

Undergraduate Certificate in Swine Production Management

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Summary and Implications

Iowa State University (ISU) offers undergraduate certificates to demonstrate completion of a focused study in a specialized area across a variety of disciplines. The certificate has the significant benefit of allowing students to customize their curriculum and document an approved course of study. A Swine Production Management Certificate is now offered within the Animal Science Department at ISU. The certificate requirements are organized to correspond with faculty and employer-defined needs for a successful transition from ISU student to swine industry professional.

The Swine Production Management certificate will integrate technical topics in animal science with practical considerations in enterprise management. Two critical components to the certificate are the capstone Swine Systems Management course and a required internship with a focus on swine production management. Students that complete the certificate will have the background to identify and address challenges in modern swine production enterprises. Further, the certificate assists employers in identifying students that have shown the interest, discipline, and ability to complete this specialized study program.

Introduction

The swine industry is part of the Iowa, U.S., and global economy. The United States pork industry will produce nearly 13,000,000 metric tons and export 3,000,000 metric tons of pork this year. The Iowa swine industry produces almost one-third of the nation's pigs and is a crucial part of a critical U.S. and global industry. An industry of this size and requires a workforce with technical competency to manage swine production, nutrition, genetics, health

programs, biosecurity, welfare, and facilities. The demand for professionals with expertise in swine production management is rapidly growing, especially in the state of Iowa. Over 147,000 jobs in Iowa were associated with the Iowa pork industry in 2019. Expertise is necessary for traditional production venues and is also expanding to environmental quality, food safety, and sustainability. Students need a clear path to customize and document their training and expertise in this swine production management. Documentation of the certificate on the transcript provides a way for students to show how they pursued and completed a customized course of study and have achieved competency in swine production management.

Approach

The objective was to develop a swine production management course of study within the requirements of an undergraduate certificate. Students that complete the certificate will be able to:

- a. Demonstrate a breadth of understanding of nutrition, physiology, and breeding applications in contemporary swine production systems.
- b. Evaluate production systems and provide solutions to ensure the efficient production of safe, high-quality pork.
- c. Recognize challenges to environmental sustainability and be aware of environmental considerations in swine production systems.
- d. Demonstrate competence in hands-on and practical applications in their field.
- e. Integrate technical knowledge with enterprise management to ensure profitable and sustainable management of swine production. Demonstrate the development of the knowledge, skills, and abilities necessary for a swine production management career.

Requirements of the Swine Production Management Certificate

The Swine Production Management Certificate program prompts students to customize their certificate with specific scientific disciplines and production practices. This 24-credit certificate provides the appropriate background and context for students to develop their swine production and management expertise.

The certificate requirements are organized to correspond with faculty and employer-defined needs for a successful transition from ISU student to swine industry

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professional. Successful completion of the certificate requires a minimum of 18 credits at the 300 (junior) or 400 (senior) level. The program integrates swine production principles with foundation disciplines in animal science. All courses in the certificate are available, and full descriptions are available in the Iowa State University Catalog (<https://catalog.iastate.edu>).

The certificate requires completion of courses within the following categories: Foundation (3 credits), Fundamental Disciplines (9 credits), Expertise Expansion (3 credits from a menu), Management (3 credits from a menu), and Swine Production Emphasis (6 credits). Per ISU policy, nine credits will be unique to the certificate and will not be applied to a major, minor, or another certificate.

Availability of the Swine Production Management Certificate

The Swine Science Certificate has been approved by the Department of Animal Science Curriculum Committee, the College of Agriculture and Life Sciences College Curriculum committee, and the Faculty Senate. Therefore, the Swine Science Certificate will be available to ISU undergraduate students beginning in the fall of 2021.

SWINE PRODUCTION MANAGEMENT CERTIFICATE (24 CREDITS)

Foundation Course (3 credits)		Credits
ANS 225	Swine Science	3
Fundamental Disciplines (9 credits)		
AN S 320	Animal Feeds and Feeding	3
AN S 331	Domestic Animal Reproduction	3
AN S 352	Genetic Improvement of Domestic Animals	3
Expertise Expansion (3 Credits)		
AN S 333	Embryo Transfer and Related Technologies	3
AN S 336	Domestic Animal Behavior and Well-Being	3
AN S 345	Growth and Development of Domestic Animals	3
AN S 360	Fresh Meats	3
AN S 380C	Employee Management for the Swine Industry	1
AN S 380D	Farrowing Management	1
AN S 380E	Swine Feed Mill Management	1
AN S 380F	Marketing and Risk Management in the Swine Industry	1
AN S 380G	Swine Nursery and Finishing Management	1
AN S 382	Swine Environment Management	1
AN S 383	Swine Manure and Nutrient Management	1
AN S 384	Swine Health and Biosecurity	1
TSM 327	Animal Production Systems	3
TSM 455	Feed Processing and Technology	3
TSM 457	Feed Safety, Ingredient Quality, and Analytics	3
VDPAM 487	Livestock Disease Prevention	3
Enterprise Management (3 credits)		
AGEDS 451	Agricultural Law	3
ECON 230	Farm Business Management	3
ECON 235	Introduction to Agricultural Markets	3
ECON 332	Cooperatives	3
ECON 334	Entrepreneurship in Agriculture	3
Swine Production Emphasis (6 credits)		
AN S 425	Swine Systems Management	3
AN S 399	Swine Internship Experience	3