ANSC (FSTC) 607 SYLLABUS AND SCHEDULE
PHYSIOLOGY AND BIOCHEMISTRY
OF MUSCLE AS A FOOD
MW 3:00 – 4:15
Kleberg 123

INSTRUCTOR: Stephen B. Smith
OFFICE: 338A Kleberg Center
PHONE: 845-3939
E-mail: sbsmith@tamu.edu
Course website: http://animalscience.tamu.edu/academics/courses/ansc-grad/anscfstc-607/

Office hours: Drop in or by appointment

OBJECTIVES:
Upon completion of this course, the student should be able to:
1. Describe muscle metabolism both antemortem and postmortem.
2. Demonstrate familiarity with the various models of muscle contraction.
3. Describe the conversion of muscle to meat.
4. Discuss growth, development, and innervation of muscle.
5. Describe the relationship between the motor unit and strength of contraction.

REQUIRED READING MATERIAL:
TEXT. None required.
REPRINTS. Copies of reprints relevant to the class lectures will be distributed to the students by e-mail as pdf files. Portions of this material will be included in the exams.

GRADING: A = 90-100%; B = 80-89%; C = 70-79%; D = 60-69%; F = 59% or lower

EXAMS:
Midterm I* 50 points
Midterm II 50 points
Midterm III 50 points
Midterm IV 50 points
Quizzes** 40 points
Final (25% new, 75% review) 100 points

TOTAL 340 points
TOTAL FOR GRADE BASIS*** 290 points
*There will be four midterms, each covering the material from five lectures. The final exam will cover lecture material from the last section plus material from the previous midterms.

**Twenty, two-point quizzes will be given throughout the semester. The quizzes are designed to encourage students to study ahead for class and reinforce exam material. **There are no make-up quizzes, but students will not be penalized for missing quizzes due to excused absences** (total quiz score will be adjusted accordingly). Excused absences include illnesses, scientific meetings in which the student is required to attend, and unavoidable laboratory research.

***Students are allowed to drop one midterm (Midterms I – IV). **Students are required to take all midterms and the final, but students are allowed to miss one midterm for excused absences.** Students who do not miss any midterms may drop the midterm with the lowest score. **Students who miss two midterms (excused or otherwise) are required to take a midterm that includes information from both missed midterms.

**AGGIE CODE OF HONOR:** An Aggie does not lie, cheat, or steal, and will not tolerate those who do.

**AMERICANS with DISABILITIES ACT (ADA) POLICY STATEMENT:**
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, in Cain Hall, Room B118, or call 979-845-1637. For additional information visit [http://disability.tamu.edu](http://disability.tamu.edu).
<table>
<thead>
<tr>
<th>SECTION I. MUSCLE STRUCTURE AND METABOLISM</th>
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<tr>
<td><strong>September</strong></td>
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<tr>
<td>1   Introduction to the class</td>
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<tr>
<td>3   Enzyme kinetics. Control reactions in metabolic pathways</td>
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<td>8   Glycolysis and the tricarboxylic acid cycle</td>
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<td>10  Glycogen synthesis</td>
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<td>15  Glycogen degradation</td>
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<td>17  Muscle fiber types and metabolism</td>
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<tr>
<td>22  <strong>MIDTERM I (Muscle Metabolism)</strong></td>
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<th>SECTION II. MUSCLE STRUCTURE AND CONTRACTION</th>
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<tr>
<td><strong>October</strong></td>
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<tr>
<td>1   Cooperative action of muscle proteins</td>
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<td>6   Alternative models of contraction</td>
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<td>8   Kinetics of muscle contraction</td>
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<td>13  <strong>MIDTERM II (Muscle Ultrastructure and Contraction)</strong></td>
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<th>SECTION III. CONVERSION OF MUSCLE TO MEAT</th>
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<td><strong>November</strong></td>
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<tr>
<td>3   <strong>MIDTERM III (Conversion of Muscle to Meat)</strong></td>
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SECTION III. GROWTH, DEVELOPMENT, AND INNERVATION OF MUSCLE

5  Embryonic growth and myogenesis
10  Satellite cells and muscle repair and growth
12  Primary, secondary, and tertiary myotubes during muscle development
17  Plasticity of muscle fibers: polyneural innervation
19  Motor innervation of muscle
24  MIDTERM IV (Innervation and Development of Muscle)
26  No class. Happy Thanksgiving!

SECTION IV. INNERVATION, DENERVATION, AND THE MOTOR UNIT

December
1  Muscle proprioceptors
3  Innervation, denervation, and development of muscle
9  The motor unit, force of contraction, and muscle fiber recruitment
10 - 11 Reading days. No classes.
16  FINAL EXAMINATION (10:30 – 12:30) (25% new material; 75% review)