

# Teaching/Undergraduate and Graduate Education Symposium: Giving Employers What They Want—How Ready is Today’s Animal Science Graduate?

**692 The animal sciences curriculum of 2025.** M. A. Wattiaux,\* *University of Wisconsin-Madison, Madison.*

A curriculum reflects subjects and experiences in a plan of study intended to prepare students for professional success in a chosen career. The core animal sciences curriculum has hardly changed in the last 50 years, but it has adapted to changes in scientific discoveries, departmental priorities, student and instructor demographics, and employers’ demands. As the 21st century unfolds, our graduates will be asked to solve increasingly complex problems and address societal concerns, many of which will not have unique disciplinary answers. How can we capitalize on our strengths to prepare students for jobs that, in many cases, do not exist yet? How do we structure programs that foster skills and aptitudes that offer students with a degree that has long-term value? Animal sciences curricula will continue to expand (e.g., genomics, animal welfare) and interface with other disciplines (e.g., environmental, international, human health and social studies), but more importantly, our classrooms will become microcosms of society, and students will be challenged to face problems as they will encounter them in the workforce. Students will have to become critical thinkers and evaluators of information as the latest scientific facts and figures will be readily available through the World Wide Web. Because embracing diversity is an essential component of broad understanding, creativity and innovation, our students must be challenged with the conflicting perspectives of multiple stakeholders. Requiring multiple capstone-like experiences whereby a student addresses relevant real-world problems through properly structured internships, service learning, labs or undergraduate research projects, study abroad, and computer-based simulations will become ever more essential to our future pedagogy. Communication skills and leadership experiences will no longer suffice, as metacognitive and self-directed learning skills will be vital to one’s successful career path. In short, learning how to learn is a lasting, transferable and life-long learning skills that will be as important as equipping our students with the latest knowledge at the time of graduation. These inevitable changes are already occurring in spite of numerous challenges.

**Key Words:** undergraduate, instruction, curriculum

**693 Creating animal scientists from scratch—Meeting industry needs with today’s students.** J. A. Sterle,\* *Iowa State University, Ames.*

Changing demographics of students majoring in animal science (AN S) are no surprise. However, coupled with decreased interest of AN S undergraduates in food production species, continued demand for “industry-ready” graduates, and the increased enrollment that many AN S departments are experiencing (along with decreasing resources), it becomes apparent that AN S faculty, departments and curriculum must adjust. Questions arise about changing goals and objectives of traditional departments, and the best use of available resources to meet these diverse interests and needs (and increasing student numbers). Incoming students today need more introduction to the livestock industry, including terminology, industry structure, heritage, and contributions to society. Safety around livestock and animal handling also need to be covered. These topics are not only necessary to provide frame of reference and perspective, they also draw the interest of students. There is pressure to create broader curricula to meet students’ interest in species other than livestock. A department must consider whether the job market

supports graduates in a new specialized area. If the answer is yes, then the question of available resources must be addressed. For example, many students come to AN S with a strong interest in zoo animals or exotics, but the job market makes it difficult to justify specific courses in this area. Many employers of animal scientists have expectations that graduates have some basic knowledge, experiences and skills (such as being comfortable around large animals), regardless of the position. Basic handling courses, experiential labs throughout the curriculum, and intense internship/student worker positions can prepare students who do not enter college with such experience. Over 95% of Iowa State AN S graduates, 55% of which would not be considered “traditional” or from a farm background, are placed within 6 mo of graduation, in a wide variety of positions. This suggests that AN S programs can still meet the needs of a variety of employers, regardless of the background of students entering the curriculum.

**Key Words:** teaching, undergraduates, non-traditional students

**694 Critical skills and characteristics expected by employers of animal science graduates and strategies for equipping them.** S. Robinson\*<sup>1</sup> and D. Mulvaney<sup>2</sup>, <sup>1</sup>*Oklahoma State University, Stillwater;* <sup>2</sup>*Auburn University, Auburn, AL.*

Employers and professional schools desire graduates in animal science programs who possess human capital (i.e., technical competencies, employability skills, and experiences) in the animal agriculture industry. Specifically, in addition to technical competencies, employers seek prospective employees who have evidence of practiced leadership and previous work experience that has enabled them to experience real-life issues, such as dealing with difficult people, resolving conflicts, making decisions and thinking at higher levels of cognition. According to employers, colleges of agriculture are effective in preparing prospective employees with technical skills and knowledge within a specific discipline; however, the development of interpersonal and emotional intelligence (EI) skills is not perceived as highly. Yet, in terms of importance, employers rank these latter skills ahead of disciplinary knowledge and technical skills. It is believed that disciplinary knowledge, skills and ability (KSA) are expected of all prospective employees, while “soft” cluster skills are those that differentiate the best from the rest. A recent study released by the Association of Public and Land Grant Universities (APLU) analyzed the importance of 7 “soft skill” clusters. Employers ranked them in importance from highest to lowest: (1) communications, (2) decision making/problem solving, (3) self-management, (4) teamwork, (5) professionalism, (6) experiences, and (7) leadership. These data provoked a call for more intentional integration of leadership and EI development into curricula and the establishment and promotion of leadership minors and/or certificates. Authors will address the readiness of the animal science graduate and offer strategies for developing the KSA expected by employers. Results of a study using the Delphi method to reach consensus of agreement among animal science industry experts on their thoughts regarding the skills college graduates need for employability in various sectors of the animal agriculture industry will be compared with other survey results and the APLU report. Additional inputs derived from interview processes conducted by prospective employers with applicants provide details about which aspects of human capital result in job offers. Of concern is how do programs reconstruct the frameworks of the higher education experience so that learning outcomes

of soft skills, critical thinking skills, problem solving, experience and abilities needed for acquisition and access of information, knowledge and the contextual application are not mere aspirations in a strategic plan but tangible and measured. Classroom pedagogy may need to be changed - shifting from the emphasis on delivering content knowledge to a more robust intentional, experiential engagement of students around the acquisition of the desired skills. Based on these collective inputs, authors will offer suggestions for teaching and learning practices and curricular revision, which will lead to effective preparation of students for a dynamic, complex, global world of work.

**Key Words:** employer expectation, student development, animal sciences curricula

**695 Custom tailoring class information to each student for their eventual use in the workplace.** T. G. Rozell,\* *Kansas State University, Manhattan.*

Teaching required classes within the animal sciences often involves students from a wide range of backgrounds and diverse future career interests. Thus, some class material may seem of more relevance to some than to others, and engagement and comprehension suffers among students who do not see an immediate need for learning the information. As a result, opportunities for critical thinking are lost and the student is subsequently ill-prepared for critical thinking after entering the

workplace. To address this, 2 different strategies have been employed in 2 different courses. The first involves the use of comprehensive oral final exams in Anatomy and Physiology. This required class includes about 80 students each semester, with career interests ranging from family farming to veterinary medicine. Students take the oral final in groups of 4 to 6, and are first asked their career interests. As each student takes a turn answering questions about major class concepts, they are asked to describe the information in the context of their future career choice. The future farmer may be asked about heat stress and managing animal comfort in a feedlot, while the future veterinarian might be asked about the same concepts in the context of an animal recovering from surgery. Students are made aware frequently during the semester that they will be asked to apply the basic concepts during the oral final, and the idea of doing so in front of peers provides increased motivation for learning basic mechanisms. The second strategy involves an industry-style R&D team project in Physiology of Lactation. Students work in small groups of 3 or 4 and are asked to develop a business proposal focused on some aspect of lactation, and which uses class material on anatomy and function of the mammary gland in their chosen species. Critical thinking skills are practiced at numerous times as students are required to present a legitimate business model for their lactation-based business to the rest of the class at the end of the semester. Each strategy allows individual students to develop the context in which to apply basic course information and practice critical thinking in their chosen occupation area.

**Key Words:** critical thinking, oral final exam, industry-style project