



College of Liberal Arts and Sciences

Department of Biology

PCB 3063: *Genetics*

Spring 2021 – 4 credits

INSTRUCTOR CONTACT INFORMATION:

Hazel C. Levy, Ph.D.

(she, her, hers)

E-mail: hclevy@ufl.edu

SECTIONS:

16699 (Little Hall Rm 109) and **30581** (online synchronous) meet T/R, Period 2 - 3 (8:30 AM - 10:25 AM)

16700 (Carleton Auditorium Rm 100) and **30584** (online synchronous) meet T/R, Period 2 - 3 (11:45 AM - 1:40 AM)

OFFICE HOURS: You will access office hour Zoom links using [Canvas Calendar](#).

- Open Office Hours: Mondays 2:00-3:30p
- By appointment: Wednesdays from 10:30a – 12:30p, [make your appt through Canvas Calendar](#).

REQUIRED TEXTBOOKS:

- Klug, WS, MR Cummings, CA Spencer, MA Palladino, and D Killian. 2019. Concepts of Genetics, 12th ed. Pearson, New York. [Your textbook is provided as an electronic text, which is accessible via Mastering Genetics on the Canvas website (please see below)]. **Purchase Text through UF All Access.**
- Additional course readings may be available on Canvas and Course Reserves (ARES)

COURSE DESCRIPTION:

This course will survey chromosome structure and replication, genetic linkage and mapping, regulation of gene expression, epigenetics, genetic mutation, genetics of cancer, and the principles of genetic engineering. Applications of bioinformatics and genetics to modern biological problems are discussed.

PREREQUISITES: [BSC 2011](#) & [BSC 2011L](#) (or equivalent, w/ minimum grades of C), & general chemistry.

COURSE OBJECTIVES - By the end of this course, students will:

- Build Foundational Knowledge:** Students will be able to describe the historical foundations for the field and discoveries of genetics.
- Apply Course Material:** Students will be able to use core knowledge of genetics to critically analyze scientific research literature, and in popular culture and the public discourse.
- Link Content Between Courses:** Be able to make connections between research in genetics and quantitative analysis in other natural and social science coursework.
- Synthesize Research with Practice:** Students will be able to synthesize core knowledge of genetics with current and emerging research in the biological and social sciences.
- Familiarize students with genetics questions on graduate admissions tests (GRE, MCAT).**

NOTE: This syllabus is subject to change at the discretion of the instructor.

COURSE SCHEDULE:

MODULE I: GENETIC INHERITANCE

INTRODUCTION TO HEREDITY

Historical-Cultural Perspectives on Genetics and Evolutionary Theories (CH 1)

PATTERNS OF INHERITANCE

Chromosome Transmission During Cell Division and Sexual Reproduction (CH 2)

Mendelian Inheritance (CH 3)

Non-Mendelian Inheritance (CH 4)

Genetic Mapping and Linkage (CH 5, 7)

Chromosomal Changes (CH 8)

Extranuclear Inheritance (Ch 9)

MODULE II: MOLECULAR GENETICS

MOLECULAR STRUCTURE & REPLICATION OF THE GENETIC MATERIAL

Molecular Structure of DNA and RNA (CH 10)

DNA Replication and Recombination (CH 11)

Organization of DNA and Chromosomes (CH 12)

MOLECULAR PROPERTIES OF GENES

Gene Transcription, RNA Modification, Translation of mRNA (CH 13, 14)

Gene Mutation, Transposition and DNA Repair (CH 15)

Gene Regulation: Transcriptional and Translation Regulation, Epigenetics (CH 16, 17, 18, 19)

MODULE III: GENETIC TECHNOLOGIES

GENETIC TOOLS AND METHODS

Molecular and Bio-Technologies (CH 20)

Genomics: Analysis of DNA, Functional Genomics, Proteomics, and Bioinformatics (CH 21)

Applications of Genetics Engineering (CH 22)

GENETIC ANALYSIS OF INDIVIDUALS AND POPULATIONS

Developmental Genetics (CH 23)

Genetics Basis of Cancer (CH 24)

Population and Evolutionary Genetics (CH 26)

Weekly reading quizzes (using MyLab) will cover the reading assignment.

Exams will not be cumulative and will cover the lectures, reading, and problem sets for a module.

Exam Schedule:	CH covered	Date	Time	Section
Exam Module I	CH 1-9	2/2/2021	during class period	All
Exam Module II	CH 10-19	3/16/2021	during class period	All
Exam Module III	CH 20-26	4/29/2021	7:30a – 9:30a	16699 & 30581 (8:30a)
		4/27/2021	7:30a – 9:30a	16700 & 30584 (11:45a)

Class Meeting Schedule:

WEEK	TUESDAY	THURSDAY
Week 1: Jan. 12 & 14	ALL SYNCHRONOUS ONLINE L01: Read CH 1	L02: Read CH 2
Week 2: Jan. 19 & 21	L03: Read CH 3 Quiz Intro to Mastering Genetics	L04: Reading Quiz: CH 4, 5
Week 3: Jan. 26 & 28	L05: Reading Quiz: CH 7, 8	ALL SYNCHRONOUS ONLINE L06: Reading Quiz: CH 9 In-class group activity

Week 4: Feb. 2 & 4	L07: Conclude Module 1 R1: Review for Exam 1 (CH 1-9)	Exam 1 (in class)
Week 5: Feb. 9 & 11	L08: Reading Quiz: CH 10, 11 (B – reading and lecture notes)	ALL SYNCHRONOUS ONLINE In-class group activity
Week 6: Feb. 16 & 18	ALL SYNCHRONOUS ONLINE L09: Reading Quiz: CH 12, 13 (C – reading and lecture notes)	ALL SYNCHRONOUS ONLINE Bioinformatics (BI) Info session
Week 7: Feb. 23 & 25	L10: Reading Quiz: CH 14, 15 (D – reading and lecture notes)	ALL SYNCHRONOUS ONLINE Group Presentations: Disc. A
Week 8: Mar. 2 & 4	L11: Reading Quiz: CH 16, 17 (E – reading and lecture notes)	ALL SYNCHRONOUS ONLINE Group Presentations: Disc. B
Week 9: Mar. 9 & 11	L12: Reading Quiz: CH 18, 19 (A – reading and lecture notes)	ALL SYNCHRONOUS ONLINE Bioinformatics (BI) Info session
Week 10: Mar. 16 & 18	BI Problem Set due 8:30a R2: Review for Exam 2 (CH 10-19)	Exam 2 (in class)
Week 11: Mar. 23 & 25	L13: Reading Quiz: CH 20, 21	ALL SYNCHRONOUS ONLINE Group Presentations: Disc. C
Week 12: Mar. 30 & Apr. 1	L14: Reading Quiz: CH 22, 23	ALL SYNCHRONOUS ONLINE Group Presentations: Disc. D
Week 13: Apr. 6 & 8	L15: Reading Quiz: CH 24, 26	ALL SYNCHRONOUS ONLINE Group Presentations: Disc. E
Week 14: Apr. 13 & 15	ALL SYNCHRONOUS ONLINE Poster Draft due 11:00p R3: Final Review	ALL SYNCHRONOUS ONLINE In-class group activity
Week 15: Apr. 20	ALL SYNCHRONOUS ONLINE Bioinformatics Poster Session	All assignments due 11:00p
Exam Week (Date TBD)	Final Exam (CH 20 – CH 26)	

GRADE BREAK DOWN:

Pre-Class Reading Quizzes (MyLab)	15 %
BI Problem Set (1 in canvas)	10 %
Discussions (12 in canvas)	15 %
Exams (2 of 3 via Honorlock)	30 %
Group work	30 %
presentation	12 %
poster	12 %
notes	1 %
gp participation	5 %

Total **100 %**

Course Grading Scale			
93.00-100% (A)	83.00-86.99% (B)	73.00-76.99% (C)	63.00-66.99% (D)
90.00-92.99% (A-)	80.00-82.99% (B-)	70.00-72.99% (C-)	60.00-62.99% (D-)
87.00-89.99% (B+)	77.00-79.99% (C+)	67.00-69.99% (D+)	0-59.99% (E)

COURSE AND UNIVERSITY POLICIES:

Attendance, Make-Up Exams and Assignments

Requirements for class attendance and make-up exams, assignments, and other work in this course is consistent with university policies.

- MyLab reading quizzes are *due at 8:30am*. You can miss 3 quizzes without penalty. Late quizzes are worth up to 50% and are due by 4/22/2021 at 11:00pm.
- Group discussion **posts** will be *due at 8:30am* and **replies** (you will need to reply to three posts) are *due at 11:00p*. Late **posts** and **replies** will be worth up to 50% and will be due by 4/22/21 at 11:00pm.
- Problem sets are *due at 8:30am*. Late problem sets will not be accepted because we may discuss them in class.

No make-up exams will be given without prior permission or documentation of illness. Students that will be missing an exam due to a pre-arranged university-approved excused absence (sports, etc.) should let the instructor know **a minimum of two weeks in advance**. In case of illness or personal emergency on exam day, students must submit documentation to the Dean of Students office (P202 Peabody Hall, dsocares@dso.ufl.edu) and request an instructor notification to be sent. These notes must be received within five business days after the exam. Make up exams will be short answer and essay and will not be multiple choice.

Accommodations for Students with Disabilities

Students requesting accommodation for disabilities must first register with the [Disability Resource Center \(DRC\)](#) - The DRC will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodations. Students should contact the DRC and complete this process as early as possible in the term for which they are seeking accommodations.

UF Student Honor Code

UF students are bound by the Honor Pledge which states, “We, the members of the UF community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at UF, 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](#) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obliged to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Online Course Evaluation Process

Students will be using the course evaluation system called GatorEvals. Students can complete their evaluations through the email they receive from GatorEvals, in their Canvas course menu under [GatorEvals](#).

Student Assistance and Emergencies

University support services are available to students who are experiencing significant distress and/or personal emergencies. As appropriate please contact:

- [Counseling and Wellness Center \(CWC\)](#): or (352) 392-1575
- University Police Department: (352) 392-1111 or 9-1-1 for emergencies.
- [U Matter, We Care](#): If you or a friend is in distress, or please contact umatter@ufl.edu or (352) 392-1575 so that a team member can reach out to the student.
- Sexual Assault Recovery Services (SARS): Student Health Care Center, (352) 392-1161.

Academic Resources

- [Library Support](#): For various ways to receive assistance with respect to using the libraries or finding resources.
 - LibGuides are websites to help you find information about a specific area of study or even a specific class.

- [Teaching Center: Broward Hall](#), call (352) 392-2010 or (352) 392-6420 for general study skills and tutoring.
- [Writing Studio](#): 302 Tigert Hall, call (352) 846-1138 for help with papers.
- [E-learning Technical Support](#): call (352) 392-4357 (select option 2), e-mail Learning-support@ufl.edu,
- [Career Connections Center](#): Reitz Union, call (352) 392-1601 for career assistance and counseling.

Student Complaint Process

The University of Florida believes strongly in the ability of students to express concerns regarding their experiences at the University. The University encourages its students who wish to file a written complaint to submit that complaint directly to the department that manages that policy.

- Information for [residential courses](#)
- Information for [online courses](#)

HyFlex and COVID-19

- In keeping with UF Health guidelines, students in face-to-face sections will be expected to maintain physical distancing in the classroom, and to remain masked during the class meeting. This applies to the instructors as well.
- Students who register for the face-to-face sections are expected to attend in person, and online students are expected to attend online. Students who register for one or the other should not expect to be able to switch during the term.
- Because of the UF Health physical distancing guidelines, students should expect the face-to-face sections to be smaller, sometimes much smaller, than the associated online sections.

For face-to-face classes: **We will have face-to-face and synchronous on-line instructional sessions** to accomplish the student learning objectives of this course. In response to COVID-19, the following policies and requirements are in place to maintain your learning environment and to enhance the safety of any in-classroom interactions.

- You are required to wear approved face coverings at all times during class and within buildings. Following and enforcing these policies and requirements are all of our responsibility. Failure to do so will lead to a report to the Office of Student Conduct and Conflict Resolution.
- This course has been assigned a physical classroom with enough capacity to maintain physical distancing (6 feet between individuals) requirements. Please utilize designated seats and maintain appropriate spacing between students. Please do not move desks or stations.
- Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
- Follow your instructor's guidance on how to enter and exit the classroom. Practice physical distancing to the extent possible when entering and exiting the classroom.
- If you are experiencing COVID-19 symptoms ([Click here for guidance from the CDC on symptoms of coronavirus](#)), please use the UF Health screening system and follow the instructions on whether you are able to attend class. [Click here for UF Health guidance on what to do if you have been exposed to or are experiencing Covid-19 symptoms](#).
 - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work. [Find more information in the university attendance policies](#).

For online course with recorded materials:

Our class sessions may be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate with their camera engaged or utilize a profile image are agreeing to have their video or image recorded. If you are unwilling to consent to have your profile or video image recorded, be sure to keep your camera off and do not use a profile image. Likewise, students who un-mute during class and participate orally are agreeing to have their voices recorded. If you are not willing to consent to have your voice recorded during class, you will need to keep your mute button activated and communicate exclusively using the "chat" feature, which allows students to type questions and comments live. The chat will not be recorded or shared. As in all courses, unauthorized recording and unauthorized sharing of recorded materials is prohibited.

COURSE EXPECTATIONS:

Civility

Behavior:

Mature and respectful behavior is expected from all members of our class in all interactions with instructors, guest presenters, and other students. Side conversations, sleeping, and reading other course material (or *The Alligator*, etc.) are not appropriate and may negatively impact the *Learning Community Support* grade.

Technology:

Technology may contribute to active learning, and may serve as a distraction. Use of computers/tablets should be limited to note-taking, assigned readings, and in-class exercises. Emailing, texting, and social media should be limited to before and after class and during breaks during in-class sessions. There are legitimate reasons to have a cell phone in the classroom (on call responsibilities, family emergencies, etc.), and they may also serve as a distraction. Please balance these needs appropriately. You will be asked to put away technology if you have been found to be a distraction.

Assignments

Your assignments should be professionally presented with well-organized ideas and materials. All written assignments must be typed (double-spaced, 12-point font, 1-inch margins). Please proofread your work. Late work will lose points, unless an extension was approved by the instructor. All written assignments will be uploaded to canvas.

Reading

Please complete reading assignments and reading quizzes designated in the syllabus or otherwise assigned by the instructor prior to the class meeting. Your responsibility is to be prepared to engage in large and small-group discussions. You are encouraged to take notes and/or highlight text while reading to assist you in contributing to class discussions and writing assignments.

GatorLink E-mail

Students are required to have and use their GatorLink account (@ufl.edu) for all UF related e-mail functions. Official university communications are sent to students at this email address. You are responsible for staying informed and current with all correspondence sent to you over the listserv.

Canvas Website

Students are required to use the canvas website. Additional course readings, information about assignments, and course-related announcements will be posted on this website.