

**AGR3303 Genetics, Fall 2023, 3 credits.
(Honors Section # 27560)**

Instructor: Dr. M A Babar

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Names	Email	Mon	Tues	Wednes	Thurs	Fri
Jenna Lind	jennalind@ufl.edu				4-6 pm	
Pranjal Patel	pranjalpatel@ufl.edu	5-7 pm				
Gabriela Faber	gfaber@ufl.edu					3-5 pm
Brendan Patacca	brendanpatacca@ufl.edu				3-5 pm	
Aracelly Valdes	aracelly.valdes@ufl.edu			5-7 pm		
Maggie Kent	maggiKent@ufl.edu	5-7 pm				
Samuel Adewale	sadewale@ufl.edu			3-5 pm		
Shannon Barry	shanbarry@ufl.edu		4-6 pm			
Janam Acharya (Honors section)	janamacharya@ufl.edu		3-5 pm			

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, bonus discussion points, ect. Each TA will form a group in canvas to communicate with the assigned students. Zoom office hour links will be on Canvas in the "Zoom Conferences" page. Samuel Adewale and Janam Acharya are Graduate Teaching Assistant from Dr. Babar's lab here at UF, and Shannon Barry from Microbiology and Cell Science Department. The other TAs are undergraduate students who have taken this course before and are excited to help you succeed in it too Student assignments will be as follows: **students who have last name starts with A to B, will be assigned to Jenna Lind; students who have last name starts with C to D, will be assigned to Pranjal Patel; students who have last name starts with E to H, will be assigned to Gabriela Faber; students who have last name starts with I to L, will be assigned to Shannon Barry; students who have last name starts with M to O, will be assigned to Samuel Adewale; students who have last name starts with P to R, will be assigned to Maggie Kent; students who have last name starts with S to T, will be assigned to Aracelly Valdes; and students who have last name starts with U to Z, will be assigned to Brendan Patacca. All honors students will be assigned to Janam Acharya.**

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. 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.

Class format and Delivery Method:

Online—Canvas (<https://elearning.ufl.edu>) Asynchronous. Lectures will be posted online in PowerPoint format with a voiceover recording and videos. Download and run presentations on your computer to view.

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).

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 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://bsd.ufl.edu/allaccess>.
2. Here is the instruction how to utilize UF all access <https://drive.google.com/file/d/1tpBN9jhOz-m103cnZYE1qtBQrFIQiwXm/view?usp=sharing>
3. This prompts you to log in with your GatorLink account.
4. Students are shown a list of classes in which they are enrolled that are participating in UF All Access, with the prices.
5. Students should click the Opt-in check box next to the class they are trying to get access to.
6. Students then need to click the button below to authorize the charges.

7. Log in to Genetics on Canvas
8. Click on an Achieve assignment within Canvas. If prompted, enter your name and email address associated with your Canvas account.
9. Agree to Macmillan Learning terms of use and end user agreement.
10. **Need Help?**

Answers to many common questions are found in our Student Support Community. If you need direct assistance you can also contact technical support:

<https://macmillan.force.com/macmillanlearning/s/>

3) Honorlock

1. You'll be using Honorlock proctoring service for exams.
2. You are **required** to have a webcam, headset/speakers and microphone.

Grading:

The final grades are based on the total points of the **four exams (280 points)**, ten homework assignments (**30 points**), 6 seminar reports and power point presentations (**50 points**) plus bonus quizzes and discussion topics points.

- 1) **Exams:** Four exams are required. The exams will be conducted through "Honor lock". **There will be no final exam. Each exam will be graded in 70 points; a total of 280 points.** A zero will be given for the missed exam.

Each exam will have 35 multiple choice questions and 2 points each with a total of 70 points. All the exams will be given with closed notes and books. Students will be given 80 mins to complete the exam.

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 the highest wrong answers will be posted after each exam. Individual exam feedback will be available for students immediately after posting grade, but need to follow up with TAs or instructor)

- 2) **Homework assignment: 12-13 homework assignments** will be conducted through "achieve". Out of those homework assignments, **the 10 best ones** will be selected for each student. Each homework assignment will be graded in **3 points**. 10 homework assignments will be 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.

- 3) **Seminar Reports and presentations (50 points):**
 - a) Honors students are required to attend 6 genetics related seminars during the fall semester

and to turn in written summaries of the seminars and also a 30 mins presentation to Dr. Babar or TA Janam Acharya. Honors students have to schedule for the presentation between Nov 27 to Dec 5, 2023.

- b) These can be graduate students or faculty given seminars. Suggested sources of seminars are the Agronomy Department, Horticultural Sciences Department, Environmental Horticulture Department, Plant Molecular and Cell Biology (PMCB) Program, Forestry, Botany, Animal Sciences, The Vet School, Animal Molecular and Cellular Biology (AMCB) Program, and the Genetics Institute. Other sources may be suggested by the student.
 - c) The student must identify and get approval of all seminar topics and complete a summary.
 - d) Each report is worth **5 points** for a total of 30 points.
 - e) The presentation is worth **20 points**.
- 4) **Bonus Quiz Points:** Bonus quizzes worth **1 point** each will be given on Friday. These quizzes will be conducted through canvas. Each quiz consists of **4-5 questions on class concepts on previous week class content. Students will be given 7 minutes to answer the questions. 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 grade will be posted out of zero.

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

- 5) **Bonus Discussion Points:** Students can post “**Bonus discussion topics**” in canvas between **Nov 25 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 a 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.** Bonus discussion grade will be posted out of zero.

6) **Grading scale for the course:**

A	90%
B+	85% to 89.99%
B	80% to 84.99%
C+	75% to 79.99%
C	70% to 74.99%
D+	65% to 69.99%
D	60% to 64.99%
E	< 60%

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
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Grade Points	4.0	3.33	3.0	2.33	2.0	1.33	1	0
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Schedule

Topics	Textbook (7th edition)
Week 1	
Course introduction and the genetic materials	Ch. 1, 2, 10
Week 2	
DNA-RNA structure	Ch. 10 Ch. 12
DNA replication	Ch. 12
Week 3	
Transcription (Prokaryotes)	Ch. 13
Week 4	
Transcription (eukaryotic)	Ch. 13
RNA processing (Eukaryotes)	Ch. 14
Week 5	
Genetics code and translation	Ch. 15
Exam-1 Review	September 20; 6-8 pm
Exam-01	Exam time is 80 mins on September 22, 2023. 24 hours window to complete exam. Exam will open at 6 am.
Week 6	
Gene expression regulation in bacteria	Ch. 16
Eukaryotic gene expression regulation	Ch. 11, 14, 17
Week 7	
Gene mutations and DNA repair	Ch. 18
Week 8	
Molecular genetic analysis and biotechnology	Ch. 19
Week 9	
DNA Sequencing technologies	Ch. 19
Exam-2 Review	October 18; 6-8 pm
Exam-02	Exam time is 80 mins on October 20, 2023. 24 hours window to complete exam. Exam will open at 6 am.
Week 10	
Genomics	Ch. 20
Mitosis and meiosis	Ch. 2
Week 11	
Principles of heredity – Segregation and independent assortment	Ch. 3
Extensions and modifications of basic principles	Ch. 5

Week 12	
Linkage & recombination	Ch. 7
Sex-Linked Characteristics	Ch. 4
Week 13	
Chromosome number variation	Ch. 8
Exam-3 Review	November 15; 6-8 pm
Exam-03	Exam time is 80 mins on November 17, 2023. 24 hours window to complete exam. Exam will open at 6 am.
Week 14	
Quantitative genetics	Ch. 24
Week 15	
Pedigree Analysis	Ch. 6
population Genetics	Ch. 25
Week 16	
Exam-4 Review	December 4; 6-8 pm
Exam-04	Exam time is 80 mins on December 6, 2023. 24 hours window to complete exam. Exam will open at 6 am.

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

Proctored Exams

To ensure the academic integrity of the degrees awarded by the University of Florida, this course proctors the midterm and final exams. UF Online students are proctored through Honorlock. For details on how this works, visit the Proctored Exams Student Guide. In order to use this service, you MUST have a webcam, headset or working speakers, a microphone, and Google Chrome browser. Follow these steps for a trouble-free exam:

- Test your equipment well before your exam.
 - Make certain that your webcam and microphone function properly
 - You are strongly urged to take the extra step to connect to a live person.
 - Test your equipment again the day before your exam.
- Download and install Google Chrome on your computer.
 - Chrome is the only supported browser for Honorlock exams.
- Use a wired connection.
 - **This is the number one cause of problems with online exams!**
 - The extra load of the proctoring software can cause even the best wireless connection to fail—don't take that chance!
- Find a quiet and private location.
 - You will not be able to take your exam in a coffee house or other public location.
- If you have not followed the steps listed above, any request for a makeup exam will not be granted.

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.