

<b>COURSE TITLE:</b>	<b>Pork Production</b>
<b>COURSE CODE:</b>	<b>ANPR 353</b>
<b>CLASS ROOM</b>	<b>MRB E109</b>
<b>MEETING TIME</b>	<b>T, TH: 1100-1215</b>
<b>LECTURER</b>	<b>MARLON KNIGHTS, <a href="mailto:marlon.knights@mail.wvu.edu">marlon.knights@mail.wvu.edu</a></b>
<b>OFFICE HOURS</b>	<b>BY APPOINTMENTS</b>

**DESCRIPTION:** The course primarily aims at taking students to a greater depth in the science and practice of swine production and management practices. The course navigates students from the foundation laid in Principles of Animal science through the intrinsic features of pork production enterprises. The course covers with some depth, the US swine industry, systems of production scientific management of genetics, reproduction, nutrition and feeding, health and disease, housing and environment and waste management. Additionally, the course provides insight into the post harvest management of the products of the swine enterprise along with the strategies to improve product value and marketing.

## **LEARNING OUTCOMES**

### **Knowledge and Understanding**

1. List the various components of the swine industry and know the amount and value of outputs from the swine industry
2. List the major states involved in swine production and the characteristics of the production systems
3. Know the major pork products and cuts of meat
4. List the common breeds, feeds and diseases of swine
5. Know the different production parameters and target values used to assess the productivity of swine enterprises

### **Cognitive skills**

1. Outline general breeding and selection, nutrition, reproduction and health management practices carried out in swine facilities
2. Compare the characteristics and pros and cons of the various housing systems used in swine production
3. To relate breed characteristics with suitability for different environments and production systems
4. To compare and contrast different swine production systems

### **Subject Specific Practical and professional Skills**

5. To develop breeding and selection, housing, nutrition, reproduction and health management systems for swine producers
6. To plan and analyze the operations of swine production systems

### **Transferable and key skills**

7. Communication using terminology associated with the pork industry.
8. Solving basic problems in swine production.
9. Understand the social, cultural, and/or environmental issues impacting community and willingness to engage with community to effect positive change

### **AREAS OF STUDY (see course schedule below)**

*Course Introduction:* Pig classification; origin and development; characteristic of the pig; parts of the pig; the US pig industry; breeds classification and breed characteristics; terms in pig production; products of the pig.

*Pig keeping systems:* Pig keeping systems and their improvements, extensive (pasture), intensive, integrated; weaner production systems; porker/baconer production systems; breeding stock production systems; farrow to finish systems; all-in all-out systems; management of each system.

*Selection, Breeding and Reproduction:* Principles of selection; Information involved in the selection decision; swine reproductive anatomy, artificial insemination (AI) in swine, advantages and disadvantages; semen collection, dilution and storage; the AI procedure; breeding and mating systems used in swine production; cross breeding in swine.

*Nutrition and Feeding:* Characteristics of a single stomach animal; phase feeding and physiological state; important nutrients in the diet of swine; important ingredients in various diets of swine; quantity of feed allocated to swine, types of feed used to feed swine.

*Economics of production:* Feed component as a major cost of production; estimate cost of production for producing weaner, porker, breeding animal, input output relationships; record keeping systems (manual/computerized); analysis of pig production records.

*Housing and equipment:* uniqueness in design of pig housing; impact on profit and loss; farrowing structures, fattening pens, nursery, dry/pregnant sows/gilts, boars; equipment used in pig enterprise and their maintenance.

*Health and diseases of swine:* Principles of disease prevention and control; relationship between management, sanitation and disease control; common swine diseases, hog cholera, swine erysipelas, MMA, anemia, piglet enteritis, pneumonia, swine rhinitis, manage, intestinal parasite control.

*Slaughtering and Processing:* Measurement of back-fat thickness; dressing percentage; percentage lean and prime cuts; abattoir management and sanitation; stunning and processing; carcass fabrication; loin eye area and percentage fat; carcass management and storage.

*Pork Industry Issues:* Current issues relevant to the pork industry would be discussed including issues related to policy and industry, animal health and food safety, environment and energy and international trade.

### **TEACHING AND LEARNING STRATEGY**

The course will be delivered through formal lectures, with and without multimedia and supported by course notes for all lectures. Problem based learning (PBL) involving presentations will be incorporated to foster class interaction and discussions. Short quiz assessments and study questions will be provided to students to ensure optimum comprehension of course content. Learning of practical skills and techniques will be accomplished by exposure to photographs, videos, field visits and demonstrations, and special practical exercises aimed at learning by doing.

### **ASSESSMENT**

#### ***Assessment I: Assessment Exams (3)***

Weighting (%): 45 %  
Assessment type: **Three (3) formal examinations including Finals**

#### ***Assessment II: Practice Questions***

Weighting (%): 30%  
Assessment type: **Questions provided on each topic**  
Duration: Term

#### ***Assessment III: Group Service Presentation***

Weighting (%): 10%  
Assessment type: **Paper and Presentation (details to be provided in class)**  
Duration: Term

#### ***Assessment IV: Group Activity Paper and Presentation***

Weighting (%): 10%  
Assessment type: **Paper and Presentation (details to be provided in class)**  
Duration: Term

#### ***Assessment V: Attendance***

Weighting (%): 5%  
Assessment type: **All or nothing: Miss < 4 classes 5% will be awarded. Miss 4 or more classes 0% will be awarded**  
Duration: Term

### **INDICATIVE READING**

Holden, P., Esminger, M. E. and Parker, R. O. (2005). Swine Science. Seventh revised edition. Prentice Hall Publishers, Upper Saddle River, New Jersey. ISBN: 9780131134614

**Assessment III: Group Service Presentation (10%)**

Each student would be assigned to 1 of 4 groups. Each group would act as an ambassador of the pork industry and give two (2) presentations to after school students (grades 1 through 8) and possibly high school students. The presentations should provide information on pigs, pork consumption and pork products, the importance of animal agriculture, jobs in animal agriculture etc. Presentations may take the form of a combination of PowerPoint, video, posters etc. Details on dates, location and time of presentations will be provided during the semester.

**Assessment IV: Group Activity Paper and Presentation (10%)**

Each student would be assigned to 1 of 3 groups. Each group would write a paper (no more than 10 pages) and give a presentation on establishment of a pig operation in WV. Your presentation should include but not limited to the following:

1. The type and size of operation chosen (must justify)
2. Details of management practices (housing, nutrition, health care, waste management, reproductive management, breeds, selection and breeding)
3. Amount and value of inputs and amount and value of outputs (budget and financial analysis)
4. Market(s)
5. Potential problems and pitfalls

Month	Day	Chapter	Content
January	12		Overview of the Swine Industry
January	14		Overview and Systems of Production
January	19		Systems of Production and Terminology
January	21		Pig Breeds and Genetics
January	26		Pig Breeds and Genetics
January	28		Pig Reproduction
February	2		Pig Reproduction
February	4		<b>Pig Nutrition</b>
February	9		Pig Nutrition
February	11		Exam1
February	16		Swine Housing systems
February	18		Swine Housing Systems
February	23		Managing Breeding Pigs-Farrowing House
February	25		Managing Breeding Pigs- Farrowing House
March	1		Pre-Weaning Management
March	3		Weaning Systems
March	8		Weaning Management
March	10		Feeder Pig Management
March	15		Feeder Pig Management
March	17		Exam 2
March	22	Spring	Recess
March	24	Spring	Recess
March	29		Production of Replacements
March	31		Production of Replacements
April	5		Pig Health & Diseases
April	7		Pig Health & Diseases
April	12		Waste Management
April	14		Waste Management
April	19		Marketing Systems
April	21		Pork Industry Issues
April	26		Pork Industry Issues
April	28		Pork Industry Issues ; Class Presentations
April	30		No class
May	2		Finals (3.00-5.00 PM)