ACCEPtS: An Alliance for Cooperative Course Sharing in the Plant Sciences

Michael R. Evans^{1,5}, Richard Harkess², Jeff Kuehny³,
and Janet Cole⁴

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With reductions in resources available for teaching and the loss of faculty teaching positions over time, curricula in the plant agricultural sciences have been under significant pressure (Robertson, 2006). In many cases, course offerings were downsized, and very often when faculty positions were not filled, or filled under a different job description with a research emphasis, courses were eliminated (Harl, 2003). This phenomenon has resulted in less diverse and thorough curricula in the undergraduate plant agricultural sciences at many universities. Colleges of agriculture often have had difficulty in offering important core classes (e.g., plant physiology, plant nutrition, and plant anatomy) that serve as the building blocks for more advanced classes. This has been particularly true for smaller colleges of agriculture that have fewer faculty and teaching resources from which to draw. As science and job markets have changed, the need for new courses and changes to curricula to address these emerging issues has arisen. However, with limited faculty and resources, many colleges of agriculture have often been unable to develop and to offer courses to meet new educational needs or priorities (e.g., water management, international agriculture markets, and secondary uses of plants). Additionally, some courses, although very important to the plant agricultural science curriculum, often

have had low student numbers per class (sometimes by design or necessity) and have thus been considered an inefficient use of teaching resources.

To address these problems, the University of Arkansas, Louisiana State University, Mississippi State University, and Oklahoma State University (participating institutions) created the Alliance for Cooperative Course Exchange in the Plant Sciences (ACCEPtS). The ACCEPtS program served as the mechanism for the participating institutions to share teaching resources and to use those teaching resources to develop, maintain, and share courses in the plant agricultural sciences. By participating in this course exchange program, the institutions were able to reduce course duplication, offer students courses taught by experts in the subject matter, jointly develop core courses as well as courses related to emerging issues that they would otherwise have been unable to offer students, and increase the efficiency with which they used teaching resources. Sharing of courses through ACCEPtS allowed each institution to maintain significant flexibility and to use the courses as best serves the needs of their respective students and institutions.

Materials and methods

To initiate the ACCEPtS program, an operating agreement was developed by the participating institutions that delineated how the institutions would interact, institutional responsibilities, and the responsibilities of the ACCEPtS Coordinating Committee, which was charged with managing the program. The Institute for Academic Alliances [IAA (Kansas State University, Manhattan)] worked with ACCEPtS as a contracted partner. Using their specialized Expansis software, IAA provided unified course enrollment information, invoices for tuition billing among the institutions, grade dissemination, and annual reports.

Although the ACCEPtS Coordinating Committee (composed of two representatives from each of the participating institutions) was responsible for overseeing operations according to the ACCEPtS by-laws, IAA handled the mechanics involved in course sharing and information exchange.

Courses that were shared among the institutions were referred to as ACCEPtS courses. Students registering for an ACCEPtS course being taught by faculty at an institution other than the student's home institution were referred to as ACCEPtS students. All ACCEPtS courses were listed by each participating institution according to that institution's catalog name and number. Each institution decided the appropriate course level and numbering system for each course based upon the syllabus and course description provided by the instructor. Each institution approved the courses and included them in their respective catalogs and used the courses in their respective curricula as each department chose. Therefore, departments within the plant sciences had the flexibility to use the courses as best served the needs of their institutions and students.

Because students registered for ACCEPtS courses at their home institution and under their home institution's catalog numbers, these courses were considered to be on-campus resident courses and problems related to the transfer of courses or courses taken late in a student's career being taken off-campus were avoided. Students paid tuition at the rate at which they would pay for traditional on-campus courses at their respective institution. Although students at different institutions paid different tuition rates for the same course, the tuition was the same as if the courses were taught on-campus with traditional delivery methods.

All student policies related to registration, withdrawals, tuition refunds, discipline, and appeals were those of the student's home institution. During the first four semesters of operation, only two issues occurred. These issues were handled through discussions among the instructor, the instructor of record at the receiving institution, and the student. In these cases, the issues were resolved. If the issues had not been resolved, the instructor or student would have had the option of pursuing the grievance or disciplinary action

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¹Professor, Department of Horticulture, University of Arkansas, Fayetteville, AR 72701

²Professor, Department of Plant and Soil Sciences, Mississippi State University, Starkville, MS 39762

³Professor, School of Plant, Environmental and Soil Science, Louisiana State University, Baton Rouge, LA 70803

⁴Professor, Department of Horticulture, Oklahoma State University, Stillwater, OK 74078

⁵Corresponding author. E-mail: mrevas@uark.edu.

according to the policies established by the student's home institution.

Enrollments for ACCEPtS courses from each institution were reported to IAA using the Expansis software, which then transferred the enrollment to the teaching institution under the teaching institution's course number. Thus, the teaching institution and instructor received a unified enrollment under a single course number. Final grades were reported by the course instructor to IAA, which disseminated the grades to each student's home institution, to a designated instructor of record, under the course number that the student was registered. Therefore, from a student perspective, only the content delivery was different from other traditional on-campus courses for which the student registered.

Tuition collected from students participating in ACCEPtS courses was distributed in one of two ways. In cases where the teaching and receiving institution were the same (e.g., student taking the class as a traditional on-campus course), all tuition funds (100%) remained with the teaching institution. This avoided various legal issues faced by certain states with respect to the transfer and use of funds. In all other cases, 65% of tuition collected for ACCEPtS courses was transferred to the teaching institution. The student's home institution (the receiving institution) retained 15% of the tuition funds. The ACCEPtS program received 20% of the tuition collected for ACCEPtS courses. These funds were used to pay for services provided by IAA and to support future course improvements or the development of new shared courses to meet emerging needs. The institution teaching the course received the credit for generating the student credit hours for all students enrolled in the courses.

Because all courses were unique and could be best served by different delivery systems, the delivery method for each course was decided upon by the course instructor, with the approval of the ACCEPtS Coordinating Committee. During the first three semesters that the ACCEPtS program offered shared courses, instructors used a wide variety of tools to develop and disseminate their course content. Among the tools were custom developed websites, Camtasia-based presentations (TechSmith, Okemos, MI), narrated Powerpoint presentations (Microsoft,

Redmond, WA), recorded lectures, blogs, Tegrity (Tegrity, Santa Clara, CA) chat sessions, and discussion boards. All instructors used some type of course management system [e.g., Blackboard (Washington, DC), Moodle (Perth, Western Australia), and Desire2Learn (Kitchener, ON, Canada)] to communicate with students, maintain enrollments, and post grades. Students were provided identification names and passwords as well as on-line training so that they could access and use the teaching institution's course management system. Testing was typically accomplished using course management systems in combination with lockdown browsers and local proctors.

All of the participating institutions were on a semester system but varied in their academic calendars, and this issue was addressed on a course-by-course basis. Some courses were designed so as to allow students to proceed at their own pace. Other courses were more structured with more synchronous or time-dependent activities. Each instructor took these issues into account when designing the course, and the ACCEPtS Coordinating Committee reviewed and approved the solution for each course. Essentially, each instructor worked with the ACCEPtS Coordinating Committee to determine the most effective method of delivering course content to meet the needs of the students at each institution and to insure that equivalent content was delivered as would be delivered in a traditional classroom-based course. In practice, instructors chose to begin their classes on the date that the latest starting institution begins classes and to end their classes on the date that the earliest ending institution ends classes.

Results and discussion

The first nine courses developed by ACCEPtS included: 1) Greenhouse Management, 2) Greenhouse Management Laboratory, 3) Organic and Sustainable Horticulture, 4) Sustainable Nursery Production, 5) Temperature Stress Physiology, 6) Horticulture Crop Physiology, 7) International Horticulture, 8) Plant Growth and Development, and 9) Sustainable Landscape Design. The participating institutions began sharing courses through the ACCEPtS program in Fall Semester 2009. By the end of Fall Semester

2010, eight of the nine courses had been taught at least once. A total of 320 students enrolled in the ACCEPtS courses for a total of 888 credit hours.

To evaluate the efficacy of the ACCEPtS courses, pretests and posttests were used as an assessment tool for several of the courses. Both tests were multiple-choice exams and all students at all the participating institutions completed the pretests and the posttests. The average Greenhouse Management pretest score was 49%, and the average posttest score was 82%. The average Sustainable Nursery Crops Production pretest score was 45%, and the average posttest score was 65%. The average Horticulture Crop Physiology pretest score was 59%, and the average posttest score was 75%. The number of students correctly answering a given question increased for all test questions in each of the courses. Therefore, significant student learning occurred as a result of the courses.

The ACCEPtS program was designed for future growth. Proposal forms were developed that allow instructors or institutions to either propose or request the development and sharing of new courses by the participating institutions. During the next year, the participating institutions plan to develop and share courses in advanced plant breeding as well as vegetable crops production. The ACCEPtS program was also designed to allow other additional institutions to join. Institutions have the option of joining the ACCEPtS program as a Full Member or as an Affiliate Member. Full Members are required to approve and agree to the by-laws and to both teach and receive at least one ACCEPtS course per year. Affiliate Members must agree to the ACCEPtS by-laws but are required to receive only one ACCEPtS course per year.

Literature cited

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