## Introduction to Animal Science NRM 220

University of Alaska
Fairbanks and Palmer and Campuses
Fall Semester 2017

Instructors: Dr. Milan P. Shipka

Phone and voice mail: 907 - 474 - 7429 E-mail: mpshipka@alaska.edu

Office hours: By appointment or when my door is open; I am also available for consultation

immediately following class periods.

Class Hours: 11:45 – 1:15 MW

Class Locations: Fairbanks – O'Neill Hall Room 305

Palmer – Matanuska Experiment Farm and Extension Center Classroom

**Distance - ZOOM** 

Course Objectives: The student will develop a basic understanding of the role of animal agriculture (U.S. and global) and be exposed to principles of sustainability as it applies to animal agriculture. The course will introduce basic concepts and principles of animal nutrition, growth, health, behavior, physiology, reproduction, and genetics, as well as practical applications of animal science technology such as disease prevention, artificial insemination and other reproductive management techniques, genetic selection, and concepts of animal well-being. Throughout the semester these concepts and principles will be related to current issues such as population growth, resource use and availability and changing social preferences as they relate to animal agriculture.

Text: No text required. Weekly readings assigned.

<u>Student Learning Outcomes</u>: By the end of the semester the student will demonstrate a basic understanding of the concepts and principles of animal science and sustainable management concepts in animal agriculture. Student Learning Outcomes include:

- 1) Ability to critically apply scientific knowledge and integrate concepts about the science of keeping domestic and non-domestic animals for production of food and fiber in applications including sustainable agriculture (with consideration of economic, social and environmental sustainability of agricultural practices) and the importance of companion animals in modern culture.
- 2) Development a basic understanding of the role of livestock in global and U.S. animal agriculture and appreciation of the science behind animal care and husbandry the role of animal in society.
- 3) Reading and homework assignments aimed at concepts of animal science will be accomplished weekly by the student and will assist in understanding practical application of the scientific concepts of animal science discussed in lecture.

## Best way to do well in this class:

- 1) Attend the lectures,
- 2) Take good notes,
- 3) Read the assigned readings before class,
- 4) Download the PPT before or right after class,
- 5) Go back through your notes and the PPT soon after class, and
- 6) Complete 15 weekly homework assignments.

## **Course Grading:**

Exam I Exam II	100 points 100
Final exam	150
Homework assignments (15)	<u>150</u>

Total 500 points

Final course grades will be assigned on the following basis:

For important UAF grading policy information, see the UAF Catalog at: http://catalog.uaf.edu/academics-regulations/grading-system-gpa-computation/

**Disabilities Services:** The Office of Disability Services implements the Americans with Disabilities Act (ADA) and insures that UAF students have equal access to the campus and course materials. I will work with the Office of Disabilities Services (203 WHIT, phone: 474-7043) to provide reasonable accommodation to students with disabilities.

Animal Domestication The big five, The other nine, Still others now?  August 30 & Animal Anatomy September 6  August 30 & Animal Growth and Development Chapter 1 Pages 95 - 112  September 6  Animal Growth and Development Chapter 18 Pages 31 - 334  Anatomy and Development Chapter 18 Pages 31 - 334  Animal Nutrition Animal September 11  September 11 & 13  September Animal Mutrition Classes of Nutrients Anatomy of Digestion: 1) Mammals a) Monogastric b) Ruminant c) Hindgut fermenter 2) Avian Nutritional Physiology  September 18 & 20  September Development September 25  September 25  September 27  September 27  September 27  September 27  September 28  September 29  No Class – Work on reading and next assignment September 29  October Animal Genetics 2 & 4  Animal Breeding Artificial Selection Physiology of Reproduction 16 & 18  Physiology of Reproduction 16 & 18  Pinysiology of Lactation Physiology of Lactation  Neek 9  Animal Revered Chapter 10  Chapter 10  Pages 13 - 31  Chapter 11 Pages 14 - 31  Chapter 11 Pages 13 - 31  Due September 6  Due September 18  Week 4  Animal Nutrition I  Animal Nutrition I  Pages 3 - 28  Due September 18  Week 4  Animal Nutrition I  Pages 4 - 287  Due September 18  Week 4  Animal Nutrition II  Pages 248 - 287  Due September 27  Due September 27  Due September 27  Due September 28  Scientific Farm Animal Froduction; 10 <sup>th</sup> Ed Chapter 15 Pages 287 - 303  Due October 2  Scientific Farm Animal Production; 10 <sup>th</sup> Ed Chapter 12, 13, 8 14 Pages 17 - 247  September 30  Chapter 10 Pages 158 - 180  October Physiology of Reproduction Physiology of Reproduction Introduction to Animal Science; 2 <sup>nd</sup> Ed Chapter 11 Pages 213 - 237  Due October 23  Animal Reproduction Animal Reproduction Animal Reproduction Animal Nutrition Development Due October 23  Animal Reproduction Animal Nutrition Chapter 10 Pages 158 - 180  October Physiology of Lactation  Development Due September 18  Animal Reproduction Animal Nutrition Animal Nutrition Development Due September 18  Animal Reproduction Chapter 19 Due Octob		Course Outline	Readings	Weekly Assignment
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September   11 & 13	_	Animal Growth and	Scientific Farm Animal Production; 7 <sup>th</sup> Ed Chapter 18	Week 2 Anatomy and
September   Rutrient Utilization   Energy Partitioning   Production; 10 <sup>th</sup> Ed   Chapters 15, 16, & 17   Pages 248 - 287   Due September 27   September 25   Exam     Fundamentals of Animal Science   Chapter 15   Pages 287 - 303   Due October 2   October   Animal Breeding   Artificial Selection   Production; 10 <sup>th</sup> Ed   Animal Breeding   Production; 10 <sup>th</sup> Ed   Animal Breeding, Selection, and Mat Pages 197 - 247   September 27   September 27   September 27   No Class – Work on reading   Fundamentals of Animal   Week 5   Genetics   Genetics   Genetics   Genetics   Genetics   Genetics   October 2   October 2   October 2   October 2   October 3   October 4   Animal Breeding   Production; 10 <sup>th</sup> Ed   Animal Breeding, Selection, and Mat Pages 197 - 247   Selection, and Mat Pages 197 - 247   Selection, and Mat Selection   October 9   October 9   October 9   October 10   October 10   October 10   October 10   October 16   October 16   October 10   October 16   October 11   Pages 213 - 237   October 23   October 23   October 24   October 24   October 25   October 25   October 26   October 26   October 27   October 28   October 28   October 28   October 29   October 20   Octobe		Classes of Nutrients Anatomy of Digestion:  1) Mammals a) Monogastric b) Ruminant c) Hindgut fermenter 2) Avian	Applied Animal Nutrition Chapter 1	Week 3 Animal Nutrition I
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9 & 11 Physiology of Reproduction Production; 10 <sup>th</sup> Ed Chapter 10 Pages 158 - 180  October Physiology of Reproduction Physiology of Egg Laying Science; 2 <sup>nd</sup> Ed Chapter 11 Pages 213 - 237  October Physiology of Lactation Physiology of Lactation Science, 2 <sup>nd</sup> Ed Chapter 11 Pages 213 - 237  October Physiology of Lactation Science, 2 <sup>nd</sup> Ed Lactation		Animal Breeding	Scientific Farm Animal Production; 10 <sup>th</sup> Ed Chapters 12, 13, & 14	Week 6 Animal Breeding, Selection, and Mating Systems
16 & 18 Physiology of Egg Laying Science; 2 <sup>nd</sup> Ed Chapter 11 Pages 213 - 237 Due October 23  October Physiology of Lactation Introduction to Animal Science, 2 <sup>nd</sup> Ed Lactation		<u> </u>	Production; 10 <sup>th</sup> Ed Chapter 10	Endocrinology
October Physiology of Lactation Introduction to Animal Week 9 23 & 25 Science, 2 <sup>nd</sup> Ed Lactation			Science; 2 <sup>nd</sup> Ed Chapter 11	Animal Reproduction
			Introduction to Animal Science, 2 <sup>nd</sup> Ed Chapter 12	Week 9
Review for Exam  Pages 238 – 248 Scientific Farm Animal Production; 10th Ed Chapter 19 Pages 307 - 315  October 30 Exam II	October 30		Scientific Farm Animal Production; 10th Ed Chapter 19	

November 1	No Class – Work on reading	Scientific Farm Animal	Week 10
	and next assignment	Production; 10 <sup>th</sup> Ed	Environmental
		Chapter 20	Adaptation
		Pages 316 - 327	Due November 6
November	Ecology Considerations	Contemporary Issues in	Week 11
6 & 8	Environmental Physiology	Animal Agriculture; 3 <sup>rd</sup> Ed	Environmental
		Chapter 6	Concerns
		Pages 155 - 188	Due November 13
November	Animal Behavior	Introduction to Animal	Week 12
13 & 15		Science; 2 <sup>nd</sup> Ed	Animal Behavior
		Chapter 13	
		Pages 249 - 273	Due November 20
November	Animal Health	Contemporary Issues in	Week 13
20 & 22		Animal Agriculture; 3rd Ed	Animal Health
		Chapter 5	
		Pages 133 - 154	Due November 27
November	Bioethics, Animal Welfare,	Contemporary Issues in	Week 14
27 & 29	Animal Rights,	Animal Agriculture; 3 <sup>rd</sup> Ed	Biotech
	Biotechnology Issues	Chapter 10	
		Pages 331 - 394	Due December 4
December	Livestock in a Sustainable	Contemporary Issues in	Week 15
4 & 6	Agriculture System	Animal Agriculture; 3 <sup>rd</sup> Ed	Sustainable
		Chapter 11	Agriculture
		Pages 395 - 429	Due December 9
	Final Exam	Due by 12:15 PM	December 15

Additional selected reading:

Contemporary Issues in Animal Agriculture; 3rd Ed

Chapter 7 – Livestock Grazing and Rangeland Issues