

**Biosecurity in Animal Agriculture**  
11:067:295, 3 Credit Hours  
Monday/Thursday 9:15-10:35am ; Thompson Hall 101

**Instructor: Dr. Anna Hausmann (DVM)**

Office: 213D Bartlett Hall

Office Hours: Mondays and Thursdays 2:30pm-4:00pm **or** by appointment

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Please call or e-mail for appointments. Responses are generally within 24 *business* hours.

**Prerequisites:**

11:067:142 – Introduction to Animal Sciences

01:119:115 and 01:119:116 – General Biology

**Course Description:**

Biosecurity in Animal Agriculture focuses on production animal management practices and the implementation of safeguards that decrease the spread of infectious diseases. This course gives students the opportunity to understand and apply concepts of disease transmission in animal production situations. Multiple species and diseases will be discussed throughout the course as examples of biosecurity in practice. This course provides the foundation for students interested in learning the complexities of the prevention of disease transmission in both animals and humans. Biosecurity in Animal Agriculture is a discussion-based course to allow students to fully understand the practical application of biosecurity in our ever more global world.

**Reference Textbook (Students should NOT purchase the textbook):**

Dewulf, J., & Immerseel, F. V. (2018). *Biosecurity in animal production and veterinary medicine: From principles to practice*. Leuven: Acco.

**Course Website:**

The course website will be on Sakai: <https://sakai.rutgers.edu/portal#>

### Course Learning Goals:

- Understand the basic concepts of biosecurity in animal agriculture from small- to large-scale operations (PLG 1, 3)  
**Assessment:** Course discussions, quizzes, paper, final presentation
- Understand the basic concepts of biosecurity at the national and international level (PLG 1, 3)  
**Assessment:** Course discussions, quizzes, paper, final presentation
- Develop an understanding of the national and international organizations involved in local and global animal health (PLG 1)  
**Assessment:** Course discussions and quizzes
- Demonstrate the ability to implement a biosecurity plan in a small- or large-scale animal production operation (PGL 3)  
**Assessment:** Paper
- Communicate biosecurity-related topics in both the written and oral format (PGL 6)  
**Assessment:** Paper and final presentation

### Grading Procedure:

Participation: 50 points (10%)

Quizzes: 100 points (20%)

Midterm Examination: 100 points (Lectures 1-16) ; **October 31<sup>st</sup>, 2019** at normal lecture time (20%)

Paper: 100 points ; due **November 26<sup>th</sup>** at normal lecture time (20%)

Final Presentation: 150 points ; due **December 2<sup>nd</sup>, 2019 before** 9:15am (MUST be uploaded to Sakai no matter when your group is presenting and CANNOT be altered after uploading) (30%)

### Grades will be calculated as follows:

A = 90% or above, B+= 86% - 89%, B = 80% - 85%, C+= 76% - 79%, C = 70% - 76%, D = 60% - 69%, F = less than 60%

### Absence Policy:

Students are expected to attend **every** class period and to attend the final presentations for **every** group (not just their own). If a student has a medical, religious, family, or other emergency reason to miss class, documentation must be provided and approved by **Dean Michelle Jefferson's office**. If a student misses a final presentation day at the end of the course (even if the student is not presenting that day) without documentation excusing the absence, it will result in an **automatic failing grade** for the final presentation.

### Participation:

This course is a discussion-based course focused on presenting new ideas to students and having discussions about these topics. As such, it is critical for students to attend *every* lecture and to participate in class discussions and activities. This also includes completing readings *prior* to class in preparation for discussion. The goal of the course is to create an environment where both students and teachers are learning from and interacting with one another.

**Assessment of Participation:**

Students are expected to participate in every class and to offer ideas, questions, and thoughts throughout the course. Below are the criteria for participation points:

<b>A</b> (45-50 points)	<b>B</b> (40-44)	<b>C</b> (35-39)	<b>D</b> (30-34)	<b>F</b> (0-29)
Student <b>always</b> participates in discussion	Student <b>usually</b> participates in discussion	Student <b>sometimes</b> participates in discussions	Student <b>rarely</b> participates in discussions	Student <b>never</b> participates in discussions
Students <b>always</b> participates in activities	Student <b>usually</b> participates in activities	Student <b>sometimes</b> participates in activities	Student <b>rarely</b> participates in activities	Student <b>never</b> participates in activities

**Quizzes:**

Quizzes will occur at the start of class per the schedule below. Quizzes will cover the major themes of the previous lectures and/or questions related to reading assignments. The quizzes will be ten points each and the lowest quiz score will be dropped at the end of the semester. Make-up quizzes will only be offered to students with **approved, notified** absences through Dean Michelle Jefferson's office.

**Midterm Examination:**

There will be one midterm examination in the course. This examination will cover lectures 1-16 and will be during the normal class time on **October 31<sup>st</sup>, 2019** (80-minutes).

**Paper: National Biosecurity Concern:**

Students must write a 3-page paper about implementing a biosecurity plan on a farm within the United States. The farm may be a farm of any size (hobby or production chain) and the species of interest must be avian, cattle, equine, or swine. The proposal will be written in relation to one disease concern (may be a national disease threat or an international disease threat). Topic must be approved by Dr. Hausmann. The paper will be due **at the start of class on Tuesday, November 26<sup>th</sup>, 2019**.

**Final Presentation: Biosecurity Topic of Choice:**

Students must give a 30-minute group presentation during the last days of class. Students will be assigned to their groups. Each group's presentation **MUST** be uploaded to Sakai **BEFORE** class on **December 2<sup>nd</sup>, 2019** regardless of when the group is presenting, and **no changes** may be made to these submissions (groups who present later do NOT get more time to complete their presentations). The topic **MUST** be approved by Dr. Hausmann. For this presentation, students are encouraged to use their creativity and interests to pick a topic. Topic examples (this is NOT

an exhaustive list, just a list to give groups a starting point for ideas): cleaning protocols/techniques, specific disease of concern, specific production system, farm workers and disease, ventilation, zoonotic diseases, fomites and disease spread, etc. Failure to upload the presentation by **December 2<sup>nd</sup>, 2019** before class, failing to present on your presentation date, **OR** failing to attend any other presentations (even if it is not your own group) will result in a failing grade for the presentation.

### **Disability Services**

(848) 445-6800 / Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 <https://ods.rutgers.edu/>

Rutgers University welcomes students with disabilities into all the University's educational programs. To receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation:

<https://ods.rutgers.edu/students/documentation-guidelines>. If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with me and discuss the accommodations *as early in this course as possible*. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

### **ACADEMIC INTEGRITY**

The university's policy on Academic Integrity is available at:

<http://academicintegrity.rutgers.edu/academic-integrity-at-rutgers/>.

The principles of academic integrity require that a student:

- properly acknowledge and cite all use of the ideas, results, or words of others.
- properly acknowledge all contributors to a given piece of work.
- make sure that all work submitted as his or her own in a course or other academic activity is produced without the aid of impermissible materials or impermissible collaboration.
- obtain all data or results by ethical means and report them accurately without suppressing any results inconsistent with his or her interpretation or conclusions.
- treat all other students in an ethical manner, respecting their integrity and right to pursue their educational goals without interference. This requires that a student neither facilitate academic dishonesty by others nor obstruct their academic progress.
- uphold the canons of the ethical or professional code of the profession for which he or she is preparing.

Adherence to these principles is necessary in order to ensure that

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments.
- all student work is fairly evaluated and no student has an inappropriate advantage over others.
- the academic and ethical development of all students is fostered.

- the reputation of the University for integrity in its teaching, research, and scholarship is maintained and enhanced.

**Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld.**

### **STUDENT WELLNESS SERVICES**

Just In Case Web App <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

### **Counseling, ADAP & Psychiatric Services (CAPS)**

(848) 932-7884 / 17 Senior Street, New Brunswick, NJ 08901 / [www.rhscaps.rutgers.edu/](http://www.rhscaps.rutgers.edu/)

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

### **Violence Prevention & Victim Assistance (VPVA)**

(848) 932-1181 / 3 Bartlett Street, New Brunswick, NJ 08901 / [www.vpva.rutgers.edu/](http://www.vpva.rutgers.edu/)

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff, and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-9321181.

### **Scarlet Listeners**

(732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

**COURSE SCHEDULE (SUBJECT TO CHANGE)**

<b>Lecture</b>	<b>Date:</b>	<b>TOPIC</b>
<b>1</b>	Sept. 5	Course Introduction (expectations, due dates of major assignments, instructor introduction) ; What is Biosecurity and Why is it Important?
<b>2</b>	Sept. 9	Biosecurity Basics: Disease transmission, routes of infection, disinfection protocols, points of entry, etc.
<b>3</b>	Sept. 12	<b>QUIZ #1</b> Biosecurity in Cattle Operations: From the Hobby Farm to Production Chains
<b>4</b>	Sept. 16	Biosecurity Case Studies - Cattle Operations (Hobby to Production Chains)
<b>5</b>	Sept. 19	<b>QUIZ #2</b> Biosecurity in Swine Operations: From the Hobby Farm to Production Chains
<b>6</b>	Sept. 23	Biosecurity Case Studies – Swine Operations (Hobby to Production Chain)
<b>7</b>	Sept. 26	<b>QUIZ #3</b> Biosecurity in Poultry Operations: From the Hobby Farm to Production Chain ; Egg-layers, Broilers, and Turkeys)
<b>8</b>	Sept. 30	Biosecurity Case Studies – Poultry Operations (Hobby to Production Chain)
<b>9</b>	Oct. 3	<b>QUIZ #4</b> Biosecurity in Equine Operations: From the Hobby Farm to Large Equine Operations
<b>10</b>	Oct. 7	Biosecurity Case Studies – Equine Operations (Hobby to Large-scale)
<b>11</b>	Oct. 10	<b>QUIZ #5</b> Intersection of Wildlife and Agricultural Animals – Discussion of reservoir species, predation, disease vectors, etc.
<b>12</b>	Oct. 14	Biosecurity Case Studies – The Intersection of Wildlife and Agricultural Animals
<b>13</b>	Oct. 17	<b>Quiz #6</b> Biosecurity of Milk and Eggs – Discussion of processing of milk/eggs, diseases of concern in unpasteurized or undercooked products, discussion of management of neonatal and suckling animals to reduce disease spread, etc.
<b>14</b>	Oct. 21	Biosecurity Case Studies – Milk and Eggs (Cases will include zoonotic diseases along with maternal-offspring disease spread)
<b>15</b>	Oct. 24	<b>QUIZ #7</b> Biosecurity in Slaughter Houses – Discussion of disease surveillance in slaughter houses, slaughter process and procedures, sanitation, etc.
<b>16</b>	Oct. 28	Biosecurity Case Studies – Slaughter Houses ; discussion of trace back mechanisms, agencies involved in disease surveillance, etc.
<b>17</b>	Oct. 31	<b>MIDTERM EXAMINATION (Lectures 1-16)</b>
<b>18</b>	Nov. 4	Global Biosecurity Introduction ; Introduction to topic and its importance in an ever more connected world, risks of disease spread between countries

		with different diseases and different (or no!) disease monitoring.
<b>19</b>	Nov. 7	<b>QUIZ #8</b> Global Biosecurity Day 2 ; Pick up where last lecture ended, discussion of the global agencies (OIE, WHO) involved in global health, safeguards to prevent disease spread, country specific laws to prevent disease spread, etc.
<b>20</b>	Nov. 11	Global Biosecurity Case Studies – Focus on disease outbreaks historically and of more recent global concern
<b>21</b>	Nov. 14	<b>QUIZ #9</b> Global Biosecurity Case Studies Day 2 – Discussion of the major foreign animal diseases of current concern ; will end lecture discussing Rinderpest and the international efforts that eradicated this disease from Earth
<b>22</b>	Nov. 18	Intersection of Human and Animal Health ; Define and discuss zoonotic diseases (what they are, why they are important, etc.). Will focus on the <i>extremely</i> important role of Animal Scientists, Production Animal Experts, and Veterinarians in <i>both</i> animal and human health.
<b>23</b>	Nov. 21	<b>QUIZ #10</b> Biosecurity Considerations for Farm Workers, Owners, Visitors ; Diseases that are more common in farm workers, farm families, and farm visitors. Discussion will focus around decreasing the possibility of disease spread from animals to humans <b>and</b> humans to animals.
<b>24</b>	Nov. 25	Biosecurity Cases – The Intersection of Human and Animal Health ; Case studies focused on disease spread from animals to humans <b>and</b> from humans to animals.
<b>25</b>	Nov. 26 (Thanksgiving Week)	<b>QUIZ #11</b> <b>PAPER DUE</b> Public Health at the National and International Level – Discussion of the importance of understanding how to apply herd health concepts to the <b>population</b> as a whole (locally, regionally, nationally, and internationally). Discussion with students of different stakeholders in Public Health and the role of animal experts in Public Health roles (CDC, State Diagnostic Labs, USDA, APHIS, OIE, WHO, UN, etc.).
<b>26</b>	Dec. 2	<b>FINAL PRESENTATIONS DAY 1</b>
<b>27</b>	Dec. 5	<b>FINAL PRESENTATIONS DAY 2</b>
<b>28</b>	Dec. 9	<b>FINAL PRESENTATIONS DAY 3</b> Concluding remarks to highlight major themes of the course