

**THE FRESHMAN SEMINAR:
ASSISTING THE FRESHMAN ENGINEERING STUDENT'S
TRANSITION FROM HIGH SCHOOL TO COLLEGE**

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Abstract — The transition from high school to college can be very difficult for many students. This adjustment involves three major areas of concern: Academic Transitions, Family Transitions, and Personal Transitions. At the University of Pittsburgh, we have a system of courses and academic counseling that is designed to address these issues and help the student in this transition. One major component is a series of mentoring courses that the entering student can select for the first semester. These courses are designed to help the freshman make this major transition. This paper will discuss the purpose of the mentors, the ENGR0081 Seminar Course concept, the mentor selection process, and the topics covered in the mentoring sessions.

Introduction

Numerous studies document the importance of interaction with the freshman students during their first semester [1 - 9]. This concept is nothing new, as reflected in the fact that most colleges have an orientation program for entering students. One component we use at the University of Pittsburgh is getting the involvement of parents and other family members in the processes and transitions. This component includes an orientation program that includes the following:

1. Raising the level of awareness of parents and first-year undergraduate students relative to changes involved in moving to a campus environment and relative to the services offered by the university to help adjust to these changes.
2. Expanding parents' and new students' knowledge through discussion and materials regarding changes in status, residence, failure, relationships, and authority.
3. Helping parents and students develop a positive attitude toward their first year at the university.

We use this component to help students become aware of the changes that are taking place in their lives. We then make a transition in the student's immediate family structure by introducing professional counselors and advisors that explain the new university policies and procedures to the students, and act as the parent figure. However, it is also important to involve peer mentors in the process and offer student success tips as well as survival tips that are used at the University of Pittsburgh.

This paper is designed to give a brief overview of another important component of our first year experience: peer mentoring. We use existing upper class students in this component to discuss

with the entering students, issues involving the transition between high school and college, from the students' perspective.

What is a Mentor?

Essentially, a mentor is someone who has successfully walked the path of a first year engineering student at the University of Pittsburgh. Mentors are one of the three components of the Freshman Leadership Team that works' closely with the Engineering Student Service Center. (The other two components are the tutors and the recruiters.) These individuals not only have been-there-done-that, but also they have learned a few valuable lessons along the way.

This group consists of diligent sophomore, junior and senior engineering students that have each successfully completed their freshmen year in the engineering program. They were selected to be mentors because they want to share that information with the incoming freshman, and assist the freshmen engineering students in the transition from high school to college. The mentors work closely with the Freshmen Program Office to integrate the advising, tutoring, and mentoring program. To assist the mentors and help them accomplish this integration, the university requires each engineering student to enroll in a freshman seminar course. The freshmen seminar is taught by the peer mentors, and works in conjunction with the freshmen engineering class, Introduction to Engineering Analysis course (ENGR0011).

The mentors are a very diverse group of undergraduate upperclassmen. They cover a broad range of engineering majors and are involved in various activities the University of Pittsburgh and the School of Engineering offer. Many of our mentors have co-ops at highly regarded companies, study abroad experience, participate in sports, and are officers in the engineering student council and/or the student chapters of the professional societies. Because they have such unique interests their seminars have exciting and diverse themes.

Table 1 Responsibilities of a Mentor
<ul style="list-style-type: none"> • Facilitate a Freshman Seminar group once a week • Effectively plan appropriate activities designed to meet the specific needs of the first year engineering student. • Must take initiative with regard to programming for seminar, as well as office specific record keeping and data base management • Work closely with freshman advisors in disseminating registration and scheduling information to all first year students • Hold at least 2 hours of office hours in the Engineering Student Services Center each week • Work with the faculty for ENGR0011 and assure each student makes their oral presentation

Mentor Job Requirements

Obviously the main requirement of the mentor is to facilitate their seminar section, however there are also a number of responsibilities, requirements and standards each mentor must fulfill. Each mentor is given a list of requirement before they apply for the job. Table 1 gives a list of responsibilities for each mentor.

Table 2 Mentor Job Requirements
<ul style="list-style-type: none"> • Should be gregarious, and empathetic in their approach to others • Respectful and responsive to issues of diversity • Possess a "TEAM" approach to the mentoring position. Specifically, be willing and able to work with a variety of personalities. • Should be willing to exchange constructive feedback with students, staff, and occasionally faculty.

In addition to the job responsibilities, there are a number of personal traits and academic standards that each mentor must meet. These are given in Tables 2 and 3.

Table 3 Mentor Academic Standards
<ul style="list-style-type: none"> • A 2.5 Cumulative Grade Point average is required • All mentors should be confident in their decision to pursue engineering as an undergraduate degree.

Mentor Selection Process

Mentoring is often thought to be a lot like coaching. In fact, many mentors do find that their role as mentor takes on the task of coaching these neophyte students through the various difficult transitions from high school to college. The mentors of the past have discovered three main coaching areas:

A) Academic Transitions

Starting classes at a university calls forth a transition from high school to college. While in high school the student was channeled through a highly structured day with the same basic schedule each day and a scheduled activity for each hour of the day. Upon entering college, the student is now in charge of their own schedule. This schedule varies each day, based on class schedule, extracurricular and sports activities, special events, and workload for classes. However, it typically has a different schedule each day, and has free time throughout the day. In addition to the schedule, college professors and teaching assistants have a different teaching style from high school teachers, walking across campus and going from building to building is different than running through hallways in the same building, being the best student back home is different than competing with all the top students at the university, etc. So the first transition the student must adjust to is the academic changes and all of the challenges that these changes elicit.

B) Family Transitions

Arriving on campus means a transition from family and home to a residence hall and independence. At home the student's room may have been large or small, neat or clean, while their new residence hall room may be just right or their new roommate may make it a place they try and avoid. Family life back home may have been fun or full of stress. Being away from home may be a welcomed time where the student tries to stretch their wings, or it may be a very challenging time. Parents may be celebrating the departure of their child or trying to

convince the student to come home every weekend. Family might encourage the student to make new friends, or afraid of losing their child, they might prevent the student from making many university-related connections. Thus, there are going to be family transitions.

C) Personal Transitions

Being at a university means being a newcomer in a strange community. It might feel lonely at first. Some days students may want to fly, run, walk, or drive home. There will be days where the student feels they cannot stand one more day in the residence halls, in the large lecture, with their roommate, with their professors and teaching assistants, or their load of courses. These personal transitions can consume an entering student if they do not seriously focus on why they are at the university in the first place. Insights from parents, professors, or other students (upper classmen) can be very helpful. There are many opportunities to reach out to helpful people on campus. There may be personal changes during the first year, and the trick is to link the student to the correct person that can help them face these challenges.

Thus, the first challenge for the mentor is to be able to assist the students in these transitions. To assist the department in selecting the mentors, the applicants must write an article that discusses a time when they mentored/coached someone through a difficult situation. The article must address the following:

- What was the situation?
- How did you approach the person you were working with?
- What was the outcome?
- What qualities do you think a great mentor must possess?
- What transferable skills have you already developed that would make you a great choice to mentor first year engineering students?

In addition to the essay, each applicant must also provide a list of two character references, a list of additional activities they plan on including in the seminar course, and complete the Keirsey Character Sorter personality type indicator test.

Once this data is completed, each applicant is interviewed with the department staff and are asked questions similar to the following:

- Detail some leadership experience you have had.
- Are you available to teach a section during the time slots allocated for the course?
- How do you feel about standing up in front of a group of freshman?
- How would you approach a group, or just one student, who makes it a point to give you a difficult time in class?
- Provide an example of an ice-breaker you have participated in, and really enjoyed.
- What are some of your ideas to improve the seminar experience?
- Expand upon your essay. How do you propose the ideas you suggested be implemented?
- What is your perception of the Freshman Leadership Team? How do you see yourself fitting in? Why do you think it is important that we function as a team?

- If a student in your seminar were having a difficult time choosing a department - how would you assist that student?
- If a student wanted to transfer out of engineering - how would you guide that person?

Once the interview is complete, the applicant is judged on the following abilities:

- Ability to relate to other students.
- Applicant's reactions to the responsibilities as a freshman mentor.
- Did the student appear motivated and excited?
- Did they express ideas that were creative and interesting?

ENGR0081

Freshmen seminar, Engineering 0081, is required for all freshmen engineers. It is a zero credit class however the freshmen are graded pass/fail based on attendance and participation.

The courses' main objective is to help first year engineering students make a smooth transition from high school to college, and as a secondary objective aid in identifying the engineering program the new students will eventually major in. Students meet with their respective mentors once a week for an organized class, but many also gather other times throughout the week to enjoy activities such as; flag football, museum tours, trips to the symphony etc.

To initiate a close bond between the freshmen students and their mentors the classes are designed around a class size of 15 students per mentor, and are based upon a common theme. All mentors select a theme and based on their own personal course schedule, fit their seminar into one of the pre-designed seminar time slots. The available time slots are all in the afternoon or evening from 12:00 -12:50, 1:00 - 1:50, 3:00 - 3:50 and 7:00 - 7:50. The current themes range from teamwork to sports to exploring Pittsburgh, see below for more details. Another important characteristic of the seminar is class size. With approximately thirty undergraduate mentor seminars, the class sizes range from 7-20 students per mentor. The small class size and common interests only increases the opportunity for a personal relationship to build between the freshmen and their mentor.

In addition to enjoying activities related to their seminar theme, mentors also cover crucial topics in order to be successful in the engineering program. Lessons like: how to have a life and be a great student, how to put together a decent schedule, how to get involved in a student or community organization, or simply how to have a great time balancing the rigor of engineering coursework with some of the activities the students enjoy doing.

All mentors are provided with a syllabus including the necessary information to review with the freshmen. The Freshmen Program Advising Staff also relays information such as add/drop, withdrawal, and registration procedures, to the freshmen via the mentors and freshmen seminar. Additionally mentors work closely with the professors of the freshmen engineering classes to collect assignments and grade projects and presentations. The topics covered during the first semester of freshmen seminar include, but are not limited to:

1. What is seminar? Why do I need to take seminar? Who is my mentor?
2. Add/Drop, Medical Information, How to get involved in the University of Pittsburgh.
3. Calculating your GPA, The Importance of Freshmen Grades,
4. Time Management
5. Study Skills & Test Preparation
6. Stress Management
7. Spring Registration
8. Withdrawal, Repeating Classes, & Replacing Grades
9. Introduction to the Library Services
10. Resume Writing
11. Engineering Options at the University of Pittsburgh
 - o Minors
 - o Concentrations
 - o Teaching Certificates
 - o Dual Degrees
 - o Study Abroad Opportunities and Programs
 - o Cooperative Education and/or Internships
 - o Undergraduate Research
12. How to Prepare for Final Exams

List of Themes for Seminar Courses

Italian American Culture in the United States

In this seminar, students research and learn about how Italian American culture is portrayed in movies, books, and on television. The seminar includes activities of watching movies, visiting museums, and reading a short book about the Italian culture. But the mentor is still open to student suggestions on how they want seminar to go throughout the year. The goal is to have these activities serve as learning tools, but also be a lot of fun at the same time.

Basketball

This group meets one hour a week at 7:30pm. The "theme" of the meetings is basketball, but there is also meetings spent discussing topics that are relevant to the freshman experience. Occasionally the group also meets in Trees Gym to play pick-up games of basketball, and also sets up 3 on 3 tournaments. The group is design such that it is not necessary for the student to have played organized basketball. The only requirement is an interest in the game.

Getting to Know Pittsburgh

There are a number of different sections of this theme. This seminar leads students on an exciting journey through the various important sites in the city of Pittsburgh. The theme of this group is not only centralized around having a good time in the city of Pittsburgh, but on familiarize incoming freshman with the city of Pittsburgh. That is, to show them the different places to go, how to get there, and have an idea of what they can do and where they can go to have

fun and see the great advantages of having a Pitt ID. While at these sites students discuss issues that they faced in the past week.

To accomplish this, the students take adventures throughout the Pittsburgh area and beyond, visiting places like Mt. Washington to ride the inclines, Schenley Park for sports, Shadyside for stores, Fuel and Fuddle and Hemingway's for lunch, and Dave and Andy's for ice cream. To also introduce some culture and refinement, the seminar takes relaxing trips to the Cathedral Lawn, Schenley Park, or the local museums. The students are at Pitt to learn and become engineers - but the mentors also know the students are here to learn how to interact with each other.

The final design of the tours is left up to the individuals within the group. They can decide to do whatever they like. The mentors know that engineering is a lot of work and that it is valuable to get away and have a good time. Another goal of this group is to not only become good friends and get to know each other very well this first semester but to also stay good friends throughout our college careers.

Investigating Computer Engineering and Pittsburgh

This seminar is a take off on the Getting to Know Pittsburgh seminar, with the added component of discussing how to handle the engineering workload, and what it's like as a Computer Engineer. They also take trips around the city to places such as Art and Science museums, and take in sporting events such as a Pirate baseball game. The mentor has the goal to explain the field of Computer Engineering in an environment that promotes mutual respect / friendship to develop between everyone in the group.

Teaming as Engineering Students

The focus of this group is teamwork. It is important for students to be able to function well in teams and it also allows the students to get to know each other. Improving teamwork can be done in many different ways, through sports competitions, group projects such as skits, and compromise exercises (such as fitting everyone into a space the size of a hoola-hoop). The goal of this seminar is to design activities that naturally encourage people to get to know each other. Each week the mentor plans an activity such as the ones listed above for the students to participate in.

Pitt Arts

The idea behind this freshmen seminar group is to help students realize the potential for getting involved at Pitt in activities like music, drama, visual art and more, and also to teach them about the wide variety of cultural events in Pittsburgh. By working closely with the University Pitt Arts program, this seminar provides the opportunity for freshmen to take advantage of free tickets to performances and events in the area at no cost, as well as the chance to meet with artists, performers, directors, and musicians to discuss what happens behind the scenes. Group "field trips" teach students about the discounts that being a Pitt student provides, such as free admission to many art museums, Phipps Conservatory, and discount tickets for performances at

the Opera, Theater, Orchestra and Dance Council. Freshmen will also learn how to manage their schedules to make it possible to be involved in the arts while juggling the priorities of being a successful engineering student.

FESC

Freshman Engineering Student Council (FESC) is an organization that is run entirely by freshman, with some help from previous officers and the Engineering Student Council (ESC), to provide activities for the freshman. FESC also gives everyone a chance to get to know each other, make new friends, and meet upperclassmen and the most important part - to have fun while here at Pitt. The seminar focuses on getting involved with FESC along with what can be done with some help coping with schedules, professors, homework, tests, quizzes, living arrangements, campus food, time management. Most of all, it's about the student discussing their findings on college life.

Entertainment in Pittsburgh

One of the advantages of going to college in a city is that there are almost unlimited entertainment resources. Sometimes, incoming freshman do not get the opportunity to take full advantage of this. This seminar is designed to introduce freshman to all the activities available to them. It covers entertainment in both the city of Pittsburgh and on campus, including everything from organized Ultimate Frisbee games, to checking out downtown shopping, to visiting museums, to bowling, as well as shows and/or concerts available at the time. Often, freshman year can be a lot of hard work. The main objective of this seminar is to let the student relax a little more, make them comfortable in their surroundings. Freshman year should be full of new challenges, but it should also be fun.

Investigating Study Abroad Options!

The mentor in charge of this seminar had a wonderful time during her semester abroad and was excited to share those experiences. The seminar discusses the tough choices on deciding where to study and talks about how sometimes the decisions were overwhelming. The seminar helps the students explore their options and talks to them about traveling safely and having a successful semester abroad. Most importantly the seminar enforces how important a successful freshman year is for a good study abroad and scholarship opportunity!

Playing Sports

This sports and activities seminar is a mixture of watching sports in person, on television, and playing sports. Playing sports helps everybody get out of their dorm rooms and do some physical activity while learning teamwork while watching sports gives everyone time to get away from schoolwork, sit back, and relax. It is also a way for all the sports enthusiasts to meet each other.

Volunteering

In this weekly seminar the mentor and students volunteer their time and service as they participate in projects to improve the Pittsburgh community. Activities vary according to the desires of the group, but include nature restoration projects, food drives, and litter clean up. During the weeks that the group does not participate in volunteer activities, seminar time is spent discussing topics relevant to life on campus.

Music and culture

Music is a great stress reliever and the voice of generations. The participants in this seminar have a particular interest in music. Maybe they were the lead singer in a local band, or just enjoy playing an instrument. The seminar takes the time to look past the music industry stereotypes and choosing music for quality and not because of the group of friends that they happen to be in. This seminar explores the music scene locally and nationally. In addition, they explore the cultural diversity that has shaped Pittsburgh through activities such as going to museums, shows, and other events in Pittsburgh.

Wiffleball

In this seminar the interest area is wiffleball & other sports such as ultimate Frisbee. The students meet at the cathedral lawn (weather permitting) and play about a 40-minute game of wiffleball or another "stress relieving" game. The students choose the game that they play. In the remaining time that's left, they discuss announcements and go over any questions about classes, etc that the students may have.

Billiards

This seminar focuses on the activity of billiards and all games associated with it. Participants spend approximately two hours per week sharpening their skills through tournament play. All persons of any ability are welcome as the goal of the seminar is improvement. In addition to sharpening skills, the participants will also be exposed to the many games played at the billiards table. These games include 7-Ball, 8-Ball, 9-Ball, Straight, Cutthroat, Snooker, and 3-Rail. Participants will learn the tournament rules and tips for playing these games.

Playing Cards

This seminar focuses on the activity of cards and all games associated with them. Participants spend their time sharpening their skills through tournament play. All persons of any ability are welcome as the goal of the seminar is improvement. In addition to sharpening skills, the participants will also be exposed to the many different card games played around the world.

Adventure Group

The adventure group does a series of activities in order to explore not only the University of Pittsburgh but also the campus surroundings. The activities are planned by the freshmen

registered in this seminar and voted on democratically. The students explore University services, local restaurants, sporting events, and also challenge other seminar groups to friendly competitions.

Running and Other Outdoor Activities

The students who signed up for this seminar should enjoy being outdoors and away from the stresses of engineering. In order to accomplish this, the seminar goes on a run for the first hour of the meeting time.

After the students return and cool off, they spend the next hour going over all the material to be covered in the allotted seminar time period.

The goal is to continue running as long as the snow is not above their heads. If this occurs, the event resorts to indoor athletic activities.

Sports and Outdoors Activities

As a group this seminar discusses the "going ons" of the University and enjoy the active sports life. They plan football outings against each other as well as other seminars and the Engineering Student Council. The seminar group also participates in other sports such as basketball, soccer, and softball. Finally, they also are involved in activities such as Monday night football, bowling, and maybe even miniature golf.

Discover Pittsburgh

This interactive seminar is designed to give students a fun opportunity to learn more about the University of Pittsburgh, its campus, and its surrounding communities. Whether your hometown is right here in Pittsburgh, or miles away, this weekly seminar will provide a creative way to learn more about the place we all call our "home away from home."

Each seminar will include a discussion of some type where students can talk about or ask questions regarding their transition to college, or any other relevant issues. Guest speakers from different student organizations will be brought in to provide information about activities and programs on campus. In addition, representatives from different departments will be invited to speak to students about the various engineering disciplines.

Afterwards, we will move out of the classroom and embark on our weekly mission to "discover" Pittsburgh.

Summary

Based on the feedback from the students and counselors, the Freshman Seminar Course is a major success. Each semester the student evaluations of the mentors range from 4.5 - 4.7 on a 5.0 scale, and the comments are all basically very positive. The general feeling among the students is they thought the course would be a waste of time, but by the end of the semester their

view of the course changes and they are glad they had the experience. As one student said in their course evaluation "It is the little things that my mentor did that had such a large impact on my first semester success".

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Dan Budny has just joined the University of Pittsburgh faculty as Academic Director of the Freshman Programs and an Associate Professor in Civil Engineering. His research has focused on the development of programs that assist entering freshman engineering students, including academically disadvantaged students, succeed during their first year. Of particular note are the highly successful counseling and cooperative learning programs for first-year students that he created. Dr. Budny has numerous publications and presentations on engineering education. Dr. Budny is very active in ASEE within the Freshman Programs and the Educational Research and Methods Divisions, and is on the ASEE board of directors.