

## ADDRESSING TRANSFER STUDENT TRANSITION

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### Abstract

The University of South Alabama has implemented a comprehensive program for transfer students majoring in engineering, utilizing a community building model. A seminar has been created to familiarize students with university resources, academic success skills, and engineering productivity tools, such as Excel. The seminar also helps students recognize when they need assistance and how to effectively seek help. Group activities encourage the development of team skills and facilitate the formation of study groups. Faculty and student mentor triads are formed to further assist in the transfer process, providing an opportunity for direct interactions with faculty and upper-class students.

### Introduction

A comprehensive program has been developed at the University of South Alabama to address issues associated with the transfer process for engineering students. This student success initiative, USA-LINK, is an NSF funded program that stimulates enrollment, enhances retention in engineering programs at the university, and increases the technical workforce. Important lessons have been learned during the early stages of the program.

Transfer students are selected for USA-LINK on the basis of academic ability, motivation for studying engineering, and demonstrated financial need:

- Academic potential or ability evidenced by a combination of GPA and completion of calculus, chemistry, and physics coursework.
- Motivation and potential for professional success, evaluated through a statement of personal goals.
- Financial need, determined by the Financial Aid office, using the Free Application for Federal Student Aid (FAFSA)

Funding is available for 14 new students each year. Students are supported to completion of a Bachelor's degree, as long as they maintain full time status in an engineering major and continue to meet the requirements of the program (GPA, satisfactory progress, and participation in program activities).

The NSF funding provides 2/3 tuition scholarships and a laptop computer. The amount of the scholarship is especially significant for transfer students who often need to work to cover tuition costs. The program also includes a seminar for first time students and a mentoring program, to enhance the academic success of transfer students.

The USA-LINK seminar emphasizes academic success skills (such as time management and study skills). The students explore engineering majors through problem-based applications, gaining essential experience with engineering problem solving. The seminar also focuses on

social involvement and interpersonal skills. Students are introduced to career and research/internship opportunities and to job placement skills so they are well prepared to enter the technical workforce.

An important factor in student retention is the sense of community that a student develops, which is enhanced through the seminar. Each USA-LINK student is assigned a Peer Mentor and a Faculty Mentor. These triads meet regularly to assist in the student's transition to and involvement in the university.

## **Transition Issues**

The program has helped to identify issues facing transfer students. Surprisingly many of these students experience the same transition difficulties as entering freshmen students. For many students, even high academic achievers, the community college experience does not adequately prepare them for the rigor and pace in the engineering curriculum.

A focus group is held with the USA-LINK students at the end of the first semester. Specific issues that have been identified are: advising, faculty approachability, homework and exam frequency, campus resource availability, as well as personal/family problems. Some of these issues can be addressed by better advising. Hence we have identified a specific advisor in each department to deal with all the transfer students. Other issues are addressed in the success seminar so transfer students are more aware of university procedures and resources. We have recommended that all transfer students be offered the opportunity to take the seminar. We are also working with area community colleges to address these issues.

### **Advising**

Many transfer students have completed all of their general education courses when they enroll in a four-year institution, but have not satisfied the prerequisites for upper level engineering courses. To get "caught up" in the most effective way, advisors often suggest a course load of 4-5 STEM courses. However, this proves to be difficult for many of these students. The most effective advising occurs when a plan is developed for the student to graduate in the minimum number of semesters. Due to prerequisites and limited course offering each semester, this can be a challenging task. Hence each department at USA has identified at least one advisor who is very knowledgeable about transfer curricula. These advisors encourage transfer students to enroll in a minimal number of hours the first semester.

Transfer students often have families that add additional barriers for their success. They may have long commutes, because they do not want to relocate their families. Or they may be working to support their families or to pay for their schooling. An effective advisor can help these students balance competing priorities.

USA-LINK scholars contract to report any changes in personal circumstances. This helps the advisors address issues with the transfer students that will impede their success. The scholars also agree to participate in student activities, such as professional societies, which has been shown to be an effective tool in student retention.

### **Cooperation with Community Colleges**

In the focus groups, students have discussed a lack of information about USA programs, curricula, and transfer mechanisms. Hence, articulation meetings have been held the past two years with area community colleges. The meetings have been extremely well attended by representatives of more than 25 institutions, some from more than 150 miles away. Community college faculty need to be better acquainted with curricula for each engineering degree, so students are better prepared for the transition.

In addition, each LINK scholar is required to make at least one outreach visit to his/her home institution.

### **Student Success Seminar**

The Student Success Seminar is a required course for the USA-LINK Scholars and is modeled after USA's successful Freshman Year Experience classes for entering freshmen. However the Success Seminar is designed for sophomore/junior level students. The class meets once a week for 2 ½ hours in a lecture/lab format. The text used for the course is *Thinking like an Engineer* [1].

The course, which was first offered fall 2011 for twelve students, is designed to address issues that are essential for a successful transition to a four year program and on to the technical workforce [2]. These areas include: university requirements and policies, study skills, advising and curriculum requirements, career planning, oral and written presentation skills, and problem solving approaches.

The seminar also emphasizes using engineering tools such as free body diagrams, simple sketches, thermodynamic pressure volume (p-v) and temperature volume (t-v) diagrams, and Excel spreadsheets for data analysis. The students gain experience with collecting and analyzing laboratory data, as well as how to present and report the results.

Specific details of the Seminar were presented at the ASEE 2013 conference and can be found in the ASEE paper [3].

### **Community Building Model**

An important aspect of an education at a community college is small class size which facilitates the formation of study groups among students, who are generally enrolled in the same classes. In addition they have immediate access to faculty. When these students transfer to a larger four-year institution, they are often "lost in the forest." Many of USA's transfer students do not live on campus, and frequently commute more than an hour each way. Thus there is little opportunity for these students to develop a sense of community.

The student success seminar has been extremely effective in getting the students to work together. The small, intimate class (17 - 22) and the numerous group projects and activities lead to collaborative student interactions that last after the end of the class.

Another mechanism that promotes community building is the formation of Mentor Triads. Each USA-LINK student is paired with a previous USA-LINK scholar and a faculty mentor. These

triads meet to assist in the student's transition to the university. This is an opportunity for the students to develop relationships with faculty, which they perceive to not be as approachable as the community college faculty. The direct interaction with upperclassmen has been a very effective tool for helping the transfer students negotiate the hurdles that negatively impact a student's progress. These include class scheduling, with special attention to prerequisite "strings", coursework management, exam preparation, and campus resources.

## Results

The first students were accepted into USA-LINK for the fall semester, 2011. Two cohorts have entered the program since then – fall 2012 and fall 2013. On-going assessment of the program is being conducted to validate program outcomes. Assessment strategies focus on student recruitment, academic achievement, attitudes, and career options. Transfer student enrollment in engineering has increased 15% since USA-LINK was initiated. Some of the increase numbers can be attributed to additional outreach efforts at area community colleges.

Results from three classes of USA-LINK students indicate that the program has been successful in recruiting and retaining transfer students. USA-LINK has been especially helpful in recruiting female engineering students, who make up 1/3 of the LINK scholars. 85% of the initial class is graduating this year; 45% have participated in either internships or undergraduate research, and 40% of these students have been elected to the engineering honor society, Tau Beta Pi. These results attest to the individual success of the students as well as to the success of the program.

In addition to conducting the focus groups each fall with entering USA-LINK students, data is collected for each cohort of USA-LINK scholars. This data, which includes hours completed and GPA data, is compared to a control group, with comparable demographics, to evaluate the outcomes of the program.

Table 1 compares the LINK scholars (with entering GPAs > 3.2) to a comparable group of entering transfer students. The transfer GPAs are not significantly different for both groups. A significant difference is observed in the hours earned ( $p = .1$ ) in the first semester at USA. The striking difference is the number of non USA-LINK scholars who have left the university, nearly 45%, compared to only 13% of the USA-LINK students. The fact that 10 of 12 of the 2011 Scholars are graduating this spring, an 85% completion rate, is precisely the goal of USA-LINK, to increase the graduation rate for engineering transfer students. These students have also participated in undergraduate research (2), co-op training (2), and internships (1).

Table 1. Comparison of USA-LINK Scholars and Comparable Transfer Students

			Transfer	First Semester			
		#	GPA	GPA	HRs	Left USA	
2011	LINK	12	3.62	2.76	11.8	2	17%
	Transfers*	15	3.53	2.36	9.1	8	53%
2012	LINK	16	3.60	3.22	13.0	3	19%
	Transfers*	33	3.45	2.60	8.8	16	48%
2013	LINK	17	3.57	3.13	12.2	1	6%

Transfers*	22	3.46	2.66	10.5	6	27%
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\* Transfer students with entering GPA>3.2

## Conclusions

The USA-LINK program has identified issues that are barriers to the success of transfer students. However, as we continue to learn more about these students, we are uncovering new issues. Enhanced, invasive advising has been successful in higher retention of the USA-LINK scholars. However, these students have *significant* financial issues; the generous stipend for the scholars is a partial solution.

The combination of program activities – scholarships, seminar, triads, advising – have been extremely successful in increasing the graduation rate of students transferring into engineering majors.

## Acknowledgement

USA-LINK is funded by the National Science Foundation, Division of Undergraduate Education. S-STEM Award # 1060197

## References

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