1. **Student Learning Outcome #1:**
Graduate students will demonstrate a basic knowledge of statistics, an in-depth knowledge of their specific thesis research area and a general knowledge of other research in the Department. Areas of emphasis may include animal nutrition, genetics, physiology, muscle foods, parasitology and forages.

A. **Assessment Measure 1 – Indirect**
   - Completion of the thesis and successful defense to the faculty.
   - Results:
     - Thus far in the 2015-2016 Academic Year (fall and spring) there was 1 thesis defense and that student passed, a 100% success rate.
     - The target for an acceptable outcome is 100% - thus this goal was met.

B. **Assessment Measure 2 – Direct**
   - During the thesis defense or exit exam (for non-thesis students), students will be assessed using a rubric by the faculty members serving on their respective graduate committees.
   - Results:
     - This rubric has not yet been developed, so it is not yet being used.
   - Recommendation:
     - The assessment committee will develop a rubric and use it at the conclusion of the student’s defense or exit exam.

2. **Student Learning Outcome #2**
Graduate students will demonstrate problem solving skills.

A. **Assessment Measure 3 – Direct**
   - During the thesis defense or exit exam (for non-thesis students), students will be assessed using a rubric by the faculty members serving on their respective graduate committees.
   - Results:
     - This rubric has not yet been developed, so it is not yet being used.
   - Recommendation:
     - The assessment committee will develop a rubric and use it at the conclusion of the student’s defense or exit exam.

3. **Student Learning Outcome #3**
Graduate students will demonstrate critical thinking skills and be able to organize, analyze, and apply scientific and technical information

A. **Assessment Measure 4 – Direct**
• During the thesis defense or exit exam (for non-thesis students), students will be assessed using a rubric by the faculty members serving on their respective graduate committees.

• Results:
  o This rubric has not yet been developed, so it is not yet being used.

• Recommendation:
  o The assessment committee will develop a rubric and use it at the conclusion of the student’s defense or exit exam.

4. **Student Learning Outcome #4**
   Graduate students will be able to communicate effectively in a) oral and b) written form.

   A. Assessment Measure 5 – Direct
      • During the thesis defense or exit exam (for non-thesis students), students will be assessed using rubrics for a) oral and b) written communication skills by the faculty members serving on their respective graduate committees.
      
      • Results:
        o These rubrics have not yet been developed, so they are not yet being used.
      
      • Recommendation:
        o The assessment committee will develop rubrics and use them at the conclusion of the student’s defense or exit exam.

5. **Overall Recommendations**
   The assessment committee should develop rubrics that evaluate problem solving, critical thinking skills, as well as oral and written communication skills. The rubrics would be utilized at the conclusion of the student’s defense or exit exam.

6. **Action Plan**
   • The student assessment committee will develop rubrics to assess graduate student problem solving, critical thinking, as well as oral and written communication skills.
2016 Survey of ANSC Graduates

Major(s): ______________________________  Student ID: _______________________

Minor(s): ____________________________________________________________________

Do you have a pre-professional/pre-vet concentration?     ______Yes      ____No
Do you have an equine concentration/minor?    _____Yes     ____No

On a scale of 1 – 5, please rate your general competence in the areas listed below.
1 = I don’t feel competent in this area; 5 = I feel I have a general competence in this area

<table>
<thead>
<tr>
<th>Area of Competence</th>
<th>Score (1-5)</th>
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<tbody>
<tr>
<td>1. Physiology</td>
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<td>2. Genetics</td>
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<td>3. Nutrition</td>
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<td>4. Meat Production</td>
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<td>5. Animal production management &amp; animal welfare and sustainability practices</td>
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<td>6. Animal handling, restraint and general animal care skills</td>
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<td>7. Technical competency</td>
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<td>8. Environmental consciousness</td>
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<td>9. Ethical responsibility</td>
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<td>10. Leadership ability</td>
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<td>11. Oral communication</td>
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<td>12. Written communication</td>
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<td>13. Critical thinking/problem solving skills</td>
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<td>14. Basic and applied research skills</td>
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<td>15. Creativeness</td>
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<td>16. Writing and presenting scientific information in a professional manner</td>
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<tr>
<td>17. Equine reproduction management</td>
<td></td>
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<tr>
<td>18. Fundamentals of equine care</td>
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<td>19. Equine evaluation</td>
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<td>20. Equine marketing</td>
<td></td>
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<tr>
<td>21. General knowledge of advanced disciplines of basic sciences and mathematics</td>
<td></td>
</tr>
<tr>
<td>22. Fundamentals of animal health</td>
<td></td>
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</tbody>
</table>

Have you applied to vet or grad school?         _____Yes    _____No
Have you been accepted to vet or grad school?   _____Yes    _____No   If yes, where? ______________________
If not attending grad/vet school, do you have an offer of employment?     ____ _Yes   _____No
If you have an offer of employment, where? _________________________________________________

Please list one or two content areas that you feel the ANSC Dept. should improve:

Please list one or two strengths of the overall ANSC Dept.:
This survey will be used for departmental assessment purposes. Honestly completing this survey will help professors in the Department of Animal Science better serve students toward the goal of obtaining a quality degree.

Name ______________________ ID # ___________________

1. Class Status:
   a. Freshman
   b. Sophomore
   c. Junior
   d. Senior
   e. Continuing Ed. student

2. ANSC Degree Plan
   a. General ANSC
   b. Pre-Professional
   c. Equine
   d. Other, not ANSC

3. Citizenship:
   a. U.S.
   b. Other

4. Gender:
   a. Male
   b. Female
   c. Transgender
   d. Prefer not to respond

5. Race/Ethnicity:
   a. African American
   b. Asian/Pacific Islander
   c. Other
   d. Hispanic/Latino
   e. Caucasian

6. Age:
   a. Under 18
   b. 18-19
   c. 20-21
   d. 22-24
   e. 25 and above

7. Are you considered in-state or out-of-state for tuition purposes?
   a. In state
   b. Out of state

8. How many hours do you work for pay?
   a. None
   b. 1-10 hrs. /week
   c. 11-20 hrs. /week
   d. 21-30 hrs. /week
   e. More than 30 hrs. /week
9. Please check the organizations that you have been associated with:
   a. FFA
   b. 4H
   c. Judging team
   d. All of the above
   e. None of the above

10. Transfer student?
    a. No
    b. Yes, transferred from 2 year college
    c. Yes, transferred from other University or 4 year college

11. What type of background do you come from?
    a. Rural
    b. Urban

12. Milk fever...
    a. is most common in animals consuming lush spring pasture
    b. can be caused by feeding a diet deficient in Ca prior to calving
    c. results in muscle spasms and paralysis due to low blood K
    d. could be treated by infusing Ca and/or PTH into the blood of the cow

13. Which of the following hormones may be given to sows to stimulate uterine contractions?
    a. Oxytocin
    b. Oxycontin
    c. Estrogen
    d. Swine growth hormone

14. What is the most reliable sign of estrus?
    a. Holds tail out
    b. Lordosis or standing heat
    c. Rides other animals
    d. Excessive grunting

15. This protein hormone is produced and released by the anterior pituitary and stimulates the
    formation and retention of the corpus luteum. It also initiates ovulation.
    a. Progesterone
    b. Estrogen
    c. Luteinizing hormone
    d. Insulin.

16. What hormone is important in seasonal breeders, is inhibited by light, and the major source is the
    pineal gland?
    a. Melatonin
    b. Estrogen
    c. Oxytocin
    d. Progesterone
17. Where does spermatogenesis occur?
   a. Seminal vesicles
   b. Seminiferous tubules
   c. Prostate
   d. Epydidymus

18. Hormone produced and released by the hypothalamus that causes release of follicle stimulating hormone and luteinizing hormone is:
   a. Progesterone
   b. Prostaglandin F2alpha
   c. Gonadotropin releasing hormone
   d. Estrogen

19. The type of placenta attachment common to ruminant animals is:
   a. Diffuse
   b. Discoid
   c. Cotyledonary
   d. Zonary

20. Hormone produced by the corpus luteum and/or placenta that maintains pregnancy is:
   a. Placental lactogen
   b. Prolactin
   c. Relaxin
   d. Progesterone

21. Phase of the estrous cycle when progesterone is the dominant hormone:
   a. Estrus
   b. Diestrus
   c. Proestrus
   d. Metestrus

22. Farm animal that has a specific site (ovulation fossa) on their ovary where ovulation occurs:
   a. Sow
   b. Mare
   c. Cow
   d. Ewe

23. During the early stages of a fast, it is critical that glycogen from liver and muscle, and amino acids from body tissues supply the precursors for the critical nutrient __________. Without this nutrient, the animal loses consciousness.
   a. Fatty acids
   b. Urea
   c. Phosphorus
   d. Glucose
24. Endocrinology is one of two internal communication systems within vertebrates. Ligands synthesized and released by the anterior pituitary directly control many physiological systems. Which of the following systems is not directly affected by the anterior pituitary?
   a. Growth
   b. Lactation
   c. Stress
   d. Sense of smell

25. Which breed of dairy goat has very small almost-nonexistent ears??
   a. Dorper
   b. Boer
   c. La Mancha
   d. Oberhasli

26. From the mating of two homozygous polled parents, what percentage of the offspring would you expect to have a homozygous polled genotype? (You may assume that polled is dominant)
   a. 0%
   b. 25%
   c. 50%
   d. 75%
   e. 100%

27. If a heterozygous black bull is mated to 100 red cows, approximately how many of the resulting calves will be red?
   a. 0
   b. 25
   c. 50
   d. 75
   e. 100

28. When a Charolais bull is mated to a black Angus cow, a gray calf results. That is an example of ____________.
   a. Shared dominance
   b. Incomplete dominance.
   c. Complete dominance
   d. Over dominance.

29. What is the term for those traits in which there is no sharp distinction between phenotypes, with a gradual variation from one phenotype to another? Usually gene pairs and environmental influences are involved.
   a. Qualitative traits
   b. Quantitative traits
   c. Dominant traits
   d. Non-dominant traits
30. What term describes the appearance and performance characteristics of an animal?
   a. Heterozygote
   b. Mitosis
   c. Genotype
   d. Phenotype

31. What is the general model describing phenotypic variation?
   a. Phenotype = Genotype + Environment
   b. Phenotype = Genetics + Diet
   c. Phenotype = Breed Average + yearly adjustment factor
   d. None of the above

32. What is a SNP?
   a. A location in the genome where a single nucleotide variation exists used for genetic associations used in breeding.
   b. A short nuclear proliferation effect
   c. A genetic phenomenon that always causes variation in traits
   d. A small nucleotide parameter

33. What is a valid description of an epigenetic effect?
   a. An effect that appears to be genetic but is not
   b. An effect that is partially impacted by the environment
   c. An effect on DNA methylation in the parents that impacts the phenotype of the offspring
   d. Both B and C

34. Which of the following terms can be defined as: the expression of genes at one locus depends on alleles present at one or more other loci.
   a. Incomplete dominance
   b. Single genetic decision
   c. Single trait selection
   d. Epistasis

35. The proportion of phenotypic variation that can be passed from parent to offspring is referred to as:
   a. Selection differential
   b. Selective breeding
   c. Genotype
   d. Heritability

36. Which of the following is the fourth stomach compartment in ruminants, known as the true stomach?
   a. Rumen
   b. Reticulum
   c. Oakum
   d. Abomasum
37. What is the term for a high-acid condition in the rumen (pH 5.3-5.7) caused by rapid consumption or overconsumption of readily fermentable feed; may cause digestive disturbance and/or death?
   a. Colic
   b. Acidosis
   c. Black leg
   d. Bloat

38. What mineral and vitamin are deficient in neonates suffering from White Muscle Disease?
   a. Iron and vitamin B
   b. Selenium and vitamin C
   c. Iron and vitamin A
   d. Selenium and vitamin E

39. In a typical corn-soybean meal based diet for a monogastric, which amino acid is most limiting?
   a. Methionine
   b. Tryptophan
   c. Lysine
   d. Tyrosine

40. Which sulfur containing amino acid is most likely to be deficient in swine?
   a. Tryptophan
   b. Glycine
   c. Leucine
   d. Methionine

41. What are the two main gases produced in the rumen?
   a. Methane and oxygen
   b. Methane and carbon dioxide
   c. Oxygen and helium
   d. Oxygen and carbon monoxide

42. Ruminant's ability to break down _____________ allows them to utilize forage more efficiently than monogastrics.
   a. Saturated fats
   b. Cellulose
   c. Lignin
   d. Simple carbohydrates

43. Volatile Fatty Acids (VFA’s) are an important source of _____ for ruminants?
   a. Energy
   b. Protein
   c. Fat
   d. Fiber

44. The fermentative organ of hindgut fermenters, comparable in function to the rumen, is the:
   a. Colon
   b. Cecum
   c. Rectum
   d. Small Intestine
45. Which of the following is a fat-soluble vitamin?
   a. Vitamin K
   b. Pantothenic acid
   c. Vitamin B12 (cobalamin)
   d. Vitamin C

46. Which of the following is NOT an essential amino acid?
   a. Isoleucine
   b. Histidine
   c. Riboflavin
   d. Threonine

47. What is the most abundant nutrient in the body?
   a. Minerals
   b. Water
   c. Protein
   d. Carbohydrates

48. Which of the following agency is responsible for meat grading?
   a. The Food Safety Inspection Service (FSIS) within USDA
   b. The Agricultural Marketing Service (AMS) within FDA
   c. The Agricultural Marketing Service (AMS) within USDA
   d. The United States Meat Export Federation (USMEF)
   e. Meat grading is not regulated by a governmental agency.

49. What is the average dressing percentage for a beef animal?
   a. 52%
   b. 62%
   c. 72%
   d. 82%

50. What is name of the pigment responsible for fresh meat color?
   a. Myoglobin
   b. Myosin
   c. Myostatin
   d. Marbling

51. To what minimum temperature should ground beef be cooked to ensure safety?
   a. 100 C
   b. 120 F
   c. 145 F
   d. 160 F
   e. 185 F
52. _______ The point at which Fat begins to increase in proportion and muscle begins to decrease in proportion of carcass wt.
   a. onset of fattening
   b. Point of inflection
   c. Birth
   d. Puberty

53. _______ This type of fat develops within the muscle and is referred to as Marbling.
   a. Subcutaneous
   b. Intramuscular
   c. Visceral
   d. Intermuscular

54. Proper refrigeration of foods is important because:
   a. Most harmful bacteria are killed at temperatures below 40 degrees F.
   b. Most harmful bacteria do not grow at temperatures below 40 degrees F.
   c. It prevents cross-contamination of food
   d. Refrigeration is not important

55. Which of the following is true about Organic Beef producers?
   a. Cattle may have been given antibiotics if they were sick and their welfare was compromised
   b. Forage from pastures that have not had pesticides for 1 year is allowed for cattle marketed as organic
   c. The USDA states that this beef is safer and more nutritious
   d. _______

56. During skeletal muscle contraction, what ligand initiates skeletal muscle contraction and how is calcium directly involved with skeletal muscle contractions?
   a. Acetylcholine stimulates muscle fibers, and calcium binds to calmodulin
   b. Acetylcholine stimulates muscle fibers, and calcium binds to troponin
   c. Oxytocin stimulates muscle fibers, and calcium binds to calmodulin
   d. Oxytocin stimulates muscle fibers, and calcium binds to troponin

57. Lactating animals work very hard to provide a nutritious product. Milk ejection is caused by contraction of the smooth muscle myoepithelial cells. What ligand initiates myoepithelial cell contraction and how is calcium directly involved with smooth muscle contractions?
   a. Acetylcholine stimulates muscle fibers, and calcium binds to calmodulin
   b. Acetylcholine stimulates muscle fibers, and calcium binds to troponin
   c. Oxytocin stimulates muscle fibers, and calcium binds to calmodulin
   d. Oxytocin stimulates muscle fibers, and calcium binds to troponin
   e. The USDA has a set of national standards regulating using the organic label

58. In order to achieve optimal passive transfer of antibodies from the dam to neonate, colostrum must be ingested by the neonate by _______ after birth.
   a. 24 hours
   b. 48 hours
   c. 3 days
   d. None of the above
59. In order to be compliant with Beef Quality Assurance standards, vaccines should only be given in the _____ area of cattle.
   a. rump
   b. flank
   c. neck
   d. none of the above

60. How much do beef calves typically weigh (live weight) at birth?
   a. 20 - 30 lbs
   b. 30 - 40 lbs
   c. 60 – 90 lbs
   d. 120 - 140 lbs

61. Which body condition score would be expected to be the "fattest?"
   a. 3
   b. 4
   c. 5
   d. 6

62. Which disease is detected using the Coggins test?
   a. Encephalitis
   b. Equine infectious anemia
   c. Equine protozoal myelitis
   d. Tetanus

63. How many days is the average gestation length in sheep?
   a. 114 days
   b. 148 days
   c. 3 months, 3 weeks, 3 days
   d. 204 days

64. What is the standard bull to cow ratio for a mature breeding bull?
   a. 1:10 to 1:12
   b. 1:24 to 1:30
   c. 1:60 to 1:75
   d. 1:100 to 1:120

65. Sometimes tall fescue can cause problems for pregnant broodmares. What specifically can cause fescue to be a problem?
   a. A chemical produced by the plant
   b. A chemical produced by an endophytic fungus living in the plant
   c. An allergic reaction by the broodmare from touching the plant
   d. An insect living on the leaves of the plant
66. We test the specific gravity of a dam’s colostrum in order to estimate the __________ content.
   a. Calcium
   b. Vitamin
   c. Immunoglobulin
   d. Nutrition
   e. Antioxidant

67. Which of the following best describes stage 2 parturition in the dam?
   a. The muscles of the croup and vulva relax, the udder begins to wax, and milk physiology changes.
   b. The mare appears uneasy, is very sweaty, and paces often. She may appear mildly colicky.
   c. The rupture of the placental membranes and the expulsion of the fetus
   d. Expulsion of the placenta

68. Proper refrigeration of foods is important because:
   a. Most harmful bacteria are killed at temperatures below 40 degrees F.
   b. Most harmful bacteria do not grow at temperatures below 40 degrees F.
   c. It prevents cross-contamination of food
   d. Refrigeration is not important

69. The point at which pressure in the flight zone results in forward vs. backward movement is the:
   a. Flight Zone
   b. Point of Balance
   c. Blind Spot
   d. Squeeze Chute

70. Ideally, a beef cow should calve every:
   a. 6 months
   b. nine months
   c. year
   d. two years