

Development of a Bachelor of Science Degree Program in Horticulture at the University of Florida for Place-bound Students

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SUMMARY. As the horticulture industry enters the 21st century, advances in horticulture science will continue to be more rapid and frequent creating the need for more innovative approaches in information delivery. Moreover, decentralization continues to be a widespread trend. Land-grant universities have a long tradition of providing outreach, but with the development of new telecommunication technologies, larger audiences now can be reached. Many universities throughout the world have developed distance education programs through the use of modern telecommunication technologies. However, the University of Florida has responded to the needs of place-bound students by developing off-campus resident Bachelor of Science (BS) degree programs in horticulture at three locations in the state. These off-campus programs combine on-site instruction augmented with distance education courses to give

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place-bound students a flexible, efficient, and interactive alternative to degree programs offered at the main campus.

The rapid and frequent advances in horticulture science have created a need for continued training and retraining of individuals. In addition, decentralization continues to be a widespread trend that is creating some regionally unique populations throughout the world (Naisbitt and Aburdene, 1990). These factors have contributed to the need for educational programs designed to reach students who do not have access to traditional resident instruction programs because they are place-bound as a result of work, family, or other responsibilities. The development of educational programs for place-bound students is not a new concept (Drake and Zidon, 1995). Distance education programs have evolved from individual correspondence courses to more advanced telecommunication courses (Jackson, 1994). In fact, numerous land-grant universities in the United States have developed distance education learning systems in agriculture. For example, 48 land-grant universities and government agencies belong to AG*SAT (Agricultural Satellite Corp., Lincoln, Nebr.) which conducts agriculture information and instruction using satellite telecommunication technologies (Jackson, 1994).

The benefits of using distance education to deliver agricultural education programs include reaching larger audiences, increasing public interest, and increasing the availability of educational opportunities (Jackson, 1994; Murphy and Terry, 1998). However, distance education programs are only one means to deliver educational programs (Telg and Cheek, 1998). Very often with distance education programs, it is assumed that if students can hear and see the information then they must be learning (Murphy, 1996). Furthermore, interaction between students and teachers is not always a high priority when using distance education technologies (Drake and Zidon, 1995). Other concerns include lack of time to develop good programs; lack of technical support, equipment, and properly designed facilities; and the cost of delivery (Murphy, 1996; Murphy and Terry, 1998; Nichols, 1993).

The challenge to horticulture educators is to deliver quality programs to place-bound students with diverse backgrounds and interests as well as to deliver relevant material to these students (Jones, 1993). Off-campus resident degree programs can help to meet this challenge by combining 1) courses taught by faculty at off-campus locations situated in or near major population centers or near concentrated agriculture production areas, 2) distance education courses using various telecommunication technologies, and 3) courses offered by the Internet, electronic mail (e-mail), and /or videotape.

The University of Florida is not unique in offering a bachelor of science degree in horticulture at off-campus locations. However, unlike the University of Nebraska or the University of Wisconsin that have a multiple campus system with each campus being a separate self-contained unit, the University of Florida's off-campus degree programs are not administered at the off-campus sites. Each off-campus location in Florida handles the on-site instruction and the daily student activities, but student registration, fee payment, financial aid, and other student support activities are handled by personnel located at the main campus in Gainesville.

Description of programs at the University of Florida

The University of Florida, as Florida's land-grant university, has a statewide mandate to serve all of the people in Florida. In 1984, the state legislature authorized the University of Florida to establish its first off-campus degree program in environmental horticulture, in Fort Lauderdale, 325 miles (523 km) from the university's main campus in Gainesville. Fort Lauderdale was chosen because 1) it was located within a densely populated metropolitan area of 4.5 million people, 2) it was located in a region having a large concentration of commercial agricultural plant production facilities whose employees would benefit from having academic opportunities, and 3) the University could use the existing research center in Fort Lauderdale to house the facilities necessary for an academic program (Verkade et al., 1988).

The Fort Lauderdale program was developed as a partnership among the local community colleges, Florida International University in Miami, and

Florida Atlantic University in Boca Raton, Fla. The first class of five students began in fall 1984. Currently, about 100 students at Fort Lauderdale are enrolled who can earn BS degrees with majors in environmental horticulture, turfgrass science, or entomology.

In 1992, a second off-campus BS degree program in natural resource conservation offered course work in Milton, a suburb of Pensacola. In 1995, BS degrees in environmental horticulture and turfgrass science were added. The program in Milton was established in cooperation with Pensacola Junior College and the University of West Florida to meet the need for graduates in environmental horticulture and natural resource conservation (Spence, 1997). Currently, about 50 to 70 students are enrolled at Milton.

In 1997, the legislature authorized a third off-campus degree program at the Indian River Research and Education Center in Fort Pierce in cooperation with Florida Atlantic University and Indian River Community College (Beauchamp, 1997). Students began taking courses in fall 1998 at Fort Pierce. Currently, there are about 70 to 80 students enrolled who can earn BS degrees in agribusiness management or horticultural science.

In addition to the three off-campus degree programs, the University of Florida also offers distance education classes via videotape, satellite, the Internet, and compressed video at other research centers in the state. Currently, students can participate in distance education classes offered at the Southwest Florida Research and Education Center in Immokalee, the Tropical Research and Education Center in Homestead, or the Mid-Florida Research and Education Center in Lake Alfred.

Advantages and challenges of the University of Florida's off-campus programs

There are many advantages to creating off-campus degree programs in states where major metropolitan and agriculture enterprises are located great distances from the land-grant university's main campus. Courses offered by the College of Agriculture at the University of Florida via distance education or on-site instruction at one of the off-campus centers have the same content and prerequisites as those offered at the Gaines-

Table 1. Comparison of student evaluations of instructor, course, and laboratory for three University of Florida locations: off-campus, the Horticulture Department on the main Gainesville campus, and the College of Agriculture on the main Gainesville campus. Values are based on a 5-point scale with 5 = excellent and 1 = poor.

Overall evaluation	Off-campus ^z	Gainesville Horticulture Dept.	Gainesville College of Agriculture
Instructor	4.73	4.51	4.30
Course	4.60	4.45	4.12
Laboratory	4.50	4.53	4.30

^zFrom Fort Lauderdale campus.

ville campus, giving continuity to the statewide program. Furthermore, student evaluations of professors and their courses taught at the off-campus locations have the same range of ratings as professors and courses taught on the main campus (Table 1).

Being a Gator, the University of Florida's team mascot, is one reason students enroll in University of Florida off-campus courses (Spence, 1997) in addition to receiving a BS degree with all of its rights and privileges from the University of Florida. Upon completion of a program at one of the off-campus locations, a BS degree is awarded by the University of Florida, not the off-campus location. Students can attend commencement ceremonies at the Gainesville campus and in some cases, the trip is their first to the Gainesville campus.

The off-campus degree programs can also offer smaller class sizes and better faculty to student ratios, giving students more direct contact with instructors (Table 2). For example, in Gainesville, 60% of the classes taken by the graduating class in spring 1995 had about 61 students and these classes were considered relatively small (Office of Institutional Research, 1995). However, at the off-campus locations class size ranges from 3 to 20 students.

Specific elective courses at off-campus locations can take full advantage of

the uniqueness of their geographic location and local opportunities. For example, a course in palm (*Palmae*) culture and production is offered at Fort Lauderdale that takes advantage of the greater species diversity for this plant group in southern Florida. This course also helps many southern Florida growers who work with palms and other subtropical crops. Such a course would not be possible in the more temperate Gainesville and Milton locations.

Many students taking courses at the off-campus centers have significant educational or experiential backgrounds that can be incorporated into class discussions for further enrichment (Duke et al., 1994; M. Thetford, personal communication). About 85% of the students enrolled in classes at Fort Lauderdale are already employed in the horticulture, turf, or pest control industries (Beauchamp, 1997). However, because a large percentage of students taking course work at the off-campus locations work, their semester credit loads are smaller and it takes them longer to complete their degree than students in Gainesville (Table 2).

A challenge for the off-campus degree programs is providing all of the upper division courses required for a degree. With the introduction of distance education courses via satellite video transmission in 1993, e-mail courses in 1994, and compressed video (interac-

tive video conferencing) courses in 1998, the off-campus degree programs have been able to offer a wider range of academic courses. These distance education courses were originally limited for the most part to elective lecture courses designed to increase the breadth of course offerings. However, since 1996, two required courses (General Horticulture lecture and laboratory; Horticulture Physiology lecture only) in the environmental horticulture major have been offered via interactive video conferencing technology. Initially, a common concern expressed by students about all of the distance education courses offered was that they found it difficult to communicate with the professors teaching these courses because the instructors offices were located in Gainesville. The development of student computer laboratories at the off-campus locations, however, has given all students access to the Internet and e-mail. Questions now can be easily handled via e-mail messages between professor and student.

Another concern about the use of distance education courses was the limited interaction between the Gainesville-based professor and the off-campus students. However, some of the Gainesville-based professors have begun scheduling one to two visits a semester to the off-campus locations so that they can meet their students face to face. Furthermore, teaching teams between Gainesville faculty members and off-campus faculty members have been proposed for future distance education courses as a way to increase professor-student interaction. The Gainesville professor would have the responsibility for developing the lecture material while the off-campus professor would develop a site-specific laboratory and help to answer student questions.

The biggest challenge for off-campus degree programs in Florida is public

Table 2. Comparison of University of Florida off-campus resident degree programs with the main Gainesville campus. Values are averages over the 1997-98 academic year.

Parameter	Off-campus ^z	Gainesville
Class size	2-20 students	15-60 students
Faculty to student ratio	≈1:11	≈1:30
Student median age	38	22
Full-time students (>12 credit hours/semester)	30%	90%
Part-time students (<12 credit hours/semester)	70%	10%
Course delivery	On-site instruction; interactive video conferencing; video tape; e-mail	On-site instruction

^zIncludes the off-campus locations at Fort Lauderdale and Milton.

awareness and student recruitment. However, using mass media, including announcements on public radio stations, and active recruitment have helped the off-campus programs. For example, one of the public radio stations serving southeastern Florida uses the phrase, "You don't have to go to Gainesville to be a Gator" when it introduces course announcements. However, only 19% of students enrolled at one of the University of Florida's off-campus programs learn about the program from advertisements (M. Thetford, unpublished data). About 25% of students learn about the off-campus programs from local community colleges having articulation programs with the University of Florida, 8% learn about the program from talking with current students and the remaining 48% learn about the program through other means, including high school counselors, cooperative extension programs, and University of Florida faculty members (M. Thetford, unpublished data).

Conclusions

Off-campus academic programs offered by land grant universities can serve the emerging needs of place-bound students by offering courses and stand-alone degree programs that do not require travel to a main campus. This enables the place-bound student to increase knowledge and skills necessary for professional advancement or for personal interest. A study conducted by the College of Agriculture at the University of Florida in 1996 (J. Osmond and T.S. Hoover, unpublished data) concurs with findings from Coulter et al. (1990) that there are roughly 48,000 annual openings for college graduates with expertise in food, agriculture, and natural resource and only 43,500 qualified graduates. The off-campus degree programs offered by the University of Florida are increasing the number of qualified graduates in horticulture and related subjects. They also are helping adults further their education for professional advancement, personal interest, extension work, or continuing education credits.

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