AGR3303 Genetics, Section 0214, Fall 2023
3 credits

Instructor: **Dr. Jianping Wang**
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Office Hours: Mondays, Wednesdays, and Fridays: 2:00-3:00pm

TAs:

Name	email	Phone number	Office hour	Office
Rupkatha Adhikary	radhikary@ufl.edu	512-731-7363	11am-12pm, Tue. and Thu.	https://ufl.zoom.us/j/3042832360
Qasim Ali	qasimali@ufl.edu	352-870-5704	9-11am, Tue.	https://ufl.zoom.us/j/91945522451?pwd=U3FWcjlGZWlZalJ6NFBydmpOOTg1UT09
Hadley Collins	hadleycollins@ufl.edu	239-285-9471	3-4pm, Tue. and Thu.	Library West, Room announced weekly
Siri Gavini	sirigavini@ufl.edu	813-480-1896	12-1pm, Tue. and Thu.	https://ufl.zoom.us/s/6649580334#success
Ali Razzaq	alirazzaq@ufl.edu	352-870-6055	1-3pm, Thur.	Room 340, Cancer/Genetics Research Complex, 2033 Mowry Road

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 Physics Building (NPB) 1002, Monday, Wednesday, and Friday 4:05 – 4:55pm (Period 9).

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://lss.at.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 class 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 on the Monday's class time of Final Exam week. Each exam lasts 50 min and will be held in classroom NPS 1001 during class meeting time 4:05-4:55pm. A zero will be given for a missed exam. Each exam will have 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 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 can 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 different 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. 2.5 points are given towards relevant, non-redundant (not contributed by a previous participant), and complete ideas under each chosen discussion topic. The discussion participation is worth a total of 5 points.

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. This is an excellent opportunity to possibly answer your OWN 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 edition)	Lessons
Aug. 23	Wednesday	Course introduction	Ch. 1, 2	Lesson 1+2
Aug. 25	Friday	Genetic materials and DNA primary structure	Ch. 10	
Aug. 28	Monday	DNA and RNA structures (Quiz 1 post)	Ch. 10	
Aug. 30	Wednesday	DNA replication	Ch. 12	Lesson 3+4
Sept. 1	Friday	DNA replication (continued) and gene structure	Ch. 12, 13	
Sept. 4	Monday	Labor Day, no class		
Sept. 6	Wednesday	Transcription in prokaryotes (Quiz 2 post)	Ch. 13	
Sept. 8	Friday	Transcription in eukaryotes	Ch. 13	Lesson 5+6
Sept. 11	Monday	RNA processing, genetic code	Ch. 14, 15	
Sept. 13	Wednesday	Translation process (Quiz 3 post)	Ch. 15	
Sept. 15	Friday	***EXAM 1***		
Sept. 18*	Monday	Gene expression regulation in prokaryotes	Ch. 16	Lesson 7+8
Sept. 20*	Wednesday	Gene expression regulation in prokaryotes (continued), Chromosome structure	Ch. 11, 14	
Sept. 22*	Friday	Gene expression regulation in eukaryotes (Quiz 4 post)	Ch. 17	
Sept. 25	Monday	Gene mutations	Ch. 18	Lesson 9+10

Sept. 27	Wednesday	DNA repair	Ch. 18	
Sept. 29*	Friday	Cancer genetics (Quiz 5 post)	Ch. 23	
Oct. 2	Monday	Molecular genetic analysis – PCR, gel electrophoresis, restriction enzymes	Ch. 19	Lesson 11+12
Oct. 4	Wednesday	Cloning and gene transformation	Ch. 19	
Oct. 6	Friday	Homecoming, no class		
Oct. 9	Monday	Sequencing technologies (Quiz 6 post)	Ch. 19	
Oct. 11	Wednesday	***EXAM 2***		
Oct. 13	Friday	Mitosis and meiosis	Ch. 2	Lesson 13+14
Oct. 16*	Monday	Chromosome number variation	Ch. 8	
Oct. 18*	Wednesday	Chromosome structure variation (Quiz 7 post)	Ch. 8	
Oct. 20	Friday	Principles of heredity – Segregation	Ch. 3	Lesson 15+16+17
Oct. 23	Monday	Principles of heredity - Independent assortment	Ch. 3	
Oct. 25	Wednesday	Chi-square test and Extensions and modifications of basic principles	Ch. 3, 5	
Oct. 27	Friday	Extensions and modifications of basic principles (Quiz 8 post)	Ch. 5	
Oct. 30	Monday	***EXAM 3***		
Nov. 1	Wednesday	Sex determination & sex-linked characteristics	Ch. 4	Lesson 18+19
Nov. 3	Friday	Pedigree analysis (Quiz 9 post)	Ch. 6	
Nov. 6	Monday	Linkage and recombination	Ch. 7	Lesson 20+21
Nov. 8	Wednesday	Recombination test	Ch. 7	
Nov. 10	Friday	Veterans Day, no class		
Nov. 13	Monday	Gene mapping	Ch. 7	
Nov. 15	Wednesday	Gene mapping (Quiz 10 post)	Ch. 7	
Nov. 17	Friday	Quantitative genetics	Ch. 24	Lesson 22
Nov. 20	Monday	Quantitative genetics	Ch. 24	
Nov. 22	Wednesday	Thanksgiving, no class		
Nov. 24	Friday	Thanksgiving, no class		
Nov. 27	Monday	Population genetics	Ch. 25	Lesson 23
Nov. 29	Wednesday	Population genetics (Quiz 11 post)	Ch. 25	

Dec. 1	Friday	***EXAM 4***		
Dec. 4	Monday	Review for final exam (materials for exams 1+2)		
Dec. 6	Wednesday	Review for final exam (materials for exams 3+4)		
Dec. 11	Monday	***Final exam***		

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

Students Requiring Accommodations
Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, www.dso.ufl.edu/drc/) by providing appropriate documentation. Once registered, students will receive an accommodation letter that must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation
Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

General Class Demeanor
- Students attend the class on time
- Students are respectful to the instructor and to fellow students
- Students convey a superior work ethic and perform to high standards
- Students share questions and ideas in/out of the class and keep an open mind

Academic Honesty Policy
As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: "*We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity."* You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied: *"On my honor, I have neither given nor received unauthorized aid in doing this assignment*."

It is assumed that you will complete all work independently in each course unless the instructor provides explicit permission for you to collaborate on course tasks (e.g. assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct to appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated. Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

Campus Helping Resources
Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling& Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- *University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575,* **www.counseling.ufl.edu/cwc/**
  - Counseling Services
  - Groups and Workshops
  - Outreach and Consultation
  - Self-Help Library
  - Wellness Coaching
- U Matter We Care, **www.umatter.ufl.edu/**
- Career Resource Center, First Floor JWRU, 392-1601, **www.crc.ufl.edu/**

Services for Students with Disabilities
The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation

0001 Reid Hall, 352-392-8565, **www.dso.ufl.edu/drc/**

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.