

Syllabus: Genetics (PCB 3063)

Summer A Semester 2019

Lectures: Monday-Thursday 10-11:50am

Instructor:

Dr. Laurence von Kalm

Office: Biological Sciences room 433

Phone: (407) 823-6684

Email: Please use Webcourses for email.

Office hours: Monday-Thursday 12-2pm

Course Material: The course will emphasize molecular and transmission genetics. Molecular genetics will cover DNA structure and replication, storage and expression of genetic material, regulation of gene expression and applications of genetic technologies. Transmission genetics will include chromosome segregation and disorders of chromosome segregation in humans and the mechanisms of inheritance of genetic characters. Genetics is an upper division class designed for students who have completed Biology 1 (BSC 2010C) and two semesters of general chemistry (CHM 2040 and CHM 2041 or CHM 2045 and CHM 2046).

Course Learning Outcomes: Students will understand the basic concepts of Genetics and develop problem solving skills. In addition, students will be able to draw connections and distinguish between concepts.

Specific learning outcomes:

- Understand and be able to draw connections and distinguish between the cellular processes of DNA replication, transcription and translation.
- Understand and be able to apply knowledge related to the principles of gene regulation in bacteria and eukaryotes.
- Understand the concepts of molecular genetic techniques such as cloning, PCR and gene mapping in eukaryotes and how to apply this information.
- Understand how the inheritance of alleles and characters relates to chromosome dynamics during cell division.
- Understand the principles of Mendelian and non-Mendelian inheritance of characters and apply this knowledge, as well as be able to distinguish between different modes of inheritance.

How to do well in this class:

- Come to class.
- Do the assigned reading right before or right after class.
- Do the chapter problem sets multiple times. Don't wait until the last minute to do them. The problem sets and solutions are available on Webcourses.
- Talk to me as soon as you realize you don't understand something.

Communication with the class:

All announcements will be made on Webcourses. During the semester it may become necessary to change the syllabus, including, but not limited to test dates, assignment due dates and assessment. If a change to the syllabus is made, an announcement will be made on the Webcourse page and in class. All students are required to check for Webcourse announcements and will be held responsible for being aware of changes.

If you email me and I don't respond within 24 hours call me or talk to me in class. Response time may be slower on weekends.

Text:

Genetics: A Conceptual Approach: B.A. Pierce, 6th edition. W.H. Freeman and Company
(ISBN-13: 978-1-4641-0946-1)

The 5th edition of the text book is adequate for most chapters and a pdf copy of this edition is available on Webcourses. Some of the chapters in the 5th edition are outdated, and 6th edition pdf versions of the outdated chapters will be available on Webcourses.

All course materials will be made available on Webcourses.

iClickers:

The iClicker classroom response system will be used for class participation and assessment of knowledge for key lecture concepts during class. For details of grading related to iClickers see page 5. Students may use any version of a physical iClicker remote or the iClicker REEF app. A location sensor will be used for the iClicker REEF app. If you use the iClicker REEF app and it is not working, turn off UCF Wi-Fi and use your carriers signal. Also, activate Google Maps to reveal your location to the proximity sensor.

Note: If you have a physical clicker and the REEF app make sure that both are not active at the same time or you will be unable to respond to questions.

iClicker Registration:

Students must register their iClickers to earn clicker points. The **ONLY** way to register a clicker for this course is through the class Webcourse. There is a PowerPoint presentation describing how to register your iClicker in the module 'Syllabus and iClicker Registration'.

- If you lose your iClicker and purchase, rent or borrow a new iClicker, you must register the new clicker with the course. Any points earned with the lost clicker will be retained in the system.

All students are expected to have registered their iClicker or REEF app by **Friday May 17, 2019** regardless of financial aid status. After this date, a student will NOT receive any clicker points until they register their remote properly. Any clicker points lost through failure to meet this deadline will not be back awarded.

Sapling Homework and Quiz Exercises.

This semester we will be using the Sapling Learning website to do homework exercises and quizzes. The cost is \$45.99 without a textbook or eBook. **You do not need to purchase a textbook to register for Sapling Learning.** For details of grading related to the Sapling Learning site see page 6.

To set up an account and link to the course do the following:

Go to the Sapling Learning link from ‘Assignments’ in Webcourses.

- For initial registration, you must access the Sapling Learning site through the Sapling Learning link from ‘Assignments’ in Webcourses. After logging in once using this link, you can log in to subsequent sessions from the Assignment page or from the Sapling home page.
- If you already have a Sapling account, enter your username and password in the login box. If the login box is disabled, scroll down to the Create an Account portion of the page, fill in the information and click Create My Account.
- You have been automatically enrolled into the appropriate course on Sapling Learning and will be directed to your course page.
- Review the [system requirements](#) and confirm that Flash is updated and enabled in your browser.
- **Need Help?** The Sapling technical support team can be reached by phone, chat, or by email via the Student Support Community. To contact support please open a service request by filling out the webform: <https://macmillan.force.com/macmillanlearning/s/contactsupport>.
- The following link includes more detailed instructions on how to register for the course: <https://macmillan.force.com/macmillanlearning/s/article/Sapling-Learning-Student-Single-Sign-On>.

Grading Scale and Assessment:

All grades will be posted on Webcourses. **I strongly encourage all students to review their tests.**

Grade Scale:

Grade Range	Grade	GPA
90 - 100	A	4.0
87 - 89	A-	3.75
84 - 86	B+	3.25
80 - 83	B	3.0
77 - 79	B-	2.75
74 - 76	C+	2.25
70 - 73	C	2.0
60 - 69	D	1.0
Below 60	F	0

Note that the University considers any GPA above zero a passing grade. Specific program requirements may vary. Biology majors must earn a C in Genetics to take any Biology course for which Genetics is a prerequisite.

Grading will be divided into five components.

- Extra credit quiz - 1% extra credit
- Tests - 75%
- Class participation iClicker exercises - 5%
- Sapling Learning site Homework exercises - 10%
- Sapling Learning site Quizzes - 10%

Extra credit quiz (1% added to final grade)

A quiz worth 1% added to the final grade (i.e. extra credit) will be offered in the first week. The quiz must be completed by midnight Tuesday May 14th to receive credit. You will be graded for doing the quiz, not the accuracy of your answers. There will be no credit for anyone who misses the deadline.

Tests (75% of grade) - All tests will be in multiple choice and short response format.

There will be three tests each worth 25% of the final grade. The material covered on each test will be announced no later than the Friday before the test. Test dates are as follows:

Test 1	Thursday May 23rd
Test 2	Wednesday June 5th
Test 3	Thursday June 20th

Unless specifically permitted all electronic devices must be inaccessible during tests. Use or display of any unauthorized electronic device will result in a zero for the test and disciplinary action (see below under Academic Integrity).

Missed test(s):

To be allowed to makeup a missed test you must provide acceptable documented evidence that your reason for missing the test was beyond your control. A doctor's note must specify that you were seen for a medical condition, not simply state that you were seen. If acceptable documented evidence is not provided, a grade of 0 will be assigned for the missed test(s).

Students who represent the university in an authorized event or activity (for example, student-athletes), and who are unable to attend a test due to a conflict with that event, must provide the instructor with documentation in advance to arrange a make-up. For more information, see the [UCF policy](#).

Students must notify their instructor in advance if they intend to miss a test (or class) for a religious observance. For more information, see the [UCF policy](#).

Students who are deployed active duty military and/or National Guard personnel and require accommodation should contact the instructor as soon as possible after the semester begins and/or after they receive notification of deployment to make related arrangements.

Late for a test:

If you arrive late for a test you will be allowed to take the test. However, you must turn in the test paper at the regular scheduled end of the test. You will not be allowed extra time unless a documentable event that prevented you from getting to the test on time has occurred.

Theft of intellectual property:

By registering for this class each student agrees that the tests are the intellectual property of the instructor, Laurence von Kalm, and may not be stolen, sold, reproduced, shared, or used for any purpose that would aid students in future classes. Any individual who sells, shares, or reproduces for profit or not for profit, intellectual property belonging to the instructor without his permission will be subject to legal and disciplinary action. The individual also agrees to pay all costs incurred by the instructor related to legal action.

iClicker exercises (5% of grade)

- Clicker points will be awarded based on participation AND accuracy.
- Students will receive **0.75 points/question** for answering a clicker question and an **additional 0.25 points** for answering the question correctly.
- Students are responsible for bringing their iClicker remotes or phone to EVERY lecture.
- Students must be using their own registered iClicker to receive clicker points.
- **Important: Not all clicker points will be counted in the final clicker grade. 10% of the final clicker points will not be counted to allow for occasional absences or if a student forgets their clicker remote.**
 - Excess points over the ones counted will NOT be used as bonus points.
 - Special case absences (e.g. documented UCF related absences from class or extended illness) will be considered on a case by case basis by the instructor only if the absences total more than the clicker points that are dropped. Students must provide documentation for these absences if the absences are approved.

- **Important: The iClicker software and whether it detected your clicker or REEF app response is the final say in awarding points.**
 - Do NOT stop by the lectern, email after class or come to office hours to ask for points because of technical difficulties with a clicker.
 - There will be NO loaner iClickers available.
 - There will be NO alternative method (e.g. writing answers down on paper and turning in) for recording your responses *even if you were in attendance during the lecture*.
- Clicker points will be posted to Webcourses on a regular basis and students are responsible for contacting the instructor immediately if they see an issue with their clicker points.
- Use the default **frequency of AA** for responses.
- **Important: Cheating with iClickers: Using another student's iClicker in class when they are absent is cheating and a violation of UCF's Golden Rule.**
 - If it is determined a student has used a remote for another student, or a student has points in a class he or she did not attend, both will receive a 10-point deduction from their final grade and will face additional disciplinary action.

Sapling homework exercises (10% of grade):

These exercises will be available on the Sapling site. Do the homework exercises before you attempt the quizzes. You should take the homework exercises seriously as they are designed to help you learn and understand the material. You have an unlimited number of attempts at the questions and there is no penalty for incorrect answers. If you do all of the homework exercises you will automatically earn 10% of your grade. If you fail to complete all of the questions for a given homework exercise you will receive a partial grade for that exercise. **You must solve a question to receive credit for the question. If you opt to see the solution you will not receive credit for that question.** The final homework grade will be calculated as an average across all homework exercises. Each homework exercise will have equal weight regardless of the number of questions in each exercise.

You must complete the homework exercises by the due date. Students are responsible for knowing the homework due dates which will be announced in Webcourses and on the Sapling site. If you fail to submit a homework exercise by the due date you will receive a zero for that exercise. There will be no makeups or excused absences for missed homework exercises unless you can provide documentation that an event that prevented computer access and was beyond your control affected you for a period of at least two days before the assignment was due (e.g. extended hospitalization, jury duty, etc.). Technical or internet difficulties will NOT be accepted as an excuse for missing homework exercise deadlines. Do NOT wait until the last minute to do the homework.

Sapling quiz exercises (10% of grade):

These exercises will be available on the Sapling site. **You should do the Sapling homework exercise and relevant chapter problem set on Webcourses before attempting the quiz for a chapter.** Quizzes are a good way for you to test your knowledge prior to a test. You will have one attempt to answer a question. The final quiz grade will be calculated as an average across all quiz exercises. Each quiz exercise will have equal weight regardless of the number of questions in each exercise.

You must complete the quiz exercises by the due date. Students are responsible for knowing the quiz due dates which will be announced in Webcourses and on the Sapling site. If you fail to submit a quiz exercise by

the due date you will receive a zero for that exercise. There will be no makeups or excused absences for missed quiz exercises unless you can provide documentation that an event that prevented computer access and was beyond your control affected you for a period of at least two days before the assignment was due (e.g. extended hospitalization, jury duty, etc.). Technical or internet difficulties will NOT be accepted as an excuse for missing quiz exercise deadlines. Do NOT wait until the last minute to do the quizzes.

Rounding up policy:

If your final average across all grading components is less than or equal to one point below a higher grade, rounding up to the higher grade will occur if you meet the following criteria:

- at least one of the three tests is at or above the higher grade
- the iClicker exercises are at or above the higher grade **or** both of the homework and quiz exercise final scores are at or above the higher grade.

For example, if your final grade is 89.2/100 and one test and the iClicker exercises score at 90/100 or above, your grade will be rounded up from an A- to an A. Alternatively, if your final grade is 89.2/100 and one test and both of the homework and quiz exercises score at 90/100 or above, your grade will be rounded up from an A- to an A. **There will be no exceptions to this policy.**

Important Academic Dates:

May 13	Classes begin
May 16	Drop deadline
May 17	Add deadline
May 24	Payment deadline
June 6	Withdrawal deadline
June 21	Grade Forgiveness deadline
June 21	Last day of classes
June 28	Grades available (may be posted earlier if available)
August 3	Commencement

Holiday:

May 27	Memorial Day holiday
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Order of material to be covered. The order may vary.

Check the Sapling Learning site for animations and other useful learning materials.

Reading is from Genetics: A Conceptual Approach: B.A. Pierce, 6th edition. W.H. Freeman and Company
Reading for the 5th edition is on Webcourses.

- Chapter 10: DNA: The Chemical Nature of the Gene
Reading: Chapter 10 entire chapter
- Chapter 12: DNA Replication
Reading: Chapter 12 sections 12.1 - 12.3
- Chapter 13: Transcription
Reading: Chapter 13 entire chapter
- Chapter 14: RNA Molecules and RNA Processing
Reading: Chapter 14 sections 14.1 and 14.2 - stop at page 411
- Chapters 15/18: The Genetic Code and Translation
Reading: Chapter 15 sections 15.1 - 15.3; Chapter 18 section 18.1
- Chapter 16: Control of Gene Expression in Bacteria
Reading: Chapter 16 sections 16.1 and 16.2
- Chapters 11/17: Control of Gene Expression in Eukaryotes
Reading: Chapter 11 section 11.1; Chapter 17 sections 17.1-17.3
- Chapter 19: Molecular Genetic Analysis and Biotechnology
Reading: Chapter 19 sections 19.1 and 19.2 - stop at Engineered Nucleases on page 564
Page 567 - Separating and Viewing DNA Fragments
Sections 19.3 and 19.4 - stop at In Situ Hybridization on page 578
- Chapters 2/8: Chromosomes and Cellular Reproduction
Reading: Chapter 2 entire chapter; Chapter 8 sections 8.1 and 8.3
- Chapter 3: Basic Principles of Heredity
Reading: Chapter 3 entire chapter
- Chapter 4: Sex Determination and Sex-Linked Characteristics
Reading: Chapter 4 entire chapter
- Chapters 5/24: Extensions and Modifications of Basic Principles
Reading: Chapter 5 entire chapter; Chapter 24 section 24.1

Academic Integrity:

Academic dishonesty in any form will not be tolerated. At the discretion of the instructor penalties will range from complete loss of credit for the test or assignment to an F for the entire course.

Students should familiarize themselves with [UCF's Rules of Conduct](#). According to Section 1, "Academic Misconduct," students are prohibited from engaging in

1. Unauthorized assistance: Using or attempting to use unauthorized materials, information or study aids in any academic exercise unless specifically authorized by the instructor of record. The unauthorized possession of examination or course-related material also constitutes cheating.
2. Communication to another through written, visual, electronic, or oral means: The presentation of material which has not been studied or learned, but rather was obtained through someone else's efforts and used as part of an examination, course assignment, or project.
3. Commercial Use of Academic Material: Selling of course material to another person, student, and/or uploading course material to a third-party vendor without authorization or without the express written permission of the university and the instructor. Course materials include but are not limited to class notes, Instructor's PowerPoints, course syllabi, tests, quizzes, labs, instruction sheets, homework, study guides, handouts, etc.
4. Falsifying or misrepresenting the student's own academic work.
5. Plagiarism: Using or appropriating another's work without any indication of the source, thereby attempting to convey the impression that such work is the student's own.
6. Multiple Submissions: Submitting the same academic work for credit more than once without the express written permission of the instructor.
7. Helping another violate academic behavior standards.

For more information about Academic Integrity, students may consult [The Center for Academic Integrity](#).

For more information about plagiarism and misuse of sources, see "[Defining and Avoiding Plagiarism: The WPA Statement on Best Practices](#)."

Responses to Academic Dishonesty, Plagiarism, or Cheating

Students should also familiarize themselves with the procedures for academic misconduct in UCF's student handbook, [The Golden Rule](#). UCF faculty members have a responsibility for students' education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to academic misconduct. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, click [here](#).

Course Accessibility Statement:

The University of Central Florida is committed to providing access and inclusion for all persons with disabilities. Students with disabilities who need disability-related access in this course should contact the professor as soon as possible. Students should also connect with Student Accessibility Services (SAS) <<http://sas.sdes.ucf.edu/>> (Ferrell Commons 185, sas@ucf.edu, phone 407-823-2371). Through Student Accessibility Services, a Course Accessibility Letter may be created and sent to professors, which informs faculty of potential access and accommodations that might be reasonable. Determining reasonable access and accommodations requires consideration of the course design, course learning objectives and the individual academic and course barriers experienced by the student.

Campus Safety Statement:

Emergencies on campus are rare, but if one should arise during class, everyone needs to work together. Students should be aware of their surroundings and familiar with some basic safety and security concepts.

- In case of an emergency, dial 911 for assistance.
- Every UCF classroom contains an emergency procedure guide posted on a wall near the door. Students should make a note of the guide's physical location and review the online version at http://emergency.ucf.edu/emergency_guide.html.
- Students should know the evacuation routes from each of their classrooms and have a plan for finding safety in case of an emergency.
- If there is a medical emergency during class, students may need to access a first-aid kit or AED (Automated External Defibrillator). To learn where those are located, see <http://www.ehs.ucf.edu/workplacesafety.html> (click on link from menu on left).
- To stay informed about emergency situations, students can sign up to receive UCF text alerts by going to ucf.edu and logging in. Click on "Student Self Service" located on the left side of the screen in the toolbar, scroll down to the blue "Personal Information" heading on the Student Center screen, click on "UCF Alert", fill out the information, including e-mail address, cell phone number, and cell phone provider, click "Apply" to save the changes, and then click "OK."
- Students with special needs related to emergency situations should speak with their instructors outside of class.
- To learn about how to manage an active-shooter situation on campus or elsewhere, consider viewing this [video](#).