COMP 390: Computer Science Project
(Broadening Participation in Computing, Mathematics, and Science) (Section 001)
Fall 2012 Course Information & Syllabus

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Lectures: Wednesday 2:45–3:35 in Cudahy 206.

Office Hours: In LH-104: Mon. 1:00–3:00, Wed. and Fri. 1:00–2:00 pm.
These are the guaranteed times to find me except as announced in advance. You should also feel free to look for me at other times or make appointments.

Course Objectives: Students will learn about the underrepresentation of various population groups in computing and STEM fields (science, technology, engineering, mathematics) as well as some of the reasons and negative effects of this situation. They will learn about techniques and educational materials for ameliorating this situation and will engage in relevant service learning activities. The service activities will help students to see first-hand some of the prevailing attitudes and conditions and to see how they can make a difference in the lives of other students and contribute to national needs.

Prerequisites: None.

Textbook: None.

Course Requirements: Students will log at least 25 hours of service with community and school organizations geared towards broadening participation in computing or other STEM fields.

Students may suggest their own activities and bring in their own contacts as well as hearing about the instructor's suggestions and contacts. Students may also benefit from contacting staff of the Center for Experiential Learning (`http://luc.edu/experiential`) for STEM-related service ideas. The service hours may be all at one organization or at several related organizations (for example, different Chicago high schools). Students may work individually or in groups (typically small ones of two or three students). Though the final contacts may not be known in advance, each activity must involve a connection with an "onsite supervisor", for example, a classroom teacher or organization staff member who can be contacted for a brief evaluation of the student(s) onsite performance. Students must submit names and contact information for onsite supervisors as soon as they are known.

After every service activity, students must make a blog entry with brief information and observations relating to the activity. Blog entries may also productively describe the process of making arrangements and preparations for visits. In particular, students should do some advance research before visiting an organization (e.g., client demographics, knowledge level, community environment, etc.) and report such information. With a clear explanation of their importance, photos, video clips, or audio clips may be added to enhance the blog (and possibly your grade). We will use a blog associated with the new Loyola Chapter of the STARS Leadership Corps (SLC), associated with the STARS Alliance (`http://starsalliance.org`) for broadening participation in computing. (Students may be engaged in more general STEM activities, but they will still be welcomed on the SLC blog. Students with a computing focus can be official members of the SLC and may get a small stipend from the STARS Alliance. These students will also be expected to file activity reports, through the STARS Alliance web site, and can fulfill some of their COMP 390 requirements by participating in a Loyola SLC YouTube video about the chapters' activities.) Students are also expected to participate in classrom discussions; students with legitimate, explained absences may compensate through the blog. A rubric for assessment of class and blog participation is included in Appendix A.

Each student must submit a log of service hours by the last class of the semester; it will also be checked at mid-term. A form that can be used for the log is included in Appendix B.

Students also must turn in four written essays, generally up to about 500 words, at the dates noted in the course schedule. The first essay will be turned in along with a short description (subject to instructor approval) of planned activities and ideas for contacts and implementation. The essay will include initial written reflection on goals, motivations, and connections to past personal experience and interests. The remaining essays will provide written reflection on service activities and other learning to date, ideally incorporating linkages between the two. The final essay should be a somewhat more extensive summation and/or include recording of a video segment for the SLC YouTube video. These essays should be guided by the framework in Appendix C.

Grade Distribution

Attendance & Participation (class & blog)	30%
Three Written Essays	24%
Final Written Essay	11%
Execution of Service Activities (based on quality of plan, log, and site evaluations)	35%

Core Learning Outcomes:

This course contributes towards the Value Area of Promoting Civic Engagement or Leadership via the following competencies:

- **Identify models of leadership and civic engagement, both current and historical.** Materials regarding experiences of others in service learning and outreach in STEM fields will be reviewed to provide students with models and ideas for their own efforts.
- **Demonstrate an understanding of the ethical responsibilities of leadership and its relationship to the Jesuit tradition.** Students will learn how their outreach efforts dovetail with Loyola's mission.
- **Apply analytical and reflective tools to assess situations and recognize leadership possibilities and opportunities for civic engagement.** Students will complete reflection assignments regarding their service and possible future directions.
- **Articulate a vision that can empower and inspire others.** Students will help others to recognize and act upon their potential for contributing to society and empowering themselves in computing and STEM fields.
- **Demonstrate effective team-building skills** Some students may work together in making presentations, mentoring, and coaching student groups. Material also will be presented and discussed regarding team building and cultural understanding.
- **Engage in the community through activities effecting positive change in society and the environment.** Students will engage with school/community groups to encourage more equitable participation of underrepresented groups in computing/STEM and to encourage increased human resource development in an area of important national need.

Tentative Course Outline and Approximate Schedule:

Initial course meeting times will focus on practical resources for exciting students about computing and other STEM fields so students can get started with their own activities. During the semester, we will gradually fill in pieces of a more theoretical or background nature that will enrich the students' service performance. Students will be expected to report on their own experiences throughout the semester, but the main focus of course sessions will be roughly as follows, with some possible references listed.

Following is a rough sketch for material to cover adapted from last year. This will likely change soon to also incorporate some other material.

1. (8/29) Administrivia. Overview of course plan and requirements. Planning for connecting with school/community groups.
2. (9/5) Sample presentation on opportunities in computing [17].
3. (9/12) Overview of additional resources about opportunities in computing and STEM [58, 12, 54, 7, 60, 59]. Turn in first written essay and service plan.
4. (9/19) Students perform dress rehearsals of their own presentations or describe other planned activities [30].
5. (10/3) Students perform dress rehearsals of their own presentations or describe other planned activities.
6. (10/10) Background on what groups are underrepresented in computing/STEM, reasons why, and how these fields can become more appealing [52, 20, 38, 15, 11, 18, 50, 29, 13, 14, 10, 56, 51, 37, 26, 28, 39, 27, 34].
7. (10/17) Overview of organizations and additional resources for those working to broaden participation in computing/STEM and for enriching connections of students and teachers we work with [41, 40, 16, 22, 8, 1, 9, 3]. Turn in second written essay.
8. (10/24) Effects of stereotype threat and strategies for lessening it [5, 4, 53, 55, 61, 62, 31, 6, 25]. Turn in log of service hours so far.
9. (10/31) Ways to be more sensitive to and accommodating of cultural differences [49, 33, 32, 57], general pieces of [47, 2, 23, 24, 21, 48].
10. (11/7) Broader overview of learning through serving, leadership, and community building [19, 35, 36, 45, 46]. Turn in third written essay.
11. (11/14) Benefits of diversity [42, 43, 44].
12. (11/28) More in-depth reporting of students on their own experiences.
13. (12/5) Continuation or catch-up. Turn in final service log. Turn in last written essay.

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A Blog and Class Participation Rubric

(for self- and instructor-based assessment)[1]

Criterion:	4	3	2	1
Positive attributes				
1. Finds ways to connect own comments to the comments made by other students in class/blog	Frequently	Occasionally	Seldom	Almost never
2. Answers questions posed by the professor/students OR offers helpful explanations when another student is confused	Frequently	Occasionally	Seldom	Almost never
3. Meets with professor and/or peers to clarify ideas	Frequently	Occasionally	Seldom	Almost never
4. Uses appropriate language and is respectful of self, of other students, of "clients", and of the professor	Frequently	Occasionally	Seldom	Almost never
5. Offers comments that compare and contrast ideas, synthesizes several ideas, or breaks a complex idea into multiple parts	Frequently	Occasionally	Seldom	Almost never
6. Demonstrates that he/she is comprehending the reading through questions, answers and comments in class/blog	Frequently	Occasionally	Seldom	Almost never
Negative attributes				
7. Misses class without an excuse or skips blogging	Almost never	Seldom	Occasionally	Frequently
8. Comes late to class or does not submit blog entries in a timely fashion	Almost never	Seldom	Occasionally	Frequently
9. Does not share experiences in class/blog	Almost never	Seldom	Occasionally	Frequently
10. Exhibits disruptive behaviour (i.e. interrupts others, falls asleep, dominates conversation, etc.)	Almost never	Seldom	Occasionally	Frequently

Total score: _____

[1] Adapted from UNIV 290 materials of Chris Skrable.

B Service-Learning Log Sheet

Name_____

Date	Start/End Times	Work Completed	Supervisor Signature

C Reflections

At intervals noted in the course schedule, it is expected that you will write a reflection on your experiences and learning. Research indicates that as students reflect on their service experiences, this process helps make their experiences more meaningful. Please be aware that the following components will be expected in your reflections:

Description (What?): What happened in your experience? Describe your experience at community sites.

Analysis (So What?): What does this experience mean? What does it tell you about the organization? Issues in the Community? Analyze your experience.

Critical Reflection (Now What?): What impact does your role have at the sites visited? What impact in the community? What else needs to be done regarding the organization or issue?

As you reflect on your service experiences, please feel free to let the following questions guide your reflection:

1. Describe your service experiences.
2. What did you notice that was new, different, or unique about your experiences?
3. Did you have any experiences with individuals that shed light on the community issues? Explain.
4. What questions do you have regarding these experiences?
5. Characterize how visited institutions were organized. Provide assessments an explain your comments.
6. Did your experiences impact your understanding of the community issues addressed by partner organizations? How?
7. Do your experiences inform your understanding about living in this community and being an engaged citizen? Do your experiences inform your understanding of the Mission of Loyola University?