```java
1   import java.io.Serializable;
2   import java.util.*;
3
4   public class Course implements Serializable
5   {
6       private String courseId;
7       private String name;
8       private String objective;
9       private ArrayList<Course> prereqs;
10      private HashMap<String, CourseOffering> offerings;
11
12      public Course(String courseId, String name, String objective)
13      {
14          this.courseId = courseId;
15          this.name = name;
16          this.objective = objective;
17          prereqs = new ArrayList<Course>();
18          offerings = new HashMap<String, CourseOffering>();
19      }
20
21      public CourseOffering createOffering(int expectedNumber, int year,
22              int semester) throws PreExistException
23      {
24          if(getOffering(year, semester) != null)
25          {
26              throw new PreExistException("Offering Already Exists");
27          }
28          String key = "" + year + ":" + semester;
29          CourseOffering offering = new CourseOffering(expectedNumber, year,
30                  semester);
31          offering.setCourse(this);
32          offerings.put(key, offering);
33          return offering;
34      }
35
36      public CourseOffering getOffering(int year, int sem)
37      {
38          String key = "" + year + ":" + sem;
39          return offerings.get(key);
40      }
41
42      public String getID()
43      {
44          return courseId;
45      }
46
47      public String getName()
48      {
49          return name;
50      }
51
52      public ArrayList<Course> getPrereqs()
53      {
54          return prereqs;
55      }
56
57      public void addPrereq(Course c)
```

```
58          {
59              prereqs.add(c);
60          }
61
62      public String toString()
63      {
64          String s = "ID: " + courseId;
65          s += "\nName: " + name;
66          s += "\nObjective: " + objective;
67          s += "\nNumber of prereqs: " + prereqs.size();
68          return s;
69      }
70  }
71
```