AGR3303 Genetics, Summer A 2018
3 credits

Instructor: **Dr. Jianping Wang**
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Office Hours: Monday through Friday11:00 am to12:00pm

Students are welcomed to visit TAs or instructor's office at any other times than the above office hours. But it is wise to schedule an appointment (call or e-mail) to make sure a TA or 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 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
Class meets in 100 McCarty Hall C, Monday through Friday 9:30 – 10:45am (Period 2).

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
Five 75-minute lectures (except exam days) per week for whole semester are presented as PowerPoint slides.

Course Website
E-Learning system, Canvas http://lss.at.ufl.edu is the online source for majority of the learning resources. All lecture handouts, practice questions, and learning objectives and suggested reading materials are uploaded in "Files" folder of Canvas. Course announcements regarding general course information will be posted at 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 (4th and 5th editions are acceptable) – Benjamin A. Pierce, Freeman and Company" is highly recommended as I prepared almost all my lectures based on the materials on the text book. And the text book provides more details and perspectives to the lecture notes. Suggested readings on the text book are assigned for each lecture. The book can be purchased at the book store or online at http://www.whfreeman.com/Catalog/discipline/Biology/Genetics.
Two hard copies of the 4th edition text book are on reserve in the Marston Science library for your reference.

Attendance and Participation
Class attendance is highly expected. A number of true/false questions are given during each lecture to review the material covered in the lecture. Students are expected to participate in the review and indicate the answer by raising a colored card. A red card indicates false and a green card indicates true. The answers are checked in class and are not posted anywhere else. This system is used not only to determine if the class as a whole understands the concepts being presented, but also to encourage attendance and participation. A subset of these questions will be incorporated verbatim into the exams. In addition, surprise bonus quizzes (1.5 point each) are given randomly during classes to check attendance and reward students in the class.

Grading
The final grades are based on the total points of the BEST FOUR out of FIVE exams plus bonus points.

Exams: Four mid-term exams are given in class during the regular class time as listed in the course outline. One final comprehensive or accumulative exam is given on the last day of the Summer A semester during the class time (June 16, 2017). 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 8 T/F questions worth 2 points each and 24 multiple choice questions worth 3.5 points each with a total of 100 points. All the exams will be given in class with closed notes and books. 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 of the four exams.

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

Grading scale for the course:

A	90% (≥ 360)
B+	85% to 89.99% (340 – 359 points)
B	80% to 84.99% (320 – 339 points)
C+	75% to 79.99% (300 – 319 points)
C	70% to 74.99% (280 – 299 points)
D+	65% to 69.99% (260 – 279 points)
D	60% to 64.99% (240 – 259 points)
E	< 60% (≤ 239 points)

Note: no minus grades are given

More information on grades and grading policies is here:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Passing Grade	A	B+	B	C+	C	D+	D	S
Grade Points	4.0	3.5	3.0	2.5	2.0	1.5	1	0

Bonus Points: Bonus quizzes worth 1.5 points each are given randomly during classes. These quizzes are unannounced and are presented on the screen at any moment during class. Each quiz consists of 2 questions, students will be given 1~3 minutes to answer the question and turn in the answers on a piece of paper with their name and UFID. Half of a point is awarded for attendance purposes and is counted towards any quiz turned in within the allotted time. Half of a point is given to each of the two questions with a correct answer. Students must attend class to take the bonus quizzes. There is no make-up quiz. It is student's responsibility to make sure the answer sheet is handed in for grading. Five to ten **bonus discussion** topics will be given in the last 2-3 weeks of the class. Students can participate in the discussion by either providing discussion topics or participating in the discussion of two selected topics posted. Students who want to provide discussion topics should send a description of the topic in 3-10 sentences to instructor for uploading. You will earn one bonus point if 5-10 students (yourself is not counted) participate in the discussion of your topic, or two bonus points if more than 10 students participate in the discussion. Students, who do not provide the topics or who provide the topics having less than five students participated, can choose two posted topics to participate the discussion. One point is counted as bonus towards relevant, non-redundant (not contributed by a previous participant), and complete ideas and information under each chosen discussion topic. The discussion participation is worth 2 bonus points in total.

Make-Up Policy

The comprehensive or accumulative final exam is considered as makeup exam. The grade of the final exam can be used to replace one of your lowest mid-term exam grade, 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/Week	Day	Topics	Text book (5, 6th edition)
Week 1			
May 14	Monday	Course introduction & the genetic materials	Ch. 1, 2
May 15	Tuesday	DNA and RNA structures	Ch. 10
May 16	Wednesday	DNA replication	Ch. 12
May 17	Thursday	Transcription in prokaryotes	Ch. 13
May 18	Friday	Transcription and RNA processing in eukaryotes	Ch. 13, 14
Week 2			
May 21	Monday	Genetics code and translation	Ch. 15
May 22	Tuesday	***EXAM 1***	
May 23	Wednesday	Gene expression regulation in prokaryotes	Ch. 16
May 24	Thursday	Gene expression regulation in eukaryotes	Ch. 11, 14, 17
May 25	Friday	Gene mutations and DNA repair	Ch. 18
Week 3			
May 28	Monday	**NO CLASS - Memorial Day**	
May 29	Tuesday	Cancer genetics	Ch. 23
May 30	Wednesday	Molecular genetic analysis and biotechnology	Ch. 19
May 31	Thursday	DNA sequencing technologies	Ch. 19
June 1	Friday	***EXAM 2***	
Week 4			
June 4	Monday	Mitosis and meiosis	Ch. 2
June 5	Tuesday	Chromosome variations	Ch. 8 (Ch. 9 in 4th)
June 6	Wednesday	Principles of heredity - segregation	Ch. 3
June 7	Thursday	Principles of heredity - independent assortment	Ch. 3
June 8	Friday	Extensions and modifications of basic principles	Ch. 5
Week 5			
June 11	Monday	***EXAM 3***	
June 12	Tuesday	Sex determination & sex linked characteristics	Ch. 4
June 13	Wednesday	Pedigree analysis	Ch. 6
June 14	Thursday	Linkage and recombination	Ch. 7
June 15	Friday	Gene mapping	Ch. 7
Week 6			
June 18	Monday	Quantitative genetics	Ch. 24
June 19	Tuesday	Population genetics	Ch. 25
June 20	Wednesday	***EXAM 4***	
June 21	Thursday	Review	
June 22	Friday	***FINAL EXAM***	

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

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 which 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 feedback on the quality of instruction in this course by completing online evaluations at https://evaluations.ufl.edu. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.
Summary results of these assessments are available to students at https://evaluations.ufl.edu/results/

General Class Demeanor

- Students arrive to class on time
- Students be respectful to the instructor and to fellow students
- Students convey superior work ethic and perform to high standards
- Students share questions and ideas in/out of the class and keep an open mind
- Students avoid the use of cell phones
- 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 Policy
UF students are bounded by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity by abiding by the Honor Code”. 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." The Honor Code (https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Counselling and Wellness Center
The Counseling & Wellness Center (contact information below) provides confidential counseling services and training programs at no cost for currently enrolled students.
University Counseling & Wellness Center, 3190 Radio Road, 352-392-1575, **www.counseling.ufl.edu/cwc/**

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