AGR3303 Genetics, Section GNV4, Fall 2025
3 credits

Instructor: **Dr. Jianping Wang**
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Office Hours: Tuesdays and Thursdays: 4:00-5:00pm

TAs:

Name	email	Phone number	Office hour	Office
Zeynep Erdogan	zerdogan@ufl.edu	(904) 860-2617	M: 12:00-1:00 pm	McCarty B Conference Room
Nandita Senthil	senthiln@ufl.edu	(860) 515-6523	M: 12:00-1:00 pm	McCarty B Conference Room
Lauren Smith	laurensmith2@ufl.edu	(727) 366-3370	T: 2:00-3:00 pm	Zoom (regularly) /McCarty B Conference Room (before exams)
Serenity Chan	Serenity.Chan@medicine.ufl.edu	(954) 759-1988	T: 2:00-3:00 pm	Zoom (regularly) /McCarty B Conference Room (before exams)
Kylie Katims	k.katims@ufl.edu	(954) 655-5588	W: 11:45-12:35 pm	McCarty B Conference Room
Brianna Thomas	thomas.brianna@ufl.edu	(904) 592-9640	W: 11:45-12:35 pm	Zoom: https://ufl.zoom.us/j/95724833390
Bilal Saleem	saleem.bilal@ufl.edu	(352) 721-7820	R: 10:40-11:30 pm	Cancer and Genetics Complex Room 399
Sofia Koves	sofia.koves@ufl.edu	(561) 374-4811	F: 10:40-11:30 am	Zoom (regularly)/ Marston Study Room tba (before exams)

Students are welcomed to visit TAs or the instructor's offices at any other time than the above office hours. But please schedule an appointment (through e-mail) to make sure a TA or the instructor is available. In addition, we have a discussion forum on Canvas open for the students to post any questions at any time. TAs are monitoring the forum every day to ensure the questions are addressed within 24 hours.

Course Description
AGR3303 Genetics presents a comprehensive coverage of the principles, theory, and applications of genetics. Topics include the chemical nature and structure of genetic material, gene expression and regulation, cell division, chromosome number and structure variation, principles of inheritance, molecular genetic techniques, and basic concepts in population and quantitative genetics.

Course Objectives

Upon completion of AGR 3303 Genetics, students should be able to:

1. Define basic genetic terms.
2. Describe what chemical nature and structure of genetic materials are, how genes are expressed, and how gene expression is regulated.
3. Understand the chromosome structure, variation, gene mutation, and their effects.
4. Determine genotype and phenotype of progeny based on the parents' genotypes or determine parental genotypes and phenotypes through analyzing their progeny's genotypes and phenotypes.
5. Explain the basic molecular genetic techniques and their applications.
6. Extend knowledge learned in Genetics to other related areas, such as molecular genetics, quantitative genetics, population genetics, genomics, breeding, evolution, biochemistry, and biotechnology.

Time and Location

Class meets in McCarty A (MCCA) G186, Tuesday, 12:50-1:40pm (Period 6). Weimer Hall (WEIM) 1064, Thursday, 12:50-2:45pm (Period 6-7)

Prerequisites

None. But some biology courses would be helpful including Biological Sciences (BSC 2009), Integrated Principles of Biology 1 (BSC 2010), and Integrated Principles of Biology 2 (BSC 2011).

Class Format

Three 50-minute in-person lectures (except exam days) in every week for whole semester are presented as PowerPoint slides. No Zoom or recording is available.

Course Website

E-Learning system, Canvas http://elearning.ufl.edu is the online source for the majority of the learning resources. Students need to log in with their GatorLink username and password for access. If you do not have a GatorLink ID, go to http://gatorlink.ufl.edu or to the Help Desk: 392-HELP for assistance. All lecture handouts are uploaded in the "Files" folder of Canvas. All lecture quizzes are available in the "Quiz" folder on Canvas. Course announcements regarding general course information and updates will be posted at Canvas throughout the semester. Students are expected to set the Canvas settings properly to receive all the course announcements, lecture notes, quizzes, and other materials on time.

Text Book

Achieve with ebook of "*Genetics, A Conceptual Approach,* 7th edition by Benjamin A. Pierce, is required. Selected readings are suggested from the text book. Animations and some additional practice questions in Achieve are selected for students to review and practice, respectively. Almost all the lectures are prepared based on the materials in the textbook. The ebook provides more details and perspectives than the lecture notes.

Attendance and Participation

Class attendance is required. A number of true/false (T/F) questions are given during each lecture to review the materials covered in the lecture. Students are expected to participate in the T/F reviews by using iClicker (free). iClicker App should be downloaded to mobile phone or other electronic devices. The T/F statements are NOT posted anywhere else, but only the screen in the classroom. The answers are checked ONLY in classroom as well. This system is used to not only determine if the class as a whole understands the concepts being presented, but also to encourage attendance and participation with a total of 5 bonus points assigned.

Grading
A total of 250 points are given throughout the course including 200 points for the BEST FOUR out of FIVE exams (4 x 50 points/exam = 200 points), 45 points for lecture quizzes (9 x 5 points/quiz =45 points), and 5 points for topic discussion. In addition, a maximum of 9 bonus points are given throughout the semester for participating in exam question design and T/F review.

Exams: Four mid-term exams are given on the exam day listed in the course outline below. One final comprehensive or accumulative exam is given in the Final Exam week. Each exam lasts 50 min and will be held in classroom during class meeting time. A zero will be given for a missed exam. Each exam has 25 multiple choice questions worth 2 points each with a total of 50 points. Students should finish the exam within 50 min with closed notes and books. Programmable calculators, smart phones, and any electronic devices are not allowed during exams. The top three most missed questions are reviewed in next class time. Visit TAs or instructor's office hours to review the rest exam questions. Students are suggested to take all the four mid-term exams and take the optional final exam only if a mid-term exam is missed OR you want to replace the lowest score from the four exams.

Lecture quiz: A lecture quiz worth 5 points is given for every 2-4 lectures. Each quiz has less than 30 questions. You have 30 min and ONLY ONE attempt to finish each lecture quiz. The quiz is made available at 6pm of the post day and due by 6pm on the next day. Zero is given for missing or late submission. We have a total of 11 quizzes. 9 quizzes (5 points x 9 quizzes = 45 points) with the best scores will be added to your total points for the final grade. Thus, you are allowed to miss 2 lecture quizzes for any reason or drop 2 lowest quiz grades. You can post any questions related to the lecture quiz or course materials in the discussion forum, which will be address within 24 hours. In addition, you can visit TAs or instructor's daily office hours to review the lecture quiz questions.

Discussion on genetics topics – A topic discussion forum will be open in the last 3-4 weeks of the semester. Students can participate in the discussion in two ways. 1) You can provide discussion topics by sending a description of the topic in 10-15 sentences to the instructor for uploading. You will earn 2.5 point for every 10 students' (yourself is not counted) participation in your discussion topic, thus 5 points if more than 20 students participate in your discussion topic. 2) you can participate the discussion by posting to two discussion topics. For each chosen discussion topic, 2.5 points are given towards relevant, non-redundant (not contributed by a previous participant), and complete ideas. The discussion participation is worth a total of 5 points (maximum).

Bonus Points:
Bonus exam question design- Students have the opportunity to use their own creativity and knowledge gained from the class to create potential multiple-choice exam questions. The submission must include: 1) 1-3 sentence genetics question that is well-constructed; 2) five possible answer choices, options ranging from A-E; 3) the correct answer choice is indicated in five options; 4) justifications or explanation of your A-E options (why the other 4 options are not the right choices). All students interested in the bonus exam question design can post the designed question on the Canvas discussion board. The student, who contributes a well written and thought-out question that is related to the exam materials will be awarded 1 bonus point. 0 to 4 of the best designed exam questions will be slightly modified and added into our exams. So you have opportunity to possibly answer your <u>OWN</u> question on the exam. Questions must be submitted to the discussion board two days (48 hours) before exam date. This opportunity will be offered for all midterm exams (Exams 1-4). Therefore, students have the potential to earn up to 4 bonus points (maximum) if they participate in all 4 boards for bonus exam question design.

Bonus participation – A maximum of 5 bonus points are given to students who participate in all the T/F review questions. 3 participation bonus points are given according to the percentage of total T/F review questions of the course you participate in and 2 focusing bonus points are given according to the percentage of total T/F review questions for which you have provided correct answers. The number of bonus points is given in two decimals. There is no makeup for any missing bonus point opportunities.

Grading scale for the course:

Letter Grade	% Range	Point Range

A	100.00%	≥ 94%	250	234.99
A-	93.99%	≥90%	234.98	224.99
B+	89.99%	≥87%	224.98	217.49
B	86.99%	≥84%	217.48	209.99
B-	83.99%	≥80%	209.98	199.99
C+	79.99%	≥77%	199.98	192.49
C	76.99%	≥74%	192.48	184.99
C-	73.99%	≥70%	184.98	174.99
D+	69.99%	≥67%	174.98	167.49
D	66.99%	≥64%	167.48	159.99
D-	63.99%	≥61%	159.98	152.49
F	60.99%	≥0%	152.48	0.00

Note: Any requests for extra credit or special exceptions to these grading policies is interpreted as an honor code violation (i.e., asking for preferential treatment) and will be handled accordingly.

More information on grades and grading policies is here: https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Make-Up Policy
The comprehensive or accumulative final exam is considered as a makeup exam. The grade of the final exam can be used to replace one of your lowest mid-term exam grades, which would include a zero given to one missing exam. Due to the class size and total number of exams given, no other additional make-up midterm or make-up final exam is provided.

COURSE OUTLINE

Date	Day	Topics	Textbook (7th ed)	Lessons
Aug. 21	Th	Course introduction	Ch. 1, 2	Lesson 1+2
Aug. 21	Th	Genetic materials and DNA primary structure	Ch. 10	
Aug. 26	*Tu*	DNA and RNA structures (Quiz 1 post)	Ch. 10	
Aug. 28	Th	DNA replication	Ch. 12	Lesson 3+4
Aug. 28	Th	DNA replication (continued) and gene structure	Ch. 12, 13	
Sept. 2	*Tu*	Transcription in prokaryotes (Quiz 2 post)	Ch. 13	
Sept. 4	Th	Transcription in eukaryotes	Ch. 13	Lesson 5+6
Sept. 4	Th	RNA processing, genetic code	Ch. 14, 15	

Sept. 9	*Tu*	Translation process (Quiz 3 post)	Ch. 15	
Sept. 11	Th	Gene expression regulation in prokaryotes	Ch. 16	Lesson 7+8
Sept. 11	Th	Gene expression regulation in prokaryotes (continued), Chromosome structure	Ch. 11, 14	
Sept. 16	*Tu*	***EXAM 1 (Lessons 1~6)***		
Sept. 18	Th	Gene expression regulation in eukaryotes (Quiz 4 post)	Ch. 17	
Sept. 18	Th	Gene mutations	Ch. 18	Lesson 9+10
Sept. 23	*Tu*	DNA repair	Ch. 18	
Sept. 25	Th	Cancer genetics (Quiz 5 post)	Ch. 23	
Sept. 25	Th	Molecular genetic analysis – PCR, gel electrophoresis, restriction enzymes	Ch. 19	Lesson 11+12
Sept. 30	*Tu*	Cloning and gene transformation	Ch. 19	
Oct. 2	Th	Sequencing technologies (Quiz 6 post)	Ch. 19	
Oct. 2	Th	Mitosis and meiosis	Ch. 2	Lesson 13+14
Oct. 7	*Tu*	***EXAM 2 (Lessons 7~12)***		
Oct. 9	Th	Chromosome number variation	Ch. 8	
Oct. 9	Th	Chromosome structure variation (Quiz 7 post)	Ch. 8	
Oct. 14	*Tu*	Principles of heredity – Segregation	Ch. 3	Lesson 15+16+17
Oct. 16	Th	Principles of heredity - Independent assortment	Ch. 3	
Oct. 16	Th	Chi-square test and Extensions and modifications of basic principles	Ch. 3, 5	
Oct. 21	*Tu*	Extensions and modifications of basic principles (Quiz 8 post)	Ch. 5	
Oct. 23	Th	Sex determination & sex-linked characteristics	Ch. 4	Lesson 18+19
Oct. 23	Th	sex-linked characteristics Pedigree analysis	Ch. 4 6	
Oct. 28	*Tu*	***EXAM 3 (Lessons 13~17)***		
Oct. 30	Th	Pedigree analysis (Quiz 9 post)	Ch. 6	
Oct. 30	Th	Linkage and recombination	Ch. 7	Lesson 20+21
Nov. 4	*Tu*	Recombination and Gene mapping	Ch. 7	
Nov. 6	Th	Gene mapping (Quiz 10 post)	Ch. 7	
Nov. 6	Th	Quantitative genetics	Ch. 24	Lesson 22 +23
Nov. 11	*Tu*	Veterans Day, no class		
Nov. 13	Th	Quantitative genetics	Ch. 24	

Nov. 13	Th	Population genetics	Ch. 25	
Nov. 18	*Tu*	Population genetics (Quiz 11 post)	Ch. 25	
Nov. 20	Th	***EXAM 4 (Lessons 18~23)***		
Nov. 20	Th	In-class office hour		
Nov. 25	*Tu*	Thanksgiving Break, no class		
Nov. 27	Th	Thanksgiving Break, no class		
Nov. 27	Th	Thanksgiving Break, no class		
Dec. 2	*Tu*	Review for final exam		
		Final Exam (optional, comprehensive)		

The exam date and time are fixed (no other exam date or time will be scheduled) during the semester.

Academic Policy and Student Resources

The policies of University of Florida on class attendance, accommodations, course evaluation, honesty pledge, class recording, and other academic resources can be check out online at https://syllabus.ufl.edu/syllabus-policy/uf-syllabus-policy-links/

The instructors reserve the right to make changes in the assignments and syllabus as needed. Notification will be via E-Learning, e-mail or class announcements.