

-----Support Unit Reviews-----

The Illinois Board of Higher Education requires a review of formally organized support units involved in the recruitment and retention of underrepresented groups. This year's review highlights units that improve the representation of undergraduate students for underrepresented groups in math, science, and engineering.

College of Liberal Arts and Sciences

Established in 1986, the Transition Program is a campus-sponsored academic support program designed to provide assistance to a group of 100 students admitted to the University of Illinois. Many factors are considered; placement is based on the strength of an applicant's high school background, including the degree of difficulty of courses selected, the record of academic achievement, and special or unique accomplishments both in and out of the classroom.

In cooperation with other units on campus, the Program provides a variety of services, such as:

- ❑ Training for personal computer use
- ❑ Tutorials
- ❑ Leadership conferences
- ❑ Supplemental instruction
- ❑ Mentor programs
- ❑ Workshops on test taking skills
- ❑ Career development activities
- ❑ Graduate and professional school conferences

The Summer Bridge Component

Each summer, 50 of the 100 students selected for the Transition Program are required to participate in a six-week residential summer session on the University of Illinois campus sponsored by the College of Liberal Arts and Sciences. The Summer Bridge Component engages these students in intensive coursework in mathematics, composition, and basic skills development. In addition, the participants are provided with a variety of cultural enrichment activities and orientation to University resources, support services, and campus living.

The Summer Bridge experience is provided at no cost to the students. Each participant receives institutional financial assistance to cover the cost of tuition, room, board, and books. In addition, with the exception of students who will participate in intercollegiate athletics and who are not eligible for such added financial assistance under National Collegiate Athletic Association regulations, each participant will receive a stipend of a modest weekly allowance and a lump sum payment at the end of the summer session.

Academic Year Component

Each fall, the successful Summer Bridge participants join the newly admitted 50 Transition freshmen, along with 100 returning sophomores to form the Transition Program population. Each of the 200 Transition students is immediately assigned a Graduate Advisor who is a graduate or professional student at the University. Each Graduate Advisor is responsible for providing academic, career, and personal counseling to a group of twenty students; each student is required to meet with his or her Graduate Advisor at least once a week. The Graduate Advisors, along with the Director and Assistant Director of the Program, carefully monitor the academic progress of the students regularly to ensure their success.

The goal of the Transition Program is to provide the students with a “home base” where they feel comfortable to ask questions, express their concerns, and receive the required support, advice, and encouragement to be academically successful and graduate from the University of Illinois.

The Program compares favorably with similar units on this and other campuses. In fact, a number of representatives from several schools (Oklahoma State, University of Missouri at Saint Louis, Greenville College, and Northern Illinois University) have visited UIUC to learn about the program. Also, the Bridge Program at Michigan State University invited the UIUC staff to come to their campus to discuss the design, activities, and history of the Program.

Throughout the academic year, the Program is constantly exploring ways to improve assistance to students. One improvement is that the staff carefully examines program evaluations at the conclusion of the Bridge Component and makes the needed recommendations for the following Bridge class. Due to the ongoing evaluations, a number of policy changes have been implemented. For example, students do not receive college credit for their Bridge coursework, a Parent Alumni Panel has been created as part of the Bridge Orientation, computer classes have been added to the Bridge curriculum, and all correspondence with prospective Bridge/Transition students is copied to the students' counselors.

Merit Program for Emerging Scholars in Chemistry, College of Liberal Arts and Sciences

The Merit Program for Emerging Scholars in Chemistry is an intensive program for minority students planning a career in science-based professions. The Program targets students in General Chemistry (101 & 102), the accelerated freshman sequence for Chemical Sciences majors (107-108), and the first-semester Organic Chemistry courses (231-236).

The main goal of the Merit Program is to develop a community of scholars among the participating students. The students help each other with difficult course problems, develop friendships based on common academic interests, and inspire each other to maintain a high level of commitment to excellence. The Merit Program is intended to increase the retention of minority students in the science/math engineering programs and to encourage students to consider graduate study.

The workshops utilize active-learning methods. In this model, students do both the learning and the teaching. The facilitator for the section stimulates student interaction by providing a challenging worksheet and by circulating around the classroom, giving positive feedback to the students as they work. The facilitator gives few answers on the mechanics of problem solving and instead, encourages the students to think out loud. Having different groups of students compare their answers further encourages student interaction. This stimulates additional interaction and, therefore, more thinking about course content. During each workshop, students work together in small groups on specially selected, challenging problems. While workshops are based on the same material covered in the lectures, they are designed to stretch each student's abilities to the fullest extent. The group activities and selected problems are designed to introduce concepts and academic practices that can be of significant value in graduate school or future career settings. Merit students attend the same lectures and labs as all students in the course and, in addition, meet weekly for two-hour workshop sessions, which provide ample opportunities for student-student interactions. Merit students earn a credit hour for the additional time spent in workshops and for the extra time expected of them to study in groups outside the classroom.

Merit students are performing better academically than minority students enrolled in the same courses who do not participate in the Merit Program. Further, Merit minority students perform as well as non-minority students in chemistry courses. Also, an esprit-de-corps develops in the group that encourages cooperative work outside the classroom and increases retention of these students in the scientific curricula. The Merit Program successfully combats the tendency for minority students to isolate themselves, especially in courses in which they are the extreme minority.

Department of Mathematics

Established in 1987, the Merit Workshop Program in the Department of Mathematics was designed to address the issue of underrepresentation in mathematics and science-based majors of minority students, students from small schools, and female students. Participants for the Workshop Program are recruited from high-achieving entering African-American, Hispanic, or female students who have graduated from small rural high schools. Students in this

group have traditionally been high-risk groups for failure in calculus. Selection is based on information contained in admission, including the student's choice of major and his/her Math ACT subscores. Program activities are centered on small group sessions in which students work together on specially selected, challenging problems. Participants attend the workshop for a total of six hours per week in addition to the three hours of lecture, and they also receive an additional two credit hours for their extra work.

College of Agricultural, Consumer and Environmental Sciences

Since 1987, the College of Agricultural, Consumer and Environmental Sciences (ACES) has sought to improve the representation and performance of undergraduate students underrepresented in math and science as related to disciplines in the food and agricultural sciences through an intensive recruitment and retention set of Diversity Initiatives.

For the purpose of this report, the Young Scholars Program (an academic enrichment summer program for entering ACES freshmen) and the Undergraduate Education component will be the primary topics discussed.

Effectiveness in Identifying and Serving Student Clientele:

The College of ACES provides opportunities for students to participate in an on-campus awareness program, the Research Apprentice Program, which is designed to educate students about educational programs and professional careers in food and agricultural sciences. Counselors and science teachers from 68 high schools in Chicago and East St. Louis assist the College in identifying potential candidates. During the spring of 2000, there were 200 applicants, and 316 applicants in 2001. Approximately 30-40 students are selected. A laboratory experience is provided the following summer to those students displaying aptitude and interest.

The Young Scholars Program invites applicants to the College of ACES from under-served groups to participate in an academic enrichment camp designed to improve math, science, and writing skills in preparation for the college freshman year.

Undergraduate Education

The Undergraduate Education component focuses on student retention. The program provides services to approximately 130 minority students (African-American, Latino and Latina, and Native American), other ethnic groups, and those students who identify themselves as economically or physically disadvantaged (approximately 180 students). All entering students are sent a letter informing them of the services provided by the College and the campus and

are invited to make an appointment to assess their academic needs. An academic plan is developed based on a series of meetings with each student.

Young Scholars Program

The goal of this program is to provide entering freshmen with an academically enriching experience that will serve to ease their transition from high school to college life, and thus enhance their performance during their freshman year. A five-year study of the Young Scholars Program students' fall 1995-2000 performance revealed a higher level of achievement compared with non-Young Scholars Program cohorts. Young Scholars Program students took an average of 16 credit hours with a GPA of 3.10, while non-Young Scholars Program students took only 14 credit hours at a GPA of 2.40 (4.0 = A, and 12 hours is full-time).

Undergraduate Education Component

The goal of this component is to improve retention and graduation rates of minority students. This is accomplished through a system of monitoring academic performance, intrusive counseling, leadership development activities, financial assistance based on merit, and assistance in locating internships and permanent jobs. Two graduate student counselors are employed, one by the College and the other by the Office of Minority Student Affairs. They provide academic support services to supplement faculty advisement as well as tutorial assistance and skill development, such as study and reading skills. As a result of these services, retention rates for minority students are level with those of the College's student body. It is noteworthy to report that over the past five years, minority retention (in the College of ACES) has increased from 50% to nearly 85% after one year of matriculation. Of the 2000-2001 minority student body, 20% appeared on the Dean's List, and 25% of sophomores and juniors qualified for the Undergraduate Research Program. Also, the distribution of undergraduate degrees conferred to minority students remains level over the past three years at 8% of total graduates. Note that in 1990, minority students comprised only 2% of undergraduate degrees.

Effectiveness in Use of Resources:

Since 1992, the College of ACES has employed an Assistant Dean responsible for coordination of the Diversity Program initiatives. He employs one graduate student to assist with academic and career counseling of minority students. It should be noted that the Office of Minority Student Affairs provides one additional graduate student assistant to the College. Approximately 50% of his time is directed toward the recruitment and retention of undergraduate minority students. In addition, approximately 10-15% is spent on scholarship and placement activities. Note that more than \$400,000 in grants from public and private sources has been obtained to support undergraduate education (i.e.,

scholarships, leadership development, and recruitment) as it relates to the underserved undergraduate student population in the College of ACES. Please refer to the "2000-2001 Illinois Board of Higher Education Program Inventory Report" for cost-effectiveness of students served, budgeted funds, and program staff.

Results to date demonstrate that the summer programs have been a wise investment with more than 400 students participating since 1988. Approximately 36% of these students have enrolled in the College of ACES and more than 68% have enrolled in a college program that focuses on math and science. A study conducted by the USDA indicated that the average recruitment from a summer program is 25%.

The impact of recruitment on the quality of minority students can be seen in the Fall 2001 admitted minorities. The average ACT is 24.4, and the average rank is 89th percentile. This represents one of the highest quality classes of minorities for the College of ACES.

Have Previous Evaluations Brought About Changes in the Unit's Policies & Operations?

The summer programs have changed based on both student and faculty evaluations. The Research Apprentice Program changed from four weeks to three weeks and developed two sessions. The activities during the summer were modified to include more hands-on activities and more computer skill applications. Teamwork is also now emphasized. The impact has been a larger pool of qualified students for the summer experience and the laboratory experience the following summer.

The Young Scholars Program has changed its focus from an academic and laboratory experience to academic performance. Students no longer work in laboratories; they now enroll in two classes, Math 112 and a writing and/or reading-related class. In addition, academic support is provided to enhance the summer learning process.

Undergraduate Education, in general, has maintained current policies and procedures. Some proposed changes involve a new emphasis on scholarships for top minority applicants and more opportunities for study abroad and internship experiences to enhance the undergraduate experience. The specific goals of the College as it relates to minority undergraduates remain the same:

- A. Increase the number of minority students studying at the undergraduate level
- B. Increase the quality of the minority students in the admitted pool
- C. Increase the academic performance and leadership development of minority students
- D. Increase the graduate rates of minority students

College of Engineering Academic Programs Office

The Academic Programs Office of the College of Engineering operates the Minority Engineering Program (MEP) as a component to enhance the success of its minority students. MEP is without a formal structure; that is, the MEP and Academic Programs staff are one in the same. Those members of the staff who monitor the progress of minority students also advise and work with the non-minority engineering students who seek support from the office.

During the past academic year, the office has focused on recruiting under-represented students by participating in the college fairs of the NSSFNS (National Scholarship Service) in Chicago and St. Louis. Also, the Academic Programs Office joined the Office of Admissions and Records to participate in counselor orientations and meeting student groups brought to campus. In addition, they worked with student organizations to host high school juniors for a weekend program called "High School Visitation." These sessions resulted in contact with over 300 students and many of their parents.

Once students have been admitted to Engineering, they are contacted about participating in the IMPRINT (Illinois Minority Pre-College Internship) program. Those that respond and complete an application have the opportunity for their forms to be reviewed by employers who could offer summer positions. Some applicants are invited to participate in laboratory experiences on campus. In the summer of 2000, ten new students interned in the IMPRINT program, with four taking positions on campus.

In addition to the IMPRINT program, Engineering utilizes the Summer Research Opportunity Program through the Graduate College to help recruit potential graduate students. In particular, students from other campuses are invited to spend the summer in one of the research laboratories. This effort yielded 16 students in either on-campus laboratories or at the USA-Construction Engineering Research Laboratory.

The quality of underrepresented students in the College has been improving annually and the result is an awards banquet that grows larger each year. The banquet draws a number of alumni, industry representatives, and University of Illinois staff to an evening of interaction with the undergraduates. Naturally, the focal point is awards, but this also becomes a time to promote academic excellence.

Worldwide Youth in Science and Engineering (WYSE)

The WYSE student clientele are high school students identified by their high school teachers as being interested in science and engineering. WYSE provides 2 two-week residential summer programs to give college bound high school students a preview of the engineering and science majors. Students learn through interaction with faculty, graduate and undergraduate students, and professional engineers. WYSE also provides the Academic Challenge testing, designed to test the best and brightest high school students. The purpose is to recognize student academic achievement, allowing students to compare their abilities with other gifted students.

WYSE has been very successful as far as student participation in its programs. Approximately 100 students attended the summer programs during 2000-2001 and this year the Program will host approximately 140 students. The Program is non-academic in that it does not offer off-the-shelf or remedial classes, nor are students graded during the Program. The projects that are offered intend to foster team growth and provide examples of hands-on engineering-related activities. More than anything else, the purpose is for participants to leave the program as customers of education rather than passive recipients of the educational process. The goals of the Program are achieved through scheduled sessions with the College of Engineering faculty, demonstrations and hands-on labs, seminars with undergraduate students and professional engineers, and a specially tailored Career Guidance session coordinated by the graduate students who offer the Educational Psychology course for undergraduates.

Approximately 600 high schools in the state of Illinois participate in the Academic Challenge, and this past year, 25 schools from Missouri also participated. Approximately 7,500 students are involved in this testing. These tests conform to the Illinois State Board of Education Learning Standards and subject areas include mathematics, biology, chemistry, physics, english, engineering graphics, and computer fundamentals.

The unit has a Board of Advisors that consists of industry executives, university representatives from engineering schools in Illinois, and high school teachers. The Board evaluates the programs twice a year and reviews the unit's goals and objectives. It also advises the director of findings and recommendations for changes.

Women in Engineering Program

The Women in Engineering Program was formally created in 1995 with a full-time director hired in the fall of 1996. The percentage of women in Engineering at the University of Illinois at Urbana-Champaign has grown from 15% to 19% since that time. The mission of the Women in Engineering Program is to create a

climate conducive to academic pursuit and personal growth that allows for equal opportunities for women in engineering education. The WIE Program participates in outreach and recruitment programs of the College of Engineering in addition to sponsoring the following programs: Engineering Advocates; GAMES, a Camp for Middle School Girls in Science, Engineering, and Mathematics; and Merit Awards.

For female students enrolled in engineering-related disciplines at the University of Illinois, WIE provides access to counseling, advising, and other services related to personal, academic, and employment matters. The WIE Mentoring Program links first-year female students with upper-class women, graduate students, and faculty. Workshops are held on various topics, including classroom climate for student and faculty. An electronic newsletter is published monthly, and a WISE-List serve is available to all women enrolled in mathematics, science, and engineering disciplines at the University of Illinois.