IPRO It takes a team!
INTERPROFESSIONAL PROJECTS PROGRAM

IPRO 331
Global Warming and Community Outreach

Final Report
Spring 2009

ILLINOIS INSTITUTE OF TECHNOLOGY

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Date: Monday, May 11, 2009

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1. Abstract

IPRO 331, its team members, and all involved faculty are devoted to enhancing awareness in the community to the issues surrounding global warming. Our goal is to give PowerPoint presentations to several different audiences, especially today's younger generations in elementary school, high school, and college, in order to both educate and interest people in these issues. Our presentations are meant to be objective – we want to present the facts about global warming research from credible sources. Additionally, with the help of our website and contacts, we hope to be another driving force in the sustainability movement and climate change research. Our purpose can be summed up in a quote included at the end of each of our presentations:

"It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change." – Charles Darwin

2. Background

IPRO 331 is not sponsored by a company. We are trying to raise awareness in the community with respect to the topic of global warming.

People started researching the possibility of global warming in the early 1900's. German scientist Guy Stewart Callendar was the first to compile international temperature recordings from other scientists to conclusively state that the Earth's temperature had indeed risen between 1890 and 1935 by as much as half a degree Celsius. He was also the first to propose the idea that carbon dioxide emission by the burning of fossil fuels leads to the greenhouse effect. The U. S. Weather Bureau's Division of Climate and Crop Weather confirmed his findings that the temperature had indeed warmed. This paved the way for future climate research.

The Intergovernmental Panel on Climate Change (IPCC) was first established in 1988. In 1990, they released their first report, titled the First Assessment Report, concluding that the Earth's temperature had risen, however discrepancies remained as to weather this was a natural process or if industry was to blame. The IPCC's latest report, released in 2007, conclusively states that serious effects of global warming have become evident.

IPRO 331, Global Warming and Community Outreach, began in the fall of 2007, advised by Professor Lykos with the help of Carol DeBiak, from Galvin Library. Previous IPRO 331 teams have researched the science of global warming, constructed presentations of their findings, and delivered those presentations to various audiences.

In Fall 2008, students broke down the topic of global warming into four main topics: the polar ice regions, bio-fuels, carbon dioxide emissions, and solar energy. Each group had its own separate presentation. This approach seemed choppy because we felt it was not sufficient to only present one or two of these subtopics when the presentations were intended to educate the public about global warming. Therefore, we proposed to take a more systematic approach by focusing presentations around the environmental effects of global warming, its causes, and ways to respond to the effects of climate change including the use of alternative energies.

3. Objectives

A. Utilize previous presentations to inform and educate the public about the cause, impact, and responses to global warming.

B. Divide the overall issue into major aspects including the ones set by previous IPRO's while adding our own.

C. Present material to larger and more diverse audiences in order to create widespread awareness about global warming.

D. Focus on solid, scientific data from credible sources that define why and how global warming is occurring, rather than discussing the politics and economics that surround the issue.

E. Use previous research and presentations but taking a more systematic approach when creating presentations.

F. Create a new IPRO 331 website, enhance it with updated research, and make it more accessible to the general public. This will allow anyone anywhere to access information on global warming.

G. Enhance team members' public speaking abilities.

4. Methodology

A. Problem

We start out this IPRO with the main problem, which is that there is not enough awareness today about global warming in the general public and not even amongst school children (elementary and above).

B. Approach to solving the problem – raising awareness

- The research on global warming was divided into subgroups, modeled after the ones from past IPROs, and included some of our own ideas, such as a new subtopic on nuclear energy.
- Team members were divided into groups of three per research topic to learn about the topic and to create PowerPoint slides and a script about the topic.
- We came together as a team to combine our research and systematically put together presentations which incorporate all the subgroups. The presentations focus on stating the problem, the cause, and the response regarding global warming. The slides and scripts for each presentation were adjusted based on our audience.
- Contacts were established where we could present our research, and the schedules were set up. Available team members volunteered for each presentation, traveled to the site, delivered the presentations, and sought out new contacts on location. Contacts were monitored and communicated with via our IPRO 331 email address (globalwarming@iit.edu).

C. Surveys

In order to determine whether or not the presentations were successful, we utilized a post-presentation survey, developed by last year's IPRO team. By analyzing the surveys, the group tried to determine whether or not the audience learned anything new about global warming and if they were more interested in learning how to combat the problem. The results of the surveys are presented below.

D. Deliverables

Throughout the semester the required deliverables will be handled by small groups of two to three students of which will then be presented to the whole group for analysis. Once a final draft is created and approved, the deliverable will be turned in to the IPRO office by the due date.

E. Website

The team worked on developing a new website that introduces the team members, highlights our own research findings, and acts as a stepping stone to further research about global warming, IIT, and the IPRO program. By developing a website, we hope to reach out to even greater numbers of people in terms of understanding global warming, and we might even establish a few more contacts for next year through the website and IPRO 331 email address.

5. Team Structure and Assignments

The IPRO team was broken into many smaller teams throughout the semester, and each team member was given tasks to accomplish within that subteam. Furthermore, certain individuals were responsible for other tasks that were not part of any specific subteam.

A. Team member information

First Name	Last Name	Year	Major	Skills and Strengths
James	Kim	4th year undergraduate	Architecture	public speaking, graphics (Photoshop)
Ryan	McClure	2nd year undergraduate	Chemistry	public speaking, Photoshop
Aaron	Melko	4th year undergraduate	Aerospace Engineering & Applied Mathematics	MS Excel and Word, MATLAB, data organization and formating, sharing/explaining information
Louis	Ocampo	4th year undergraduate	Political Science	public speaking, organizational skills
Puneet	Ralhan	2nd year undergraduate	Biochemistry	public speaking, organization
Lisa	Reed	4th year undergraduate	Psychology	working with people, MS Word and PowerPoint.
Adarsh	Shukla	3rd year undergraduate	Biochemistry	speaking, outreaching, computer skills
Maham	Subhani	3rd year undergraduate	Psychology	good at everything on the computer, don't mind speaking
Willy	Taracena	3rd year undergraduate	Chemical Engineering	public speaking, artistic, creativity, MS Word
Nan	Wang	3rd year undergraduate	Electrical Engineering	fine speaking after practice, website development
Michael	Yee	3rd year undergraduate	Aerospace Engineering	MS Excel, Word, and PowerPoint, organization, Photoshop
Urszula	Zajkowska	2nd year undergraduate	Chemical Engineering	critiquing, organization

Table 1: Team member information.

B. Research subgroups

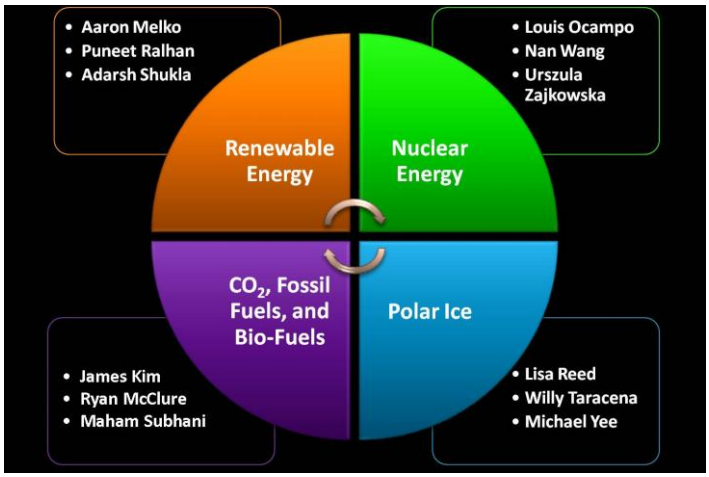


Figure 1: Global warming research subgroups.

C. Presentation teams

Location	Presenters
Engineer's Week (IIT Rice Campus)	Aaron, Urszula, Nan
De La Salle Institute	Puneet, Adarsh, Ryan, Maham, James, Nan, Louis, Willy
Chinese American Service League	Michael
Schaumburg High School	Puneet, Adarsh, Maham, Ryan, Louis, Willy
Olive Harvey College	Ryan, Adarsh, Willy
AIChE (IIT Main Campus)	Aaron, Lisa, Nan
Environmental Fair (Andrew High School)	Urszula, Lisa, Aaron, Puneet
Haines Elementary School	Michael, Adarsh, Maham

Table 2: Presentation teams

Presentation teams were arranged based on student availability. However, each team member was required to participate in at least one outreach presentation.

D. IPRO deliverables

Task	Members
Project Plan	Team effort, lead by Adarsh
Midterm Presentation Slides	Maham, James, Willy
Midterm Presenters	Puneet, Adarsh, Ryan
IPRO Day Poster/Brochure/Displays	Willy, Urszula, Michael, Ryan
IPRO Day Presentation Slides	Maham, Louis, Nan
IPRO Day Presentors	Puneet, Adarsh, Ryan
Final Project Report	Aaron, Lisa, James

Table 3: IPRO deliverable teams.

E. Individual roles/tasks

- Team Leader: Aaron – task organization, meeting moderator, scheduling
- Meeting Minutes: Louis – recorded daily meeting activities
- Treasurer: James – managed budget
- School Outreach: Puneet – found and monitored school contacts, scheduled events
- Organization Outreach: Adarsh – found and monitored school contacts, scheduled events
- Website: Nan – created and monitored this year's website (http://www.iit.edu/~ipro331s09)
- Email: Willy – monitored our IPRO's email account (globalwarming@iit.edu) for contact updates
- Calendar: Maham – added important dates to iGroup's calendar and monitored them
- Brochure: Ryan – developed this year's brochure to give out at presentations and events

There were other minimal tasks that developed over the course of the IPRO where an individual was determined to be the one responsible for making sure the task was completed.

6. Budget

A. Services:

Requested: $200
Approved: $200
Used: $0

- Printing of the brochures and the poster board where taken care by the IPRO office.
- Printing of the surveys was taken care by one of the students, who did not request money back.

B. Travel

Requested: $100
Approved: $100
Used: $125

- Traveling to Schaumburg High School ($60 for the student driver)
- Traveling to Environment Fair ($65 for the student driver)

C. Miscellaneous

Requested: $200
Approved: $200
Used: $160

- Pizza party in the beginning of the semester ($60)
- Final Potbelly party ($100)

D. Total

Requested: $500
Approved: $500
Used: $285

7. Results

A. What did the team learn?

- strategies for talking to different audiences
- planning ahead of time
- ability to relate to the audience
- improved public speaking skills
- global warming facts
- alternative views/solutions on global warming (i.e. nuclear energy)

B. Outreach presentations

The table below summarizes the places in the community where we were able to deliver presentations about global warming and/or interact with people via a booth display.

Event/Location	Date
Engineer's Week (IIT Rice Campus)	2/21
De La Salle Institute	3/27
Chinese American Service League	3/27
Schaumburg High School	4/17
Olive Harvey College	4/22
AIChE (IIT Main Campus)	4/23
Environmental Fair (Andrew High School)	4/25
Haines Elementary School	5/8

Table 4: Community outreach.

C. Research findings

The post survey questions were analyzed to determine the effectiveness of our presentation on global warming. Each survey was tallied and recorded as a whole to determine whether the presentations given were effective in convincing the audience about global warming. The surveys were tallied and gave us the results shown in the graph below.

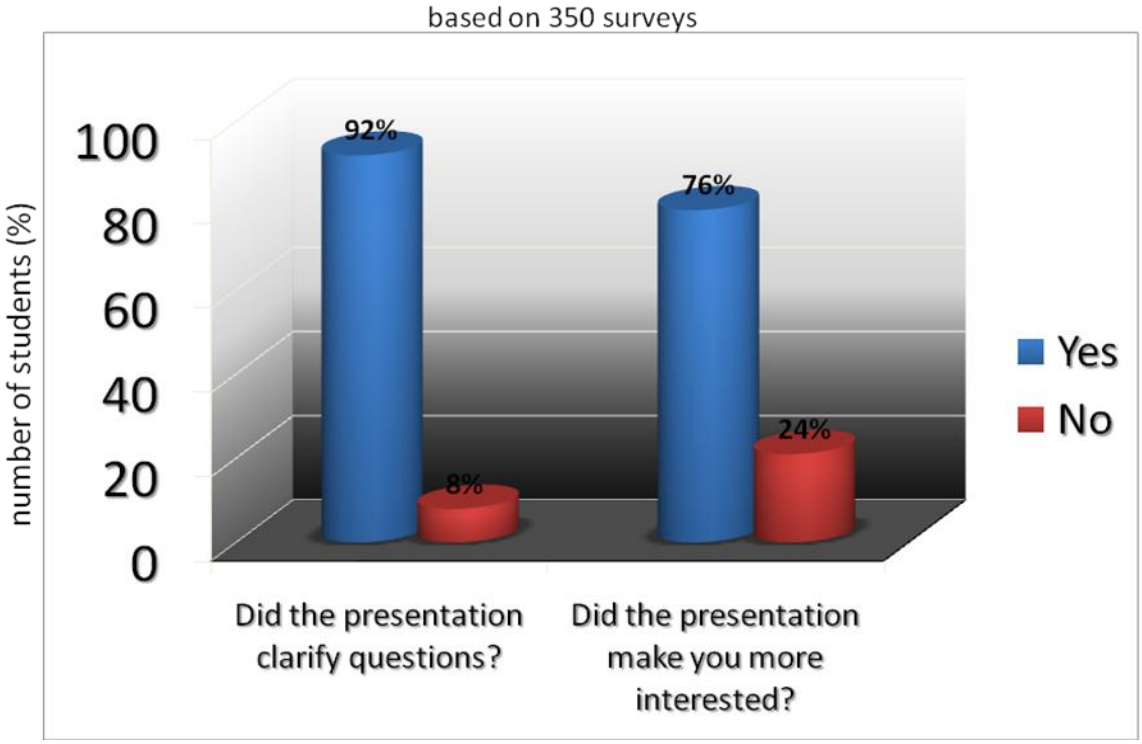


Figure 2: Post-presentation survey results.

Other positive/negative feedback we received from the surveys included the following: the presentation was very well organized, the length of the presentation was just right, investigate how can we prevent global warming, and more interaction with the audiences. Our research was based on elementary school to college-level students.

D. Accomplishments

The IPRO 331 team went to nine outreach sites and gave 14 presentations. It is estimated that a total audience of over 500 people were reached from these presentations. The team took last year's presentations, added a new subtopic on nuclear energy and reorganized the information to create a comprehensive presentation of the topics (CO_2, Ice Caps, Fossil Fuel, Bio Fuels, Solar Power, Wind Power, Nuclear Energy). A brochure that explained who we are, our purpose, and information about our presentations was

created to distribute to prospective audiences. A new website (http://www.iit.edu/~ipro331s09) that offers links to additional information about the topics, the IPRO and its members was created. An IPRO email from the previous year was used to allow for more professional contact with audiences.

E. Completion of Objectives

The main objective of this IPRO is the outreach, doing presentations for the community on global warming. The Spring 2009 IPRO was able to get many more outreach presentations done than any of its predecessors. However, more presentations could have been done earlier in the semester. Another goal was to create an outreach connection with communities that the next year's team can capitalize on and start their presentations early. One objective we did not meet was the outreach that was aimed for organizations. We were able to get a lot of presentations with schools, but were not able to schedule a presentation with any organizations.

8. Obstacles

A. Challenges encountered while completing tasks

There are plenty of websites, books, and other resources devoted to the topic of global warming, but a problem arises when trying to sort and organize the facts for a time-constrained presentation. Also problems arise in trying to schedule with potential outreach presentations due to student class schedules, presentations sites, and times, as well as maintaining communication with the contacts. A difficulty faced was in handling misconceptions that the public often has about the topics. It was very important to make sure no biases were presented in the information delivered to audiences because the desire is not for any agenda but basic understanding of what global warming is and what's available in terms of scientific research.

B. Overcoming the challenges

The team always had to struggle with the mass amounts of information and had to use their own discretion for what audiences would be interested in, what would be comprehendible, and what the time constraints allowed. When it came down to scheduling the team decided to write scripts which allowed any member to present so that whoever could attend a presentation could discuss all the topics. For handling misconceptions the team would offer its own understanding of the information but understood that other views also exist and also make sure that all the information presented was supported by research, thereby avoiding biases.

C. Methods to reducing/preventing challenges

By looking at reliable well known sources there is a bit less information to filter through when compiling presentations. Scheduling conflicts will always remain but as long as student willing to be flexible fewer problems will occur. Biases can easily be prevented by the same means mentioned earlier.

D. Advice for next year's IPRO team

The next IPRO should try to create a voice-over PowerPoint to reach out to more communities and actually make this a global outreach, where the group is able to send out the presentations and not be there physically yet still have an impact on the issue of global warming. Also the next IPRO should start the outreach right away to minimize schedule conflicts and to maximize the potential for the short semester.

9. Recommendations

We recommend that the group for next semester start finding places to do presentations earlier in the semester. Making the presentations is fairly easy since there are presentations from previous semesters to go off of. The hard part is finding people who want to hear the presentations, so start early!

Also start learning and studying the presentation slides as soon as possible. Everyone should know every slide so that presentation schedules can be put together that work around future team members' schedules.

10. References

This year we had two new references:

- IIT's Chemistry 410 class, and their book, Climate Change 2007: The Physical Science Basis, produced from the IPCC's Fourth Assessment on climate change
- Workbook-summarized research done by Arun Sood in collaboration with Professor Lykos

We also use last semester's references as well:

- BBC- Climate Change – http://www.bbc.co.uk/climate/
- Environmental Protection Agency – http://www.epa.gov/climatechange/
- National Resources Defense Council – http://www.nrdc.org/globalWarming/
- Intergovernmental Panel on Climate Change (IPCC) – http://www.ipcc.ch/
- Last year's IPRO team website – http://www.iit.edu/~iitgreen

Additionally, we created our own website that future IPRO teams, contacts, and other interested groups can access. It is available at http://www.iit.edu/~ipro331s09.

11. Resources

We did not keep timesheets, but it is estimated that each member spent ten to fifteen hours outside of class working on IPRO related tasks, not including community outreach presentations or presentation preparations. We also spent $160on food and $125 dollars on travel – in total $285.

12. Acknowledgements

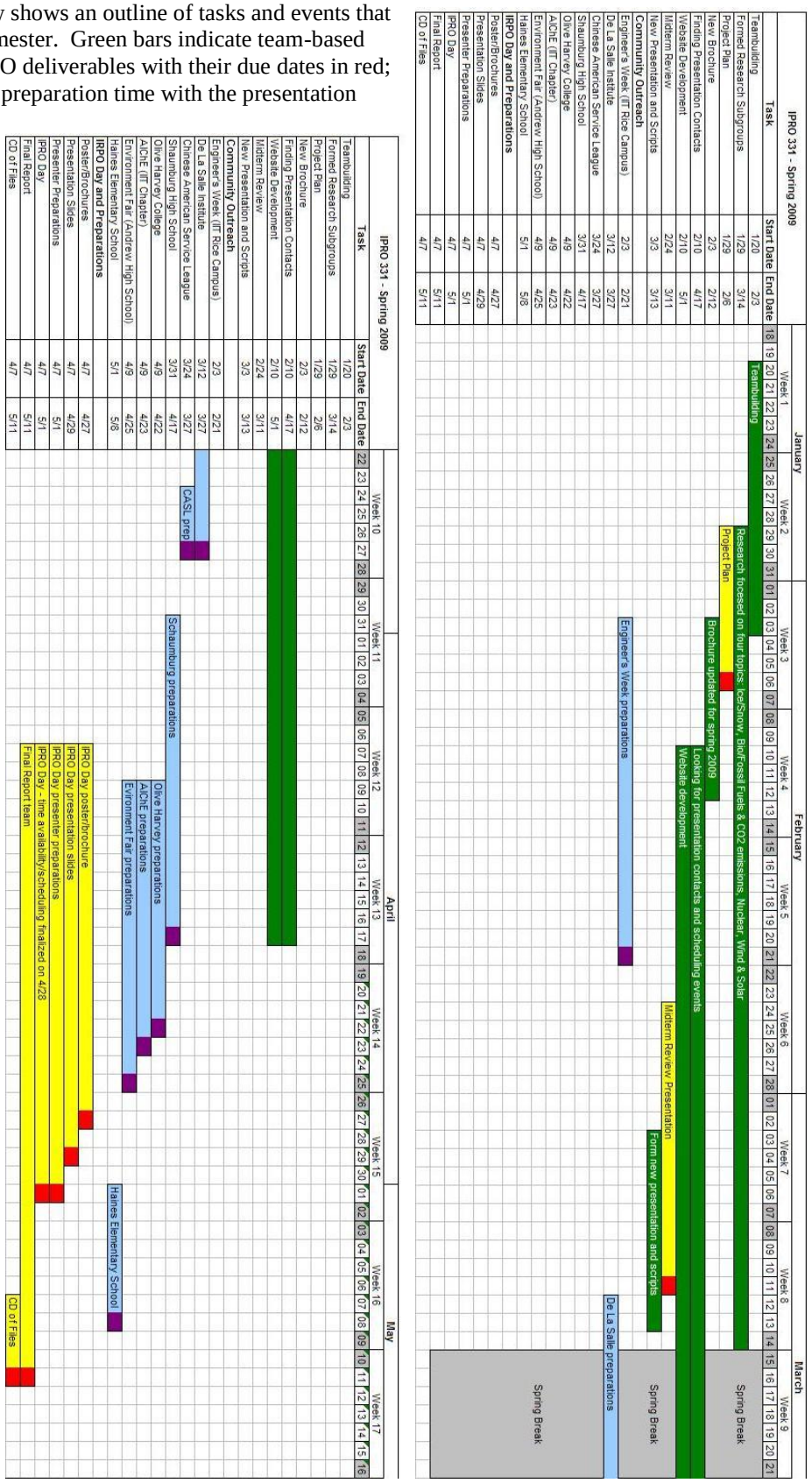
We would like to say thank you to the following places that allowed us to present to them:

- Engineer's Week (IIT Rice Campus)
- De La Salle Institute
- Chinese American Service League
- Schaumburg High School
- Olive Harvey College
- AIChE
- Environmental Fair (Andrew High School)
- Haines Elementary School

We would like to thank our Faculty advisor, Professor Peter Lykos, for his devotion to the mission of this IPRO: to spread knowledge about global warming and its research to many individuals throughout the community. We would also like to thank Carol DeBiak and Lidia Calcaterra for their support during this semester and to thank Arun Sood for providing us with his research on global warming.

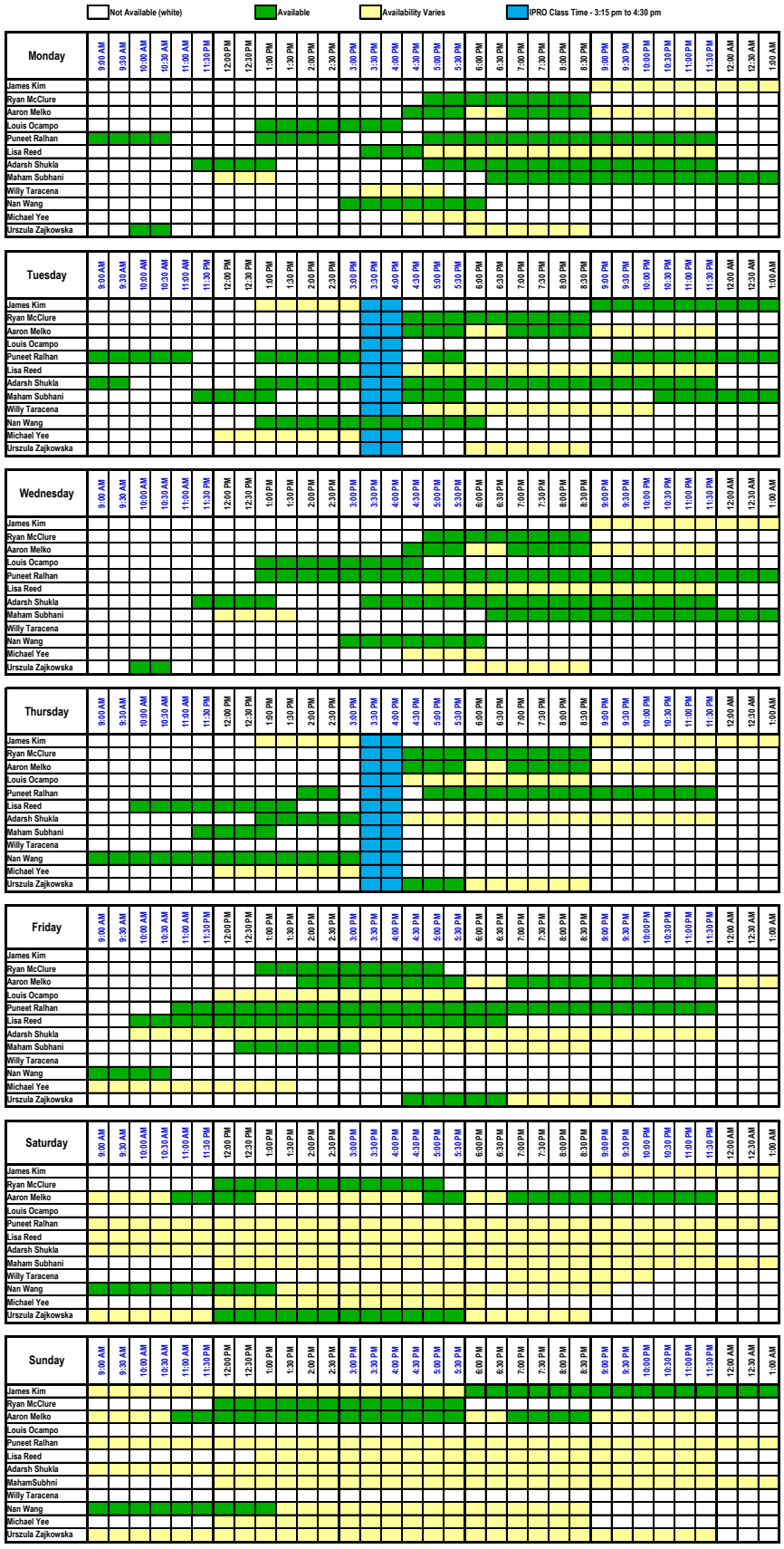
A1. Gantt Chart

The Gantt chart depicted below shows an outline of tasks and events that were completed during this semester. Green bars indicate team-based tasks; yellow bars indicate IPRO deliverables with their due dates in red; blue bars indicate presentation preparation time with the presentation dates in purple.



A2. Team Availability Chart

The following chart was put together early in the semester to help determine the team member's schedules. It was useful in determining when team members were available for community outreach presentations as well as general IPRO functions.



A3. Post-Presentation Survey

The survey seen below was administered to the members of the audience after each presentation. Surveys were completed on a voluntary basis and were used to judge the effectiveness of the presentation material and of the presenters. The questions in the survey are the same ones used by the IPRO 331 team from the Fall 2008 semester.

Post Survey Questionnaire

Please answer the following questions.

Did the presentation clarify some questions you previously had about global warming?

Did the presentation make you more interested in learning about global warming?

What did you like most about the presentation?

What did you like least about the presentation?

What more would you like to learn about global warming?

Was there anything that you would have liked to hear about that we didn't present?

What are some ways in which we could improve our presentation?