Below are possible group projects for CSCI586, spring 2016. There should be 2-4 (optimally 3) students in each project group. Each group is to choose one of the project topics below. More than one group may work on a given project topic.

A written report plus material developed in the project is to be submitted at the end of the semester, along with the presentation (e.g., powerpoint) slides from the group's final in-class presentation. All final project material is due April 29 (the last day of classes). Groups will also be asked for a mid-semester brief progress report.

There are two types of projects, as detailed below.

**Type 1 Projects**

The goal of this project type is to develop and apply a federated ontology in the area of specific application domain. About three or four aspects of the domain should be considered, each with its own ontology - either preexisting, or to be developed as part of the project. To construct the ontologies, the Protégé ontology manager or other ontology tool(s) can be used.

A “meta ontology” is then to be created to cross-correlate the individual ontologies. This meta ontology can be constructed in Protégé or using another tool. A principal contribution of your work will be to formulate what the meta ontology contains, and how rich it is in terms of describing the inter-ontology relationships.

In class, we address several ontology cross-correlation approaches - these and others that you find in the “literature” or existing systems can be used. At the end of the project, there should be a federated ontology that can serve as an informational “guide” for users to understand the domain. This exploration can be done with Protégé (or other ontology tool), and a basic user interface you will construct (appropriate for the domain).

*(Note: the ontologies to be federated need to be sufficiently diverse/heterogeneous to make the project interesting!)*

Possible domains are as follows:

- Curriculum or Research Guide for the USC Viterbi School of Engineering [1a]
- Multi-media Information in Entertainment (e.g., videos, articles, blog posts) [1b]
- Aspects of the Genomics/Genetics [1c]
- Treatment and Medication for Diseases of Some Kind (e.g., oncology) [1d]
- <your choice> (topic must be approved) [1x]
Type 2 Projects

The goal of this type of project is to study, experiment with, analyze and explore the practical use of a successful “large” ontology (or collection of ontologies). How was the ontology developed? How can it evolve? What level of semantics is captured in the ontology? How is it used? Why is this ontology successful, and how? What can we learn from this in developing other domain ontologies? What has been accomplished with this ontology? What problems have been encountered?

In the project, you explore the questions and issues above, and produce an analytical report; this is in a sense a “case study”.

- The SWEET Ontologies (Semantic Web for Earth and Environmental Technology) [2a]
- DBPedia and RDFBookMashup, LinkedMDB [2b]
- The Gene Ontology [2c]
- The Oncology Ontology [2d]
- <your choice> (topic must be approved) [2x]

Project Timeline

Note that the following deadlines merely define a baseline to ensure that progress is being made on your project - you are of course welcome (and indeed encouraged) to start work as soon as you are ready - there is no need to wait until the deadlines.

Group Formation - Deadline: February 15

Students should form themselves into groups. Once a group has been formed, one representative shall register the group by submitting a list of the group members to the Professor, TA, Course Producer, and Grader.

Custom Project Topic Proposals - Deadline: February 22

Groups who wish to propose their own custom project topic (for both Type 1 and Type 2 projects) must submit a proposal by email to the Professor, TA, Course Producer, and Grader. Approval of custom project topics is not guaranteed, and depends on the suitability of the project scope as well as relevance to the subjects of the course; you may be asked to alter the scope of the proposed project or asked to abandon it entirely. Groups wishing to propose a custom topic are strongly encouraged to make an appointment to meet the TA during office hours to discuss their proposal beforehand for advice and guidance on scoping of their project.

Note that custom topic proposals will not be accepted beyond the deadline, and only predefined topics may be chosen thereafter.
**Topic Selection - Deadline: February 24**

Groups must finalize their project topic by this time so as to start work in a timely fashion.

**Progress Report - Deadline: March 9 (in class)**

All groups are required to make a brief (1 or 2 slides) project plan/progress report. This report should provide:

- a clear breakdown of the individual tasks or steps required in your group project
- the project schedule, including “deliverables”
- current progress: what tasks have been completed so far
- planned progress: remaining tasks - who is assigned to do what, and by when

**Final In-Class Presentations: April 18-27 (in class)**

Each group shall prepare a presentation about their project. For a Type 1 project, this should discuss the design and implementation of your “meta ontology” and may include a demonstration of your system and/or application. For a Type 2 project, your presentation should include critical and analytical discussion of your selected ontologies, answering the questions posed in the project description above.

Presentations should consist of **at most 15 slides**, with a reasonable font size. Please do not put too much text on a slide.

**Final Report and Material Submission - Deadline: April 29**

The project final written report should be done in the form of a technical conference paper. You are welcome to use conference paper templates (LaTeX or Word format) for ACM / LNCS / AAAI / IEEE / etc. if you find them helpful, but this is not a requirement.

This report, along with the presentation slides from your in-class presentation, as well as all materials developed for the project (e.g. ontologies, application source code, documentation, etc.) are **due by April 29** via email (to the Professor, TA, Course Producer, and Grader).