

AGR3303 Genetics, Fall 2017, 3 credits

Instructor: Dr. M A Babar
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Office hour: 11:30 am to 1:30 pm (Tuesday)

TAs: Sumit Shrestha; Dipendra Shahi, Marcella Gallardo, Heather DeReus, Aariha Ali, and Alex Thomson, Luna Amado

E-Mail: Sumit Shrestha (sumitp@ufl.edu)
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TAs	Monday (3120 MCCB)	Tuesday (2186 McCarty A)	Thursday (3124 McCarty B)
Sumit Shrestha		3:00 to 5:00 pm	
Dipendra Shahi	3:00 to 5:00 pm		
Marcella Gallardo		3:00 to 5:00 pm	3:00 to 5:00 pm
Heather DeReus			3:00 to 5:00 pm
Aariha Ali	3:00 to 5:00 pm		
Alex Thomson	3:00 to 5:00 pm		
Luna Amado		4:00 to 5:00 pm	4:00 to 5:00 pm

Students are welcomed to visit instructor's office before Tuesday's class (11:30 am to 1:30 pm) or any other times, but it will be wise to schedule an appointment (e-mail) to make sure that instructor is available.

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.

Time and Location:

Tuesday (Period 7; 1:55 to 2:45 pm), Thursday (Period 6&7; 12:50 to 2:45 pm); Class meets in 0100 MCCC (McCarty C);

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

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.

Text book

Text book "**Genetics, A Conceptual Approach**, 6th edition– Benjamin A. Pierce, Freeman and Company. The text book provides more details and perspectives to the lecture notes. The book can be purchased at the book store or online.

Attendance and participation

Class attendance is highly expected. 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 six exams plus bonus quizzes and discussion topics points.

Exams: six mid-term exams are required and will be given in class during the regular class time. There will be no final exam. Each mid-term exam will be graded in 50 points and a total of 300 points. Students are not allowed to take the exam if they arrive late for the exam at the time when some students have turned in the exam and have stepped out of the classroom. A zero will be given for the missed exam.

Each exam will have 25 multiple choice questions and 2 points each with a total of 50 points. All the exams will be given in class with closed notes and books. A zero will be given if you miss it.

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.

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 each Thursday class. These quizzes will be conducted through canvas or on paper anytime during Thursday class. **Each quiz consists of 5 questions or 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 15 bonus quizzes throughout the semester.

Bonus Discussion Points: Students can post “**Bonus discussion topics**” in canvas between Nov 15 to Dec 5. The discussion topics will be on a topics 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 **2.5 points** by posting one topic and can’t post more than **2 topics**. So, a student can get **a total of 5 points** by posting interesting topics on genetics in canvas. Students can get **2.5 points** by participating in the discussion also. If a student participates in discussion on the posting of other students, the participating student can get **2.5 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 **5 points**. **A student can get maximum of 4 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 (6th edition)
Week 1			
Aug 22, 2017	Tuesday	Course introduction & the genetic materials	Ch. 1, 10
Aug 24, 2017	Thursday	The genetic materials, DNA and RNA, DNA replication	Ch. 10, 12
Week 2			
Aug 29, 2017	Tuesday	DNA replication	Ch. 12
Aug 31, 2017	Thursday	Transcription (Prokaryotes)	Ch. 13
Week 3			
Sep 5, 2017	Tuesday	Exam-1	
Sep 7, 2017	Thursday	Transcription and RNA processing (Eukaryotes)	Ch. 13, 14
Week 4			
Sep 12, 2017	Tuesday	Genetics code and translation	Ch. 15
Sep 14, 2017	Thursday	Genetics code and translation; Gene expression regulation in bacteria	Ch. 15; 16
Week 5			
Sep 19, 2017	Tuesday	Gene expression regulation in bacteria	Ch. 16
Sep 21, 2017	Thursday	Chromosome structure and eukaryotic gene expression	Ch. 11, 14, 17
Week 6			
Sep 26, 2017	Tuesday	Exam-2	
Sep 28, 2017	Thursday	Chromosome structure and eukaryotic gene expression; regulation	Ch. 11, 14, 17
Week 7			
Oct 3, 2017	Tuesday	regulation	Ch. 17
Oct 5, 2017	Thursday	Gene mutations and DNA repair	Ch. 18
Week 8			
Oct 10, 2017	Tuesday	Exam-3	
Oct 12, 2017	Thursday	Molecular genetic analysis and biotechnology	Ch. 19
Week 9			
Oct 17, 2017	Tuesday	DNA Sequencing technologies	Ch. 19
Oct 19, 2017	Thursday	Genomics	Ch. 20
Week 10			
Oct 24, 2017	Tuesday	Mitosis and meiosis	Ch. 2
Oct 26, 2017	Thursday	Principles of heredity – Segregation and independent assortment	Ch. 3

Week 11			
Oct 31, 2017	Tuesday	Exam-4	
Nov 2, 2017	Thursday	Extensions and modifications of basic principles	Ch. 5
Week 12			
Nov 7, 2017	Tuesday	Sex Determination & Sex Linked Characteristics	Ch. 4
Nov 9, 2017	Thursday	Pedigree Analysis	Ch. 6
Week 13			
Nov 14, 2017	Tuesday	Exam-5	
Nov 16, 2017	Thursday	Linkage & recombination	Ch. 7
Week 14			
Nov 21, 2017	Tuesday	Chromosome variation	Ch. 7
Week 15			
Nov 28, 2017	Tuesday	Quantitative genetics	Ch. 24
Nov 30, 2017	Thursday	Quantitative genetics, population Genetics	Ch. 24 & 25
Week 16			
Dec 5, 2017	Tuesday	Exam-6	

***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.

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 instructors reserve the right to change any information contained in this and other handouts in this course.