

**From:** [Soave, Melissa](#)  
**To:** [Soave, Melissa](#)  
**Subject:** CAA Subcommittee A Review of Semester Proposals  
**Date:** Monday, February 21, 2011 3:16:36 PM

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**From:** Sarah Lang  
**Sent:** Tuesday, February 15, 2011 4:07 PM  
**To:** 'Michael Day'  
**Cc:** zerby.8@osu.edu; martin.1371@osu.edu; 'Leslie Alexander'  
**Subject:** RE: CAA Subcommittee A Review of Semester Proposals

Dear Mike,

My subcommittee members and I really appreciated your quick and complete responses. After consulting further about the list of courses, we felt comfortable if you could provide a rough estimate of the number of credit hours MS and PhD students in your program would typically enroll in each semester. We felt this would elevate our questions and also not cause you and your colleagues unnecessary work.

Thanks again!

Best,  
Sarah

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**From:** Michael Day [mailto:day.5@osu.edu]  
**Sent:** Monday, February 14, 2011 9:08 AM  
**To:** Sarah Lang  
**Cc:** zerby.8@osu.edu; martin.1371@osu.edu  
**Subject:** Re: CAA Subcommittee A Review of Semester Proposals

Dear Sarah,

Thanks for your work on the Q2S.

I can quickly answer most of the questions:

We currently only have the Plan A option, therefore, the concern that students will be caught in the middle does not exist. I am guessing that the "now" is referring to ongoing discussions about several professional MS options, so in the "future", they may well have that option.

No, these specializations will not be tracked in SIS, they are areas of concentration that coincide with the varied disciplines in the Animal Sciences. No letters of concurrence are needed.

This revision was primarily carried out by the faculty, under the guidance of the GSC in Animal Sciences. This was discussed by the entire faculty in at least 2 meetings, and in the GSC multiple times. There is a student representative on the GSC that had input, and he has the option to report back to the Animal Sciences Graduate Student Association, but I don't think this was a primary area of discussion in the student organization.

The last question will take a little time to pull together. In almost all programs, there is a requirement for knowledge in biochemistry and statistics. Once this is met, then the requirements diverge by discipline, and to some degree, by the career goals of the individual student. For example, in my program, in addition to the core courses above, I would assess previous coursework, then determine if additional coursework is necessary in reproductive biology, endocrinology, physiology, molecular biology and cell biology. After this, if the student has long-term teaching interests, then a teaching course may be added, if they wish to build a program with more depth in molecular biology, then additional courses would be recommended.

I hope this helps. After reading this, let me know what else you need, and perhaps a little more guidance on the course lists.

Sincerely, Mike

At 07:59 PM 2/13/2011, you wrote:

Dear Drs. Martin, Day and Zerby:

I hope this email finds you all well. You are listed as the College and Departmental contacts for Animal Science, and as such, I'm writing with a few questions regarding your Animal Science MS and PhD proposals. Dr. Leslie Alexander and myself have reviewed all the animal science proposals and should have another message coming shortly regarding your undergraduate majors and the dairy certificate. Overall, we truly appreciate the information you provided, but had just a few points of clarification that should help us be better prepared to discuss these proposals with the full CAA body. We are hoping that if you are able to provide a rapid response, our subcommittee could be ready to present the MA and PhD proposals at the February 23, 2011 CAA meeting.

- Plan A, "thesis" option – In the cover letter it is noted that the plan A, thesis option, will "now" be the only option to degree in your program, is this different than what is currently available to students? If so, what will you do for students "caught in the middle" – i.e., will currently enrolled MS students have the option of completing a different path to degree? From the language, I was not sure if students currently have a plan B option of pursuing a project if they choose.
- Regarding the several specializations you list - Will each of the specializations you list be tracked in SIS? Are these more "areas of concentration" or formally documented specializations you want noted on students' transcripts? Have you already discussed this option with the graduate school? Is there any corresponding required coursework for each specialization? If you wish to formally document these, have any necessary parties been contacted about concurrence (e.g., the Department of Nutrition)?
- In the undergraduate proposal materials there was mention that students were part of the review/revision process; we wondered to what extent graduate students were involved in your semester revisions of these two proposals.
- Semester course list – We greatly respect the level of flexibility in your program, and understand there are very few required courses. However, do you happen to have a list of the elective semester courses that students will choose from? It does not need to be completely comprehensive list, but right now we did not know what the various course

options look like to see approximately how many hours a student would take each semester. We were trying to ascertain if a student can adequately complete the MS for example, in four semesters, or whether it would be expected he/she enroll during the May/summer terms at some point.

As a side note, we appreciated the way you set up the graduate student transition plan, especially the point that each student will sign-off with his/her advisor (and approval of the graduate studies committee) an agreed upon plan for what is counted/needed to complete the degree. We appreciated the individuation and flexibility of your plan as well as the accountability of the sign-off for both the student and the department.

Please feel free to contact me with questions. We look forward to your response!

All the best,

Sarah

Sarah N. Lang, M.S.

Instructor, [Human Development and Family Science](#) 362 -- President, [Ohio State University Chapter](#) of [Phi Kappa Phi](#) -- Academic Relations Chair, [OSU Council of Graduate Students](#), [CAA](#) Representative -- lang.279@osu.edu

Status: PENDING

**PROGRAM REQUEST**  
Animal Sciences

Last Updated: Myers, Dena Elizabeth  
01/19/2011

<b>Fiscal Unit/Academic Org</b>	Animal Sciences - D1132
<b>Administering College/Academic Group</b>	Food, Agric & Environ Science
<b>Co-administering College/Academic Group</b>	
<b>Semester Conversion Designation</b>	Converted with minimal changes to program goals and/or curricular requirements (e.g., sub-plan/specialization name changes, changes in electives and/or prerequisites, minimal changes in overall structure of program, minimal or no changes in program goals or content)
<b>Current Program/Plan Name</b>	Animal Sciences
<b>Proposed Program/Plan Name</b>	Animal Sciences
<b>Program/Plan Code Abbreviation</b>	ANIMSC-MS
<b>Current Degree Title</b>	Master of Science

**Credit Hour Explanation**

Program credit hour requirements		A) Number of credit hours in current program (Quarter credit hours)	B) Calculated result for 2/3rds of current (Semester credit hours)	C) Number of credit hours required for proposed program (Semester credit hours)	D) Change in credit hours
Total minimum credit hours required for completion of program		45	30.0	30	0.0
Required credit hours offered by the unit	Minimum	4	2.7	2	0.7
	Maximum	6	4.0	5	1.0
Required credit hours offered outside of the unit	Minimum	0	0.0	0	0.0
	Maximum	0	0.0	0	0.0
Required prerequisite credit hours not included above	Minimum	0	0.0	0	0.0
	Maximum	0	0.0	0	0.0

**Program Learning Goals**

Note: these are required for all undergraduate degree programs and majors now, and will be required for all graduate and professional degree programs in 2012. Nonetheless, all programs are encouraged to complete these now.

Status: PENDING

**PROGRAM REQUEST**  
Animal Sciences

Last Updated: Myers, Dena Elizabeth  
01/19/2011

**Program Learning Goals**

- Knowledge and comprehension of cell structure and function and application of knowledge to animal tissues, systems and function. - Sense of relevancy of information related to cell structure and metabolism in animals and microbes
- Knowledge and comprehension of statistics and experimental design - Understand and articulate relevancy of descriptive statistics and concepts of variance, statistical inference and analysis of variance. Understanding of experimental design.
- Depth in specific sciences of the discipline of study - Further description in specializations
- Knowledge and application of communication skills for teaching and/or outreach, and communication with peers within the scientific community - Make presentations to faculty mentors, graduate student peers and scientific community. Publish research.
- Knowledge and comprehension of the literature in area of study and in scientific writing. - Sense of what literature is relevant, and ability to articulate what is understood, and what is unknown, both orally and in writing.
- Scientific method and ethics - Sense the importance of use of the scientific method and recognize situations where ethical issues often exist in science.
- Comprehension, and application of knowledge as it relates to the use of animals for the well being of animal- and human-kind - Articulate and understand the use of animals for the well being of animal- and human-kind in research.

**Assessment**

Assessment plan includes student learning goals, how those goals are evaluated, and how the information collected is used to improve student learning. An assessment plan is required for undergraduate majors and degrees. Graduate and professional degree programs are encouraged to complete this now, but will not be required to do so until 2012.

Is this a degree program (undergraduate, graduate, or professional) or major proposal? Yes

Does the degree program or major have an assessment plan on file with the university Office of Academic Affairs? No

**DIRECT MEASURES (means of assessment that measure performance directly, are authentic and minimize mitigating or intervening factors)**

**Classroom assignments**

- Other classroom assessment methods (e.g., writing assignments, oral presentations, oral exams)

**Direct assessment methods specifically applicable to graduate programs**

- Research proposals written and grants awarded
- Thesis/dissertation oral defense and/or other oral presentation
- Thesis/dissertation (written document)
- Publications

**INDIRECT MEASURES (means of assessment that are related to direct measures but are steps removed from those measures)**

**Additional types of indirect evidence**

- Job or post-baccalaureate education placement

**USE OF DATA (how the program uses or will use the evaluation data to make evidence-based improvements to the program periodically)**

- Analyze and discuss trends with the unit's faculty
- Make improvements in learning facilities, laboratories, and/or equipment

**Program Specializations/Sub-Plans**

If you do not specify a program specialization/sub-plan it will be assumed you are submitting this program for all program specializations/sub-plans.

**Program Specialization/Sub-Plan Name** ANIMSC - MS (Existing)

Status: PENDING

**PROGRAM REQUEST**  
Animal Sciences

Last Updated: Myers,Dena Elizabeth  
01/19/2011

**Program Specialization/Sub-Plan Goals**

- Reproductive Physiology - : Knowledge, comprehension, and application of understanding of physiology, anatomy and endocrinology of reproduction and appreciation of wide array of molecular techniques available for study.
- Mammary Health and Physiology - Knowledge, comprehension, and application of understanding of mammary development and mastitis control to optimize production potential and milk quality in dairy cows.
- Meat Science - Knowledge, comprehension, and application of understanding of factors influencing variation in fresh and processed meat and fat quality, palatability, wholesomeness, and food safety.
- Tissue Biology - Knowledge, comprehension, and application of understanding of growth and development of adipose and muscle and interplay of nutrition, genetic, and hormones in tissue growth.
- Microbiology - Knowledge related to metabolomics, conversion of agricultural byproducts into biofuel and value-added products, bacterial physiology and metabolism emphasizing fiber degradation and host-microbial interactions in animals.
- Production Systems Management - Knowledge related to use of statistical methods in applied biological sciences, quantitative methods for evaluating animal systems, nutritional economics, and management strategies to reduce nutrient excretion.
- Immunology - Knowledge related to the impact of immune regulatory cells on immune responses in animals. Understanding of nutrient interaction with or modification of nuclear hormone receptor signals in regulation of immune function.
- Animal Welfare and Behavior - Knowledge related to the effects of the social and physical environment on the behavior and welfare of farm animals, and the human-animal relationship in animal production and domestic situations.
- Nutrition - Knowledge, comprehension and application of understanding of gastrointestinal tract function and nutrient metabolism.

**Pre-Major**

Does this Program have a Pre-Major? No

**Attachments**

- Edited.Q2S.doc: Learning goals template  
*(Program Proposal. Owner: Day,Michael Lee)*
- MS letter revised.doc: Program Letter  
*(Letter from Program-offering Unit. Owner: Day,Michael Lee)*

**Comments**

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Day,Michael Lee	11/23/2010 05:54 PM	Submitted for Approval
Approved	Day,Michael Lee	12/01/2010 04:58 PM	Unit Approval
Approved	Pfister,Jill Ann	01/14/2011 04:49 PM	College Approval
Approved	Myers,Dena Elizabeth	01/19/2011 10:10 AM	GradSchool Approval
Pending Approval	Soave,Melissa A	01/19/2011 10:10 AM	CAA Approval



Department of Animal Sciences

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November 23, 2010

Office of Academic Affairs  
203 Bricker Hall  
190 North Oval Mall  
Columbus, OH 43210

Dear Office of Academic Affairs,

The following document is the proposed Master of Science in Animal Sciences (within the College of Food, Agricultural and Environmental Science) to begin Summer of 2012. Currently the Master of Science degree in our department is Animal Sciences and is typically a two-year program. When we convert to semesters the name of the degree will remain the same and only the thesis option (Plan A) will be available. The major will consist of 30 semester credit hours. The composition of the courses will typically include courses within Animal Sciences (including research credits) and courses from other departments/colleges. The only course that is required of all students is at least two semesters of the General Seminar course, ANIMSC 8000. This is similar to the current structure. In Animal Sciences we have 9 identified program specializations which follow the disciplines that exist in the animal sciences. There is not a single set of courses that will fit every student across this diverse collection of disciplines. Therefore, with the exception of the seminar course identified above, the program of study of each student is formulated by the advisor, advisory committee and the student in the early stages of the program. In addition to discipline area, the composition of this curriculum will be directed by the previous coursework the student has completed, the specific direction their program is expected to follow (e.g. molecular vs. animal system research) and the career interests of the student (Ph.D, animal industries, education, outreach, etc.).

The learning goals for all students were developed initially by the Graduate Studies Committee of the Department of Animal Sciences. These were discussed in a full faculty meeting in December 2009 and then an open comment period of approximately 3 months was available to all faculty. Also, faculty within each discipline were solicited for the learning goals within their respective area. The program as submitted represents the final review and editing by the Graduate Studies Committee. The attached description of learning goals contains this information in its full form, without editing to conform to character limits, for both the MS and PhD programs.

Assessment of whether learning goals outlined by the student's Advisory Committee have been met will be made by the same. The student's project proposal that is submitted in the first year of the program, the exit seminar by the student that precedes the final exam, the final oral examination and the thesis will all be considered by the committee to evaluate if learning goals have been achieved.

Thanks for consideration of this proposed program.

Sincerely,

Mike Day  
Professor and Graduate Studies Committee Chair  
Department of Animal Sciences

### **Rationale for Proposed Program**

Minimal changes were made in the program as it previously existed except those dictated by the implementation of quarters. The MS Graduate Program of the Department of Animal Sciences is structured to facilitate training students in one of a wide range of disciplines, including reproductive physiology, nutrition, mammary health and physiology, meat science, tissue (muscle, lipid, extracellular matrix, etc.) biology, genetics, microbiology, production systems management, immunology and animal welfare and behavior. This document describes the general expectations relative to program goals, developed by the Graduate Studies Committee and approved by Animal Sciences faculty, that are expectations of all students. Also, each discipline has specific program learning goals unique to that program as indicated. As described above, besides the seminar course, specific courses are not required of each student, but rather are tailored to meet the focus of the student's research and their career goals. While coursework typically would include courses within Animal Sciences (including research credits) and from other departments/colleges the program of study of each student is designed early in their program as a consensus of input from the advisor, advisory committee and the student. In addition to discipline area, the structure of their program will consider previous coursework by the student, the nature of their research focus and the student's career interests.

### **List of Semester Courses**

Only the course, General Seminar, ANIMSC 8000 is required of all students as described above.

### **Advising Sheets**

Since each program of study is tailored to the needs of the student's program and their career endeavors, advising sheets are not necessary.

### **Transition Policy**

Graduate advisors will be expected to discuss the transition from quarters to semesters with each of their advisees and following this discussion, have open communication that involves the student, advisor and the advisory committee to gain approval of any coursework listed in the previously (quarter based) approved system. This approval will be obtained in the form of a signature page, listing the past, present and future course work for the student that is submitted to the Graduate Studies Committee.



Department of Animal Sciences Graduate Program  
Q2S Conversion  
PROGRAM GOALS and COURSE ORGANIZATION

The Graduate Program of the Department of Animal Sciences is structured to facilitate training both M.S. and Ph.D. students in one of a wide range of disciplines, including reproductive physiology, nutrition, mammary health and physiology, meat science, tissue (muscle, lipid, extracellular matrix, etc.) biology, genetics, microbiology, production systems management, immunology and animal welfare and behavior. This document describes the general expectations relative to program goals, developed by the Graduate Studies Committee and approved by Animal Sciences faculty. Expectations vary between the M.S. and Ph.D. degrees. Also, each discipline has specific program learning goals unique to that program. The manner in which courses taught within Animal Sciences address program learning goals and modifications of current graduate courses in response to the semester conversion are outlined.

Table 1: General Program Goals for M.S. and Ph.D. Students in Animal Sciences

	Description	Ph.D.	Description
M.S.			
Knowledge and comprehension of cell structure and function and application of knowledge to animal tissues, systems and function.	Sense of relevancy of information related to cell structure and metabolism in animals and microbes	Analyze, synthesize, and evaluate information related to cell structure and function and understand molecular technology necessary to assess cell function	Ability to clarify relationships of component parts of living cells, make linkages among component parts and integrate new information
Knowledge and comprehension of statistics and experimental design	Understand and articulate relevancy of descriptive statistics and concepts of variance, statistical inference and analysis of variance. Understanding of experimental design.	Develop experimental hypotheses, apply experimental designs to test hypotheses, conduct appropriate data analyses and interpret data	Skillfully develop experimental hypotheses, make use of experimental designs in conducting research, and evaluate statistical results to ascertain knowledge gained from research
Depth in specific sciences of the discipline of study <sup>a</sup> .	See attached Table 2	Expertise in specific science within discipline	See attached Table 2
Knowledge and application of communication skills for teaching and/or outreach, and communication with peers within the scientific community	Improve oral presentation skills through enhancing knowledge for effective oral communication and skillfully using this knowledge in developing and making presentations to faculty mentors and graduate student peers. Publish research findings	Interpret and evaluate research findings and communicate knowledge to peers and the scientific community. Develop and effectively deliver course material in teaching and/or outreach communications.	Use lateral thinking to make new linkages among concepts and through oral communication apply new findings with background information in oral and poster communications at scientific meetings. Publish research findings in peer-reviewed journals.
Knowledge and comprehension of the literature in area of study and in scientific writing.	Sense of what literature is relevant, and ability to articulate what is understood both orally and in writing, and what needs to be addressed with further study.	Analyze, synthesize and evaluate literature to enhance knowledge base in area of study and for proposal development	Integrate existing knowledge and assess skill base in developing dissertation problem, conducting research and processing new information for communication of results
Scientific method and ethics	Sense the importance of use of the scientific method and recognize situations where ethical issues often exist in science	Use the scientific method to enhance analysis, synthesis, and evaluation of results of scientific endeavor; Utilize ethical values in all aspects of graduate program	Divide a problem into component parts, develop knowledge to a new level of understanding, and accept or reject hypotheses through use of the scientific method and apply ethical values throughout the scientific process
Comprehension, and application of knowledge as it relates to the use of animals for the well being of animal- and human-kind	Articulate and understand the use of animals for the well being of animal- and human-kind in research.	Analyze, synthesize, and evaluate knowledge base as to how respective area of research relates to the use of animals for the well being of animal- and human-kind	Integrate knowledge to produce a generalized concept, gain a new level of understanding, and relate the contribution of new information to the use of animals for the well being of animal- and human-kind

<sup>a</sup>Disciplines include reproductive physiology, nutrition, mammary health and physiology, meat science, tissue (muscle, lipid, extracellular matrix, etc.) biology, genetics, microbiology, production systems management, immunology and animal welfare and behavior. There is a unique knowledge base for each discipline that each student shall master before being awarded a degree. Hence, the learning objective for this program goal varies by discipline and is presented in Table 2.

Table 2. Core areas of depth in specific sciences of the discipline of study – MS/PhD

Discipline	Fields of depth relative to discipline		
Reproductive Physiology	Reproductive physiology and endocrinology, Molecular biology techniques		<p><b>M.S.:</b> Knowledge, comprehension, and application of understanding of physiology, anatomy and endocrinology of reproduction and appreciation of wide array of molecular techniques available for study. <b>Ph.D.:</b> Analysis, synthesis, and evaluation of knowledge related to cell function and its impact on function of reproductive systems, depth in other physiological functions (e.g. immunology, cell biology, developmental biology, etc.) pertinent to the dissertation focus, experience and expertise in some molecular techniques to study reproductive function.</p>
Mammary Health and Physiology	Mammary biology and immunology		<p><b>M.S.:</b> Knowledge, comprehension, and application of understanding of mammary development and mastitis control to optimize production potential and milk quality in dairy cows. <b>Ph.D.:</b> Analysis, synthesis, and evaluation of knowledge related to biological factors influencing mammary cell regulation, mammary development and milk production in dairy cows, characterizing mammary host defenses, manipulating virulence factors of mammary pathogens, and applying new technologies to advance milk quality and safety.</p>
Meat Science	Skeletal tissue anatomy, properties and function		<p><b>M.S.:</b> Knowledge, comprehension, and application of understanding of factors influencing variation in fresh and processed meat and fat quality, palatability, wholesomeness, and food safety. <b>Ph.D.:</b> Understanding of pre-harvest factors such as genetics, nutrition, growth and development and animal handling factors that influence food animal products. . Analysis, synthesis, and evaluation of knowledge of the pre-harvest factors to improve the quality, palatability, wholesomeness, and safety of food animal products.</p>

Tissue Biology	Muscle and adipose tissue physiology	<p><b>M.S.:</b> Knowledge, comprehension, and application of understanding of growth and development of adipose and muscle and interplay of nutrition, genetic, and hormones in tissue growth. <b>Ph.D.:</b> Analysis, synthesis, and evaluation of knowledge related to cellular and molecular events of tissue growth and development and their impact on production of food animals. Experiencing general cellular, molecular, and genetic technologies for the research goals during the M.S and Ph.D program.</p>
Microbiology	Microbiology and rumen function	<p><b>M.S./Ph.D.:</b> Knowledge, comprehension, application, analysis, synthesis, and evaluation of knowledge related to metabolomics and processes regulating the conversion of agricultural byproducts, co-products or wastes into biofuel and value-added products. Understanding of bacterial physiology and metabolism with emphasis on functional genomics of fiber degradation and host-microbial interactions in gastrointestinal tracts of animals and humans.</p>
Production Systems Management	Advanced statistical analyses and modeling	<p><b>M.S./Ph.D.:</b> Knowledge, comprehension, application, analysis, synthesis, and evaluation of knowledge related to use of mathematical and statistical methods in applied biological sciences, quantitative methods for evaluating dynamic animal systems, feed cost optimization, estimation of unit costs of nutrients and nutritional economics, and management and nutritional strategies to reduce nutrient excretion.</p>
Immunology	Molecular basis of immune cell regulation and interaction	<p><b>M.S./Ph.D.:</b> Knowledge, comprehension, application, analysis, synthesis, and evaluation of knowledge related to the impact of poultry immune regulatory cells on immune responses in fighting infections or in suppressing excessive pro-inflammatory immune response in animals. Understanding of nutrient interaction with or modification of nuclear hormone receptor signals in regulation of immune function.</p>
Animal Welfare and Behavior	Behavioral analyses and endocrinology	<p><b>M.S./Ph.D.:</b> Knowledge, comprehension, application, analysis, synthesis, and evaluation of knowledge related to the effects of the social and physical environment on the behavior and welfare of farm animals, and the human-animal relationship in animal production and domestic situations.</p>
Nutrition	Gastrointestinal tract function and nutrient metabolism	<p><b>M.S.:</b> Knowledge, comprehension and application of understanding of gastrointestinal tract function and nutrient metabolism. <b>Ph.D.:</b> Analysis, synthesis, and evaluation of knowledge related to the role of nutrition on production efficiency, profitability and management,</p>

		environmental impact of animal enterprises, gut microbiology, developmental biology, animal health and welfare, meat and milk quality, and food safety.
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