

COURSE NAME; NUMBER; SEMESTER; MEETING DAYS, TIMES, AND PLACE.

Animal Genetics

11:067:328 Fall 2020

MEETING DAYS, TIMES, AND PLACE

Due to COVID-19 this class will be taught in a SYNCHRONOUS REMOTE format.

Class meetings will be held “live” on Monday and Wednesday 3:55 to 5:15 PM (EST).

Meetings will be by Canvas Zoom (see class website).

CONTACT INFORMATION:

Instructor: Elizabeth Snyder

Office Location: Foran Hall 328

Phone: 848-932-6377

Email: elizabeth.snyder@rutgers.edu*

* All emails should contain “Animal Genetics 328” in the subject line

Office Hours:

- Walk-in (open Zoom meeting): Wednesdays 5:15 to 6 PM, except exam days
- By appointment (Webex or Zoom): contact by email

COURSE WEBSITE, RESOURCES AND MATERIALS:

All course materials will be posted on the Canvas course website: <https://canvas.rutgers.edu/>. Log into Canvas using your net ID and password. Select Animal Genetics under the Courses tab. For help email

help@canvas.rutgers.edu or call the Canvas Help Desk at 877-361-1134 (24 hours / 7 days a week). Course materials will be posted in Modules. Lecture presentations will be posted a week prior to their presentation and recordings of the lectures will be posted after each class.

- Required text: Genetics: A Conceptual Approach 7th Edition by Benjamin A. Pierce
- Technology requirements:
 - Computer (Mac OS X or newer or PC Windows 7 or newer)
 - High-speed internet
 - Built-in or external webcam, microphone, and speakers
 - **For additional information:** [Canvas Basic Computer Specifications](#) and [Supported Browsers](#)

COURSE DESCRIPTION:

The course focuses on the basic and advanced principles of transmission, population, and molecular genetics with a focus on concepts and applications in domestic and model animals.

LEARNING GOALS:

After successful completion of this course, students will:

1. Comprehend the principals and underlying mechanisms governing classic genetic inheritance in animal species and be able to apply this understanding to solve practical animal breeding problems. (PLG 2)*
2. Connect a molecular level understanding of genetics to biological outcome within individuals and populations. (PLG 2)*
3. Know the types, information generated from, and applications of modern molecular genetics tools in animal breeding. Evaluate relative strengths and weaknesses of these tools and design appropriate applications of them. (PLG 2)*
4. Connect genetic theories and concepts discussed in class with real world examples. (PLG 5)*

* PLG: See the [Animal Science Program Mission and Learning Goals](#) for a description of Program Learning Goals (PLGs)

ASSIGNMENTS/RESPONSIBILITIES, GRADING & ASSESSMENT:

Final grades will be based on the following:

	<u>% of final grade</u>
Exams (4)	50
Exam Reviews (4)	10
Written Reports (2)	10
Weekly Engagement	30
Extra effort	15

Exams: Exams 1, 2, and 3 are scheduled during class time; Exam 4 will be given during final exam week. Exams will be open for a 24 hour period (12:00 AM to 11:59 PM the date of the exam). Once you begin, you will have 2 hours (120 minutes) to finish the exam. Format for exams will include multiple-choice, short answer, short essay, and/or diagram questions. Exams will be administered through Canvas.

Exam Reviews: Exam review sheets will be made available on the course website 1 week prior to the exam and will be due 11:59 PM the day before the exam. Exam Reviews will be submitted through Canvas.

Written Reports: Written reports will consist of short answer, diagram, and citations of select topics. Topics and detailed format information will be discussed in class and grading rubrics provided at least 1 week prior to the due date.

Weekly Engagement: Engagement points will be awarded on a weekly basis and consist of two parts – #1 completion of a weekly reflection survey through Canvas due 11:59 PM each Friday AND #2 participation in live quizzes during scheduled lecture hours -OR- submission of an engagement assignment (see Lecture 1 for details) for EACH lecture missed through Canvas due 11:59 PM each Friday. Points for #2 will be awarded for either quizzes or engagement assignments, not both.

Extra effort: Opportunities will be provided throughout the course to demonstrate extra effort. These opportunities are optional, will be clearly noted when available, and available to ALL students.

Grades will be assigned as follows: A - 90 and above, B+ - 85 to 89, B - 80 to 84, C+ - 75 to 79, C - 70 to 74, D - 60 to 69, F - less than 60.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

Please follow the procedures outlined at <https://ods.rutgers.edu/students/registration-form>. Full policies and procedures are at <https://ods.rutgers.edu/>

ABSENCE POLICY

UNIVERSITY POLICY: Students are expected to attend all classes; if you expect to miss one or two classes, please use the University absence reporting website <https://sims.rutgers.edu/ssra/> to indicate the date and reason for your absence. An email is automatically sent to me.

COURSE POLICY: I recognize remote learning poses significant challenges for many students. As such, I have made modifications to the course to allow for a somewhat more flexible attendance policy. If you need to miss class, all lectures will be recorded and available through Canvas. Engagement points available during lecture can be made up for in full by submitting an independent engagement assignment (see “Weekly Engagement” above). However, there is no substitute for learning “live” so please make every effort to attend all lectures.

COURSE SCHEDULE

Week	Date	Event	Associated Reading
1	Sept 2	Lecture 1 - Course and Topic Introduction	Chapters 1 and 2
	Sept 4	DUE - Entrance Survey	
2	Sept 8* (Tues)	Lecture 2 - DNA: The Chemical Basis of Genetics	Chapter 10
	Sept 9	Lecture 3 - Chromosomes and Chromosome Biology	Chapters 8 and 11
	Sept 11	DUE - Week 2 Reflection	
3	Sept 14	Lecture 4 - Basic Principles of Genetics and Sex Determination	Chapters 3 and 4
	Sept 16	Lecture 5 - Extension of Basic Principles	Chapter 5
	Sept 18	DUE - Week 3 Reflection	
4	Sept 21	Lecture 6 - Pedigrees and Animal Breeding	Chapter 6
	Sept 23	Lecture 7 - Animal Breeding Case Study	
	Sept 25	DUE - Week 4 Reflection	
5	Sept 28	In class Review	
	Sept 29	DUE - Exam 1 Review Sheet	
	Sept 30	EXAM 1	
	Oct 2	DUE - Written Report 1: Selection of Traits in Animals	
6	Oct 5	Lecture 8 - Bacterial and Viral Genetics	Chapter 9
	Oct 7	Lecture 9 - DNA Replication and Mitosis	Chapter 12
	Oct 9	DUE - Week 6 Reflection	
7	Oct 12	Lecture 10 - DNA Damage, Mutations, and DNA Repair	Chapter 18
	Oct 14	Lecture 11 - Meiosis and Genetic Linkage	Chapter 7
	Oct 16	DUE - Week 7 Reflection	
8	Oct 19	In class Review	
	Oct 20	DUE - Exam 2 Review Sheet	
	Oct 21	EXAM 2	
9	Oct 26	Lecture 12 - Bacterial Transcription	Chapter 13 and 16
	Oct 28	Lecture 13 - Eukaryotic Transcription	Chapter 17
	Oct 30	DUE - Week 9 Reflection	
10	Nov 2	Lecture 14 - Epigenetics	Chapter 21
	Nov 4	Lecture 15 - RNA Processing	Chapter 14
	Nov 6	DUE - Week 10 Reflection	

	Nov 9	Lecture 16 - Translation and The Genetic Code	Chapter 15
11	Nov 11	Lecture 17 - Genomics, Transcriptomics, and Proteomics	Chapter 20
	Nov 13	DUE - Week 11 Reflection	
	Nov 16	In class Review	
12	Nov 17	DUE - Exam 3 Review Sheet	
	Nov 18	EXAM 3	
13	Nov 23	Lecture 18 - Molecular Genetics and GMOs	Chapter 19
	Nov 25*	DUE - Week 13 Reflection	
	Nov 30	Lecture 19 - Quantitative Genetics	Chapter 24 and 25
14	Dec 2	Lecture 20 - Cancer and Evolutionary Genetics	Chapter 23
	Dec 4	DUE - Week 14 Reflection	
	Dec 7	Lecture 21 - Biotechnology Applications in Animals	
15	Dec 9	In class Review and Course Wrap Up	
	Dec 9	DUE - Closing Survey	
	Dec 14	DUE - Written Report 2: Biotechnology in Animal Science	
16	Dec 14	DUE - Exam 4 Review Sheet	
FINAL	Dec 22	Tentative - EXAM 4	

* Date changes due to Rutgers Academic Calendar

FINAL EXAM/PAPER DATE AND TIME

Online Final exam Schedule: <http://finalexams.rutgers.edu/>

See course schedule for tentative Final dates.

ACADEMIC INTEGRITY

The university's policy on Academic Integrity is available at <http://academicintegrity.rutgers.edu/academic-integrity-policy>. 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/

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/

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 848-932-1181.

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 of the University's educational programs. In order 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 your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form on the ODS web site at: <https://ods.rutgers.edu/students/registration-form>.

Scarlet Listeners

(732) 247-5555 / <https://rutgers.campuslabs.com/engage/organization/scarletlisteners>

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