

**Off to a Good Start:
A Short, Comprehensive Orientation Program**

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Abstract

Alarmed by its attrition rate during the first 21 days of the Fall 1994 semester, the College of Engineering and Applied Sciences (CEAS) designed a short, but effective and comprehensive orientation program for Fall 1995. The CEAS presented an expanded orientation program for CEAS students imbedded in a week-long university orientation. The program covered areas that students had reported were difficult for them when they first entered engineering, as well as to give more information about particular majors and organizations in the CEAS. College and department assemblies were held on Monday morning, as in the past, but were then followed by seven general sessions and two specialized workshops. The Monday afternoon sessions included student panels for a "Discussion of Engineering Majors" and a "Discussion of Applied Sciences Majors." Other sessions conducted during the week were: "Accessing the Internet and E-Mail," "Project Management for the Engineering and Applied Sciences Majors," "Time Management for the Engineering and Applied Sciences," "Cornell Notes for the Engineering and Applied Sciences Student," and "CEAS Student Leaders and Involvement."

On Saturday two specialized workshops were held. An underrepresented minority student workshop, sponsored by the CEAS Office of Minority Engineering Programs, included returning students as well as the newly admitted. The event used the assistance of members of the student minority engineering organizations. A workshop for newly admitted women was held by the Women in the Applied Sciences and Engineering (WISE) Office.

Almost all the seminars and workshops were very well received. The paper gives a description and critique of each session, as well as suggested improvements for next year's program. Publicity for the events is also discussed.

Introduction

ASU is a large university, with some 42,000 students; and a commuter school with only 23% of students living within a mile of campus. The College of Engineering and Applied Sciences (CEAS) alone has over 6,000 students. In Fall '95, over 1,000 of the CEAS students were new undergraduates, half first-time freshmen and half new transfer students. To reduce the attrition rate of the college, and especially that attrition experienced during the first 21 days of the Fall 1994 semester (day 21 is the official semester enrollment date), the CEAS designed a short, but effective and comprehensive orientation program for Fall 1995. The incentive to design a new orientation program was strengthened as we listened to our students explain how difficult it

had been for them to adjust to a large university where they knew no one. We asked them to tell us what they wished they had known as incoming freshman or transfer students. A lack of knowledge on how to budget time and how to manage a class project were mentioned as being particularly difficult areas. The students also recalled that when they were new to this campus they needed to know more about how to use the internet and e-mail communications. In addition, they needed help in accessing the library. The students said when they were new to campus they were not willing to admit that they really needed any help, but that if it had been offered they might have taken advantage of the help and their transition would have been easier.

In the past, the Orientation Program in the CEAS included the usual hour-long "general survey" college assembly with the new students and their parents. This assembly, held on Monday the week before classes began, had been preceded by the students moving into the dorm or local housing on the weekend before. During the college assembly, the Dean and Associate Deans addressed the students with a general welcome and advice about studying. Department heads were introduced so that the students would be able to identify the chair of their department. Special support services were also made known and the directors of the Office of Minority Engineering Programs (OMEP) and the Women in Applied Sciences and Engineering Program (WISE) were also introduced. A short reception followed this program with refreshments in the lobby of our new research building. At the conclusion of this informal time, students were asked to go with the chair of their department for assistance with class scheduling. Monday afternoon was usually spent buying books and completing the move to the University. Our college had no more direct contact with the students during the week before school began.

Therefore, as representatives of the Dean's Office, the CEAS Student Academic Services, Recruitment, OMEP, and WISE, in a cooperative effort, we decided to expand our orientation efforts for Fall 1995 and to give our new CEAS students the best possible start. The main topics that were most needed by our new students were the following: a Student Panel on Engineering majors, a Student Panel on Applied Science majors, Project Management for the Engineering and Applied Sciences student, Accessing the Internet and E-Mail, Cornell Notes for Engineering and Applied Sciences Students, Time Management for Engineering and Applied Science Students, Accessing the Library and CEAS Student Leaders and Involvement. These topics not only met the deficiencies expressed by our students, but also had been taught, tested and found helpful to students in a two semester-hour course, "ASE 100 College Adjustment and Survival," which is taken by at-risk students.

As we were planning this expanded orientation program, it came to our attention that the Fall Orientation Program conducted at the university level was being reevaluated and expanded. In discussions with the University personnel planning the expanded program, it became clear that we had similar goals and that our CEAS Orientation could become part of the University Orientation. A primary advantage of this partnership was that the CEAS Orientation could be publicized in the University materials and by the University staff. Descriptions of possible orientation sessions were solicited by the University, as well as suggested time slots. The University Orientation Management was very pleased with our proposal and the proposed CEAS Orientation Program was accepted in full and incorporated into the University Orientation literature and scheduling. Since an Accessing the Library session was held at the University level, we encouraged our new students to also attend that session.

The CEAS Associate Dean for Student Affairs wrote a letter of welcome to new students and encouraged them to attend the special CEAS Orientation Sessions, which were listed with their presentation times. A booklet, "Experiencing ASU: Orientation '95" was developed by the University and included all orientation sessions and listed them day by day. This letter was mailed by the University to all new CEAS students along with the other orientation materials.

In addition to these orientation sessions, special sessions for new underrepresented minority and women students in CEAS were developed as day-long Saturday sessions. During the summer each newly admitted minority student was called and welcomed by an underrepresented minority engineering student. These students were encouraged to attend the orientation sessions and the special Minority Orientation Session on the Saturday of Orientation Week. The new student was also told about their corresponding minority student engineering society. Later a call was made to invite the new student to the first fall meeting of that society.

The Orientation Program

A New Look for the College Assembly

Students begin orientation week by attending the Opening Convocation in the Gammage Center for the Performing Arts. This convocation features a welcome by the ASU President and the student President of ASU's Associated Students. All new students and their parents are encouraged to attend. Immediately following (10:15 a.m.), CEAS students proceed to the College Assembly held in the CEAS. We gave a new look to our assembly by including a video about our college and its students and some student projects including a formula race car in action. The video included upbeat music and was well received by the students. In addition to the usual format, we encouraged the students to attend the special CEAS orientation sessions that would be held that week. We also distributed a copy of the schedule of the sessions to the students.

At 11:30 a.m. the students and parents were led to the Goldwater Research Building lobby for an informal reception. At the conclusion of the reception, department heads introduced themselves and lead their students to their respective departments for class and scheduling advice.

Discussion of Engineering Majors - A Student Panel

The panel was comprised of six engineering students with the objective of discussing their Engineering discipline in depth. Each panelist was given six minutes to speak and at the conclusion there was a question and answer session. The emphasis was that college will require more work than high school and time management is a critical tool. Other areas covered were internships, tutors, and campus services. The panel was barraged with questions, and parents attending were impressed with the "exceptionally good advice provided." The panel concept provides a very positive verbal exchange among the panelists, new students and parents. An hour and a half was allotted for this panel which was held on Monday afternoon at 2:00 p.m. and was attended by some 50 students and their parents.

Discussion of Applied Engineering Majors - A Student Panel

The Student Panel on Applied Science Majors was held for an hour and a half after the Engineering Majors Panel. The session was very similar to the one just described. Although only ten students attended, the evaluation by these students was very positive.

Accessing the Internet and E-Mail

E-mail is routinely used by CEAS faculty as a means of communicating with students. Additionally, because CEAS students often work in teams, it is helpful for them to use e-mail for easy communication. For these reasons, a session on accessing the internet and e-mail was offered by the College. A representative from the university's Information Technology Department conducted the session. It was held on Tuesday, 10:30 -

11:20 a.m. A facility was selected that could hold a large group of people (we expected 50 and had over 200), had the right software, and had two large screens for easy viewing by the audience.

This seminar was taught as a lecture. The lecturer discussed the history, recent explosive growth, and potential of the internet; explained certain etiquette rules; and then demonstrated how to access the internet, World Wide Web, and e-mail. He explained that computer accounts were free, and that an account provides each user with their own m-drive (your own private space on ASU's network), and access to the internet and e-mail. He also noted that one advantage of using e-mail through ASU is the ability to communicate with people around the world without long-distance charges.

Computer-account applications were distributed and the students were encouraged to go to the information desk on the first floor of the Computer Commons to register for their computer account right after the session. The last few minutes were left for questions from the audience.

Project Management for the Engineering and Applied Sciences Major

It is not uncommon for new engineering students to be assigned a class project during the first weeks of school. Some students have difficulty starting and, in some instances, finishing a project. This project assignment could be potentially difficult and a cause for poor academic achievement, let alone a stressor. Project management skills assist students with starting and completing a project -- they are a road map for the student.

The participants were shown how to develop a concise goal and itemize the tasks necessary to complete the project. Each task was dependent on the previous one and thus had to be scheduled in order. It was noted that having a realistic time frame and completion date were important. Students were paired and assigned the task of planning a career research paper for English using Project Management skills. The students identified goals and itemized tasks and time requirements. A projected date of completion was identified by students. The students were able to observe the value of such an easy tool. Discussion was held on the process and students did an excellent job of detailing how to accomplish the projects.

The major advantages of this workshop are that students gain confidence in their management skills, know how to get started and can observe their progress from start to finish. In addition, projects are accomplished with the desired results. This session was held from 2:10 - 3:00 p.m. on Tuesday afternoon and nearly 70 students attended.

Time Management for the Engineering and Applied Sciences Major

A number of freshmen and transfer students experience hardship in the university setting due to lack of time management skills. A time schedule is a simple technique which allows the student to plan and determine valuable time.

The students were divided into groups of three and asked to develop an optimal study schedule. They were given an actual engineering class schedule and required to develop a highly detailed plan for the use of their time during the entire week. The students were to use strategies such as studying directly after class, setting study times between 8:00 and 5:00, and studying the most difficult subject first. When possible, study time was scheduled in two-hour blocks, taking ten-minute breaks after each hour. (Work commitments and sleep time were also scheduled.) Upon completion of the exercise the students were astonished at how much free time was still available. The next task for students was to construct and to develop their own schedule.

The main advantage to the student was the ability to see how much free time they had which, in turn, they could use to achieve balance and control of difficult courses. It is important to emphasize that for every hour in class, a student may need to study 2 - 4 hours outside of class depending on the student's ability to prepare for class. This session was attended by 50 students from 9:50 - 11:40 a.m. on Wednesday.

Cornell Notes - for the Engineering and Applied Sciences Major

The Cornell note-taking system is excellent for physics, mathematics, and chemistry classes, as well as non-technical courses. In this workshop the students were required to take notes using the Cornell technique. They were asked to listen to the lecture, take notes, and then compare with another person at the workshop.

Students discovered that this note-taking is simple to do. The advantages of the system are that it provides organization and requires interaction and concentration by the student. This process requires a review to be scheduled immediately after class in order to identify key words. In addition, the student schedules a review of the notes and each student must summarize the lecture in their own words. This summarization improves comprehension through individual understanding. The students in this seminar were surprised to see how a simple technique could provide so much assistance in learning new material.

The Cornell system is a simple and excellent note-taking method. Although this may seem difficult to implement, once practiced and learned, it is an easy system to use. Over 70 students attended this session which was held from 3:10 - 4:00 p.m. on Wednesday afternoon.

CEAS Student Leaders and Involvement

The objective of this student panel was to encourage freshman and transfer students to become active members of CEAS student organizations. The students in attendance were informed about the various CEAS student organizations by the panel which addressed the benefits of membership: professional development, team work, unity, networking, and also the positive interaction with industry. Involvement in a student organization allows students to develop leadership skills which are valuable in the working community. A panel member also stressed the importance of acquiring public speaking skills, which she did through a campus Toastmaster's Organization. The value of involvement on campus, in general, was stressed by the panelists. This workshop was held late in the week, on Friday from 2:30 - 4:30 p.m. Approximately twenty new students attended the workshop.

Library "On Line" Catalog Demonstration

CEAS students were encouraged to attend one of these sessions. The program was a demonstration of how to search ASU's "on-line" catalog databases.

Saturday Workshops for Underrepresented Students

Although 37% of Arizona's K-12 population consists of underrepresented minorities (Native Americans, African Americans, and Hispanics), only 13% of the CEAS undergraduate enrollment is composed of underrepresented minority students. And while over 50% of Arizona's population is female, less than 20% of the CEAS undergraduate enrollment is female. As the pool of white male students is shrinking, engineering and the applied sciences must look to underrepresented minorities and to women to continue recruiting adequate numbers of engineers. Additionally, a diverse engineering population is necessary for excellence in engineering and the applied sciences. Therefore special attention needs to be paid to the recruitment and

retention of these groups. Two workshops on Saturday were piloted for these underrepresented student groups as a part of our orientation program.

WISE Start, an Orientation for Women in Engineering and Applied Sciences

In the Fall semester of 1994, data revealed that twice the number of women (roughly 11%) than men dropped from engineering classes during the first 21 days. Furthermore, over the past five years, approximately 25% of women entering the CEAS have changed majors or left the university by the end of their second semester. In an effort to improve retention for women in the CEAS, this year WISE held a half-day orientation program entitled "WISE Start" for women newly admitted to the college.

WISE Start participants were greeted with a continental breakfast, and grouped into teams for an ice-breaker activity called "Comet in a Bag". Teams of three mixed chemicals and dirt in a baggie, shook, and produced a "comet". The participants became acquainted with one another through this activity, and had fun with an easy, but interesting science project. Next, students visited the computing facilities on campus and were paired up to participate in a computer modeling lab. The women were introduced to cooperative learning techniques, which are used by many of the engineering faculty. While in the lab, the students received an e-mail account and had an opportunity to send a message to each other. Participants were also introduced to the World Wide Web and WISE's own home page.

Participants returned to the WISE Center, a student lounge in the main engineering building, for lunch. While there, they were shown the resources in the center, which include a jobs and internship board, scholarship information, relevant books and magazines, two on-line computers, an honor-system snack bar, a refrigerator, freezer, microwave, and more. The women were also informed about the year-long activities for women students in the CEAS held by WISE. In addition, these students were addressed by current officers of the Society of Women Engineers (SWE), which works in cooperation with WISE, and were encouraged to join.

After participants completed a program evaluation, a drawing for a \$129 scientific calculator was held. Next, the participants were escorted to "CEMS INFORAMA," an information fair hosted by OMEP. The women were then given the opportunity to join in a volleyball tournament for new students also held by the OMEP.

CEMS Fall Orientation Workshop

The Arizona State University OMEP was established in 1993. In Fall 1993, the OMEP, in conjunction with the three minority student organizations developed a formal collaborative relationship. The result was the creation of the Coalition of Engineering Minority Societies - CEMS, which is comprised of the three minority engineering student organizations: the American Indian Science and Engineering Society - AISES; the National Society of Black Engineers - NSBE; and the Society of Hispanic Professional Engineers - SHPE.

In order to develop a more formal and cohesive collaboration, the MEP sponsored a CEMS Leadership Retreat in June 1995. While there were many goals and initiatives brought forth by this retreat, the critical element to the students was an effective orientation activity for all incoming students. During the retreat, the student leaders developed a day-long agenda for an orientation to the university, the CEAS, the OMEP and to their societies. An additional feature added to this program was the opportunity for the new students to interact with the current minority engineering students.

The CEMS Orientation began with registration and a continental breakfast. Registration consisted of the students being assigned to teams that would work together for the rest of the day. These teams would then compete together in a volleyball tournament at the end of the day. Each team included four new student members and two current student members. This allowed the students to meet other students new to the university as well as interact with current students. In addition, the teams were multi-disciplined, so that the students would not cluster together and meet only the electrical engineers or the civil engineers, etc.

After introductions by the current students, the 40 new students each introduced themselves. This led directly into an ice breaker activity where the students played the game "Taboo" in their teams. The two top teams were awarded daily planners from the bookstore. Following a brief welcome and presentation by the Associate Dean of Student Affairs and Special Programs, a panel of current students was held. The panel addressed such topics as college life, student responsibilities and mistakes that can be avoided. The discussion soon branched into issues about residence life and academic scheduling.

During the lunch break, the students were given a "contact" activity in which they had to find other students in their discipline (current and new). This proved to be a very active lunch and gave the students an opportunity to meet each other and find things they had in common. The students were also asked to find someone else in their math class so that they would know one of their classmates.

In the afternoon, the students broke into groups to have smaller discussions. This was done to create a more intimate environment for the new students to ask questions that they may not have wanted to ask in the panel discussion. After the discussion groups, the CEMS students hosted a "CEMS INFORAMA" in an information fair style. Each group, including SWE and MEP hosted a table for a half hour session. During this time the new students could browse to each table and find out about the groups they were interested in.

At the end of the day, the students returned to their original teams and participated in a volleyball tournament at the Student Recreation Center. The students from the WISE Start Program were invited to participate as well. The tournament ended with awards and final announcements.

Orientation Evaluation

Although we do not yet have retention data to measure any change in the attrition rate of the new transfer students of CEAS, judging by the participation of students and parents and the evaluations of the sessions that were held, our first attempt at a more comprehensive orientation program was very successful. The same basic format for an Orientation Week will again be held next Fall 1996. The CEAS plans to participate again with some modifications based on our experience in Fall 1995.

The College Assembly was improved with the introduction of a video on CEAS and its student activities. The upbeat music background and race car demonstrations on the video were of particular interest to the students. The video will be expanded and improved for next fall.

The student panels were held on Monday afternoon. On Monday morning the students had attended a University Assembly, a College Assembly and a Departmental meeting to assist with the scheduling with classes. However, we learned that since many of the students had arrived on Sunday with their parents, we learned from talking with students and parents, that the students were concerned with buying books and completing their move on Monday afternoon. Based on this information and the smaller attendance at the student panel sessions on Monday afternoon, we plan to move the panels to a time later in the week. By talking with parents at a university reception held Monday evening, we also learned that students did not attend the session because they "already knew what they wanted to major in." Since we know that many

students change their major during their first two years of college, we intended the student panel sessions to give more concrete information to students about their choices within the CEAS. A few “undecided” students did attend the session and found it helpful. It is suggested then, that the panel members next fall discuss their majors more precisely and discuss what is required in an internship and what they actually accomplished in an internship or student project. As we evaluate these sessions, we are also considering changing the tone of the session to be more, “What You Need to Know to Survive in Engineering.”

The Internet and E-Mail session was attended by nearly 250 people in a room designed for much less. The sheer number of people in the room made it warm and uncomfortable, and the screens were in a poor vantage position for many of the people in the room. This session is of interest to many students, not just CEAS students, and should be of a hands-on nature for a student to really learn how to access the Internet and E-mail. Next year we plan to offer the class several times and to hold it in a engineering college classroom which has 40 computers and room for 80 people. The class will then be more hands-on, less talk and the students, by faculty request, will be able to sign up for their own computer accounts before they leave. As a result, the instructors of the “Introduction to Engineering” course hope that they will have to then spend a minimal amount of classroom time during the first week assisting students with the internet and e-mail.

The Project Management class was well attended and the room was packed with students sitting on the floor. A few students outside of the CEAS also attended the session. The session time should be lengthened by at least 15 minutes and it is imperative to have at least one or two helpers, in addition to the instructor, available to help the students during the session. It has been suggested that a simpler project management example be used, before the students tackle the main project.

The Time Management workshop was well attended and the students appeared to be able to work through the material in the time allotted. Next fall the students should be urged to bring their own class schedule to the session, which will be stated in the workshop description. The session is more meaningful if the student can work out his/her own actual schedule.

The Cornell Notes class was also well attended and a request for a larger room will be made for next fall. An additional 15 minutes was needed for the students to actually apply the notetaking technique and to feel somewhat comfortable with it.

The CEAS Student Leaders and Involvement session should be held during the beginning of the week in a time frame closer to other CEAS Orientation Sessions. We feel that more students would take advantage of this session if it is scheduled with the other CEAS Sessions. The information given by the student panel was considered to be excellent and useful by the students who attended.

The WISE Start Workshop was held the Saturday before the Fall semester began. A month earlier, all incoming freshmen and transfer women were mailed a letter informing them about the event. Fifty-five of the 125 women returned registrations. However, a disappointing 14 students actually attended. This was despite the fact that it was advertised that a \$129 scientific calculator would be given away to a participant. The low turnout may have been due to the program’s early start -- 8:00 a.m. In the future, the program will begin later, and the WISE Program will make an effort to personally contact the women and invite them to the event.

Participants’ evaluations of WISE Start were positive. However, since this was the first time such a program has been offered, and due to the small number of women participating, it is difficult to say what impact the program has had on retention. However, in the Fall of 1995, only half as many women (roughly 6 1/2%) dropped from classes in the first 21 days as in the previous year. It may be that while few women attended the orientation, all of the women knew about it and may have availed themselves of more WISE

resources as a result. The student chapter of the Society of Women Engineers (SWE) considered the workshop a great success since all 14 of the women who attended the workshop joined the SWE organization.

The CEMS Orientation Workshop program was set in motion to counteract the traditional high attrition rate of entering freshman or transfer students into this rigorous program. The high attendance of students into this module was credited to the personal phone calls conducted by the student members of CEMS. An additional feature of the high attendance was also due to the fact that students were not charged additional fees to attend the orientation. New students were able to listen to some candid assessments about the College of Engineering and Applied Sciences. Subjects that were covered included access to tutoring, cluster housing for engineering students, scholarships, industry interface, support for conference attendance, professional development workshops, and more.

The most important feature of the CEMS Orientation Workshop was the immediate development of a community. Students have communicated that coming onto the ASU campus was initially intimidating, but with the orientation prior to school starting the feeling of isolation was instantly dispelled. Throughout the day, the different means of communications, small groups, panel discussions, team competition and information dissemination were very effective in covering the needs and reducing the anxieties of each student there. Finally, the interaction and sponsorship by the CEMS students was absolutely vital to the success of the program.

Conclusions

The CEAS Orientation Program was judged to be successful. The success of this first attempt at an expanded Orientation Program was possible due to the excellent cooperation among the Dean's Office, including the Associate Dean for Student Affairs and the personnel who direct the Student Academic Services, Recruitment, the Women in Engineering Program, and the Office of Minority Engineering Programs in the CEAS and with the University Undergraduate Admissions Division who developed and coordinated the University Orientation Program. We plan to make modifications and improvements as discussed above and we will be looking at retention data to see if there is any measurable effect of the program. We will also seek additional data from student surveys and interviews on the impact of the program on a student's first year at our University. The new Director of Undergraduate Admissions plans again to hold an Orientation Week the week before Fall classes begin. It may be that after this next evaluation, the Orientation will be shortened by a few days.

References

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Biographical Information

MARY R. ANDERSON-ROWLAND is the Associate Dean of Student Affairs and Special Programs in the College of Engineering and Applied Sciences at Arizona State University. She earned her Ph.D. from the U. of Iowa. She is the director of a successful Graduate Career Change Program in IE and a frequent speaker on career opportunities for women in engineering.

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STEPHANIE BLAISDELL is the acting director of Women's Programs for the College of Engineering and Applied Sciences at ASU. Stephanie previously served as the assistant director for the program since its inception in 1993. Stephanie holds a master's degree in Counseling, and is a Ph.D. candidate in Counseling Psychology at ASU. Her research focuses on women's career development in non-traditional fields.

CATHERINE COSGROVE earned an MS in Environmental Resources from Arizona State University (ASU). She was the Director of Recruitment and Women's Programs for the College of Engineering and Applied Sciences at ASU. She designed and implemented programs to attract, support and retain students to engineering and technology student programs.

PEGGY FUSSELL graduated from Northeast Missouri State University in 1973 with a BS in Education. She is the Program Coordinator for Recruitment in the College of Engineering and Applied Sciences at ASU. She coordinates all recruitment efforts, from the annual Engineering and Applied Science Days to individual tours and interviews for prospective students

MARY ANN MCCARTNEY graduated from San Jose State University in 1975 with a BS degree. While enrolled in a Masters program she joined IBM Corp. In 1986-88, she served as a corporate liaison between IBM and UC Berkeley in the Mathematics Engineering, Science Achievement program, afterwards assuming the position of Manager, Academic & Community Relations. She now serves as the Director of Minority Engineering Program in the College of Engineering at ASU.

MARIA A. REYES is a graduate of the Minority Engineering Program (MEP) at ASU, where she obtained a BS in Civil Engineering and is pursuing a Masters in Geotechnical Engineering. Her current assignment as Program Coordinator for the MEP at ASU has given her the opportunity to interact with students and offer assistance. The program has expanded and now includes a seminar course for minority freshman students that Maria teaches.