

Experiential Learning Opportunities for Career Preparation of Animal Science Students

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Summary and Implications

Most students enroll in a baccalaureate degree program to obtain a formal education that will increase the likelihood of their obtaining employment that is challenging, rewarding, and satisfying. A student's formal education becomes more meaningful when coupled with hands-on, industry-relevant training such as an internship or part-time job. We describe herein a multi-pronged strategy that we have employed to encourage undergraduate students to participate in an experiential learning opportunity as a part of their formal education. Based on student feedback and the high placement rate of our students, we conclude this approach has been highly effective.

Introduction

During the past 20 years, undergraduate student enrollment in the animal science department has grown 67% from 552 students (fall semester 1991) to 926 students (fall semester 2011). During that same time period, there also has been a marked shift in the background/ origin of animal science students. In fall of 2000, for example, 70% of students self-reported coming from a farm or possessing some agricultural background. In fall of 2011 approximately 60% of students self-reported their background as coming from medium- and large-sized urban/metropolitan areas; less than 50% of students possessed any farm or agricultural background.

The number of students who have entered animal science degree programs (animal science, dairy science, and associated pre-veterinary medicine programs) with minimal to no hands-on practical experience working with animals has skyrocketed. Increased pressure has been placed on the animal science department to provide meaningful, industry-relevant animal handling/learning experiences. It has been challenging to fulfill these educational needs during times of rapidly rising student enrollment. As a result of increased enrollment, the number of students per laboratory section in animal science courses has increased, leading to decreased opportunity for hands-on learning.

Experiential learning is used here to describe the active engagement of students in a hands-on learning activity that enables them to create connections between their prior

knowledge and their recent educational activity. Experiential learning emphasizes the creation of new (or revision of prior) knowledge through the cognitive process of critical reflection. Students analyze their prior and recent learning experiences with the goal of creating individual significance for their recent learning activity.

The objective of this report is to inform readers of the multi-pronged efforts being utilized in the animal science department's career preparation course (AnS 311 Career Preparation in Animal Science) to inform students of experiential learning opportunities in which they may participate as a means to augment their formal classroom training. The goal of these activities is to better prepare students for their future careers in the field of animal science.

Materials and Methods

The AnS 311 career preparation course was offered for the first time in fall semester 1997. The course evolved from an 18-month animal science faculty effort (led by Dr. Brad Skaar) to develop a curriculum based on specific student learning outcomes. The AnS 311 course has been taught every fall and spring semester since its inception.

AnS 311 is a 1-credit course offered to students only on a satisfactory-fail grading basis. The prerequisite for the course is junior classification, and the course meets for two hours one day per week for ten weeks. During the remaining five weeks of the semester, students are encouraged to meet individually with the course instructor to discuss their short- and long-term career goals. These one-on-one meetings are intended to augment career discussions students have with their assigned faculty academic advisor.

Students receive instruction on how to prepare a cover letter and professional résumé as a part of the AnS 311 course, and they are subsequently required to submit theirs to the course instructor for review/critique. The cover letter and résumé are documents that students need to apply for virtually all internships and job shadowing experiences. Requiring students to prepare a cover letter and résumé removes the lack of those documents as an obstacle to students' securing a relevant experiential learning opportunity.

Seven different approaches are used in the AnS 311 course to expose animal science students to potential experiential learning opportunities, each of which will be described in the ensuing text.

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Iowa State University Career Management Service (ISU CMS) System

During fall semester 2003, the College of Engineering at Iowa State University (ISU) began using an on-line system to advertise to their students the availability of internships (experiential learning opportunities) and post-graduation employment opportunities. Less than two years later (April 2005), the ISU College of Agriculture & Life Sciences began offering the same system, known as the ISU Career Management Service (CMS) System, to its students and alumni.

To ensure that animal science students are fully aware of the availability and capabilities of the ISU CMS system, Mike Gaul (director of Agriculture and Life Sciences Career Services) is invited to give a guest lecture in AnS 311 to teach students how to: 1) register to use the ISU CMS system, 2) upload a resume and/or cover letter into ISU CMS, and 3) search and apply for available experiential learning opportunities. Students are also given a homework assignment to log on to ISU CMS and identify at least one internship to which they are eligible to apply. Instructing students how to use the ISU CMS system and asking them to navigate through the system to complete the homework assignment ensures that all students know how to use the system.

Student Internship Presentations

Several animal science undergraduate students elect to participate in formal, for-credit supervised internships through the AnS 399 Internship in Animal Science course. One of the requirements for the internship course is that AnS 399 students must give a 10-minute presentation to their peers upon completion of the internship. Each semester, up to eight AnS 399 interns are invited to give their required internship presentations to students enrolled in AnS 311. (Interns also give presentations in other animal science courses.)

The AnS 399 interns are specifically instructed to address how they obtained the internship, what was expected of them during the internship, and what they learned from their experience as an intern. The goals of having interns speak to students enrolled in the career preparation course are to: 1) inform AnS 311 students of the availability of the internship program in the animal science department, and 2) to excite AnS 311 students about the myriad of experiential learning experiences in which their peers have participated. Experience has shown that it is often more effective for students to encourage their peers to participate in internships than it is for faculty advisors to encourage participation.

The interns' slide presentations are posted on the animal science department internship web site, and AnS 311 students are given the link (URL) for their use during the current and subsequent semesters.

Science With Practice (SWP) Program Overview

For many years, Iowa State University of Science and Technology had as its tag-line "Science with Practice". During spring semester 2005 Dr. Michael Retallick of the Agricultural Education and Studies Department in the College of Agriculture & Life Sciences at ISU launched the Science With Practice (SWP) experiential learning program.

The SWP program consists of a 2-credit course (AgEdS 312) where students are paired with an ISU faculty or staff mentor who supervises the student's experiential learning program. Students are expected to conduct up to 15 hours per week of experiential learning activities, log their activities on a weekly basis, develop a portfolio resulting from their activities, and prepare and present a poster at the end of the semester that details their SWP experiences.

The graduate students who oversee the day-to-day operation of the SWP program are invited to make a presentation to AnS 311 students to inform them of this experiential learning opportunity. Students interested in learning more about SWP give their e-mail address to the SWP team (who in turn e-mails students more specific information about the SWP program). The SWP team's presentation is posted on the AnS 311 class web site, and the AnS 311 students are also given the link (URL) to the SWP program.

Ag Career Day

Iowa State University organizes and hosts one of the nation's largest university-based agricultural career fairs (approximately 175 employers participated in fall 2011). Ag Career Day was originally organized by former Ag Career Services director Dr. Roger Bruene, and it has been held each fall semester since its inception in the 1980s. Under the leadership of current Agriculture and Life Sciences Career Services director Mike Gaul, Ag Career Day recently was expanded to include a spring semester career day event. Employers from throughout the United States are invited to Ag Career Day to showcase the experiential learning and post-graduation employment opportunities they have available. Many of these employers remain on campus the following day to conduct interviews of students who apply for the internship and full-time employment opportunities. In fall 2011, for example, 63 employers scheduled 636 individual interviews.

Students are introduced to this career event in AnS 311 when Mike Gaul presents an overview of Ag Career Day and provides students with the Ag Career Services web page that has a link (URL) for each industry and government employer who will be present at Ag Career Day. This web page is provided so that students are able to prepare for the event. Students can learn about the employers, the internship and employment opportunities they offer, as well as background information about the products and services provided by those employers. Having this background information allows students not only to become more

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familiar with the agricultural industry as a whole but also to better prepare for interviews.

Although students enrolled in AnS 311 are not required to attend the Ag Career Day (because of other obligations that may preclude their attendance), they are strongly encouraged to do so.

Part-time Job/Internship/Full-time Job Listings

The undergraduate teaching program in animal science is headquartered in 119 Kildee Hall. One of the activities of the animal science department undergraduate teaching program coordinator is to serve as a “gatherer” of advertisements for part-time jobs, internships, and full-time post-graduation employment opportunities. These opportunities are available through major agricultural industry partners, local farmers, government agencies, and university-based research laboratories. Advertisements for these opportunities are placed into 3-ring binders that are kept in the student reading area within 119 Kildee Hall. As space permits, many of them are also posted in the glass display cases in the hallways outside of 119 Kildee Hall.

Although some students may be made aware of these opportunities through their faculty academic advisor (via e-mail or personal discussions), students enrolled in AnS 311 are informed of the existence and location of these notebooks. Students are explicitly instructed to browse through the internship and part-time job announcements to identify experiential learning opportunities that will help prepare them for full-time employment after graduation. In addition, some local part-time job opportunities are posted on the Agriculture and Life Sciences Career Services web page (<http://www.career.ag.iastate.edu/part-time>).

Undergraduate Research Opportunities

One of the distinct advantages of students enrolling in a degree program at a research-intensive institution like ISU is that they have the opportunity to be employed in (or volunteer in) a research laboratory. Although the number of undergraduate students majoring in a degree program based in the animal science department greatly exceeds the number of research opportunities that exist for them, it is important for students to consider an undergraduate research experience as a part of their overall educational training.

Because approximately 40% of graduates of the undergraduate degree programs based in the animal science department continue their formal education after earning their degree, students enrolled in AnS 311 attend a lecture that is focused on post-baccalaureate options for further education. One of those options, of course, is graduate school where students may earn a master of science and/or doctor of philosophy degree. Students are informed of the importance of an undergraduate research experience to position themselves for admission into graduate school, and this message is reinforced by a presentation from a current animal science department graduate student.

One additional tactic used to entice students to consider an experiential learning opportunity in a research laboratory pertains to those students enrolled in AnS 311 who have performed well enough academically to qualify for admission into the University Honors Program. All University Honors Program students are required to complete, as a condition of being recognized as a graduate of the honors program, a senior honors project/creative component.

The requirement of a senior research project/creative component represents an outstanding experiential learning opportunity. Students enrolled in AnS 311 are advised of this experiential learning opportunity and are provided with the link (URL) to the University Honors Program web site where further details may be obtained.

Presentations by Animal Science Alumni

During the tenth week of the semester (when all AnS 311 students meet together for the last time as a group), one or more animal science department program graduates is invited to speak to the AnS 311 students. The alumnus/alumnae is specifically requested to share with the students the experiential learning opportunities in which he/she participated and the impact that experience had on his/her career path.

Graduates who are invited to speak to AnS 311 students are chosen from a myriad of different professions in which the graduates are employed. It is important for current students to understand the breadth of career opportunities that await them after graduation (the placement rate for graduates of the animal science department has averaged more than 98% over the past 10 years). A few examples of the occupations of alumni who have spoken to the AnS 311 students are quality assurance technician in a dairy foods manufacturing company, veterinarian, agricultural loan officer, and manager of a swine nutrition division of a major multinational corporation.

Results and Discussion

This multi-faceted approach used to enlighten students about the vast array of experiential learning opportunities that are available to them has been highly successful. Summative assessment of AnS 311 by students has revealed that students are exceedingly satisfied with AnS 311. Student evaluation of teaching scores for AnS 311 during the past three semesters have averaged 9.16 (on a 10-point scale, with 10=excellent) for overall effectiveness and 9.58 for knowledge of subject.

When asked about the impact this course has had on them, students have made comments such as the course was an eye-opening experience, they are now more motivated to prepare for their futures, and the course stimulated deeper thinking about their short-term and long-term career goals.

One frequent comment made by students is that they wished they had taken the course earlier in their academic career. The course instructor proposed to adopt the

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students' suggestion by re-numbering the course as AnS 210 and offering it as a sophomore-level course. This proposal was approved by the animal science department faculty with an effective start date of fall semester 2012.

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