

Animal Science 473BX: Breeder Flock & Hatchery Management Summer 2025

Lecture: Monday - Friday: 8:00 – 12:00 pm; 1:00-5:00 pm, Kildee Hall

Laboratory: Monday - Friday: 1:00-5:00 pm, Poultry Teaching Farm; Kildee Hall

Course Description: History of artificial incubation relevant to the U.S. hatching industry. Practices involved in successful incubation of hatching eggs and embryonic development in birds. Management factors involved in breeder hen production and operating a hatchery.

Student Outcomes: At the completion of this course, students should be able to:

1. Identify normal incubation requirements and problems associated with improper conditions.
2. Evaluate biosecurity plans and measures of microbial cleanliness of hatcheries.
3. Identify current management systems for poultry breeding flocks and understand differences among different species.
4. Apply knowledge of incubation and breeder management systems to analyze industry situations.

Grading: Your final grade for this course is calculated from a total of 400 points:

Exam 1:	150 points
Exam 2:	150 points
Topical Paper Discussion:	40 points
Problem Set:	40 points
Participation:	20 points

Final grades are assigned as follows:

A	372-400 points
A-	349-371 points
B+	336-348 points
B	322-335 points
B-	310-321 points
C+	298-309 points
C	286-297 points
C-	274-285 points
D+	262-273 points
D	250-261 points
D-	239-249 points
F	238 points or less
D-	239-249 points
F	238 points or less

Expectations: Class participation is an important aspect of active learning and is directly beneficial to the student and their peers. The best way to get the most out of this class is participation, asking questions, and networking with your peers and guest speakers. The poultry industry is small and offers many job opportunities. As Poultry Science Departments and classes are disappearing across the country, this class is an excellent way to get your foot in the door to discover an interest you didn't know you had, or also help you find what you do not want to do for a career. When Canvas or any online/ email option is used to submit class work, it is the sole responsibility of the student to ensure documents are submitted on time and in a readable format. Any malfunction is the responsibility of the student and students must clearly communicate that the final form has been submitted when submitting over email.

The nitty gritty: Missed in-class evaluation (quizzes and exams) cannot be made up and students will receive a zero. Missed labs or evaluations may be made up only for sponsored activities. The student must provide signed official documentation of this sponsored event or forfeit all points associated with the missed class time. If you have an emergency, you must email the instructor before class or lab begins. Lab attendance will be monitored and full participation is required. Early departure from lab is disrespectful to the instructor and peers, and will not be tolerated. Late work is not accepted and will receive a zero. Syllabus is subject to change.

Biosecurity: The ISU poultry farm maintains a strict biosecurity policy of 72 hours without bird contact to enter the research and teaching facilities; this includes **commercial, research, hobby, or pet birds** that would interfere with compliance to the biosecurity policy. Please let me know if you have potential conflicts with this policy as soon as possible. Additionally, all students should wash hands after lab section to avoid self-contamination with communicable infectious diseases naturally harbored by poultry, including but not limited to: salmonella, e. coli, campylobacter, etc.

Labs and Field Trips: This course requires involvement lab sessions, which will be held at the ISU Poultry Farm and in Kildee Hall, as well as field trips. Transportation will be provided.

Photography: Cell phone use or photography during lab is strictly prohibited. Any use of cell phones for any purpose during lab will result in removal of the student from the lab and forfeit of all points associated with that day.

Dress code: Clean, close-toed shoes, and long pants. Clothes that have been in contact with other livestock or hobby animals must be laundered before being worn at any ISU livestock farm. We are going to be working with poultry in the lab sections, so please be mindful you may get dirty.

Academic Honesty: All students are expected to practice academic honesty in every aspect of this course, including homework, quizzes, projects, and exams. Please familiarize yourself with the ISU Student Information Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures, as well as consequences with regard to this course. Forms of academic dishonesty include but are not limited to copying course work (or allowing others to do so), paying or being paid for course work, or plagiarism. See the Conduct Code at <http://www.studentconduct.dso.iastate.edu/> for more details.

Students with special needs: Iowa State University complies with the American with Disabilities Act and Section 504 of the Rehabilitation Act. Any student who may require an accommodation under such provisions should contact me as soon as possible, as no retroactive accommodations will be provided in this class. You will need to provide documentation of your disability to the Student Disability Resources (SDR) office, located on the main floor of the Student Services Building, Room 1076, 515-294-7220.

Respect and Professionalism: You are expected to treat your instructor and all other participants in the course with courtesy and respect. Your comments to others should be factual, constructive, and free from harassing statements. You are encouraged to disagree with other students, but such disagreements need to be based upon facts and documentation (rather than prejudices and personalities). It is the instructor's goal to promote an atmosphere of mutual respect in the classroom. Please contact the instructor or MPC staff if you have suggestions for improving the classroom environment. It is preferable if students discuss issues directly with the instructor or MPC staff.

Discrimination and Harassment: Iowa State University strives to maintain our campus as a place of work and study for faculty, staff, and students that is free of all forms of prohibited discrimination and harassment based upon race, color, age, ethnicity, religion, national origin, pregnancy, sexual orientation, gender identity, genetic information, sex, marital status, disability, or status as a U.S. Veteran. Students engaging in any negative behaviors in this class, or in Animal Science facilities, are subject to appropriate disciplinary action by the course instructor, and will also have their cases referred to the Dean of Students Office. Any student who has concerns about such behavior should

contact the course instructor, [Student Assistance](#) at 515-294-1020 or email dso-sas@iastate.edu, or the [Office of Equal Opportunity and Compliance](#) at 515-294-7612.

Religious Accommodation: Iowa State University strives to reasonably accommodate students who's sincerely held religious beliefs or creed conflict with academic requirements. Accommodation requests must be made proactively. The process for requesting an accommodation is interactive and the process must be initiated by the individual seeking the accommodation. For optimal consideration, students should inform instructors as soon as possible in the semester of a course conflict. It is recommended that the student and instructor discuss the request in person and then document the resolution in an email format. Assistance throughout the process for all parties involved is available through the [Office of Equal Opportunity](#) at 515-294-7612.

Disability Accommodation: Iowa State University is committed to assuring that all educational activities are free from discrimination and harassment based on disability status. Students requesting accommodations for a documented disability are required to meet with staff in Student Accessibility Services (SAS) to establish eligibility and learn about related processes. Eligible students will be provided with a Notification Letter for each course and reasonable accommodations will be arranged after timely delivery of the Notification Letter to the instructor. Students are encouraged to deliver Notification Letters as early in the semester as possible. SAS, a unit in the Dean of Students Office, is located in room 1076 Student Services Building or online at www.sas.iastate.edu. Contact SAS by email at accessibility@iastate.edu or by phone at 515-294-7220 for additional information.

Academic Misconduct in any form is in violation of Iowa State University *Student Disciplinary Regulations* and/or the *MPC Code of Conduct* will not be tolerated. This includes, but is not limited to: copying or sharing answers on tests or assignments, plagiarism, and having someone else do your academic work. Depending on the act, a student could receive a "0" grade on the test/assignment, "F" grade for the course, and could be suspended or expelled from the University. See the Conduct Code at www.dso.iastate.edu/ja for more details and a full explanation of the Academic Misconduct policies.

Contact Information: If you are experiencing, or have experienced, a problem with any of the above issues, email academicissues@iastate.edu.

Monday, June 16

8:30 - 9 am Course introduction, introduce problem sets, Kean - Zoom

9 am Respiration of the embryo Held
Conductance of eggshells Held
Embryology Held
Egg Storage (and SPIDES)
Pre-incubation handling of hatching eggs Held

Tuesday Field Trip – Hatchery Tour TBD
2 – 4 Embryology lab Held

Wednesday

8:30 - 11 Physiological requirements for incubation Held
In ovo vaccination Held
Thermoregulation Held
How to conduct a breakout Held
11-12 Post-hatch chick quality Kean

1-4:30 Chick quality lab Held / Kean
Hatch Residue Breakout Lab Held / Kean

Thursday

8:30 – 10 Brief history of artificial incubation and hatching Kean
10 - 11 Newer sexing methods Kean
11 – 12 Hatchery layout, scheduling, recordkeeping Kean
1 – 2 Personnel management and contracts Kean
2-3 Incubation of other species Kean

Friday

8:30 – 9:30 **Exam 1**
9:30 – noon Layer Breeder Management Pettit (Hy-Line)
1 – 2 (cont.)
pm Work on Group Projects / Papers Students

Monday

8:30 – 10:30 Microbes in the hatchery Dashek
Cleaning and disinfection, Dashek
Microbiological monitoring Dashek
10:30 – 11:30 Hydrogen Peroxide and formaldehyde in hatcheries Dashek
1-2 Environmental considerations for breeders Dashek
2-3 NPIP and breeder farm biosecurity Dashek

Tuesday

8:30 – 9:30 Introduction to poultry production systems Kean

9:30 – 10:30	Feed restriction concepts in breeding poultry	Kean
10:30-11:30	Lighting program concepts for breeding poultry	Kean
1 – 2:30	Turkey breeder rearing and flock management	Kean
2:30 - 3:30	Turkey breeder flock management	Kean
3:30-4:30	Bird behavior & relation to management	Kean
Wednesday		
8:30-9:30	Broodiness and broodiness control	Kean
9:30-10:30	Introduction to artificial insemination	Kean
10:30-11:30	TBD	
1-2:30	AI and behavior monitoring Lab	Kean
2:30-4	Environmental monitoring Lab	Kean
Thursday		
8:30 - 10	Broiler breeder rearing and flock management	Kean
10 -11:30	Organization and genetic flow in the poultry industry, Kean breeder selection strategies	
1 - 2	Gait Scoring / Footpad Scoring	Kean
2:30-5	Work on Group Projects / Papers	Students
Friday		
8:30 – 9:30	EXAM 2	
10 – noon	Student reports, evaluations	