

# IOWA STATE UNIVERSITY

## GRADUATE COLLEGE

### Establishing a Graduate Certificate Program

The first step in establishing a new graduate certificate is the preparation of a proposal by qualified group of faculty. If the proposed program will be focused in an existing department, program or college, the proposal should be routed through the corresponding curriculum committees. College curriculum committees will forward the appropriately amended proposal to the Graduate College Catalog and Curriculum Committee. Proposals for interdisciplinary programs with no obvious departmental or college focus shall be submitted directly to the Graduate College Catalog and Curriculum Committee.

The proposal will be reviewed by the Graduate Curriculum and Catalog Committee, by the Graduate Council, by the Graduate Dean, and by the Provost.

The following information should be included in the proposal:

1. Name of the proposed graduate certificate.  
Graduate Certificate in Meat Science
2. Name of the departments and/or programs involved.  
Animal Science
3. Name of the contact person.  
Rodrigo Tarté, Assistant Professor of Animal Science
4. Need for the graduate certificate.  
There is a need in the meat industry for formal and in-depth training of current employees on the scientific principles of meat production and processing, especially those with no prior formal training in meat science. This typically includes individuals with degrees in food science, biology, chemistry, engineering, or related fields. Most employers are unwilling or unable to encourage their best employees to leave employment to pursue a two-year on-campus M.S. program, as they would lose their productivity during that time frame and they wouldn't always have a guarantee that the employees will return. Therefore a flexible program that can be taken by professionals in this field without leaving their workplaces for extended periods of time has a high likelihood of success. This would be the first program of its kind in the meat science area.
5. Objective of the graduate certificate.  
To provide advanced knowledge and skills in meat science and technology with a strong focus on their practical aspects and application.

6. General description of the graduate certificate.  
The certificate will be offered online only.  
A total of 12 credits will be required for completion.  
Certificate program must be completed within seven (7) years.
  
7. Graduate certificate requirements including:
  - a. Admission standards and prerequisites for the certificate program.
    - Bachelor's degree in animal science, food science, biology, chemistry, engineering or related field from an accredited four-year university.
    - GPA and admission status consistent with Graduate Handbook.
    - Successful completion of the following ISU courses, or their equivalent:
      - Animal Science 270: Foods of Animal Origin (2 credits), or equivalent coursework or experience
      - Biology 212: Principles of Biology II (3 credits)
      - Chemistry 163: General Chemistry (4 credits)
      - Math 140: College Algebra (3 credits)
      - Microbiology 201: Introduction to Microbiology (2 credits)
    - GRE required for candidates with less than 5 years of post-baccalaureate experience.
    - Nonnative English speakers must meet the English proficiency requirements of the university's Graduate College:
      - Internet-Based TOEFL (iBT) 79
      - Paper-Based TOEFL (PBT) 550
      - IELTS 6.5
      - Pearson Test of English (PTE) 53
  - b. Courses and seminars (12 credits total)
    - An S 563X: Advanced Processed Meats Technology (3 credits)
    - An S 573X: Fresh Meat Science and Technology (3 credits) (This course is in development)
      - Description: The quality, sensory and nutritional attributes of fresh meats and how they develop and how they are evaluated. The study of ante and postmortem factors impacting quantity, composition, structure, and chemistry of red meat and poultry muscle/meat.
    - FSHN 507: Microbiological Safety of Foods of Animal Origin (3 credits)
    - AN S 590E: Special Topics in Meat Science (3 credits) (Director of Certificate Studies will be responsible for pairing up students with faculty mentors)
  
8. General description of the resources currently available and future resource needs:
  - a. A list of supporting faculty members including a brief description of their expertise relating to the graduate certificate.

- Dong U. Ahn, Professor of Animal Science – poultry products, processing and quality
- Joseph C. Cordray, Professor of Animal Science – meat processing; food safety
- James S. Dickson, Professor of Animal Science – meat microbiology; food safety
- Elisabeth J. Huff-Lonergan, Professor of Animal Science – applied muscle biology; early postmortem meat/muscle biochemistry; fresh meat quality
- Steven M. Lonergan, Professor of Animal Science – fresh meat quality; muscle metabolism; muscle and meat protein chemistry and proteomics
- Joseph G. Sebranek, Distinguished Professor of Animal Science – processed and value-added meats, food safety
- Rodrigo Tarté, Assistant Professor of Animal Science – processed and value-added meats; food safety; product development

b. The effects of any new courses on faculty workload.

The core courses for this certificate have already been developed and are being offered online with the exception of one currently under development. Therefore, increases in faculty workload are expected to be very minimal, if any.

c. Other resources required for the program including graduate assistants, laboratories and other facilities, supplies, etc.

None.

9. Relationship of the proposed graduate certificate to the strategic plans of the department, college, and the university.

a. Relationship to departmental strategic plan (2011–2016)

This certificate advances the stated teaching outcome of providing “more options or minors designed to meet student and industry needs,” as well as the extension action points of “develop[ing] training programs and extension materials in meat and poultry products quality and safety.” There is a manifest need by the meat industry for a formal, rigorous distance education and training program that does not take employees away from their jobs for extended periods of time.

b. Relationship to college strategic plan (2011–2016)

This certificate advances the College of Agriculture and Life Science’s goal of “provid[ing] high-quality distance education programs that showcase College strengths in science and technology,” as well as its stated priority to “[b]e known worldwide for addressing global challenges of the 21<sup>st</sup> century.” Iowa State’s meat science program is internationally-renowned and this certificate program helps us continue to maintain its relevance into the future, in keeping with new teaching and learning tendencies as well as industry and societal needs and expectations.

c. Relationship to university strategic plan (2010–2015)

This certificate advances the university’s stated goal of “[p]rovid[ing] accessible residential and distance educational programs that build on Iowa State’s strengths and excellence in science and technology integrated with design, business, education, arts, humanities, and social sciences.”

10. Plan for periodic review of the certificate program.

The program will be reviewed by the program coordinator, the Animal Science DOCS and the Animal Science Department Head at the end of each academic year to assess student enrollment numbers as well as student evaluations of the courses and of the program as a whole.

