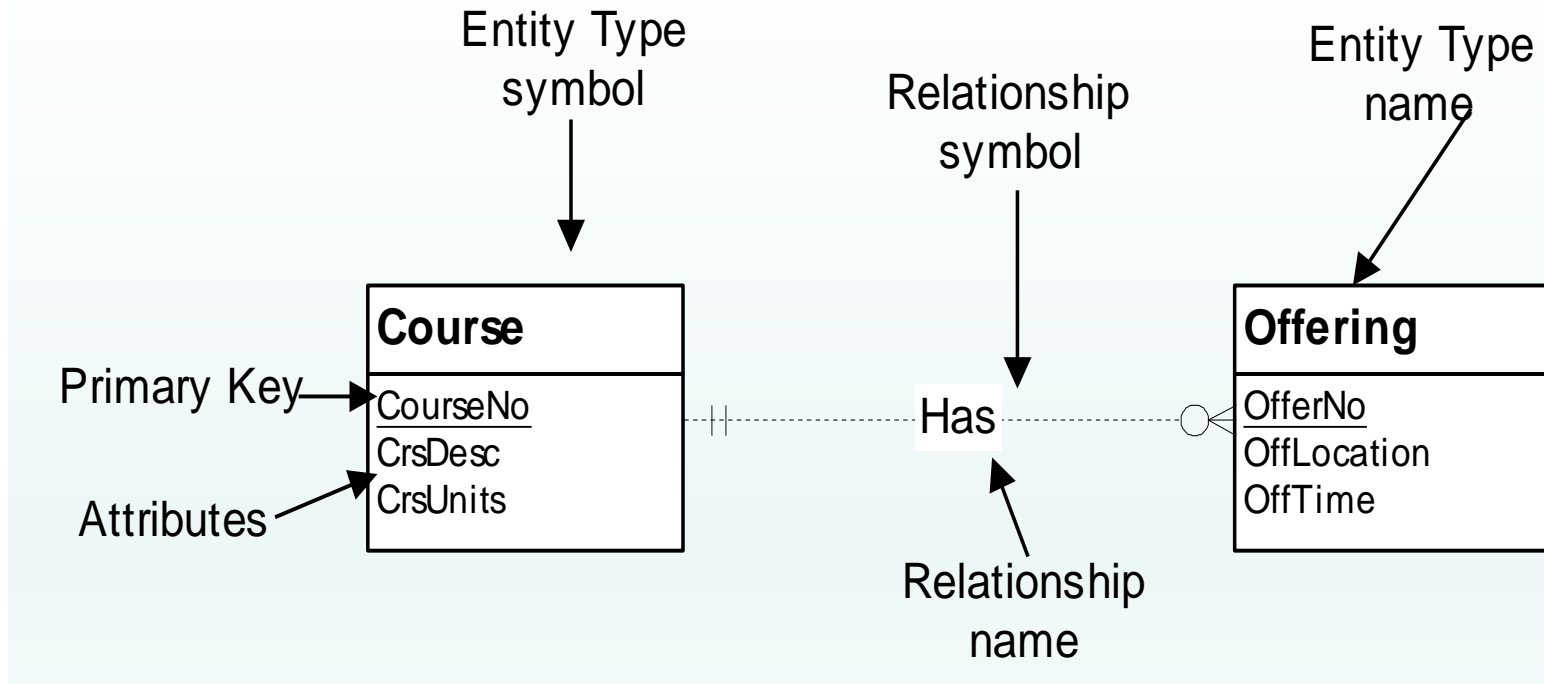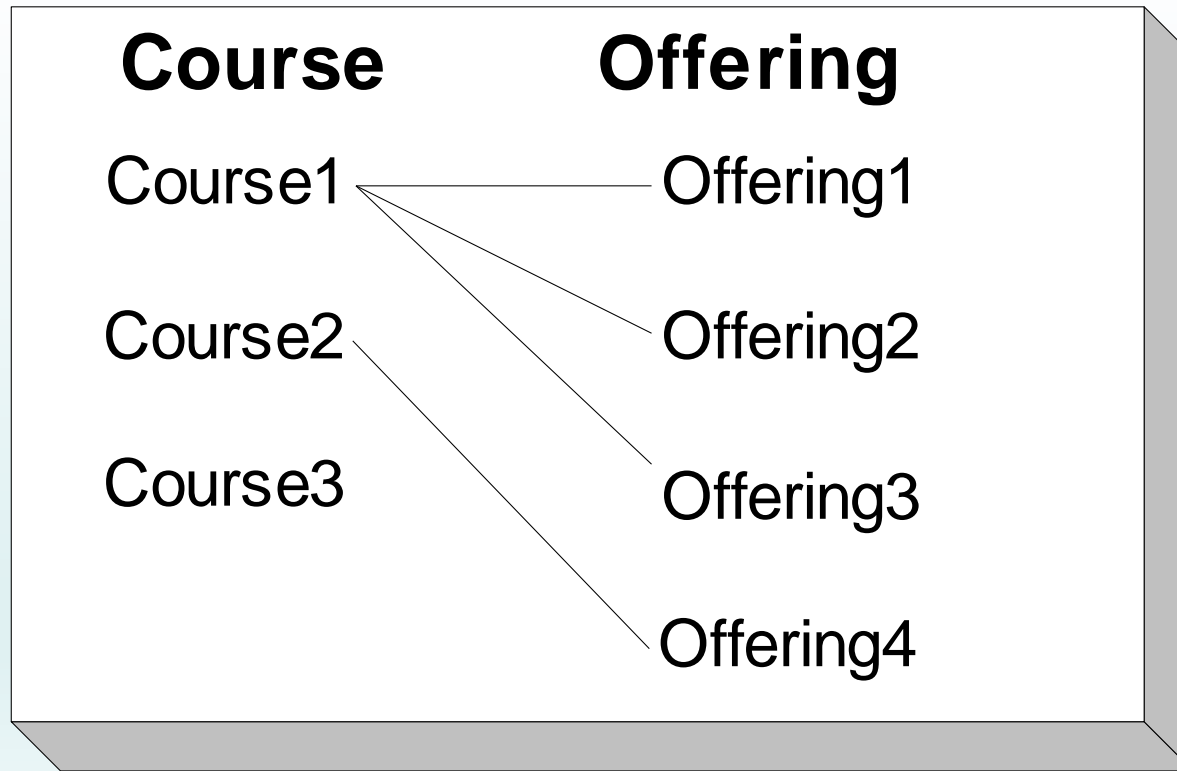## Lesson 2: Basic ERD Notation

Lesson Objectives

- Explain cardinality notation in an ERD
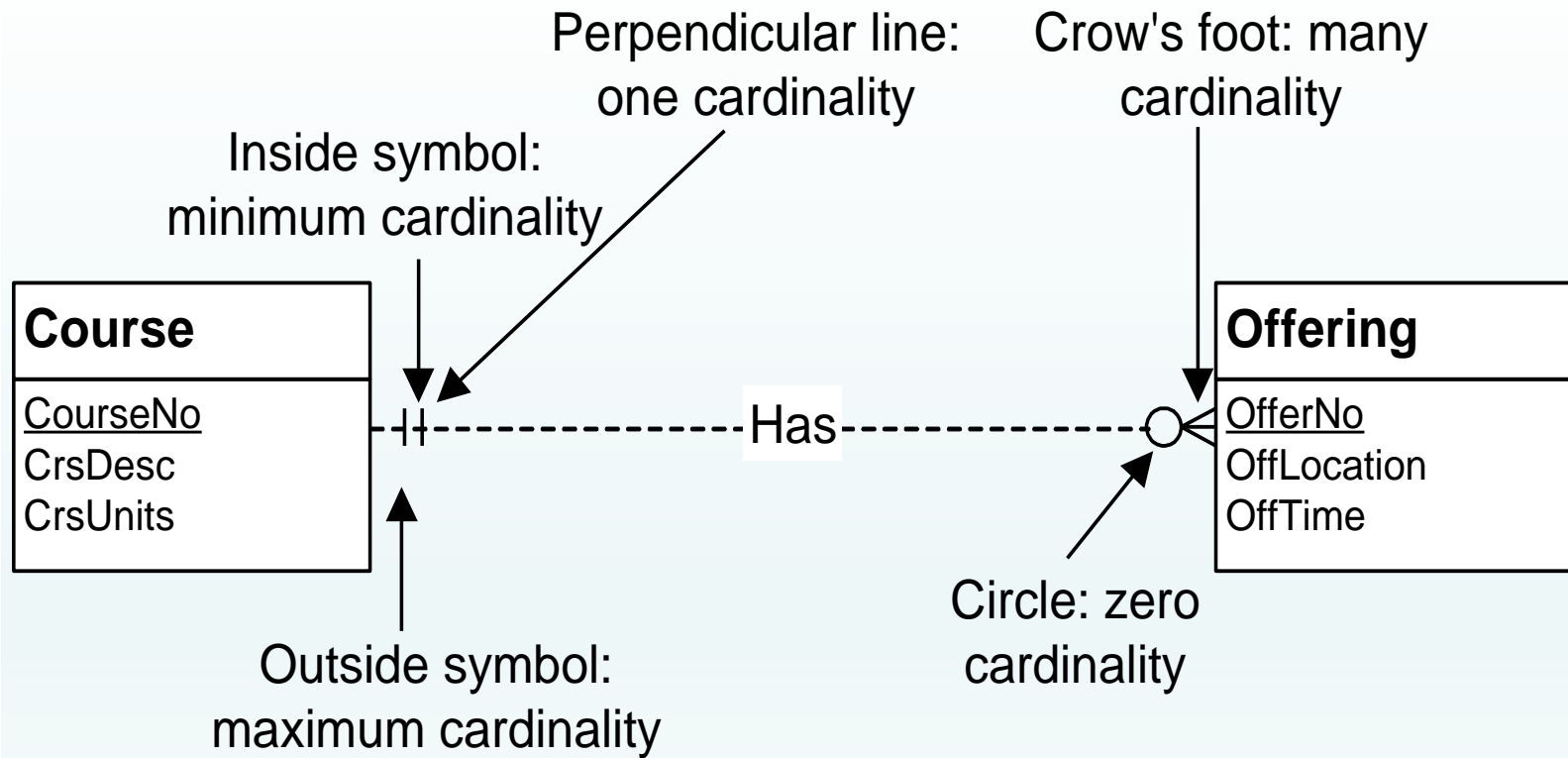- Explain differences between ERD notation and relational database diagram

Basic Symbols

Entity Type symbol

Relationship symbol

Entity Type name

Course

Primary Key → CourseNo
CrsDesc
Attributes → CrsUnits

Has

Offering

OfferNo
OffLocation
OffTime

Relationship name

Cardinalities

Course	Offering
Course1	Offering1
Course2	Offering2
Course3	Offering3
	Offering4

Cardinality Notation

Perpendicular line: one cardinality

Inside symbol: minimum cardinality

Crow's foot: many cardinality

Course

CourseNo
CrsDesc
CrsUnits

Has

Offering

OfferNo
OffLocation
OffTime

Outside symbol: maximum cardinality

Circle: zero cardinality

Important Cardinalities

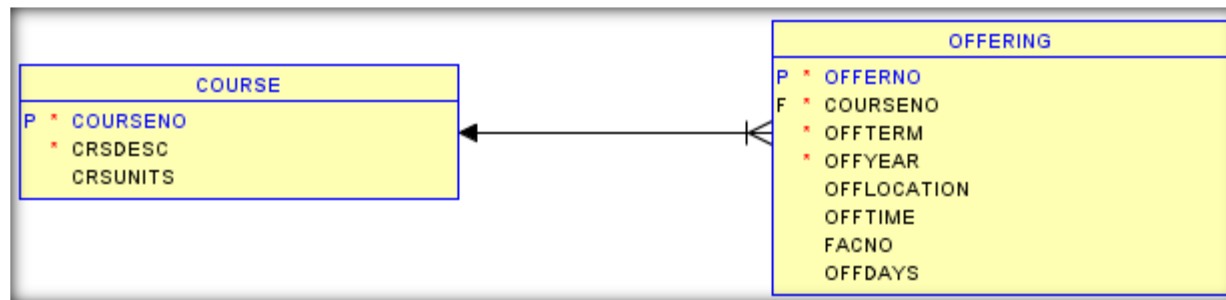| Classification	Cardinality Restrictions
Mandatory	Minimum cardinality ≥ 1
Optional	Minimum cardinality = 0
Functional or single-valued	Minimum cardinality = 1
1-M	Maximum cardinality = 1 in one direction; maximum cardinality > 1 in the other direction
M-N	Maximum cardinality > 1 in both directions
1-1	Maximum cardinality = 1 in both directions
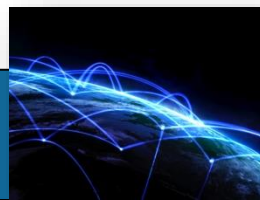
More Relationship Examples

Office

OfficeNo
OffPhone
OffType

WorksIn

Faculty

FacNo
FacSalary
FacRank
FacHireDate

TeamTeaches

Offering

OfferNo
OffLocation
OffTime
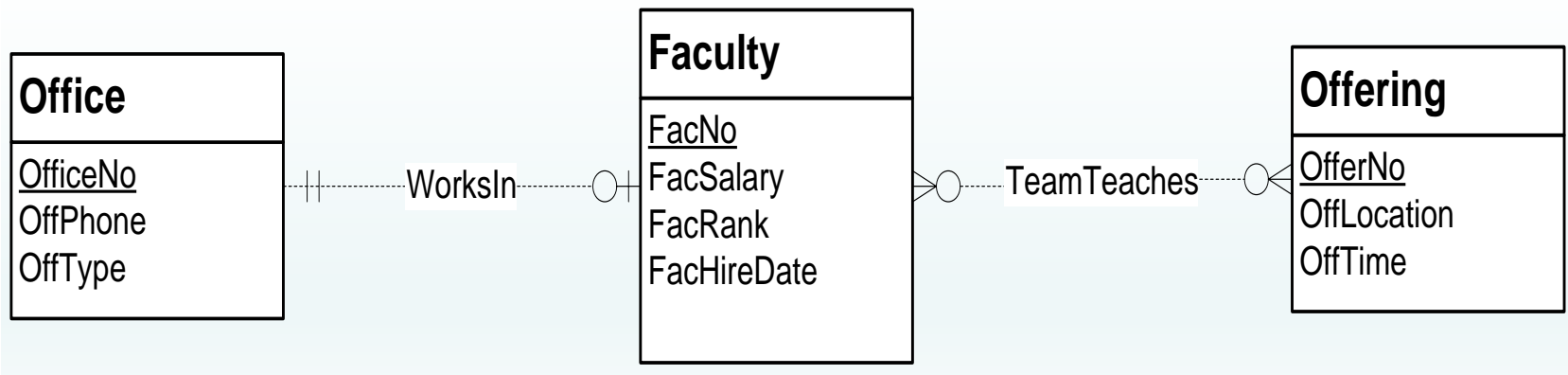
Comparison to Oracle Notation

Course

CourseNo
CrsDesc
CrsUnits

ERD (Crow's Foot)

Has

Offering

OfferNo
OffLocation
OffTime
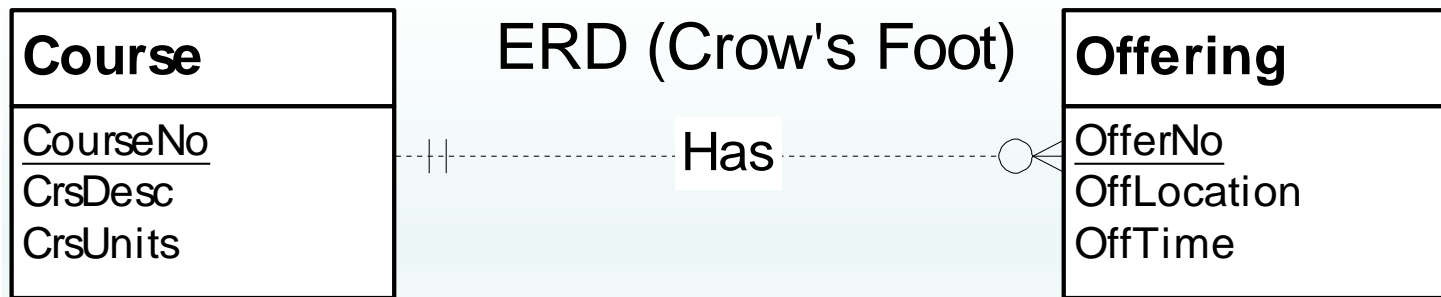
Oracle Relational Model Diagram

Summary

- Crow's Foot ERD notation is widely used
- Use notation precisely
- Differentiate ERD notation from Relational Data Model
- Understanding the ERD notation is a prerequisite to applying the notation on business problems

Information Systems Program