

Department of

# Animal and Food Science



Jim Lamb, Department Chair

Amy Baeza, Amanda Christensen, Kathy Jo Cook, Matt Dredge, Jeff Hamblin, Shaun Harris, Kerry Huber, Jay Keller, Jim Lamb, Kerry Powell, Zeph Quirl, Neal Ricks, Willy Twitchell, Steve Winkel

Kim Chidester, Office Assistant, Livestock Center (208) 496-4521

## Department Description

The Department of Animal and Food Science prepares students to understand and contribute to key requirements of human existence: domesticated animal production, food processing and preservation, and human nutrition. Three conditions in the world create a critical need for study in these related fields: an increasing world population, a decreasing amount of agricultural lands and a need to improve human health and nutrition. These realities present a great variety of opportunities for well-trained workers to serve mankind.

Students in these majors are focused on the scientific principles of animal care, production of food animals, and the preservation, processing, and presentation of that food. Learning occurs in these areas of study through close interaction between faculty and students, numerous opportunities for hands-on experiences, and related work experiences or internships.

Employment opportunities for students with a background in animal and food science are excellent and always in demand. Examples of careers include livestock operation managers, livestock consultants, food product developers, food safety workers, food scientists, pharmaceutical company representatives, animal health workers, meat and dairy processing workers, genetics specialists, government agency workers, etc.

**Animal and Food Science majors may choose from the following degrees:**

### **Bachelor of Science in Animal Science (645)**

Animal Science (645) is designed to prepare students to work in animal production agriculture, associated animal agribusiness, or to competitively compete for entrance into veterinary school or other related Animal Science graduate programs. Students will learn animal anatomy and physiology, nutrition, reproduction, animal health, genetics, meat science, animal and land interactions, and the fundamentals of animal production systems. Graduates will be prepared to enter the workforce or continue in graduate programs.

### **Bachelor of Science in Food Science (648)**

Food science is the use of science and engineering principles to study food, its preservation, and processing. The Food Science degree (648) prepares students to work in food product development, food processing, quality assurance, and regulatory agencies in food safety, or to enter graduate school. Students in this program will study food chemistry and microbiology, food processing and safety, and the analysis of food using chemical, physical, and sensory techniques.

### **Minor in Animal Science (140)**

The animal science minor is for those students NOT majoring in a current animal science degree but wishing to receive concentrated training which can be coupled with a complementary major.

### **Minor in Nutrition (242)**

The nutrition minor is designed to enhance the employability and success of students planning on pursuing jobs that require a basic background in nutrition. Those that would benefit professionally from complimenting their education with a nutrition minor might include those entering the Healthcare field, Education and others. The course selection is designed to provide a foundation in the physiology and chemistry of nutrition, but also the practical skills that are needed to plan and implement healthy dietary practices.

## AAS in Beef Production Management (347)

Take required Foundation courses (17 credits)

### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

CORE COURSES	Complete 1 module:	Program Notes:
<i>Take these courses:</i>	<b>Reproduction Module</b>	
AS 150           3	<i>Take these courses:</i>	
AS 165           3	AS 330           2	
AS 247           3	AS 333           3	
CHEM 105       4	AS 430           4	
<u>13</u>	AS 490R <u>1-3</u>	
	10	
<i>Take these courses:</i>	<b>Meats Module</b>	
AS 215           3	<i>Take these courses:</i>	
AS 215L         1	AS 355           4	
AS 220           3	AS 465           3	
AS 330           2	AS 490R* <u>1-3</u>	
AS 336           3	10	
AS 360           4	*AS 490R must be taken for	
AS 398R         1	3 credits	
<u>17</u>		
	<b>Nutrition Module</b>	
	<i>Take these courses:</i>	
	AS 320           3	
	AS 425           4	
	AGRON 330 <u>3</u>	
	10	
	<b>Range Management Module</b>	
	<i>Take these courses:</i>	
	BIO 208           4	
	BIO 225           3	
	BIO 352 <u>3</u>	
	10	

**Total Major Credits=40**

**Additional Elective Credits Required for Graduation=3**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## BS in Animal Science (645)

Take required Foundation courses

### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

CORE COURSES	SUPPLEMENTAL MODULES	Animal Health Module	Nutrition Module	Program Notes:
<i>Take these courses:</i>	<i>Complete 1 module</i>	<i>Take these courses:</i>	<i>Take these courses:</i>	<b>!! Recommended for Pre-Vet Track Students. You must complete FDMAT 108 pr FDMAT 108T</b>  <b>*You must complete FDMAT 108 pr FDMAT 108T</b>  <b>**Take AS 490R for 2 credits</b>  <b>***Take AS 490R for 3 credits</b>  <b>****This course has prerequisites of Bio 180 and Bio 181</b>
AS 150           3	<b>Food Animal Production Module</b>	AS 234           2	BIO 225           3	
AS 215           3	<i>Take these courses:</i>	AS 315           4	AS 234           2	
AS 215L         1	AS 165           3	AS 333           3	AS 333           3	
AS 220           3	AS 315           4	AS 425 <u>4</u>	AS 425           4	
AS 247           3	AS 333           3	13	AS 490R*** <u>1-3</u>	
AS 300           2	AS 425 <u>4</u>		15	
AS 336           3	14	<i>Take 1 course:</i>		
AS 398R <u>1</u>		AS 340           4	<i>Take 1 course:</i>	
19	<i>Take 1 course:</i>	AS 350           4	AS 340           4	
	AS 350           4	AS 360           4	AS 350           4	
<i>Take 1 course:</i>	AS 370 <u>4</u>	AS 370 <u>4</u>	AS 360           4	
MATH 109       5	4		AS 370 <u>4</u>	
*FDMAT 110    3	AS 360           4	<b>Meats Module</b>		
<u>3</u>	AS 370 <u>4</u>	<i>Take these courses:</i>	<b>Pre Vet Module</b>	
		AS 165           3	<i>Take these courses:</i>	
<i>Take these courses:</i>	<i>Take 1 course:</i>	AS 333           3	BIO 181           4	
CHEM 105       4	BIO 225           3	AS 355           4	BIO 375****     3	
CHEM 106       4	AS 330           2	AS 465           3	CHEM 351       4	
MATH 221B <u>3</u>	AS 430 <u>4</u>	AS 490R** <u>1-3</u>	CHEM 481       4	
11	2	15	PH 105 <u>4</u>	
<i>Take 1 course:</i>			19	
AS 488           3		<i>Take 1 course:</i>		
AS 495 <u>3</u>		AS 350           4		
3		AS 360 <u>4</u>		
		4		

**Total Major Credits=53**

**Additional Elective Credits Required for Graduation=27**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## BS in Food Science (648)

Take required Foundation courses

### Major Requirements

*No Double Counting of Major Courses - No Grade Less Than C- in Major Courses*

CORE COURSES <i>Take these courses during your first 2 semesters:</i>	FOOD SCIENCE COURSES <i>Take these courses:</i>	<i>Take 1 course:</i>	MATH & PHYSICS MODULES <i>Take 1 course:</i>	<i>Program Notes:</i>
BIO 221            3 BIO 222            1 CHEM 105          4 FS 120              3 NUTR 150 <u>3</u> 14	FS 320              2 FS 340              2 FS 350              3 FS 360              3 FS 435              4 FS 440              3 FS 450              3 FS 490              4 FS 498R <u>3</u> 27	AS 465              3 FS 430 <u>3</u> 3  CHEMISTRY MODULES <i>Take these courses:</i> CHEM 106          4 CHEM 351          4 CHEM 481 <u>3</u> 11	PH 105              4 PH 121 <u>3</u> 3  <i>Take this course:</i> MATH 221B <u>3</u> 3  <i>Take 1 course:</i> FDMAT 112        4 MATH 119 <u>4</u> 4	

**Total Major Credits=65**

**Additional Elective Credits Required for Graduation=15**

This major is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## Minor in Animal Science (140)

### Minor Requirements

*No Double Counting of Minor Courses - No Grade Less Than C- for Minor Courses*

CORE COURSES <i>Take these courses:</i>	<i>Take 1 course:</i>	SUPPLEMENTAL COURSES <i>Take 4 credits:</i>	<i>cont. from previous column</i>	<i>Program Notes:</i>
AS 150              3 AS 220              3 AS 247              3 AS 336              3 CHEM 105 <u>4</u> 16	AS 340              4 AS 350              4 AS 360              4 AS 370 <u>4</u> 4	AS 165              3 AS 215              3 AS 215L            1 AS 234              2 AS 315              4 <i>cont. in next column</i>	AS 330              2 AS 333              3 AS 340              4 AS 350              4 AS 355              4 AS 360              4 AS 370 <u>4</u> 4	

**Total Minor Credits=24**

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## Minor in Nutrition (242)

### Minor Requirements

*No Double Counting of Minor Courses - No Grade Less Than C- for Minor Courses*

CORE COURSES <i>Take these courses:</i>	<i>Select 1 option:</i>	SUPPLEMENTAL COURSES <i>Take 9 credits:</i>	<i>Program Notes:</i>
NUTR 150          3 NUTR 200          3 NUTR 330          3 NUTR 400 <u>3</u> 12	CHEM 101          3 CHEM 101L        1 or CHEM 105 <u>4</u> 4	CA 160              3 CA 310              3 CHEM 150          5 FS 120              2 NUTR 350 <u>3</u> 9	

**Total Minor Credits=25**

This minor is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

## Animal Science Concentration (D 111)

### Concentration Requirements

*No Double Counting of Concentration Courses - No Grade Less Than C- for Concentration Courses*

<b>CORE COURSES</b> <i>Take these courses:</i>	<b>SUPPLEMENTAL COURSES</b> <i>Take 1 course:</i>	<b>INTERDISCIPLINARY COURSES</b> <i>Take these courses:</i>	<b>Program Notes:</b>
AS 150                    3	AS 340                    4	IDS 398R                1-3	
AS 215                    3	AS 350                    4	IDS 499                    2	
AS 215L                  1	AS 360                    4	3	
AS 220                    3	AS 370                    4		
AS 300                    2	4		
AS 315                    4	4		
AS 333                    3			
AS 336                    3			
CHEM 105                4			
26			

**Total Concentration Credits=33**

This concentration is available on the following tracks:

Fall-Winter---- YES

Winter-Spring---- YES

Spring-Fall---- YES

### Animal and Food Science Pre-approved Clusters

<b>Equine</b>	<b>1001</b>
<i>Take these courses:</i>	
AS 220    Feeds and Nutrition	3
AS 247    Animal Handling	3
AS 340    Horse Production	4
AS 425    Advanced Nutrition	4
<b>Total Credits</b>	<b>14</b>
<b>Animal Health</b>	<b>1002</b>
<i>Take these courses:</i>	
AS 215    Anatomy/Physiology	3
AS 215L   Anatomy/Physiology Lab	1
AS 234    Veterinary Parasitology	2
AS 315    Animal Health	4
<i>Take one course:</i>	
AS 340    Horse Production	4
AS 350    Small Animal Production	4
AS 360    Beef Production	4
AS 370    Dairy Production	4
<b>Total Credits</b>	<b>14</b>
<b>Animal Reproduction</b>	<b>1003</b>
<i>Take these courses:</i>	
AS 330    Artificial Insemination	2
AS 333    Livestock Genetics	3
AS 336    Animal Reproduction	3
AS 430    Advanced Reproduction	4
<b>Total Credits</b>	<b>12</b>
<b>Natural Resources</b>	<b>1004</b>
<i>Take 4 courses:</i>	
BIO 225    Range Ecology 1	3
BIO 302    Ecology	4
BIO 325    Range Ecology 2	3
BIO 455    Rangeland Inventory & Analysis Lab	3
BIO 466    Rangeland Vegetation Manipulation & Improvement	3
<b>Total Credits</b>	<b>12</b>
<b>Animal Production</b>	<b>1010</b>
<i>Take these courses:</i>	
AS 150    Introduction to Livestock	3
AS 165    Livestock and Carcass	3
AS 220    Feeds and Nutrition	3
<i>Take one course:</i>	
AS 340    Horse Production	4
AS 350    Small Animal Production	4
AS 360    Beef Production	4
AS 370    Dairy Production	4
<b>Total Credits</b>	<b>13</b>

<b>Animal Nutrition</b>	<b>1011</b>
<i>Take these courses:</i>	
AGRON 330    Forage Crops	3
AS 220    Feeds and Nutrition	3
AS 425    Advanced Nutrition	4
CHEM 106    General Chemistry	4
<b>Total Credits</b>	<b>14</b>
<b>Beef Production</b>	<b>1012</b>
<i>Take these courses:</i>	
AS 220    Feeds and Nutrition	3
AS 360    Beef Production	4
<i>Take 5 - 7 credits:</i>	
AS 247    Animal Handling	3
AS 330    Artificial Insemination	2
AS 333    Livestock Genetics	3
AS 336    Animal Reproduction	3
AS 355    Principles of Meat Science	4
AS 425    Advanced Nutrition	4
AS 430    Advanced Reproduction	4
<b>Total Credits</b>	<b>12</b>
<b>Human Nutrition</b>	<b>1020</b>
<i>Take these courses:</i>	
NUTR 150    Essentials of Human Nutrition	3
NUTR 200    Nutrient Metabolism	3
<i>Take 6 credits:</i>	
CHEM 150*    Introduction to Organic and Biochemistry	5
NUTR 330    Nutrition in the Life Cycle	3
NUTR 350*    Sports Nutrition	3
NUTR 400    Nutritional Biochemistry	3
<b>Total Credits</b>	<b>12</b>
<b>Food and Nutrition</b>	<b>1021</b>
<i>Take this course:</i>	
NUTR 150    Essentials of Human Nutrition	3
<i>Take 1 course:</i>	
CA 160    Culinary Fundamentals	3
HFED 110    Introductory Foods	2
<i>Take 7 credits:</i>	
CA 260*    Applied Culinary Fundamentals	3
CA 310*    Culinary Nutrition	3
FS 120    Introduction to Food Service Sanitation	2
HFED 240*    Meal Management	2
NUTR 200*    Nutrient Metabolism	3
NUTR 330*    Nutrition in the Life Cycle	3
<b>Total Credits</b>	<b>12</b>

\*Course requires a prerequisite. See course description for more information

**Course Descriptions**

**Credits\***

**AS 150 Introduction to Livestock Production (3:3:0)**  
 Overview of various livestock enterprises, including beef, dairy, sheep, swine and horse industries. Basic principles used in the various industries are presented. Emphasis given to current and future trends in animal science.  
 (Fall, Winter, Spring)

**AS 165 Live Animal and Carcass Evaluation (3:2:2)**  
 Course Fees: \$10.00  
 This course provides an integrated approach to the principles and procedures involved in the evaluation, grading, and selection of meat animals and their carcasses. The goal is to provide students tools that will allow students to make accurate, objective measurement for assessing the economically important traits in order to determine value or merit of beef cattle, sheep, and hogs.  
 (Fall, Winter)

**AS 215 Anatomy and Physiology (3:3:0)**  
 Course Fees: \$20.00  
 A systems approach to the study of animal anatomy and physiology. Includes structure and function of the cell, skeletal, muscular, nervous, digestive and reproductive systems. Practical applications of anatomy and physiology and their relation to diseases and disorders.  
 (Fall, Winter, Spring)

**AS 215L Anatomy and Physiology Lab (1:0:2)**  
 Laboratory experience covering microscopic cellular anatomy, cadaver dissection and live animal palpation. Two hours per week with hands on study of animal systems that pair to the lecture portion of the class.  
 (Fall, Winter, Spring)

**AS 220 Feeds and Nutrition (3:3:0)**  
 Prerequisite: CHEM 105  
 The study of the principles of animal nutrition as applied to nutrient digestion and metabolism, feedstuff characteristics, and principles for formulating nutritionally balanced diets.  
 (Fall, Winter, Spring)

**AS 234 Veterinary Parasitology (2:2:1)**  
 Introduction to common veterinary parasites. This course covers the life cycles, pathogenesis, identification, and treatment of the common parasites of most domestic animals. This course will also discuss the relationship between parasites and the overall health of the host animal. In addition the zoonotic potential of disease transmission by parasites will be explored.  
 (Fall, Spring)

**AS 247 Animal Handling and Behavior (3:3:1)**  
 Course Fees: \$30.00  
 Animal handling and behavior is an introductory approach to the technique of pressure and release for low stress livestock handling. Students who complete this course develop a higher level of communication with all species of animals including cattle, sheep, horses, and humans. Students will discuss theory in a classroom setting while gaining hands on experience in laboratory.  
 (Fall, Winter, Spring)

**AS 300 Animal Science Seminar (2:2:0)**  
 Provides instruction and insight into issues in food animal production. Provides instruction on how to interpret food animal research. Provides instruction on how to summarize and present research data.  
 (Fall, Winter, Spring)

**AS 315 Animal Health (4:3:3)**  
 Course Fees: \$10.00  
 Prerequisite: AS 215  
 Instruction in the areas of animal health evaluation, livestock disease prevention, and treatment; leading to the development of the basic skills required to evaluate animal health status and programs.  
 (Fall, Spring)

**AS 320 Feedlot Management (3:3:0)**  
 Prerequisites: AS 220 and AS 315  
 Advanced preparation in the feeding of cattle for slaughter. This course will have an emphasis on the nutrition and management of feedlot cattle and related health and economic considerations. Covers the beef enterprise from weaning to market and relates closely to beef cow-calf production.  
 (Check with department for scheduling)

**AS 330 Artificial Insemination (2:1:2)**  
 Course Fees: \$10.00  
 Development of manual skills required for cattle insemination using frozen semen. Subject matter also includes principles related to selection criteria for sires, semen storage, estrus detection and synchronization. Class time is combined with practice time using live cattle.  
 (Fall, Spring)

**AS 333 Livestock Genetics (3:3:0)**  
 Study of animal breeding principles involved in improving livestock through genetic selection methods. Exploration of genetic theories and mating systems currently used in animal agriculture.  
 (Fall, Winter)

**AS 336 Animal Reproduction (3:3:1)**  
 Study of reproduction of cattle, sheep, horses, and pigs. Instruction in basic reproductive anatomy, and the processes involved in prenatal development, puberty, conception, and parturition. Application of reproductive principles as used in estrus synchronization, insemination, ultrasonography and embryo transfer.  
 (Fall, Winter, Spring)

**AS 340 Horse Production (4:3:2)**  
 Course Fees: \$10.00  
 Prerequisite: AS 215  
 This class will discuss production practices in the selection, care, and evaluation of horses. Designed to provide students with better understanding of the modern equine industry. Students will learn principles of horse health, breeds of horses, their characteristics, and their uses, as well as equine behavior, anatomy and physiology, nutrition, and reproduction. Students will also be able to create a business plan that involves the equine field that they are interested in.  
 (Winter semester, odd catalog years)

**AS 350 Small Animal Production (4:3:2)**  
 Course Fees: \$10.00  
 Prerequisites: AS 150, AS 220, and AS 336  
 This course provides a hands-on, in-depth study of how to economically and efficiently produce swine, sheep, goats, and poultry. The goal of this course is for the students to learn how to transform their investment of dollars and time into profitable and rewarding farm enterprise. The course will be centered on production traits of swine, sheep, goats, as well as poultry.  
 (Winter semester, even catalog years)

**AS 355 Principles of Meat Science (4:3:3)**  
 Course Fees: \$25.00  
 Meat science incorporates everything from growth and development of beef, swine and sheep, to case ready beef products. This class is designed to expose students to every aspect of meat science. Emphasis will be placed on carcass merits and value and will include grading, evaluation and appraisal of meat. This course includes techniques of slaughter, fabrication, labeling, food safety and finished retail product.  
 (Fall, Winter)

**AS 360 Beef Production (4:3:2)**  
 Course Fees: \$10.00  
 Prerequisites: AS 150, AS 220, and AS 336  
 Applied techniques and principles of beef production and management. Lectures will be designed to help students better understand the demands, trends, and management tools of the beef industry and they will receive hands on training concerning health care, reproduction, nutrition, cattle selection, breeds, best management practices, and economical tools used in management decisions.  
 (Fall, Spring)

**AS 370 Dairy Production (4:3:2)**

Course Fees: \$10.00

Prerequisites: AS 150 and AS 220

The study of dairy cattle husbandry practices, lactation, health, milk production, and marketing.

(Check with department for scheduling)

**AS 398R Internship (1:0:0)**

Repeatable Course: may earn maximum of 3 credits

An internship is a cooperative program between BYU-Idaho Department of Animal and Food Science and approved Experience Providers (employers). Internships provide actual work experience that will add to or enhance the career preparation and learning of individual students. Internships approved by the department or college internships coordinator provide students with knowledge of career opportunities and actual work experience in preparation for employment after graduation. The ideal internship would take place during the student's off track semester; however allowances can be made to adjust schedules to meet specific internships. Students will not be allowed to start and finish their internships during the 7 week summer break. Required internships should generally be a "stepping stone" into your future career. Internships are typically 40-hour a week positions that last for a length of a semester (14weeks). A maximum of one credit hour will be available for a single approved internship.

(Fall, Winter, Spring)

**AS 425 Advanced Nutrition (4:3:2)**

Course Fees: \$5.00

Prerequisites: AS 220 and AS 336

Provide instruction in the area of advanced animal nutrition with an emphasis on nutrient digestion mechanics, absorption, and cellular metabolism.

(Fall, Winter)

**AS 430 Applied Reproduction (4:3:3)**

Course Fees: \$20.00

Prerequisites: AS 336 and AS 330

Development of skills involved in livestock reproduction technologies such as estrus synchronization, pregnancy detection, ultrasonography, and embryo transfer. Cattle are the focus species.

(Spring)

**AS 465 Processed Meats (3:2:3)**

Course Fees: \$25.00

This course includes techniques of the modern meat processing industry and its use of science and technology. It will include fabrication, processing, preservation, sanitation, Hazard Analysis and Critical Control Point (HACCP), and utilization of manufactured and processed meat. Course will provide actual laboratory preparation of processed meats and by-products produced in today's meat packing industry. Students will be familiarized with several key and general concepts relating to the safe production and marketing of processed meats.

(Spring)

**AS 488 Animal Science Capstone A (3:2:3)**

Prerequisite: AS 336

Co-Requirement: AS 425

Ranch and Land Management Planning is an Animal Science Capstone that is a systems class integrating land health, animal behavior, communications, and economics. The central focus will be land stewardship and the interaction of animal and people in creating an economically sustainable operation. Students will gain insight in identifying values in land resources as well as how to magnify those values while creating sustainability. Skills in communication for both leadership and management will be instituted for strategizing land health goals.

(Check with department for scheduling)

**AS 490R Research Practicum (1-3:0:0)**

Repeatable Course: may earn maximum of 9 credits

This course is designed to reinforce and improve upon selected occupational competencies. Independent study, student mentored research, special assignment, and/or advanced inquiry in an area of special interest. Registration approved after consultation with instructor in charge (upon request).

(Fall, Winter, Spring)

**AS 495 Animal Capstone B (3:3:0)**

Prerequisite: AS 336

Co-requisite: AS 425

In a capstone experience, students will be challenged to integrate their accumulated knowledge and technical and social skills in order to identify and solve a problem relevant to issues encountered by professionals in their chosen discipline, and to communicate the results of their efforts to their peers. In doing so, students will have the opportunity to demonstrate their ability to adapt to professional situations. It is hoped that this experience will stimulate students' appreciation of the need for lifelong learning and initiate professional and personal liaisons.

(Fall, Winter, Spring)

**ASV 110 Introduction to Lab Animal Science (2:2:1)**

Course Fees: \$35.00

Students are introduced to the area of laboratory medicine and some of the animals used in the laboratory. Research using animals is a large industry. A basic knowledge of laboratory animal science is an important part of the foundation for veterinary technicians. Topics covered in this course include housing, biosecurity, handling, restraining and various procedures and sampling techniques.

(Fall, Winter, Spring)

**ASV 120 Veterinary Medical Terminology (2:2:0)**

Students are introduced to the terminology and basic scientific concepts necessary for subsequent course work in the Veterinary Science Technology major. Understanding the terminology is important for everyday situations. Proper use of the terminology is also essential for viable communication in the workplace. Topics will include: Ethics, Safety, Public Health issues, Anatomy and Physiology, Diagnostic Imaging, Dentistry Behavior, and Nursing Care of many animal species. Breed identification of domestic animals will also be covered.

(Fall, Winter, Spring)

**ASV 130 Animal Care and Management 1 (3:2:3)**

Students are taught the care and management of dogs and cats. The safe care and management of the animals dealt with helps prevent many potentially frustrating situations. Technicians who can properly restrain and handle animals become invaluable to the veterinary team and help build client satisfaction. Topics covered will include: behavior, feeding, housing, restraint, handling and procedures.

(Fall, Winter, Spring)

**ASV 131 Animal Care and Management 2 (3:3:2)**

This course is a continuation of ASV 130, dealing with agricultural animals and potentially more procedures with cats and dogs. Students are taught the care and management of agricultural animals including goats, sheep, pigs, cows, and horses. The safe care and management of the animals dealt with helps prevent many potentially frustrating situations. Technicians who can properly restrain and handle animals become invaluable to the veterinary team and help build client satisfaction. Topics covered will include: behavior, feeding, housing, restraint, and handling.

(Winter)

**ASV 140 Zoonoses (1:1:0)**

Prerequisites: BIO 221 and BIO 222

Students will learn the importance of disease control and prevention. Some diseases dealt with in the veterinary profession are zoonotic and of public health concern. These diseases, transmission, prevention, treatment, and epidemiology will be covered.

(Winter)

**ASV 150 Veterinary Clinical Pathology 1 (3:2:3)**

This course introduces basic laboratory procedures including specimen collection and preservation, hematology, urinalysis, and fecal flotation. Hematology will include preparation and performance of packed cell volume, hemoglobin concentration, white blood cell count, and red blood cell counts. Preparation and staining of blood smears with performance of differential white blood cell counts will also be learned. Urinalysis will include collection methods, performance of physical and chemical tests, as well as introduction to microscopic evaluation of urine.

(Winter)

**ASV 160 Veterinary Pharmacology and Hospital Supply (2:2:0)**

Veterinary technology students will learn the supplies common to veterinary facilities including, medical, surgical, and basic supplies necessary for every day operation. The stocking and managing of inventory will be covered. The course will also focus on pharmacology and the appropriate ordering, managing, labeling, and dispensing of drugs.

(Winter)

**Animal and Food Science**  
**Brigham Young University–Idaho 2014-2015**

<p><b>ASV 251 Veterinary Clinical Pathology 2</b> (2:2:1)            Prerequisite: ASV 150            This course is a continuation of ASV 150, Veterinary Clinical Pathology I. This course emphasizes the coagulation cascade, its regulation and stimulation, as well as panels used in the clinical setting to test this process. Clinical chemistry panels and the interpretation of those panels will also be covered. The course will also cover the preparation, collection, and performance or submittal of selected serological tests.            (Fall)</p>	<p><b>CA 160 Culinary Fundamentals</b> (3:2:3)            Course Fees: \$40.00            This course is designed to teach students basic kitchen skills necessary for proper and efficient food production.            (Fall, Winter, Spring)</p>
<p><b>ASV 252 Veterinary Clinical Pathology 3</b> (3:2:3)            Prerequisite: ASV 251            This course is a continuation of the two previous Veterinary Clinical Pathology courses, ASV 150 and ASV 251. The emphasis of ASV 252 will be clinical microbiology, clinical mycology, and necropsy techniques. This course will also have continuation of hematology, chemistry panels, urinalysis, and serology testing.            (Winter)</p>	<p><b>CA 233 Pastry</b> (3:2:3)            Course Fees: \$50.00            Prerequisite: CA 131            An intermediate course in baking, desserts, and dessert presentation.            (Fall, Winter, Spring)</p>
<p><b>ASV 270 Veterinary Surgical Nurse 1</b> (3:2:3)            This course will cover what is done with the animal from admittance to the veterinary facility for surgery to dismissal of the animal. Topics covered will be: admission, history collection, physical exam, preoperative blood work, preoperative medications (analgesics, antibiotics, anti-inflammatories, and preanesthetics), surgical prep, aseptic technique, surgical assisting, postoperative care, and dismissal of the patient with client education for aftercare and follow-up. Surgical instrumentation and preparation of the surgical packs will also be covered            (Fall)</p>	<p><b>CA 234 Cake Decorating</b> (2:1:3)            Course Fees: \$65.00            Prerequisite: CA 131            This course teaches the fundamentals of making special occasion and wedding cakes at a beginning to intermediate skill level.            (Fall, Winter, Spring)</p>
<p><b>ASV 271 Veterinary Surgical Nurse 2</b> (2:1:2)            Prerequisite: ASV 270            This course is a continuation of ASV 270 and will continue to cover patient admittance, preoperative workup and care, aseptic technique, surgical prep, anesthesia, surgical assisting, and postoperative care. An emphasis will be placed on anesthesia and the monitoring performed while a patient is anesthetized. An emphasis will also be placed on preoperative radiographs, intraoperative radiographs, and postoperative radiographs.            (Winter)</p>	<p><b>CA 240 Confectionary</b> (2:1:2)            Course Fees: \$70.00            A course in basic candy making, sugar work, and techniques of working with chocolate.            (Fall, Winter, Spring - Rotating)</p>
<p><b>ASV 280 Large Animal Nursing</b> (1:2:2)            Prerequisite: AS 215            This course reviews restraint and handling techniques of large animals (agricultural animals) learned in ASV 131. A review of common procedures performed on large animals such as injections, venipuncture, and medicating will be covered. The course will emphasize the assistance in the medical and surgical care of injured or sick animals. This will include the preparation of large animals for surgical or medical procedures and the proper restraint needed to perform the given procedures.            (Fall)</p>	<p><b>CA 260 Applied Culinary Fundamentals</b> (3:2:3)            Course Fees: \$60.00            Prerequisite: CA 160            This course is designed to continue the student's learning of culinary fundamentals, including the basic skills of advanced culinary arts such as garde manger, international foods, and kitchen management.            (Fall, Winter)</p>
<p><b>ASV 290 Veterinary Medical Nursing</b> (2:1:2)            Prerequisite: ASV 120            This course will be procedural based. The student will learn how to properly calculate dosages for medication and the different routes used in the administration of those medications. There will be review of the different injection techniques such as SQ, IM, IV, and IP. The placement of various IV catheters will be covered, demonstrated, and performed. Performing ultrasonographic exams and the indications for those exams will also be covered. Record keeping will be an integral part of this course.            (Winter)</p>	<p><b>CA 280 International Foods</b> (2:1:3)            Course Fees: \$60.00            Prerequisite: CA 160            This course is designed to introduce students to various cuisines of the world. During the course the student will prepare foods from various regions of the world while discussing the history of food as well as contemporary food trends.            (Fall, Winter, Spring - Rotating)</p>
<p><b>ASV 295 Veterinary Office Management</b> (3:3:0)            Prerequisites: FDENG 101 and FDMAT 108            This course will deal with the basics of small business operations, such as veterinary clinics. It will take a deeper look into practice management software and the capabilities of various software packages to do more than keep patient records. This will include billing, accounts receivable, maintaining inventory of office and veterinary supplies, and pharmaceuticals. Training will also include scheduling appointments for patient visits.            (Winter)</p>	<p><b>CA 290R Special Studies</b> (1-6:0:0)            Repeatable Course: may earn maximum of 6 credits            Course Fees: \$15.00            Prerequisites: CA 131 or CA 160            Culinary Arts approved projects.            (Fall, Winter)</p>
<p><b>CA 131 Bakery</b> (3:2:3)            Course Fees: \$50.00            A beginning course in baking which develops practical skills through theory and hands-on experience.            (Fall, Winter, Spring)</p>	<p><b>CA 298 Internship</b> (1-6:0:0)            Culinary Arts internship            (Fall, Winter, Spring)</p>
	<p><b>CA 310 Culinary Nutrition</b> (3:2:3)            Course Fees: \$50.00            Prerequisite: CA 160            This course is designed to train culinary professionals to use nutritional principles to evaluate and modify menus and recipes, as well as respond knowledgeably to consumer questions and needs.            (Winter Spring)</p>
	<p><b>CA 334 Advanced Cake Decorating</b> (3:2:3)            Course Fees: \$75.00            Prerequisites: CA 234 and CA 131            This course teaches intermediate to advanced skills for special occasion and wedding cakes.            (Fall, Winter)</p>
	<p><b>CA 350 Food Service Management</b> (3:2:3)            Course Fees: \$80.00            Prerequisite: CA 160            Concepts of managing a food service operation, i.e. cost controls, data analysis, and future forecasting.            (Fall, Winter)</p>

**Animal and Food Science**  
**Brigham Young University-Idaho 2014-2015**

<p><b>CA 370 Garde Manger</b> (2:1:3)            Course Fees: \$50.00            Prerequisite: CA 260            An advanced course in the application of Garde Manger principles.            (Fall, Winter, Spring - Rotating)</p>	<p><b>FS 450 Food Chemistry</b> (3:2:3)            Course Fees: \$20.00            Prerequisite: CHEM 351            This course explains how water, carbohydrates, lipids, proteins, vitamins, and minerals react and interact in foods. Further emphasis will be placed on biochemical and functional properties, enzymes, and food additives.            (Winter, Spring)</p>
<p><b>CA 372 Advanced Presentation</b> (2:1:3)            Course Fees: \$50.00            Prerequisites: CA 260; or CA 160 and CA 233            This course is designed to advance student learning in the various aspects of presentation used in culinary arts.            (Fall, Winter, Spring - Rotating)</p>	<p><b>FS 490 Product Development</b> (4:3:3)            Course Fees: \$60.00            Prerequisites: FS 320, FS 340, FS 350, and FS 450. Also take FS 430 or FS 435.            This course is designed to provide the opportunity and challenge for students to integrate the theory and training of various food science and technology courses to develop viable food products. This is the IFT-required senior level capstone course that incorporates and unifies principles from the total undergraduate curriculum.            (Fall, Winter)</p>
<p><b>FS 120 Introduction to Food and Food Safety</b> (3:2:3)            Course Fees: \$40.00            This course provides an overview of the food industry and its related disciplines. It also introduces the principles of food microbiology, food safety, good manufacturing practices, and provides an opportunity for ServSafe Certification.            (Fall, Winter, Spring)</p>	<p><b>FS 498R Food Science Internship</b> (3:0:0)            Repeatable Course: may earn maximum of 6 credits            An internship is a cooperative program between BYU-Idaho Department of Animal and Food Science and approved Experience providers (employers). Internships provide actual work experience that will add to or enhance the career preparation and learning of individual students. Internships approved by the department or college internship coordinator provide students with knowledge of career opportunities and actual work experience in preparation for employment after graduation. The ideal internship would take place during the student's off track semester, however, allowances can be made to adjust schedules to meet specific internships. Students will not be allowed to start and finish their internship during the 7 week summer break. Required internships should generally be a "stepping stone" into your future career. Internships are typically 40-hour a week positions that last for the length of a semester (14 weeks).            (Fall, Winter, Spring)</p>
<p><b>FS 320 Food Laws, Regulations, and Additives</b> (2:2:0)            Prerequisite: FS 120            This course explores the history, development, and enforcement of laws and regulations that affect the food processing industry and food consumers. Emphasis for the course will be placed on the impact of legal and regulatory issues relating to food quality, safety, formulation, labeling, marketing, grading, product and process development, and international trade.            (Fall, Spring)</p>	<p><b>NUTR 112 Nutrition and Young Children</b> (2:2:0)            Concepts of human nutrition, nutrition education, menu planning, sanitation and food safety with emphasis on preschool children.            (Fall, Winter, Spring)</p>
<p><b>FS 340 Applied Sensory Science</b> (2:1:3)            Course Fees: \$50.00            Prerequisites: FS 120 and MATH 221B            This course covers the principles of sensory evaluation including theory, sensory physiology and psychology, experimental methods, applications, and statistical analysis.            (Fall, Spring)</p>	<p><b>NUTR 150 Essentials of Human Nutrition</b> (3:3:0)            Course Fees: \$5.00            Food oriented study of nutrition facts and principles as a basis for dietary choices; consequences of food choices; scientific examination of controversial topics.            (Fall, Winter, Spring)</p>
<p><b>FS 350 Food Analysis</b> (3:2:3)            Course Fees: \$30.00            Prerequisite: CHEM 351            The purpose of this course is to prepare students in all the principles, methods and techniques necessary for quantitative physical and chemical analysis of food products and ingredients essential for success in the food industry.            (Fall, Winter)</p>	<p><b>NUTR 200 Nutrient Metabolism</b> (3:3:0)            Prerequisites: NUTR 150; and CHEM 101 or CHEM 105 or CHEM 106            Nutrient oriented study of nutrition facts and principles; metabolic consequences of nutrient intakes; techniques of communicating valid nutrition concepts.            (Fall, Winter)</p>
<p><b>FS 360 Food Microbiology</b> (3:2:3)            Course Fees: \$20.00            Prerequisites: FS 120, BIO 221, and BIO 222            This is the study of the interactions of microorganisms in food in the following areas: fermentation of food, principals of food preservation, foodborne diseases, and food spoilage.            (Winter, Spring)</p>	<p><b>NUTR 330 Nutrition in the Life Cycle</b> (3:3:0)            Prerequisite: NUTR 150            Review of the nutritional requirements during pregnancy, lactation, infancy, childhood, adolescence, adulthood and the aging process.            (Winter, Spring)</p>
<p><b>FS 430 Fruit and Vegetable Processing</b> (3:2:3)            Course Fees: \$50.00            Prerequisite: FS 320            In this course, students will study the theory and application of preservation methods common to fruits and vegetables such as canning, freezing, drying, and freeze drying.            (Fall, Spring)</p>	<p><b>NUTR 350 Sports Nutrition</b> (3:3:0)            Course Fees: \$5.00            Prerequisites: NUTR 150 and NUTR 200 or ESS 375            Exploration into the nutritional recommendations for competitive and recreational sports. Evaluation of dietary regimens for competitive sports, energy needs and weight control.            (Fall, Winter, Spring)</p>
<p><b>FS 435 Dairy Processing</b> (4:1:8)            Course Fees: \$60.00            Prerequisites: FS 320 and CHEM 351            Concurrent Requisites: BIO 221 and BIO 222            Students in this class will develop an understanding of the basic principles of dairy chemistry and processing as well as put theory into practice by successfully making a variety of common dairy products.            (Fall, Winter)</p>	<p><b>NUTR 400 Nutritional Biochemistry</b> (3:3:0)            Prerequisites: NUTR 150; and NUTR 200 or BIO 180 or CHEM 150            Advanced study of nutrition science including, carbohydrate, protein and lipid digestion, absorption and metabolism, and their relevance in various disease states; acid base balance; and the physiology of obesity.            (Fall)</p>
<p><b>FS 440 Food Engineering</b> (3:0:0)            Course Fees: \$20.00            Prerequisites: PH 105 and MATH 119; or MATH 119 and PH 121            Students in this class will learn how basic engineering principles such as mass and energy balances, fluid flow, and unit operations apply to food processing. Packaging materials and waste management will also be studied.            (Fall, Winter)</p>	