

AGR3303 Genetics, Fall 2022, 3 credits
(Class # 10176; Section # 0214)

Instructor: Dr. M A Babar
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TAs	Monday (3-5 pm)	Tuesday (3-5 pm)	Wednesday (3-5 pm)	Thursday (3-5 pm)
Janam Acharya (janamacharya@ufl.edu)		Yes		Yes
Samuel Adewale (sadewale@ufl.edu)				
Kainat Khan (kainatkhan@ufl.edu)	Yes		Yes	
Mit Patel (mitpatel1@ufl.edu)	Yes	Yes		

Students can contact instructor through email or can arrange zoom meeting or face to face meeting throughout the semester.

TA office hour is open for all students. However, to maximize help needed for students to be successful in the course, each student will be assigned to a specific TA for communication beyond TA hour to discuss any specific questions, issues, quizzes, exams, homework assignments, exams, bonus discussion points, ect. Each TA will form a group in canvas to communicate with the assigned students. Student assignments will be as follows: **students who have last name starts with A to G, will be assigned to Janam Acharya; students who have last name starts with H to P, will be assigned to Kainat Khan; students who have last name starts with Q to Z, will be assigned to Mit Patel.**

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 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. Name and 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 Delivery Method:

Tuesday (Period 5-6; 11:45 to 1:40 pm), Thursday (Period 6; 12:50 to 1:40 pm); Class will be delivered through live zoom session at the scheduled class time. **The zoom session will be recorded and will be posted in canvas.**

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 zoom lectures (except exam days) per week for whole semester are presented as PowerPoint slides, videos, etc.

Course Resources:

1) Course website

E-Learning system, Canvas to <http://elearning.ufl.edu> is the online source for majority of the learning resources. All lecture handouts will be uploaded in the "Files" section of Canvas under "Exam" folder. Review question materials will be provided in the same folder. Course announcements regarding general course information will be posted in Canvas throughout the semester. Students need to login with 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.

2) Online Resources and Electronic Textbook:

Achieve is an online assignments and tutorial system from the textbook publisher and is required for AGR 3303. Achieve will be offered at the lowest cost (\$89.99) option through UF All Access. UF All Access is a digital textbook program.

1. To gain access to Achieve click on the following link
<https://www.bsd.ufl.edu/G1CO/IPay1f/start.aspx?TASK=INCLUDED> This prompts you to log in with your GatorLink account.
2. Students are shown a list of classes in which they are enrolled that are participating in UF All Access, with the prices.
3. Students should click the Opt-in check box next to the class they are trying to get access to.
4. Students then need to click the button below to authorize the charges.
5. Log in to Genetics on Canvas
6. Click on a Achieve assignment within Canvas. If prompted, enter your name and email address associated with your Canvas account.
7. Agree to Macmillan Learning terms of use and end user agreement

Attendance and participation

Class attendance is expected but not required. A number of questions are given during lecture to review the material covered in the lecture. Students are expected to participate in the review.

Grading

The final grades are based on the total points of the **four exams (270 points)** and ten homework assignments (30 points) plus bonus quizzes and discussion topics points.

Exams: Four exams are required. The exams will be conducted through "Honor lock". **There will be no final exam. Exam-1, 2 and 3 will be graded in 54 points each and exam-4 will be graded in 108 points; a total of 270 points.** A zero will be given for the missed exam.

Each of Exam 1, 2 and 3 will have 27 multiple choice questions and 2 points each with a total of 54 points. Exam-4 will have 54 multiple choice questions and 2 points each with a total of 108 points. All the exams will be given with closed notes and books.

Make-up exam policy: Make-up exam will be provided to the students with a **legitimate excuse**

(medical, family emergency, official university off day) for missing mid-term exam. Excuses for missed exams must be documented and approved by the instructor.

Programmable, TI-83, or TI-89 calculators and phones are not allowed during exams.

(Exam feedback: 5 questions with highest wrong answers will be discussed in the class after each exam. Individual exam feedback will be available for students immediately after posting grade, but need to follow up with TAs or instructor)

Homework assignment: 12-13 homework assignments will be conducted through “achieve”. Out of those homework assignments, **10 best ones** will be selected for each student. Each homework assignment will be graded in **3 points**. 10 homework assignments will worth a total of **30 points**. Homework assignments will cover main concepts of the course including genetic materials and structure, replication, transcription and RNA processing, translation and genetic code, gene regulation, gene mutation, chromosome number variation, Mendelian genetics, linkage and crossing over, and quantitative genetics. Each homework assignment will have 8-10 questions. **A zero** will be given for the missed assignment.

Make-up homework policy: Make-up homework will be provided to the students with a **legitimate excuse** (medical, family emergency, official university off day) for missing homework. Excuses for missed homework must be documented and approved by the instructor.

Grading scale for the course:

A	90% (≥ 270)
B+	85% to 89.99% (255 – 269 points)
B	80% to 84.99% (240 – 254 points)
C+	75% to 79.99% (225– 239 points)
C	70% to 74.99% (210– 224 points)
D+	65% to 69.99% (195– 209 points)
D	60% to 64.99% (180 – 194 points)
E	< 60% (≤ 159 points)

Note: no minus grades are given

Grades and Grade Points Effective May 11, 2009 - Summer A

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

Passing Grade	A	B+	B	C+	C	D+	D	S
Grade Points	4.0	3.33	3.0	2.33	2.0	1.33	1	0

Bonus Quiz Points: **Bonus quizzes worth of 1 point** each will be given during Thursday class mostly but could be given on Tuesday as well. These quizzes will be conducted through canvas. **Each quiz consists of 5 questions on class concepts. Students will be given 5 minutes to answer the questions.** Students must attend class to take the bonus quizzes. **There is no make-up quiz.** It is your responsibility to make sure that your computer is connected to internet or quiz answer sheet is turned to course instructor. Students can expect **12 bonus quizzes** throughout the semester.

Bonus quiz feedback: will be available immediately after posting grade for students, but need to follow up with TAs or instructor

Bonus Discussion Points: Students can post “**Bonus discussion topics**” in canvas between Nov 15 to Dec 5. The discussion topics will be on a topic related to genetics and student has to write at least **200 words long summary** on the findings and significance of the topics and will send that to TAs for review and

approve before posting to canvas. A student can get **1.5 points** by posting one topic and can't post more than **2 topics**. So, a student can get **a total of 3 points** by posting interesting topics on genetics in canvas. Students can get **1.5 points** by participating in the discussion also. If a student participates in discussion on the posting of other students, the participating student can get **1.5 points**. However, participating student can't just write "I like discussion topics" or "I don't like". Participating students must have to write at least **100 words** on the posting topics why that topic is important. A student can participate in maximum of **2 topics** and can get a maximum of **3 points**. **A student can get maximum of 3 points by either posting or participating in discussion, or by posting one topic and participating in one discussion topic.**

Class Schedule

Date	Day	Topics	Text book (7th edition)
Week 1			
Aug 25, 2022	Thursday	Course introduction; The genetic materials	Ch. 1, 2
Week 2			
Aug 30, 2022	Tuesday	The genetic materials; DNA-RNA structure	Ch. 10 Ch. 12
Sep 01, 2022	Thursday	DNA-RNA structure	Ch. 12
Week 3			
Sep 06, 2022	Tuesday	DNA replication	Ch. 12
Sep 08, 2022	Thursday	Transcription (Prokaryotes)	Ch. 13
Week 4			
Sep 13, 2022	Tuesday	Transcription (eukaryotic)	Ch. 13
Sep 15, 2022	Thursday	Exam-1	Exam time is 60 mins (24 hours window from class time to complete)
Week 5			
Sep 20, 2022	Tuesday	RNA processing (Eukaryotes); Genetics code and translation	Ch. 14; Ch. 15
Sep 22, 2022	Thursday	Genetics code and translation	Ch. 15
Week 6			
Sep 27, 2022	Tuesday	Gene expression regulation in bacteria	Ch. 16
Sep 29, 2022	Thursday	eukaryotic gene expression regulation	Ch. 11, 14, 17
Week 7			
Oct 04, 2022	Tuesday	Gene mutations and DNA repair	Ch. 18
Oct 06, 2022	Thursday	Exam-2	Exam time is 60 mins (24 hours window from class time to complete)
Week 8			
Oct 11, 2022	Tuesday	Gene mutations and DNA repair	Ch. 18
Oct 13, 2022	Thursday	Molecular genetic analysis and biotechnology	Ch. 19
Week 9			

Oct 18, 2022	Tuesday	DNA Sequencing technologies	Ch. 19
Oct 20, 2022	Thursday	Genomics	Ch. 20
Week 10			
Oct 25, 2022	Tuesday	Mitosis and meiosis; Principles of heredity	Ch. 2; Ch. 3
Oct 27, 2022	Thursday	Exam-3	Exam time is 60 mins (24 hours window from class time to complete)
Week 11			
Nov 01, 2022	Tuesday	Principles of heredity – Segregation and independent assortment	Ch. 3
Nov 03, 2022	Thursday	Extensions and modifications of basic principles	Ch. 5
Week 12			
Nov 08, 2022	Tuesday	Linkage & recombination	Ch. 7
Nov 10, 2022	Thursday	Linkage & recombination	Ch. 7
Week 13			
Nov 15, 2022	Tuesday	Chromosome number variation	Ch. 8
Nov 17, 2022	Thursday	Sex-Linked Characteristics	Ch. 4
Week 14			
Nov 22, 2022	Tuesday	Pedigree Analysis; Quantitative genetics	Ch. 6; Ch. 24
Nov 24, 2022	Thursday	No Class (Thanksgiving)	
Week 15			
Nov 29, 2022	Tuesday	Quantitative genetics	Ch. 24
Dec 1, 2022	Thursday	population Genetics	Ch. 25
Week 16			
Dec 6, 2022	Tuesday	Exam-4	Exam time is 120 mins (24 hours window from class time to complete)

**We will attempt to maintain the exam schedule; however, material may be altered for any given exam depending on time and coverage of lectures.*

General Class Demeanor

- 1) Students arrive to class on time
- 2) Students convey superior work ethic and perform to high standards
- 3) Students share questions and ideas in and out of the class
- 4) Students keep an open mind
- 5) Students respect one another
- 6) Students turn off all electronic devices
- 7) Computers are allowed only for note taking purposes and to access class activities. Abuse of this policy will result in revoking the in-class computer privileges for that particular student

Academic Honesty

In 1995 the UF student body enacted an [honor code](#) and voluntarily committed itself to the highest standards of honesty and integrity. When students enroll at the university, they commit themselves to the standard drafted and enacted by students.

The Honor 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.

On all work submitted for credit by students at the university, the following pledge is either required or implied: **"On my honor, I have neither given nor received unauthorized aid in doing this assignment."**

Students should report any condition that facilitates dishonesty to the instructor, department chair, college dean, Student

Honor Council, or Student Conduct and Conflict Resolution in the Dean of Students Office.

(Source: 2012-2013 Undergraduate Catalog)

It is assumed all work will be completed independently unless the assignment is defined as a group project, in writing by the instructor.

This policy will be vigorously upheld at all times in this course.

Software Use

All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Online Course Evaluation Process

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/>.

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.

1. *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
Training Programs
Community Provider Database
2. *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,

NOTE: The instructor reserves the right to change any information contained in this and other handouts in this course.