

Figure 6.4 E-R diagram with role indicators.

to rectangles. Figure 6.4 shows the role indicators *course_id* and *prereq_id* between the *course* entity set and the *prereq* relationship set.

A relationship may also have attributes called **descriptive attributes**. As an example of descriptive attributes for relationships, consider the relationship set *takes* which relates entity sets *student* and *section*. We may wish to store a descriptive attribute *grade* with the relationship to record the grade that a student received in a course offering.

An attribute of a relationship set is represented in an E-R diagram by an **undivided rectangle**. We link the rectangle with a dashed line to the diamond representing that relationship set. For example, Figure 6.5 shows the relationship set *takes* between the entity sets *section* and *student*. We have the descriptive attribute *grade* attached to the relationship set *takes*. A relationship set may have multiple descriptive attributes; for example, we may also store a descriptive attribute *for_credit* with the *takes* relationship set to record whether a student has taken the section for credit, or is auditing (or sitting in on) the course.

Observe that the attributes of the two entity sets have been omitted from the E-R diagram in Figure 6.5, with the understanding that they are specified elsewhere in the complete E-R diagram for the university; we have already seen the attributes for *student*, and we will see the attributes of *section* later in this chapter. Complex E-R designs may need to be split into multiple diagrams that may be located in different pages. Relationship sets should be shown in only one location, but entity sets may be repeated in more than one location. The attributes of an entity set should be shown in the first occurrence. Subsequent occurrences of the entity set should be shown without attributes, to avoid repetition of information and the resultant possibility of inconsistency in the attributes shown in different occurrences.

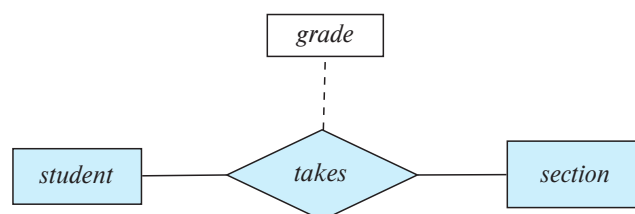


Figure 6.5 E-R diagram with an attribute attached to a relationship set.