

IPRO 497-321-S09 Project Plan

February 21, 2009

1 Team Information

- Name: Jason Chin
 - E-mail Address: jchin4@iit.edu
 - Major: Professional and Technical Communication
 - Minor: Sociology
 - Strengths: My major is focused on creating and designing usable documents. I am interested in editing and have familiarity with web design concepts.
 - Skills to develop: I hope to improve my ability to work with a team on a long term project. I also want to apply my education in sociology and communication skills to the project.
 - Project expectations: Hopefully, at the end of the project we will have created a solution to the problem. I also believe this will be a positive team experience and that I will gain a better understanding of the CS field.
- Name: Jianqi Xing
 - E-mail Address: jxing1@iit.edu
 - Major: Computer Science
 - Minor: Psychology
 - Strengths: I am interested in cross-fields with Computer Science and other natural or social sciences, and taking psychology as minor. Hopefully I will contribute something to the research as well as the combination of CS with other sciences in this project.
 - Skills to develop: I want to gain real experience in solving problems within a team; have a deeper understanding about Computer Science and IT Industry.

- Project expectations: At the end of this semester, hopefully we can collect some basic research data and some possible way to solve the project problem. Personally, I hope to gain some successful team-working experience as well as get a rough scope of the application in cross-field between CS and other sciences.
- Name: Christos Mitillos
 - E-mail Address: cmitillo@iit.edu
 - Major: Applied Mathematics
 - Major: Computer Science
 - Strengths: I have a direct interest in the problem, due to my chosen career as an academic. I have some experience with the systems used in some other countries, to deal with the problem involved. Finally, both my majors are in subjects directly related to the problem.
 - Skills to develop: Application of knowledge to educational settings. Outreach programme skills. Inter-professional communication skills.
 - Project expectations: I hope that this group will lay the foundation for a continuing IPRO, which will solve the problem in the long run. I would like appropriate curricula to be prepared for Computational thinking to be incorporated into high school education. Finally, we can establish communication with the authorities involved, so that the following semesters this project will have an effect.
- Name: Herbert Edwards
 - E-mail Address: hedwards@iit.edu
 - Major: Psychology
 - Minor: Business
 - Strengths: I am a great researcher and a creative problem solver. I am also able to identify the mood and needs of a team.
 - Skills to develop: Communication and leadership. Project development. Website design.
 - Project expectations: Pin-point the reason CS is in decline in the USA. Find the most potent means of increasing academic awareness. Lay foundations for future IPROs.
- Name: Sergio Aguilar
 - E-mail Address: saguilar@iit.edu
 - Major: Computer Engineering
 - Strengths: CS background. Strong belief in low CS awareness. Past experience with community-based outreach program.

- Skills to develop: Web development. Interprofessional skills. How to develop appropriate curricula.
- Project expectations: Establish a link with schools and sponsors. Deliver and test a curriculum. Expand this IPRO.
- Name: Saad Ahsan
 - E-mail Address: mahsan1@iit.edu
 - Major: Biomedical Engineering
 - Strengths: I spent 4 years in a CPS selective prep highschool and therefore have inside knowledge of curriculum used within this particular system. I also took 3 years worth of computer science classes which will prove helpful in gauging the types of responses needed to accomplish the goals of this IPRO.
 - In addition, I was part of a Future Leader’s colloquium that spent a semester developing computer literacy manuals for senior citizens and that project culminated in live sessions where seniors from the local community were invited to develop their computer skills. I have worked on numerous teams for various endeavors, including the editorial staff for the highschool newspaper. I am experienced with coordinating group efforts and meeting sensitive deadlines.
- Name: Eddie Martinez
 - E-mail Address: emarti7@iit.edu
 - Major: Political Science
 - Project expectations: Building a solid link between educators and the administrations that give them money. Understanding that targeting students for CS development requires working through the teachers and the curriculum. Adjustments need to be made through the computational associations in conjunction with industry, as well as the administrations and eventually trickled down to the teachers through institutional mandates for student learning in k-12 as well as mandatory learning before reception of teaching certificates. This has to be done at a fundamental, curriculum level to succeed and it must be done over the course of five to ten years. It should be understood that this plan is strategic in nature (changing the very nature of CS teaching) instead of tactical (outreach to a small group of already technically inclined HS students) and must be tackled using multiple approaches. Vast amounts of money must be directed toward this problem, money which I myself do not personally have or want to give up. Moreover, I am uncertain as to where CS education needs to be improved. Nationwide? Statewide? CPS wide?.
- Name: Qiaoqiao Chen

- E-mail Address: qchen18@iit.edu
- Major: Computer Science
- Strengths: Object-oriented programming, Database design and applications, Html web design, Commonly used software applications.
- Skills to develop: Speaking skills, Communication skills, English writing skills.

2 Team Purpose and Objectives

Description: The project team’s goal is to get high school students excited about Computer Science, and to ultimately increase the number of students in the Chicago area taking Computer Science (CS) courses in high school and college.

The team will accomplish this by debunking myths and increasing the understanding of what CS and computational thinking entails, explaining and providing evidence for why CS is important, and emphasizing importance of attracting women and underrepresented minorities to CS.

Initial team action items include:

- 1. Research, develop and document examples of CS (computational thinking) projects integrated into existing (non-CS) classes. For example, use Alice or Scratch (from MIT) to animate a chemical reaction or a biological process, etc. These tools can also be used for English and Social Studies classes as well. Another aspect of this is finding and cataloging resources such as simulators that are available for use in the high school curriculum.
- 2. Helping teachers and administrators understand why computational thinking and CS is important. Although dedicated CS courses are good, for schools that don’t have these it would be good to provide other mechanisms to integrate it into existing curriculum.
- 3. Research and design a sustainable program for continued outreach including fostering partnerships between universities, businesses, and schools.
- 4. To track success of our efforts, the team may develop a survey to collect attitudes about and interest in computing before and after some sample integrated lessons.

3 Background

In an increasingly globalized society, American students will no longer be competing with other American students but rather with the rest of the world. The playing field is being leveled and these trends will only accelerate in the future.

In order to maintain competitiveness, it is necessary to impart the knowledge and skills sets that will prove advantageous in the workplace. Computer science falls in this desired category and even today its widespread reach can be seen across all fields and disciplines. Ignoring these issues will have negative economic and social consequences in the future. Importing foreign talent to fill the gap will no longer be a viable option as those individuals will have more of an incentive to avoid relocation.

The target customers/sponsors of this project include students, teachers, educational administrators, and policy makers involved in the K-12 educational experience. Recent studies have indicated that there is a lack of appropriate computer science education in these grade levels. In addition, their computer science integration in non-computer science is minimal at best and in most cases non-existent.

Efforts to locate the source of the obstacles and instituting these curricular changes have identified several areas of hindrance. Amongst educational administrators, there is an unwillingness to embrace CS integration due to financial constraints. Maintaining computer networks can become quite costly. In addition, other problems such as standardized test scores and crime seem to divert attention from CS. Amongst the teachers, some are open to the changes whereas others reject them. Amongst the rejecters, there are varying reasons. Some do not find enough time or resources to incorporate such changes into their accustomed methodologies of teaching. Others have some anxiety with new technologies and lack the proper expertise to make such incorporations.

The project team's short term objective is to research and explore further the various sources of impedance and to identify routes where investing efforts will yield the most returns. Currently, attention will be focused on school systems in the Chicagoland area and the successes and failures with this target group will be used to develop more generalized strategies that can be adapted around the nation.

4 Team Values Statement

4.1 Desired Behaviours

- I. Meetings will take place on Mondays and Wednesdays of every week of the S09 semester, excluding holidays.
 - a) All students and faculty involved in the project are required to attend all meetings.
 - * i) If a student or faculty member fails to attend a meeting, they must inform the IPRO team, through iGroups in advance.

- * ii) If a student or faculty member fails to attend a meeting, they must adhere to any and all decisions made by the majority present at the meeting.
- b) Minutes/Notes must be taken in each meeting, by the Minute Taker.
- c) In the event that additional meetings are required, these will be arranged as necessary, during a regularly scheduled meeting, or through iGroups.
- d) Sub-teams may also arrange additional meetings as required.
- II. All electronic communication will take place through iGroups. This includes, but is not limited to emails, files and deliverable versions.
 - a) In the event of iGroups down-time or malfunction, electronic communication can take place via regular electronic mail, or other means available to the team members.
- III. All conflicts will be brought to the attention of the faculty members in the group, if a resolution cannot be reached.
- IV. All actions made and decisions taken by the team, or any member thereof, will adhere to the ACM code of ethics, where applicable.

4.2 Addressing Problems

- I. The project, its implications and all related subjects will be acceptable discussion topics for the scheduled meetings and iGroups. Any issues considered and discussed by a sub-team, which affect the project as a whole, will subsequently be brought to the attention of the group.
- II. Group decisions will be made by majority of members present. In the event of a tie, the faculty members will have the joint casting vote.

5 Methodology / Brainstorm / Work Breakdown Structure

Please view IPRO 321 Work Breakdown Structure.pdf, included in this submission.

6 Expected Results

The expected activities involved in IPRO321 team are to find out the reason why high school students lack the interest in Computer Science (CS), discover the similarity and combination of CS and other sciences and present them to the public thus get high school students as well as teachers and parents excited

about Computer Science, and to ultimately increase the number of students in the Chicago area taking Computer Science courses in high school and college.

The majority of expected data in IPRO321 should be gathered through research and survey, either be previous ones or conducted by ourselves. They should include: the current situation of CS study in high school and college; the public and professional attitudes about CS; the similarity between CS and other sciences; examples of CS (computational thinking) projects integrated into existing (non-CS) classes; find and catalog resources such as simulators that are available for use in the high school curriculum.

With our collected data we will be able to find out the reason why HS students show little curiosity in CS and the possible ways to solve it. And it may help us to design a sustainable program for continued outreach including fostering partnerships between universities, businesses, and schools.

Our potential outputs through the execution of assigned tasks are to gain knowledge on the current situation of CS study in high school and college, get a clear comprehension about CS and its future development and spread it to the public including students, HS teachers and administrators. To achieve this, we will share our known and learned information with other group members as well as work together as a group to provide the best product while being team players. Hopefully we can make some suggestions about how to improve current curricula to have more focus on computational thinking.

Our expected results are including building a database about the current situation as well as the public attitudes towards CS for the possible following semesters. Also we are going to discover the similarity and combination of CS and other sciences. Based on the data we collect in this semester, hopefully we will find some possible ways to inspire the HS students' curiosity about studying CS and draw a blueprint about the structure of the sustainable program for continued outreach including fostering partnerships between universities, businesses, and schools by the end of this semester.

The main task we faced is the public misunderstanding and looking down the concept and applications of contemporary CS. The depictions of CS in media tend to be too simple, somehow negative and misleading; school administrations and parents do not realize the significance of CS thus do not encourage younger to study it; people consider CS as simple programming and lack the knowledge of the primary role which computational thinking plays in CS as well as the significant role CS plays in the cross-field with other natural and social sciences. In addition the AP college board is in the process of redesigning the CS AP exam to be more focused on computational thinking instead of programming, in an effort to increase CS enrollment in colleges. Hopefully we can help them with this by providing possible curriculum options.

During all phases of IPRO 321s project from conception, research, discussion, analysis, design and presentation through completion of the final product, each part is pertinent to completing our proposed solution. Our data and report could be a good reference for the possibly following semesters as well as those researchers who concern the similar areas.

7 Project Budget

This section contains the projected budgetary needs for the IPRO 321 project.

- Research: \$50.00
 - Journals
 - Publications
 - Subject books
- Transport: \$25.00
 - This item will depend on the number of schools (if any) that we arrange to visit with CPS.
- Printing costs: \$75.00
 - Surveys
 - Fliers
 - Posters
 - Syllabi and teaching materials
- Outreach Program: \$450.00
 - Open Day Arrangements
 - Catering
 - Invitations and Handouts
 - Extracurricular clubs
- Total(Projected): \$600.00

Note: This amount is subject to circumstantial changes.

8 Schedule of Tasks and Milestone Events

Please view IPRO 321 Schedule.pdf, included in this submission.

9 Individual Team Member Assignments

Project Team:

- Sergio Aguilar
- Saad Ahsan
- Qiaoqiao Chen
- Jason Chin
- Herbert Edwards
- William Foret
- Eddie Martinez
- Christos Mitillos
- Jianqi Xing

Faculty:

- Prof. Matt Bauer
- Prof. Cindy Hood

Minute/Note Taker: Eddie Martinez

Project Plan Deliverables

Project Plan Leader: Herbert Edwards

Section 1: Sergio Aguilar

Section 2: Herbert Edwards

Section 3: Saad Ahsan

Section 4: Christos Mitillos

Section 5: William Foret, Qiaoqiao Chen

Section 6: Jianqi Xing










Section 7: Christos Mitillos

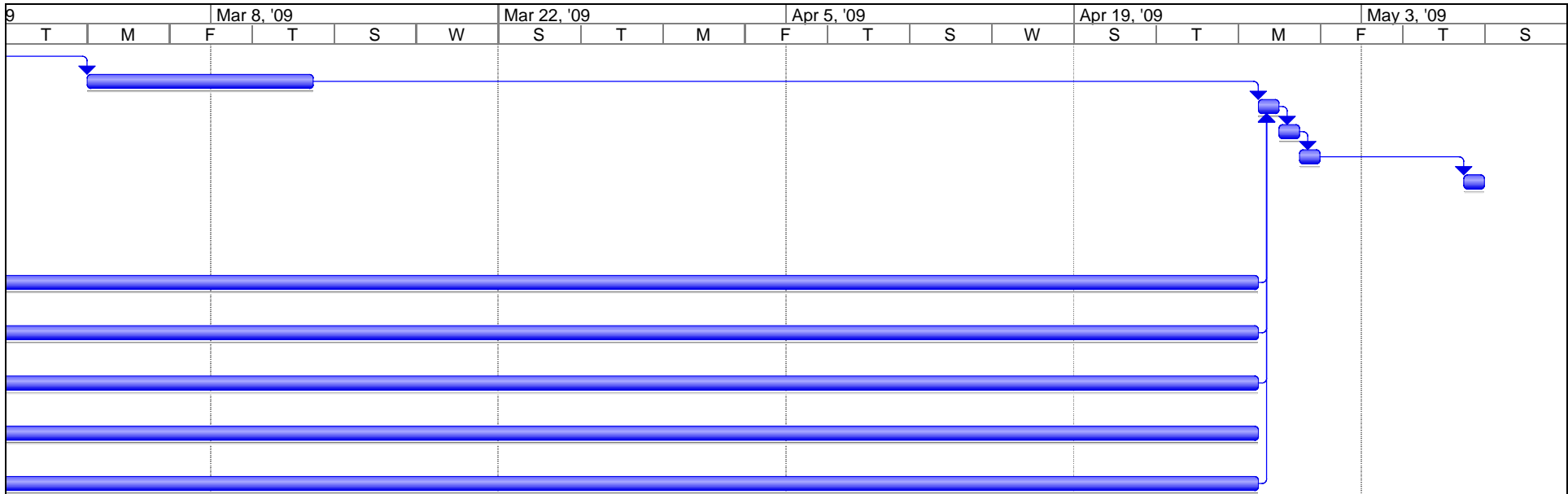
Section 8: William Foret, Qiaoqiao Chen

Section 9: Jason Chin

Compilation: Christos Mitillos, Eddie Martinez

ID	Task Name	Duration	Start	Finish	Predecessors	Feb 8, '09					Feb 22, '09	
						M	F	T	S	W	S	T
1	Project Plan	8 days	Fri 2/6/09	Mon 2/16/09								
2	Midterm Reviews	9 days	Mon 3/2/09	Thu 3/12/09	1							
3	Abstract/Brochure	1 day	Tue 4/28/09	Tue 4/28/09	10,12,14,18,2							
4	Poster	1 day	Wed 4/29/09	Wed 4/29/09	3							
5	Final Presentation	1 day	Thu 4/30/09	Thu 4/30/09	4							
6	Final Report	1 day	Fri 5/8/09	Fri 5/8/09	5							
7												
8												
9												
10	Development Team	50 days	Tue 2/17/09	Mon 4/27/09	1							
11												
12	Research Team	50 days	Tue 2/17/09	Mon 4/27/09	1							
13												
14	Communications Team	50 days	Tue 2/17/09	Mon 4/27/09	1							
15												
16	Outreach Team	50 days	Tue 2/17/09	Mon 4/27/09	1							
17												
18	Write-ups Team	50 days	Tue 2/17/09	Mon 4/27/09	1							

Project: Project plan and Gantt chart Date: Sat 2/21/09	Task		Milestone		External Tasks	
	Split		Summary		External Milestone	
	Progress		Project Summary		Deadline	



Project: Project plan and Gantt chart
Date: Sat 2/21/09

Task		Milestone		External Tasks	
Split		Summary		External Milestone	
Progress		Project Summary		Deadline	

Project Plan
Start: 2/6/09 ID: 1
Finish: 2/16/09 Dur: 8 days
Res:

Development Team
Start: 2/17/09 ID: 10
Finish: 4/27/09 Dur: 50 days
Res:

Abstract/Brochure
Start: 4/28/09 ID: 3
Finish: 4/28/09 Dur: 1 day
Res:

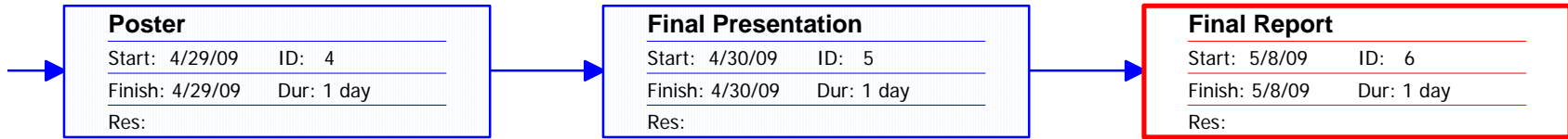
Research Team
Start: 2/17/09 ID: 12
Finish: 4/27/09 Dur: 50 days
Res:

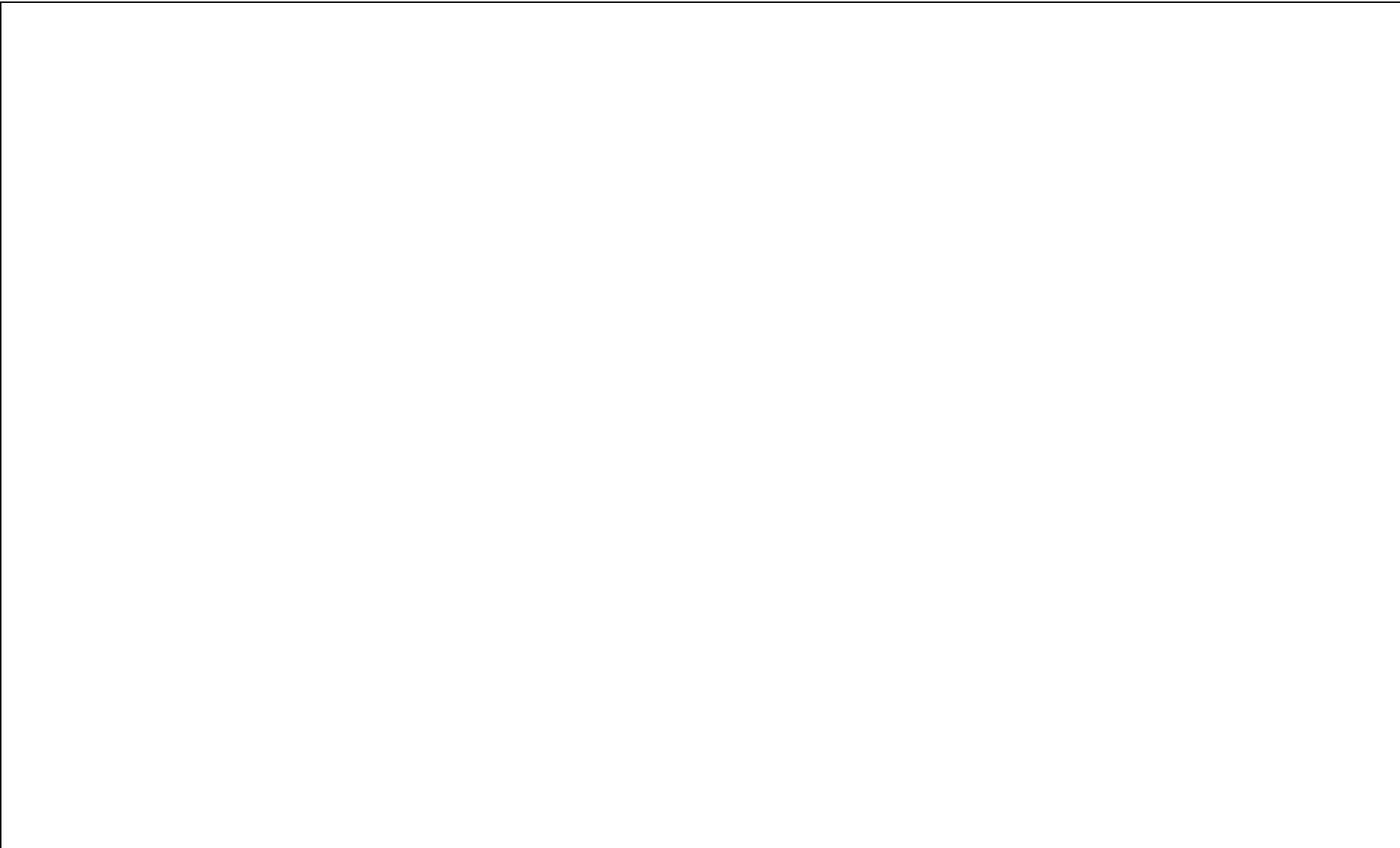
Communications Team
Start: 2/17/09 ID: 14
Finish: 4/27/09 Dur: 50 days
Res:

Outreach Team
Start: 2/17/09 ID: 16
Finish: 4/27/09 Dur: 50 days
Res:

Write-ups Team
Start: 2/17/09 ID: 18
Finish: 4/27/09 Dur: 50 days
Res:

Midterm Reviews
Start: 3/2/09 ID: 2
Finish: 3/12/09 Dur: 9 days
Res:





Project: Project plan and Gantt chart Date: Sat 2/21/09	Critical		Critical Summary		Critical Marked		Project Summary	
	Noncritical		Summary		Marked		Highlighted Critical	
	Critical Milestone		Critical Inserted		Critical External		Highlighted Noncritical	
	Milestone		Inserted		External			