Course Syllabus  
PO 4324/6324 Avian Reproduction  
Fall Semester  
Dr. Chris McDaniel, Professor of Poultry Science

**General overview of class:**
Avian reproductive physiology and its application to management of poultry for maximum reproductive performance will be discussed. Reproductive characteristics of several different species of birds will be examined; however, the broiler breeder will serve as the major discussion topic. This course will be divided into three major sections which are as follows: the male, the female, and combined sex topics (breeding and genetics, fertilization, embryonic development, fertility, hatchability, etc.). A basic biology approach will be utilized in both lecture and laboratory to explain applied agricultural science topics so that students may develop the independent thinking process.

There is no textbook for this class, so students will be expected to take notes during lecture. Not all test material will be written on the board, therefore students must pay attention during class and ask questions. Students that interrupt the class by talking during lecture will be removed from the classroom.

**Testing:**
Every other week during the semester, students will be given an opportunity to express the knowledge that they learned in class. To encourage studying throughout the semester and not just the night before the exams, short, 10 minute quizzes will be given approximately every 4 weeks of the semester and each will count for 4% of the total grade. Between each of the quizzes, 1 hour exams (4 total) will be given with each representing 16% of the total grade.

Every quiz and exam will be designed so that many different styles of questions are utilized. Defining questions, true or false questions, multiple choice questions, short answer questions, and essay questions will each represented 20% of the points on every test. This testing style allows for a complete examination of the amount of knowledge that the student retains.

**Laboratory:**
The laboratory section of this class constitutes 24% of the grade earned. Each of the 15 lab meetings is worth 10 points. For a few lab meetings only attendance will be required to earn the 10 points; however, for most lab meetings a report must be turned in either at the end of the lab period or by the following lab period. Lab reports that are due at the beginning of the next lab period must be typed and include the following: an introduction describing what you did and the materials you used, a results section with computer generated graphs and analysis, and a discussion section that describes your interpretation of the results.
Point Distribution:
The grade earned by each student in this class will be determined by averaging the four 1 hour test grades, quiz grades, and lab as follows:

<table>
<thead>
<tr>
<th>Test</th>
<th>Percentage</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st 10 minute quiz</td>
<td>4%</td>
<td>25</td>
</tr>
<tr>
<td>1st 1 hour test</td>
<td>16%</td>
<td>100</td>
</tr>
<tr>
<td>2nd 10 minute quiz</td>
<td>4%</td>
<td>25</td>
</tr>
<tr>
<td>2nd 1 hour test</td>
<td>16%</td>
<td>100</td>
</tr>
<tr>
<td>3rd 10 minute quiz</td>
<td>4%</td>
<td>25</td>
</tr>
<tr>
<td>3rd 1 hour test</td>
<td>16%</td>
<td>100</td>
</tr>
<tr>
<td>Lab</td>
<td>24%</td>
<td>150</td>
</tr>
<tr>
<td>Final Examination</td>
<td>16%</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>625</td>
</tr>
</tbody>
</table>

Grades will be assigned on a 10 point scale.

A = 90-100%
B = 80-89
C = 70-79
D = 60-69
F = <60

Graduate Student Requirement:
Graduate students will be required to write a literature review on a recent topic of interest in avian reproduction. The graduate students will then present this information before the class in the form of a 15-20 minute oral presentation. The written and oral presentation will each count 4% of the final grade or 25 points. Therefore the total points for graduate students will be 675 points.

Academic Misconduct:
The MSU Honor Code:

“As a Mississippi State University student I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do.”

Upon accepting admission to Mississippi State University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for
learning, and to follow the philosophy and rules of the Honor Code. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the MSU community from the requirements or the processes of the Honor Code.

For additional information please visit: http://students.msstate.edu/honorcode/

Students will be monitored during every test for cheating. Those found cheating will be subjected to all University rules and regulations regarding cheating, including an “F” in the course for the first academic misconduct offense.

Class Attendance
The University policy on class attendance will be strictly adhered to. Because there is no textbook for this class, students that do not attend class and lab regularly will ultimately fail. Makeup examinations and lab reports will only be given for excused absences, otherwise a zero grade will be given.

Outside of Classroom Assistance
My office is in room 213 of the Hill Poultry Science Building. My office phone number is 325-1839. If I am not in, leave a message on my voice mail.
Class Outline and Calendar
for
Avian Reproduction (PO4324/6324)

Class Meeting: 1  Basic Genetics: Chromosomes, Genes, Phenotypes, and Geneotypes
2  Heritability, Selection and Hybrid Vigor
3  Sex Linked Traits
   LAB 2: Feather Sexing a Sex linked Trait
4  **10 Minute Quiz** and Lecture on Poultry Breeding Schemes
5  Poultry Traits Selected For
6  Macro and Microscopic Female Reproductive Anatomy
   LAB 3: Female Reproductive Anatomy In and Out of Production

7  **Labor Day Holiday**
8  Female Reproductive Endocrinology
9  Ovulation and Oviposition
   LAB 4: Hormonal Control of Oviposition
10  **1 Hour Test**
11  Factors Affecting Female Reproduction, Arbor Acres Management Video
12  **No Class**
   LAB 5: NO LAB, MPA Trip to Destin, FL
13  Female Management Techniques - House Preparation
14  Brooding Stage- Temperature, Floor Space, Feeding, Water, Light
15  LAB 6: Photostimulation and Reproduction
16  Growing Stage- Floor space, Light, Ventilation
17  **10 Minute Quiz** and Lecture on Feeding during the Growing Stage
18  Growing Stage- Rules of Feed Restriction, Bird Weights and Uniformity
   LAB 7: Uniformity Calculations
19  Laying Stage- Explanation of Shell Quality and How to Measure It

20  LAB 8: Egg Characteristics and Shell Quality of Young and Old Birds
21  Laying Stage- Floor Space, Nest, Measures of Egg Production, Feeding
22  **1 Hour Test**
23  Macro and Microscopic Male Reproductive Anatomy
24  Spermatogenesis
   LAB 9: Male Reproductive Anatomy and Semen Collection
25  Male Reproductive Endocrinology, Sertoli Cells, Phases of Development
26  Factors Affecting Male Reproduction, Rearing Schemes
27  Explanation of Semen Quality and How to Measure It
   LAB 10: Semen Quality

Outline and Calendar Continued
10 Minute Quiz and Lecture on Artificial Insemination - Pros and Cons
Artificial Insemination - On Farm
LAB 11: Artificial Insemination Technique and Calculations
Fall Break - No Class
Brooding, Growing, and Mating Stages as well as Spiking
Fertilization and Early Embryonic Development
LAB 12: Fertilization - Sperm Egg Penetration and Fresh Egg Breakout
1 Hour Test
Methods for Determining Fertility, Egg Handling and Egg Storage
Early Embryonic Mortality
LAB 13: Candling and Early Embryonic Development
Incubation - Factors Affecting Embryonic Development in the Setter
Setter Humidity
Egg Turning, Ventilation, and Factors Affecting Incubational Length
Factors Affecting Embryos in the Hatcher - Hatch Calculations
LAB 14: Hatch Residue Analysis Breakout
Causes of Hatch Failures - Hatch Residue Analysis, What to Expect
Chick Quality, Vaccination, and Diseases
Most Recent Research Topics in Avian Reproduction
Miracle of Life Video
Thanksgiving Holiday
Graduate Student Presentations
Final Exam