

Section IX

Graduate Program

A. Report on Graduate Program in Animal Science

Current Situation

The Animal Sciences Graduate Program offers M.S. and Ph.D. degrees. The M.S. degree is available under two options: Plan A and Plan B. Plan A requires a thesis and a minimum number of semester credits in both a major field and a designated minor or related field. Plan B substitutes additional coursework and special reports or projects (approx. 120 hrs) for the thesis. This option requires a minimum number of semester credits in the major area and in one or more related fields outside the major. Ph.D. students typically complete 40-50 credits, take a preliminary written exam, preliminary oral exam and are considered a candidate for the degree after passing the preliminary oral exam. Ph.D. candidates are required to gain 40 hrs of teaching and a seminar is required in conjunction with the final Ph.D. exam. Areas of emphasis include genetics, growth biology, nutrition, physiology, and production systems.

In the last 5 years, an average of 3 Ph.D. and 4 M.S. students have graduated each year. There were 30 degrees awarded in the 4 year period of 2000-2004. Placement is typically 100% with a distribution of approximately 2/3 into academic positions and 1/3 into industry positions for both Ph.D. and M.S. degrees. Mean graduate enrollment over the past 5 years has been 36 students (20 female/16 male). Current enrollment is 34 (23 M.S./11 Ph.D.; 15 female/19 male; 16 international/18 domestic). Applications for the Animal Sciences program summarized as a 5 year average: M.S. (15), Ph.D. (12), Acceptance rate for: M.S. (7.5), Ph.D. (5.5). During the 5 year period, GRE scores of applicants averaged about 490 Verbal, 630 Quantitative, and 590 Analytical.

Future Directions

Because support dollars from the Agricultural Experiment Station have decreased dramatically in the last five years, the source of funding graduate students is shifting more towards alternative sources. One of the major issues confronting the graduate program is the continual and marked increase in tuition and fringe benefits. This situation results in a similar cost of funding graduate students that are working only part-time compared to post-docs and technicians that work full-time, creating a dilemma for faculty because of the more desirable latter situation. Therefore, in order to maintain a quality program the Animal Sciences Graduate program and faculty will need to be more pro-active in obtaining greater external funding. A requirement for students pursuing a Ph. D. degree in Animal Science is to have 40 hours of teaching experience or to take an Agricultural Education course on Methods of Teaching. In the last two years, Animal Science has received four teaching assistantships from the College of Agricultural, Food and Environmental Sciences because of the steady increase in undergraduate enrollment in Animal Science classes. These assistantships have provided financial support and enabled students to gain valuable experience in teaching. Plans are to maintain and hopefully increase this support in future years.

In addition, because of recurring episodes where insufficient student registration for graduate level courses has resulted in courses not being offered, restructuring of courses will occur. For example, this year instead of offering two separate courses in Concepts and Developments in Nutrition of Swine or Ruminants, a course entitled Concepts and Developments in Animal Nutrition is being offered with ten students registered that have interest in either swine, ruminants or poultry. Other changes that are planned include a course that will encompass two semesters with 7 week blocks addressing Advanced Animal Nutrition I (Fundamental Nutrition, Bioenergetics), and Advanced Animal Nutrition II (Protein Metabolism and Integrated Tissue Metabolism). This sequence will: provide graduate students in animal nutrition and other related areas with a more comprehensive course, allow students to plan their sequence of graduate courses more easily and should also increase numbers so that the course will always be

offered. These are the types of changes that should occur with other disciplines to provide students a more complete and diversified education.

B. Current Graduate Students

M.S. Program in Animal Sciences (23)

Name	Area of Specialization	Advisor (s)
Chikako Abe	Poultry Nutrition	Noll, Sally L.
Thomas Bakken	Avian Neuroendocrinology	El Halawani, Mohamed E.
Ebener Ballinger	Dairy Production Systems	Linn, James G.
Katie A. Caperoon	Ruminant Nutrition	Stern, Marshall D.
Daniel Carlson	Functional Genomics	Fahrenkrug, Scott
Nicolas DiLorenzo	Beef Nutrition	DiCostanzo, Alfredo/Lamb, G. Cliff
Luis A. Espejo	Dairy Management	Endres, Marcia I.
Rebeka K. Gill	Meat Science	Roeber, Deborah L.
Jeffrey P. Griggs	Chicken Production Systems	Jacob, Jacqueline P.
Claude I. Hebron	Poultry Nutrition	Jacob, Jacqueline P.
Bradley J. Heins	Dairy Cattle Genetics	Hansen, Leslie B./Seykora, Anthony J.
Reagan L. Koski-Hulbert	Ruminant Nutrition	Stern, Marshall D.
Jamie E. Larson	Beef Reproductive Physiology	DiCostanzo, Alfredo/Lamb, G. Cliff
Jonathan M. Levendoski	Dairy Cattle Genetics	Hansen, Leslie B./Seykora, Anthony J.
JoAnna (Asia) M. Lukas	Ruminant Nutrition	Reneau, Jeffrey K./Endres, Marcia I.
Alyssa J. Murray	Reproductive Endocrinology	Wheaton, Jonathan E.
Mary L. Raeth-Knight	Dairy Nutrition	Linn, James G.
Kenneth F. Rost	Poultry Nutrition	Noll, Sally L.
Martin J. Ruiz Moreno	Ruminant Nutrition	Stern, Marshall D.
Katie R. Schiller	Physiology	Mauro, Laura J.
Minho Song	Swine Nutrition	Baidoo, Samuel K.
Kevin N. Thielen	Reproductive Physiology	Lamb, G. Cliff/DiCostanzo, Alfredo
Jessica P. Wakker	Dairy Nutrition	Linn, James G.

Ph.D. Program in Animal Sciences (11)

Name	Area of Specialization	Advisor (s)
Claudia J. Ariza-Nieto	Swine Nutrition	Baidoo, Samuel K.
Mariana Carriquiry	Nutritional Physiology	Crooker, Brian A.
Mireille Chahine	Nutritional Physiology	Crooker, Brian A.
Ju Lan Chun	Cell Physiology	Foster, Douglas N.
Carl R. Dahlen	Reproductive Physiology	Lamb, G. Cliff
Byung-Whi Kong	Cell Physiology	Foster, Douglas N.
Aree Thayanaphat	Avian Neuroendocrinology	El Halawani, Mohamed E.
Pedro Urriola	Swine Nutrition	Shurson, Gerald C.
Si-Hung Wu	Dairy Nutritional Physiology	Crooker, Brian A.
Gang Xi	Muscle Biology and Growth	Hathaway, Marcia R.
Guowu Xu	Swine Nutrition	Shurson, Gerald C.

Ph.D. Students in Programs other than Animal Sciences (4)

Name	Program	Advisor (s)
Abdorrahman S. Alghamdi	Veterinary Med–Theriogenology	Foster, Douglas N. (co-advise)
Melissa Palmer-Densmore	Cellular & Integrative Physiology	O’Grady, Scott M.
Turgay Ergul	Food Science	Noll, Sally L. (co-advise)
Geisa G. Paulin-Curlee	Veterinary Med–Infectious Diseases	Foster, Douglas N. (co-advise)

C. Graduate Student Placement

M.S. Degrees (1999–2004)

Advisor	Student	Placement
DiCostanzo, Alfredo	James M. Cassady	Beef Producer, Iowa
	Carl R. Dahlen	Livestock Research Coordinator, NWROC, Crookston
	Lance R. Miller	Livestock Judging Team Coach & Ph.D. Candidate, Univ of Wyoming
	Darren G. Standorf	Research Biochemist, Novartis
El Halawani, Mohamed E.	Jaeyong Ahn	Ph.D. Candidate, New York University
Foster, Douglas N.	Byung-Whi Kong	Ph.D. Candidate, U of MN
Hunter, Alan G.	Ashley E. Wong	In Vitro Fertilization Specialist, Reproductive Medicine & Fertility Associates, MN
Johnston, Lee J.	Jonathan P. Holt	Ph.D. Candidate, North Carolina State University
Linn, James G.	Tamilee D. Nennich	Ph.D. Candidate, Washington State University
	Laura A. Torbert	Dairy Extension Educator, Scott and Carver Counties, MN
	Barry M. Visser	Dairy Nutritionist, Vitaplus, Inc.
Noll, Sally L.	Jayne L. Kalbfleisch	Ph.D. Candidate, Michigan State University
O'Grady, Scott M.	Melissa L. Palmer-Densmore	Ph.D. Candidate, U of MN
Stern, Marshall D.	Lisa M. Aga	Beef Cattle Specialist, Land O'Lakes, MN
	Grant I. Crawford	Ph.D. Candidate, University of Nebraska
Troedsson, Mats H.	Gonzalo Rocha-Chavez	Director de Servicios Tecnicos e Investigation, Minitube de Mexico

Ph.D. Degrees (1999–2004)

Advisor	Student	Placement
Baidoo, Samuel K.	Gaofeng He	Research Associate, U of MN
Brown, David R.	Sutthasinee Poonyachoti	Assistant Professor, Chulalongkorn University, Thailand
Da, Yang	Mathew A. Chrystal	Assistant Professional Specialist, University of Notre Dame
	Jie Xu	Search in progress
DiCostanzo, Alfredo	Chad M. Zehnder	Custom Feed Formulator, Land O' Lakes Feeds
El Halawani, Mohamed E.	Abdullah A. Al-Kahtane	Professor, King Saudi University
	Khaled A. Al Zailaie	Assistant Professor
	Seong Wook Kang	Research Associate, U of MN
Foster, Douglas N.	Shelly A. Christman	Assistant Education Specialist, U of MN
	Hyunggee Kim	Postdoc, Harvard Medical School

Advisor	Student	Placement
Johnston, Lee J. (co-advise)	Antonio Renteria-Flores	Faculty Member, National Research Institute in Mexico
Kannan, Mathur	Soner Dogan	Postdoc, U of MN, Hormel Research Institute, Austin, MN
Linn, James G.	Dana M. Allen Carla R. Kuehn	Dairy Producer, Minnesota Dairy Nutritionist, Dalex Computer Systems
Shurson, Gerald C. (co-advise)	Albert Devries Jeffrey S. Knott Mindy J. Spiels Mark H. Whitney	Assistant Professor, University of Florida Swine Nutritionist, Ralco-Mix Products, Inc., Marshall, MN Regional Extension Educator in Environmental Systems, MN Regional Extension Educator–Swine, MN
Wheaton, Jonathan E.	Michael T. Bailey	Regulatory Affairs Officer, FDA, Silver Springs, Maryland

Other M.S. Degrees (1999–2004)

Advisor	Student	Program	Placement
El Halawani, Mohamed E.	Ronit S. Kulick	Animal Physiology	Resident, Mayo Clinic, Rochester, MN
Mauro, Laura J.	Laurie A. Yunker	Molecular Vet Biosci	Scientist, Medtronic Corp.

Other Ph.D. Degrees (1999–2004)

Advisor	Student	Program	Placement
Da, Yang	Nicole R. London	Molecular Vet Biosci	Assistant Professor, St. Olaf College, Northfield, MN
O'Grady, Scott M.	Xinpo Jiang So Yeong Lee	Cell/Integrative Phys Molecular Vet Biosci	Research Associate, University of Toronto, Canada Assistant Professor, Seoul National University, Korea