

## Definitions for Data model 2

This changes were made in order to accommodate the the user story for course prerequisites validation.

### types in model vs. rails:

numeric: decimal, varchar: string, integer: integer

- **Semester:** is being used in the same context of an academic term, which is a portion of an academic year, the time during which an educational institution holds classes. This entity works mostly as a relation table connecting the SemesterDefinition table to years.
  - year\_id: of type integer is the foreign key to the Years table
  - semester\_definitions\_id: of type integer is the foreign key to the SemesterDefinition table
- **SemesterDefinition:** This is entity works has the same relation that the CourseInstance entity has to the Courses entity. This allows administrators of the system to add semesters like winterim or maymester when offered.
  - name: of type string is the semester name i.e “Fall”
  - in\_year\_position: of type integer is the position that this semester has within a year
  - max\_credit\_hours: of type decimal denotes the number of credit a student is allowed to take in a given semester. Semesters have constraints imposed by most universities in the US, i.e Metro only lets you register for 3 credits for winterim, and 12 credits for summer.
- **CourseInstance:**
  - course\_id: the id of the course that is being added to the course plan.
  - semester\_id: the id of the semester for which this course instance is being added.
  - student\_id: id of student that owns the plan that this course instance belongs to.
  - rotation\_id: is the id of the rotation in which this course is being taken.
  - prerequisites: this keeps the state of prerequisites completeness. 0 for incomplete and 1 for complete.
- **Course:** A course is a unit of teaching that typically lasts one **academic term**, is led by one or more instructors.
  - name: Is the name given to a course as a short way to describe its content, i.e ‘Principles of Programming Languages’.
  - subject: A subject is a letter-combination used to designate the area of study in a course. It precedes the *call number*, i.e “CS’.

- **call\_number:** The course number follows the course subject code, e.g., 2100. The first digit in a four-digit course number designates the level of instruction.
- **credit\_hours:** credit hours are generally based on the number of "contact hours" per week in class, for one term; more well known as Semester Credit Hours.
- **Prerequisite:**
  - **this\_course\_id:** is the id of the course for which the course with "target\_course\_id" id is required.
  - **target\_course\_id:** is the id of the prerequisite or target required course
  - **required\_credit\_hours:** (optional) meant type 2, which is when a course requires x number of upper division credits.
  - **type:** 0 or nil would mean that this is a regular prerequisite that requires students to have taken the course in a past semester. 1 would be a co-requisite, which is when a student needs to concurrently take this course and its target required course. 2 would be for courses that require a given number of upper division credits. Those are the only ones that are being handled at the moment, however more can be added in the future as long as they are handled in the system.
  - **subject:**(optional) only used for type 2, it is the subject of the required upper division credits. Upper division credits would be courses with number  $\geq 3000$ , i.e CS 3600.

-- The reason why integers are being used to keep state instead of booleans is that SQLite and rails don't do booleans very well together. As well as integers allow you to have more than two states.