Project Plan IPRO 309

Education and Technical Support of Prosthetics and Orthotics Education in Latin America

Illinois Institute of Technology
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Objectives

Primary Objective

The primary objective of this IPRO is to support the development of the first Category III International Society of Prosthetics and Orthotics (ISPO) accredited program in Latin America.

Secondary Objectives

The secondary objectives are necessary for accomplishing the primary objective. To ensure that the program will be accredited, many guidelines must be followed; these guidelines have set the secondary objectives as follows:

- Develop several educational modules concerning the general population distribution based on age
- Develop several low-cost demonstrations and hand-outs to compliment the educational modules
- Carefully follow ISPO requirements to ensure accreditation
- Translate all material to Spanish for use in Latin America
- Develop educational materials regarding conditions affecting pediatric, adult, and geriatric populations to be presented at a four-day conference in Bogotá, Colombia

Background

There exists a strong demand for orthotics and prosthetics (O & P) in Latin America, with approximately 2.5 million people in need of this type of care. IPRO 309 was started in the spring of 2006 with the goal of helping to make this type of care more readily available. However, there are only 50 certified, and 1500 uncertified, O & P practitioners in Latin America. In order to become a certified practitioner, a student must graduate from an ISPO accredited program. Unfortunately, there is currently only one ISPO accredited program in existence in Latin America, along with several other programs that are not ISPO accredited. In October of 2004, Centro Don Bosco (Bogotá, Colombia), Don Bosco University (San Salvador, El Salvador), and the Laboratorio Gilete (Bogotá, Colombia) signed an agreement to establish the first accredited O & P education program in Colombia. Since then, Centro Don Bosco has allotted 3,500 square feet of space for the thriving faculty, classrooms, manufacturing training, and vocational workspace that are necessary for an ISPO accredited program.

There are three levels of accreditation according to ISPO standards. Category III involves the design and manufacturing of orthotic and prosthetic devices, Category II includes the fabrication of the devices as well as direct patient care, and Category I includes production, treatment for patients, and research and development. The equivalent to ISPO in the United States is the American Board of Certification in Orthotics and Prosthetics (ABC). Because it is independent from the ISPO, the ABC standards of accreditation will need to be taken into account in order to carefully cross cultural and national boundaries.

Now that the program has started at Centro Don Bosco in Bogotá, the goal is to achieve Category III accreditation. For students who begin the program, the chances

for career advancement are greatly increased with the possibility of attaining Category II (or further) certification. Classes opened first in February 2005 with 17 students. Though the number of students may be small, their impact will be massive; in one year, each student can produce over 250 orthotic and prosthetic devices. The first graduating class can therefore affect a total of over 100,000 patients throughout a projected career of 25 years. This can be accelerated with the aid of IPRO 309 by creating educational modules necessary for the program to receive ISPO accreditation while providing basic material to students interested in the program.

In addition, several other institutes have joined to provide education and care to those in need. These institutions are listed below.

- Universidad de los Andes; Bogotá, Colombia
- La Escuela Colombiana de Rehabiltación; Bogotá, Colombia
- Centro Don Bosco, Bogotá; Colombia
- Laboratorio Gilete, Bogotá; Colombia
- Bioconcepts, Inc.; Burr Ridge, IL
- Dynamic Orthotics and Prosthetics; Houston, TX
- Children's Memorial Hospital; Chicago, IL
- Joliet Junior College Tech Prep Program; Joliet, IL
- Northwestern University Prosthetics and Orthotics Center; Chicago, IL
- Illinois Institute of Technology, Chicago, IL

Although the accreditation of the program in Colombia is the main effort of IPRO 309, the team's work will serve multiple purposes. The educational modules will also be offered to Joliet Junior College (JJC), where a similar O & P program has been established. Many of the students at JJC speak Spanish, which further emphasizes the need to translate all educational materials into this second language. Additionally, the IPRO team will have the opportunity to see the results of the research in action. In May, a four day conference will take place in Bogotá, Colombia to present the educational modules developed this semester and interact with representatives of the many collaborating institutions. A pre-test and a post-test will be given to examine the efficacy of the educational modules. This will provide a first-hand evaluation of the modules and the efforts of the IPRO 309 team.

Methodology/Work Breakdown Structure

To aid the accreditation process, IPRO 309 students will be creating educational modules to be used in the classroom materials of the program at Centro Don Bosco. In past semesters, the IPRO 309 team focused on biomechanics, specific pathologies, and several common orthotic and prosthetic devices. Many of the educational modules created thus far focus on specific medical conditions and the orthotic devices used to teat them. This semester, IPRO 309 has decided to create educational modules discussing the pediatric, adult and geriatric populations and the orthotic and prosthetic treatments common to them. They will be reviewed by practitioners in the industry who will provide feedback to ensure that the information will be of benefit to the program.

The educational modules will be produced in both English and Spanish in order to facilitate their use by the faculty and students at Joliet Junior College as well as Centro Don Bosco.

Three subgroups have been created to research and compile the educational modules. Each group will create a computerized presentation along with design pamphlets to effectively convey the results of their research. IPRO 309 anticipates that these educational tools will be easily incorporated into lesson plans of professors at Centro Don Bosco and JJC. Each subgroup has divided their research workload, and other tasks, among its members. In addition, work breakdown structures and a schedule of due dates were created to allow for effective completion of the educational modules.

Individual Team Member Assignments

Pediatric Work Breakdown Structure

The responsibility of the pediatric subgroup is focused on creating an educational module about prosthetic and orthotic treatments for the pediatric age group; to accomplish this, the individual tasks have been assigned as follows:

- Lydia Benger, Mechanical Engineering
  - Definition of normal functioning and activities of daily living (ADL)
- Robert LaRue, Mechanical Engineering
  - Treatment of pathologies arising after birth
- Stefanie Rozborski, Art History
  - Treatment of in utero and congenital pathologies

By dividing the research in such a way, the subgroup will be able to effectively create an educational slideshow along with pamphlets that will compliment the slideshow. The presentation will include orthotic and prosthetic treatments for pathologies affecting the pediatric age group. For this project, pediatric is defined as the time period from conception to age twenty. Because the audience is predominately O&P technicians in training, emphasis will be placed on the devices most used for the age group.

Adult Work Breakdown Structure

The Adult subgroup is tasked with the creation of an educational module for orthotic and prosthetic technicians on the particular issues and pathologies associated with the adult population. This group of subjects is defined as those that are principally associated with individuals between the ages of 20 and 55.

- Ross Allen, Aerospace Engineering
  - Biomechanics, Pathologies, Statistics
- Elliot Barlow, Aerospace Engineering
  - Vocabulary, Orthotics needs, use, and construction

- Seth Buntain, Aerospace Engineering
    - Prosthetics needs, use, and construction

Project research has been divided in this way for the educational module covering the broad spectrum of pathologies in adults that can be treated using orthotics and prosthetics. For each section, group members have been assigned specific information to research, similar research breakdown for the original module. To go along with each module, a pamphlet will be constructed providing an overview of the researched information, as well as a list of new vocabulary terms used.

Geriatric Work breakdown structure

The objective of the Geriatric subgroup is to create an educational module that overviews the geriatric population in regards to orthotic and prosthetic treatment and how it may affect their lives. For research purposes, the geriatric subgroup will focus on individuals generally of the age 50 and above. As people age, their physical health care needs change considerably. O&P technicians must be trained to compensate for this. The tasks within the subgroup are divided as follows:

- Marisa De Nicolo, Mechanical & Materials Science Engineering
    - Materials and fabrication of Orthotics & Prosthetics
- Emily Moore, Aerospace Engineering
    - Daily Living: Lifestyles at old age, Potential obstacles
- Gregory Quandt, Mechanical & Materials Science Engineering
    - General well-being: mental, emotional, & physical health
- Heather Selby, Biomedical Engineering
    - Availability of care, Common ailments

The research has been divided in this way in order to produce a thorough overview of the geriatric population. Because the objective of the geriatric subgroup is to provide a technical training presentation, all important sections of geriatric O&P must be covered. Additionally, all group members will be looking for various case studies in order to better understand this group of people and demonstrate how orthotic and prosthetic treatment can impact their lives. Furthermore, a pamphlet and vocabulary handouts will be created to supplement the presentation.

Designation of Roles

In addition to the research assignments, group members have been assigned an administrative task. These tasks ensure proper planning, adequate information, and timely and professional deliveries. The list of administrative tasks is provided below.

- *Project Manager*: Emily Moore. The project manager oversees all of the operations as well as announces daily meeting agendas. The project manager also ensures all administrative tasks are being taken care of as well as informs team members of deliverable deadlines.

- *Project Content Manager:* Seth Buntain. The content project manager oversees the production of the educational materials as well as instructs subgroups on what is expected of them for each deliverable. The content manager also ensures all deliverables are submitted on time.
- *Webmaster:* Lydia Benger. The webmaster will create a website to make all educational materials available to the public in English and Spanish.
- *Vocabulary Manager:* Marisa De Nicolo. The vocabulary manager will compile the pertinent vocabulary from each of the three subgroups into one easy-to-use note sheet.
- *Minutes Recorder:* Heather Selby. The minutes recorder will record all group discussions at the meetings as well as post any deadlines that have been decided upon on iGroups.
- *Poster Designer*: Stefanie Rozborski & Heather Selby. The poster designers will create the poster for IPRO Day and collect all pertinent information from each subgroup.
- *Time Sheet Coordinator*: Stefanie Rozborski. The time sheet coordinator is charged with tracking team member timesheets.
- *Work Schedule Specialist*: Robert LaRue. The work schedule specialist manages the team's work breakdown structures and progress.
- *International Conference Coordinator*: Ross Allen. The international conference coordinator is responsible for the planning and arrangements regarding the conference in Bogotá, Colombia in May.
- *Ethics Consultant*: Elliot Barlow. The ethics consultant is tasked with attending the ethics workshop, preparing the ethics statement, and working with the other team members to produce the finalized Code of Ethics.
- *Presentation Skills Consultant*: Greg Quandt. The presentation skills consultant will attend the Presentation Skills workshop, report back to the other team members, and assist all subgroups in the creation of final presentations.

To further ensure timely completion of all IPRO deliverables, the subgroups will submit progress and information as requested by the project and project content managers approximately one week before the deliverable is due. At this time, the project and project content managers will compile the report and provide an opportunity for the advisor and team members to review the document. Upon completion of the review, the document will be promptly submitted to the iGroups and iKnow websites.

Schedule of Tasks and Milestone Events

Microsoft Project software is used to create a schedule of tasks and milestone events. Tasks are grouped into two subcategories: Subgroup Research and IPRO Deliverables. Under the IPRO Deliverables heading, each subordinate category represents the group of tasks necessary to complete a deliverable item. This type of grouping allows for efficient tracking of simultaneous tasks and the progress of the entire project. The Gantt chart created from the list of tasks visually chronicles the succession of tasks, milestones, and the level of completion over the course of the

semester. Appendix A contains the task list and the Gantt chart created with the software.

Project Budget

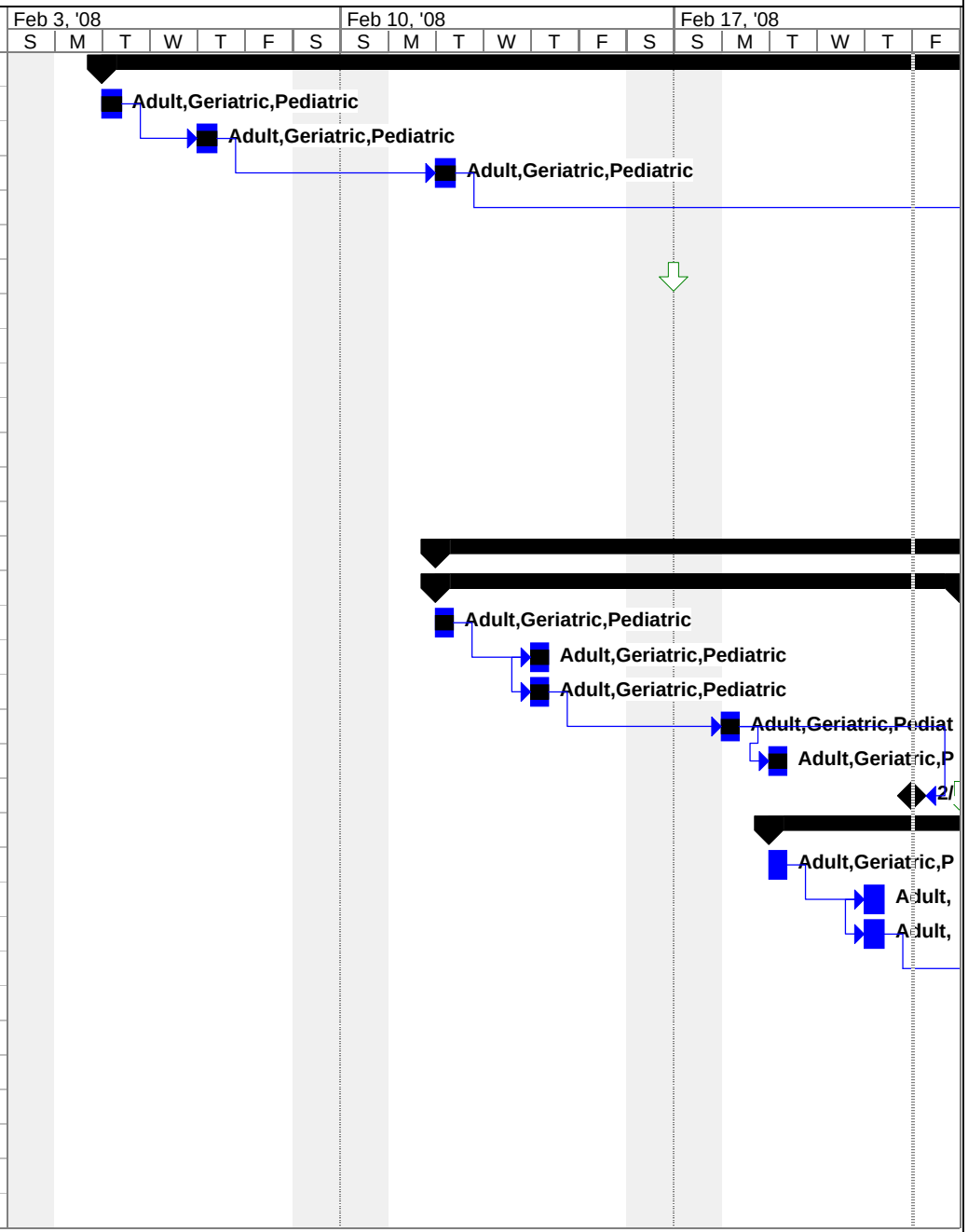
Currently, there are no project expenses for this program. The products of the project are solely based on the research labor done by the team members. At this time, it is expected that any orthotic devices used for demonstrations will be donated by local hospitals. Available funds that are not used for the production of the modules will be used to help organize the conference in Bogotá to present the modules at the orthotics and prosthetics conference in May. The budget is subject to change to account for any unforeseen expenses or the purchase of any orthotic- and prosthetic-related equipment that are unable to be acquired through donations. These will only be purchased if seen as necessary for the educational modules.

Expected Results

The primary results of the IPRO 309 team's efforts will be the completion of three educational modules, corresponding pamphlets, and low-cost demonstrations. The modules will consist of the researched materials regarding the pediatric, adult, and geriatric populations and their orthotic and prosthetic treatments. Although these modules will not completely satisfy the needs of the program in Colombia, they serve as another step towards accreditation. The work of previous IPRO 309 teams as well as the intended work of future IPRO 309 teams will enhance this semester's work, eventually providing the classroom portion of the program in Colombia with sufficient learning materials to gain accreditation. Furthermore, IPRO 309 has every intention of continuing the work to create parallel programs at the Universidad de los Andes and Joliet Junior College. With these programs in place, the opportunities for this type of care will hopefully be available sooner and in more locations world-wide.

APPENDIX A - Task List & Gantt Chart

ID	Task Name	Duration	Hours Left	Start	Finish
1	Subgroup Research	47.25 days	200 hrs	Tue 2/5/08	Thu 4/10/08
2	Subgroup Work	2 hrs	0 hrs	Tue 2/5/08	Tue 2/5/08
3	Subgroup Work	2 hrs	0 hrs	Thu 2/7/08	Thu 2/7/08
4	Subgroup Progress Reports	2 hrs	0 hrs	Tue 2/12/08	Tue 2/12/08
5	Subgroup Progress Reports	2 hrs	20 hrs	Tue 2/26/08	Tue 2/26/08
6	Subgroup Progress Reports	2 hrs	20 hrs	Tue 3/11/08	Tue 3/11/08
7	Subgroup Work	2 hrs	20 hrs	Tue 3/18/08	Tue 3/18/08
8	Subgroup Work	2 hrs	20 hrs	Thu 3/20/08	Thu 3/20/08
9	Subgroup Work	2 hrs	20 hrs	Tue 3/25/08	Tue 3/25/08
10	Subgroup Progress Reports	2 hrs	20 hrs	Thu 3/27/08	Thu 3/27/08
11	Subgroup Work	2 hrs	20 hrs	Tue 4/1/08	Tue 4/1/08
12	Subgroup Work	2 hrs	20 hrs	Thu 4/3/08	Thu 4/3/08
13	Subgroup Work	2 hrs	20 hrs	Tue 4/8/08	Tue 4/8/08
14	Final Subgroup Presentation	2 hrs	20 hrs	Thu 4/10/08	Thu 4/10/08
15	IPRO Deliverables	57.75 days?	342 hrs	Tue 2/12/08	Thu 5/1/08
16	Project Plan	9 days?	0 hrs	Tue 2/12/08	Fri 2/22/08
17	Review Project Plan Req.	1 hr	0 hrs	Tue 2/12/08	Tue 2/12/08
18	Begin Project Plan	1 hr	0 hrs	Thu 2/14/08	Thu 2/14/08
19	Create Subgroup Sections	1 hr	0 hrs	Thu 2/14/08	Thu 2/14/08
20	Finish Project Plan	1 hr	0 hrs	Mon 2/18/08	Mon 2/18/08
21	Review Project Plan	1 hr	0 hrs	Tue 2/19/08	Tue 2/19/08
22	Project Plan Due	1 day?	0 hrs	Fri 2/22/08	Fri 2/22/08
23	Midterm Report	18.25 days?	150 hrs	Tue 2/19/08	Fri 3/14/08
24	Review Midterm Report Req.	1 hr	10 hrs	Tue 2/19/08	Tue 2/19/08
25	Begin Midterm Report	2 hrs	20 hrs	Thu 2/21/08	Thu 2/21/08
26	Begin Midterm Presentaton	2 hrs	20 hrs	Thu 2/21/08	Thu 2/21/08
27	Finish Midterm Presentation	2 hrs	20 hrs	Thu 2/28/08	Thu 2/28/08
28	Presentation Practice 1/3	1 hr	10 hrs	Thu 2/28/08	Thu 2/28/08
29	Presentation Practice 2/3	1 hr	10 hrs	Mon 3/3/08	Mon 3/3/08
30	Presentation Practice 3/3	1 hr	10 hrs	Mon 3/3/08	Mon 3/3/08
31	Midterm Presentation	1 hr	10 hrs	Mon 3/3/08	Mon 3/3/08
32	Recap Midterm Presentation	1 hr	10 hrs	Thu 3/6/08	Thu 3/6/08
33	Finish Midterm Report	2 hrs	20 hrs	Thu 3/13/08	Thu 3/13/08
34	Review Midterm Report	1 hr	10 hrs	Thu 3/13/08	Thu 3/13/08



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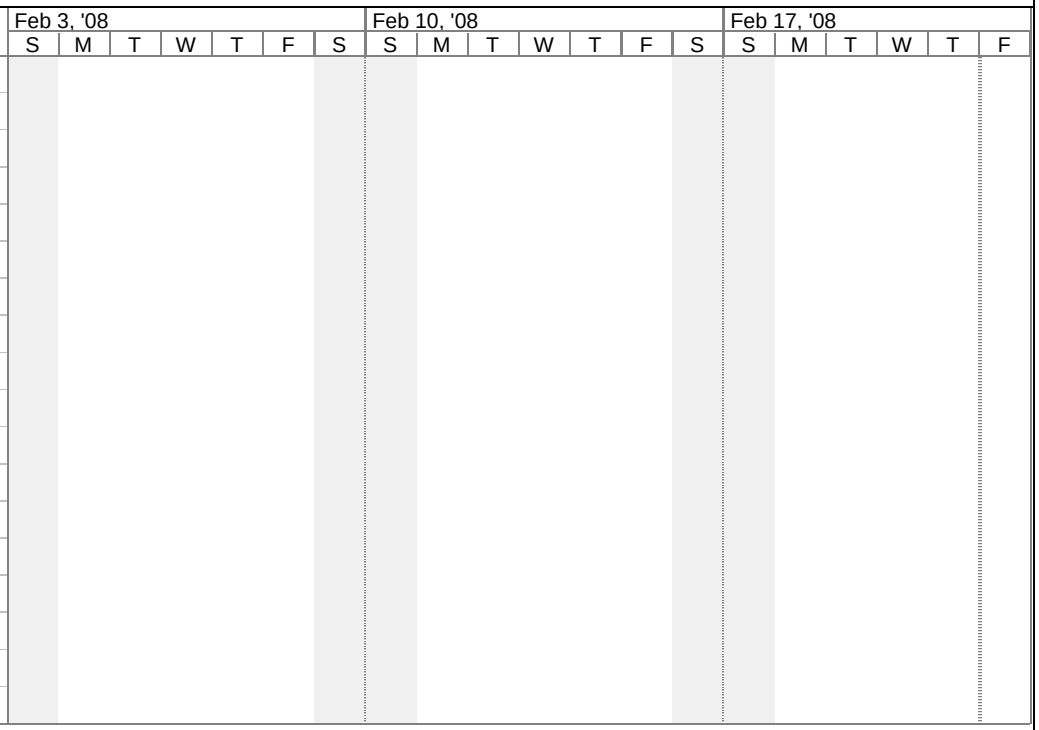
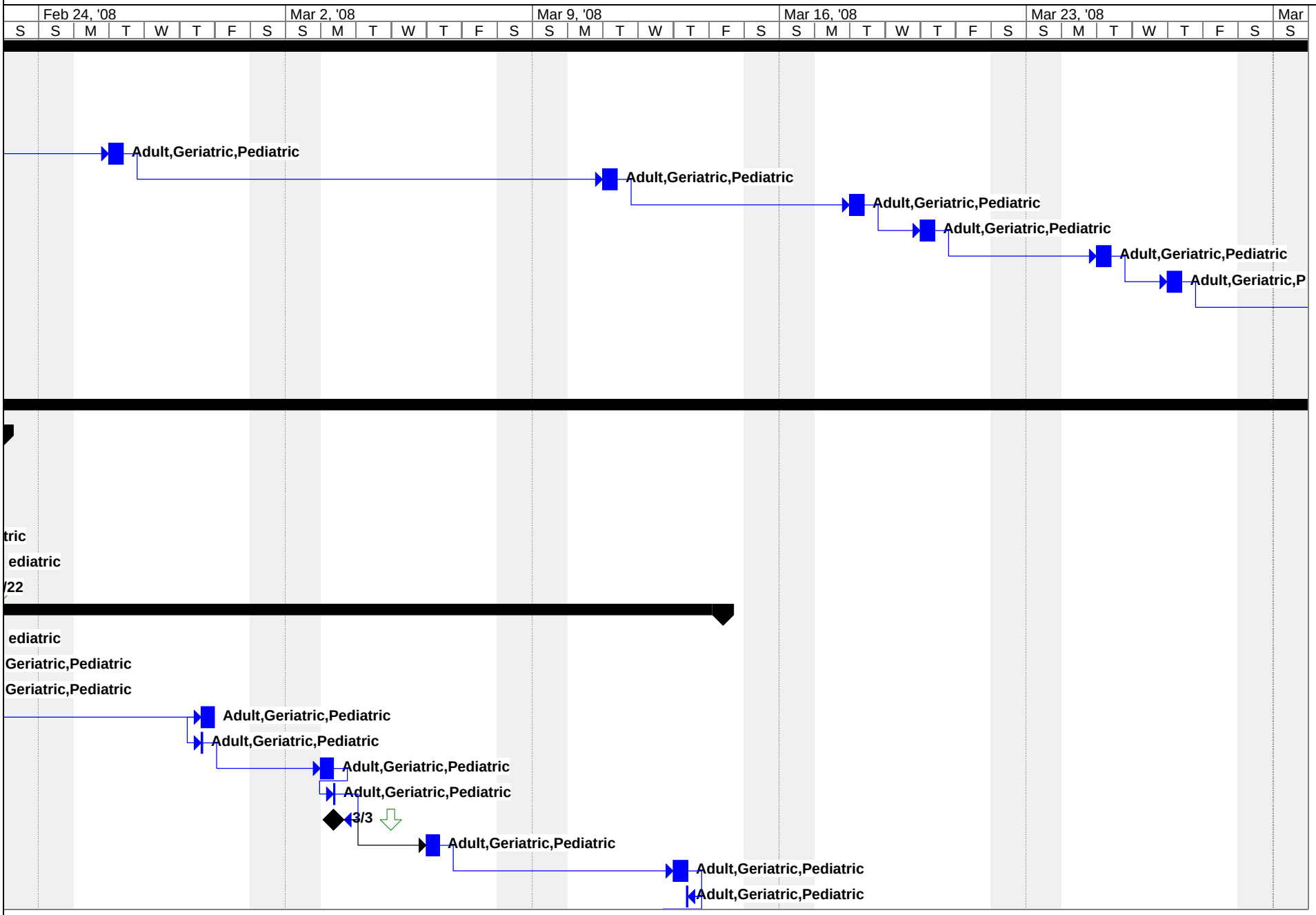
35	Written Midterm Report Due	1 day?	0 hrs	Thu 3/13/08	Fri 3/14/08
36	Code of Ethics	9 days?	40 hrs	Tue 2/26/08	Fri 3/7/08
37	Review Code of Ethics	1 hr	10 hrs	Tue 2/26/08	Tue 2/26/08
38	Write Code of Ethics	1.5 hrs	15 hrs	Tue 3/4/08	Tue 3/4/08
39	Finalize Code of Ethics	1.5 hrs	15 hrs	Thu 3/6/08	Thu 3/6/08
40	Code of Ethics Due	1 day?	0 hrs	Fri 3/7/08	Fri 3/7/08
41	Meeting Minutes Due	1 hr	1 hr	Fri 4/18/08	Fri 4/18/08
42	Final Report	15.75 days?	151 hrs	Thu 4/10/08	Thu 5/1/08
43	Review Final Report Req.	1 hr	10 hrs	Thu 4/10/08	Thu 4/10/08
44	Begin Final Report	1.5 hrs	15 hrs	Tue 4/15/08	Tue 4/15/08
45	Finish Final Report	2 hrs	20 hrs	Thu 4/17/08	Thu 4/17/08
46	Poster	8 hrs	16 hrs	Tue 4/22/08	Tue 4/22/08
47	Abstract	1 hr	10 hrs	Tue 4/22/08	Tue 4/22/08
48	Practice Final Report 1/3	1 hr	10 hrs	Thu 4/24/08	Thu 4/24/08
49	Abstract, Poster, Presentatior	1 day?	0 hrs	Thu 4/24/08	Fri 4/25/08
50	Practice Final Report 2/3	1 hr	10 hrs	Tue 4/29/08	Tue 4/29/08
51	Practice Final Report 3/3	1 hr	10 hrs	Thu 5/1/08	Thu 5/1/08
52	IPRO Day	5 hrs	50 hrs	Thu 5/1/08	Thu 5/1/08

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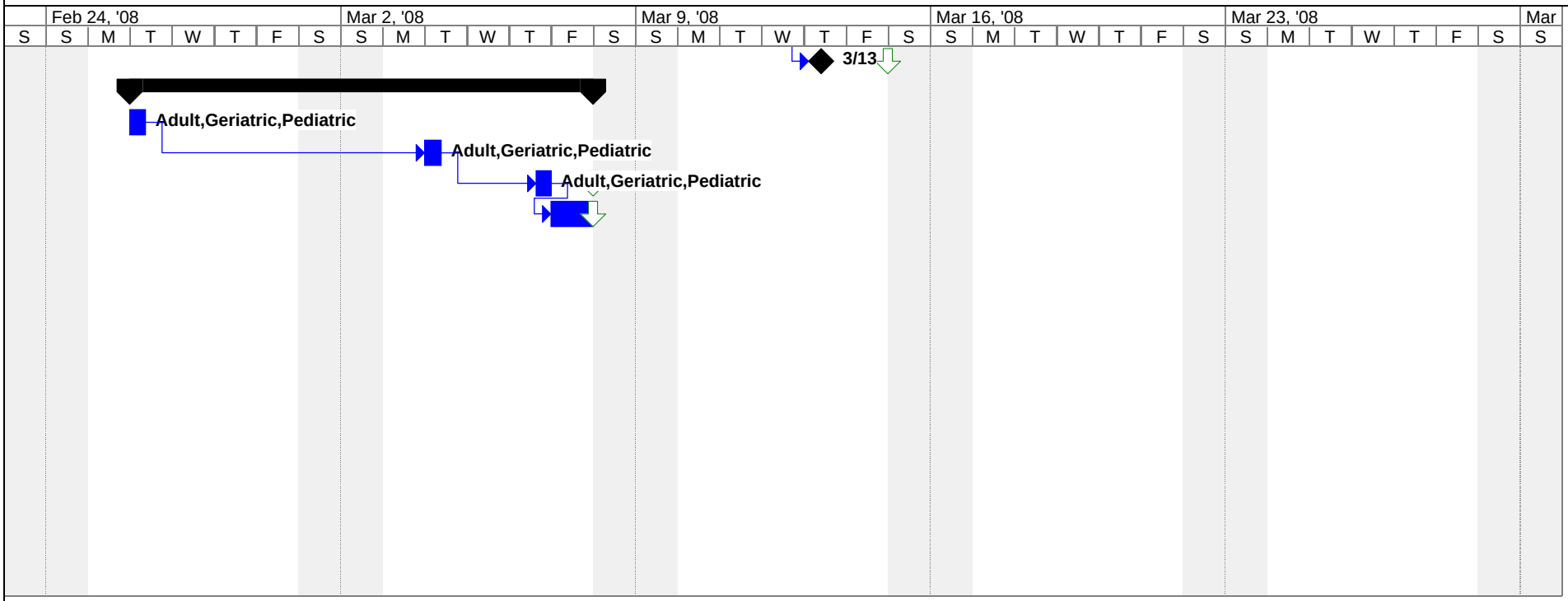

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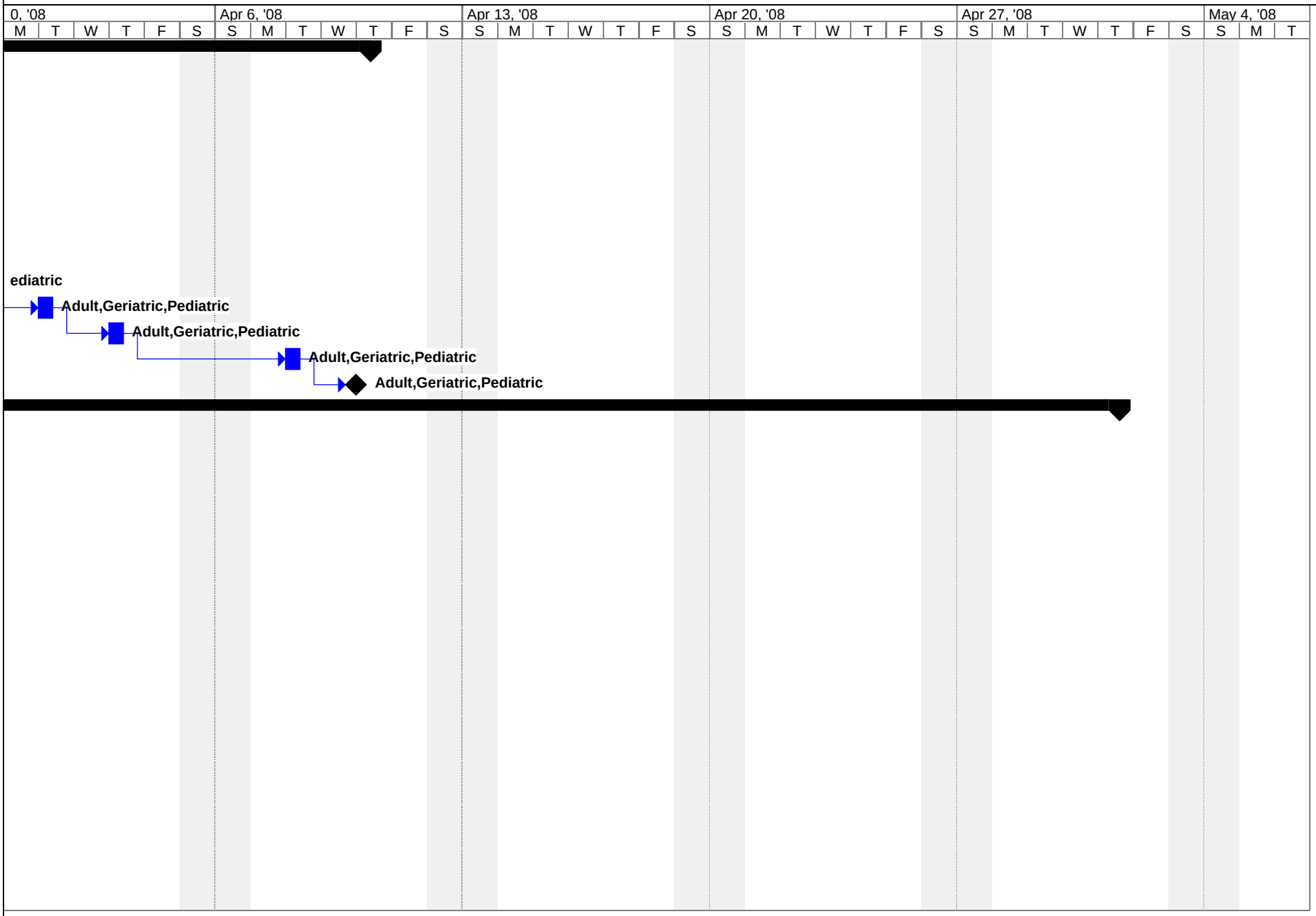

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