

CENTRAL CAMPUS

## BIOLOGY 2416 /GENETICS/

**Spring 2018, COURSE NUMBER 59517**

###### Instructor: Dr. Brian C. Mahon

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Room LHSB 313

**TEXTBOOK:** Pierce, Genetics: A Conceptual Approach 5th Edition 3-hole punched paper w/ Launch Pad (online ebook and LaunchPad system also available from publisher) more information is given on last page of Syllabus.

**LECTURES:** **Friday Room 306 8 – 10:50 am**

**LABS: Friday Room 307**  **11 – 1:50 pm**

#### Office Hours: Monday/Wednesday: Room 313 11– 12:30 pm

**COURSE DESCRIPTION**: Study of the principles of molecular and classical genetics and the function and transmission of hereditary material (DNA). Also may include ***population genetics*** and ***quantitative genetics***.

**EMAIL:** You will need an email account. Outside class, I will communicate primarily by email. You are responsible for checking your email frequently

**PREREQUISITE: BIOL 1406 (General Biology I) is strongly suggested**

STUDENT LEARNING OUTCOMES

SLO1: 1. Deduce information about genes, alleles, and gene functions from analysis of genetic crosses and patterns of inheritance.

SLO2: Describe the molecular anatomy of genes and genomes.

SLO3: Describe the mechanisms by which an organism’s genome is passed on to the next generation.

SLO4: Describe the phenomenon of linkage and how it affects assortment of alleles during meiosis.

SLO5: Describe the processes that can affect the frequency of phenotypes in a population over time.

SLO6: Compare different types of mutations and describe how each can affect genes and the corresponding mRNAs and proteins.

SLO7: Apply the results of molecular genetic studies in model organisms to understanding aspects of human genetics and genetic diseases.

SLO8: Interpret results from molecular analyses to determine the inheritance patterns and identities of human genes that can mutate to cause disease.

 SLO9: Describe the molecular basis of replication, transcription and translation in Eukaryotes and Prokaryotes.

# GENERAL GUIDELINES

1. **ATTENDANCE:** Roll will be taken, and I expect students to attend all classes. Good class attendance is absolutely essential to do well in this course! **I reserve the right to drop a student after missing in excess of 12.5% of the hours of instruction.** It is a good idea to exchange names and phone numbers with others in the class so that you can obtain the information you missed as quickly as possible. In case of a prolonged absence (2 or more class meetings), the instructor should be notified. In the event you are absent, it is your responsibility to check for information you missed as a result of your absence.
2. **NOTES:** Slides for each lecture will be posted on the Learning Web. It is your responsibility to access and print the slides if you wish. You MAY NOT share these files with anyone outside of class without express permission of the instructor, nor may you post any part online. You must take your own notes and read the textbook to do well in this class! Anything that I discuss in class is fair game for an exam as are labs, supplemental videos and out of class activities.
3. **EXAMS:** Exams will be given at the beginning of class time and you will have 90 minutes to complete the exam. After the first exam has been completed, submitted, and that student has left the room, no more exams will be passed out. **DON’T BE LATE TO AN EXAM!** Restroom breaks are not allowed during the exam. The Genetics Concept Assessment (up to 5% bonus to exam average) will be given following the Last Lceture Exam. The GCA is short and comprehensive covering topics of the course SLOs.
4. **DUE DATES:** If you are absent for any reason, you will not be allowed to make up missed in-class assignments from that day. Late lab assignments will be accepted up to the next class meeting. I DO NOT accept assignments via email.
5. All phones and beepers must be turned off or be in silent (courtesy) mode. You may not leave the room during a test to answer a phone call. Should this occur your test will be taken up immediately. There will be no use of cell phones in the laboratory. I will allow the use of laptops in class, but only if you are using them for note taking purposes.
6. **LAB REPORTS:** Although you may discuss data with your lab partner, each lab report must be an individual effort (NO copying) and must be turned in separately when due. The lab reports will total 10% of the course grade. For most labs this is at the next lab session.
7. ***LABORATORY SAFETY. Students are expected to abide by the rules of safety at all times during the laboratory exercises. Safety rules will be reviewed in the first lab session.***
8. **GENETICS CONDITIONS SEMINAR PRESENTATION PROJECT:** Each student should prepare and present one seminar during the last class week. I will explain more later in the semester. The presentations will total 10% of the course grade.
9. **STUDENT HANDBOOK**- important information for all students. Also contains the mission statement of the Houston Community College System (available online at HCCS home page.)

**QUESTIONS/PROBLEMS:** Please make sure that if you have any questions or problems at any time, that you first contact me as soon as possible. The worst thing you can do is wait to contact me or to not take advantage of the resources available to you. By taking an active part in your education, you will make your academic experience much more rewarding and exciting!!

**EGLS3 (Evaluation for Greater Learning Student Survey System)** At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time near the end of the term, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and department chairs for continual improvement of instruction. Go to www.hccs.edu/egls3 for more information.

**REPEATING COURSES (THREE-PEAT RULE)** As a result of recent Texas legislative changes, please be advised that HCC is charging additional tuition for students who enroll in the same class three or more times at HCC. While it is the hope of HCC that students will be successful in their first attempt at classes, we realize that life demands, academic struggles, and other issues may result in students needing to take the same class more than once. Speaking with an advisor will help you develop student success skills, improving your overall academic performance. If a student repeats a course in which a grade (A-F) has been received, the highest grade received at HCC is the permanent grade for the course and will be used in computing the GPA. All grades earned in a given course will be reflected on the transcript. Other colleges may compute the GPA differently than HCC.

**COURSE WITHDRAWLS (6-Drop Rule)** Students must withdraw by the withdrawal deadline in order to receive a “W” on a transcript. Final withdrawal deadlines vary each semester and/or depending on class length, please visit the online Academic Calendar, any HCC Registration Office, or any HCC advisor to determine class withdrawal deadlines.

Be certain you understand HCC policies about dropping a course and consult with a counselor/advisor to determine if withdrawing is in your best interest. It is your responsibility to withdraw officially from a class and prevent an “F” from appearing on your transcript. Senate Bill 1231 limits the number of W’s a student can have to 6 classes over the course of their entire academic career. This policy is effective for students entering higher education for the first time in fall 2007 and subsequent terms. Withdrawals accumulated at any other Texas public higher education institution count toward the 6 course total. Withdrawals for certain circumstances beyond the students control may not be counted toward the 6-drop limit.

In addition, withdrawing from a course may impact your financial aid award or eligibility. Contact the Financial Aid Office or website to learn more about the impact of withdrawing on financial aid.

**HCCS IS COMMITTED TO YOUR SUCCESS**

**Early Intervention Program and Services** Your success is our primary concern! If you are experiencing challenges achieving your academic goals, please contact your instructor or an early intervention coach. We can provide assistance with academic needs, ADA accommodations, classroom difficulties, financial concerns, and other issues.

**Tutoring** HCCS provides free online tutoring for all HCC students. Go to www.hccs.askonline.net; use your own e-mail address; choose a username and password you will remember; put your HCC student ID number in the Comment Box.

**Counseling Services** Counseling services are available to students who are experiencing difficulty with academic issues, selection of college major, career planning, disability accommodations, or personal issues.

**ADDITIONAL INSTRUCTOR AND INSTITUTIONAL POLICIES**

**ACADEMIC INTEGRITY** This instructor is committed to a high standard of academic integrity in the academic community. In becoming a part of the academic community, students are responsible for honesty and independent effort. Failure to uphold these standards includes, but is not limited to, the following: plagiarizing written work or projects, cheating on exams or assignments, collusion on an exam or project, and misrepresentation of credentials or prerequisites when registering for a course. Cheating includes looking at or copying from another student's exam, orally communicating or receiving answers during an exam, having another person take an exam or complete a project or assignment, using unauthorized notes, texts, or other materials for an exam, and obtaining or distributing an unauthorized copy of an exam or any part of an exam. Plagiarism means passing off as his/her own the ideas or writings of another (that is, without giving proper credit by documenting sources). Plagiarism includes submitting a paper, report, or project that someone else has prepared, in whole or in part. Collusion is inappropriately collaborating on assignments designed to be completed independently. These definitions are not exhaustive. When there is clear evidence of cheating, plagiarism, collusion, or misrepresentation, disciplinary action may include but is not limited to requiring you to retake or resubmit an exam or assignment, assigning a grade of zero or "F" for an exam or assignment; or assigning a grade of "F" for the course. Additional sanctions including being withdrawn from the course, program or expelled from school may be imposed on students who violate the standards of academic integrity.

**STUDENT BEHAVIOR EXPECTATIONS** Students are expected to conduct themselves appropriately while on College property or in an online environment. The instructor would institute established HCCS disciplinary action. Students who pose a threat to the safety of others will be subject to immediate withdrawal from the classroom. Please refer to the HCC Student Handbook.

**AMERICANS WITH DISABILITIES ACT STATEMENT**

HCCS is dedicated to providing the least restrictive environment for all students. We promote equity in academic access through the implementation of reasonable accommodations as required by the Vocational Rehabilitation Act of 1973, Title V, Section 504 and the Americans with Disabilities Act of 1990 (ADA) which will enable students with disabilities to participate in and benefit from all post-secondary educational activities.

If you require reasonable accommodations because of a physical, mental, or learning disability, please contact the Counseling Office to obtain the necessary information to request accommodations. Upon completion of this process, please notify your instructor as soon as possible and preferably before the end of the first two weeks of class to arrange for reasonable accommodations. Counselors contact information at the HCC campuses can be found here: http://www.hccs.edu/district/students/disability-services/ada-counselors/

**COMPUTER VIRUS PROTECTION**

Computer viruses are, unfortunately, a fact of life. Using removable devices on more than one computer creates the possibility of infecting computers and diskettes with a computer virus. This exposes the computers of the college, your personal computer, and any others you may be using to potentially damaging viruses. The college has aggressive anti-virus procedures in place to protect its computers, but cannot guarantee that a virus might not temporarily infect one of its machines. It is your responsibility to protect all computers under your control and use and ensure that each diskette you use, whenever or wherever you use it, has been scanned with anti-virus software. Since new viruses arise continually, your anti-virus software must be kept current. And, since no anti-virus software will find every virus, keeping backup copies is extremely important.

**EQUAL OPPORTUNITY STATEMENT**

It is the policy of the HCCS to provide equal employment, admission and educational opportunities without regard to race, color, creed, national origin, gender, age, veteran's status, sexual orientation, or disability.

**FERPA**

The academic, financial and non-directory information on your student account is confidential and protected by the Family Educational Rights & Privacy Act (FERPA). We cannot release certain information to another person without your written authorization. Further information regarding Student Records and FERPA can be found at; <http://www.hccs.edu/district/about-us/procedures/student-rights-policies--procedures/>

**FINAL EXAMINATIONS** A final evaluation activity will occur during the published final evaluation period. The appropriate dean, director, or department chair must approve any variation to this schedule.

**TITLE IX OF THE EDUCATION AMENDMENTS OF 1972, 20 U.S.C. A§ 1681 ET. SEQ.**

Title IX of the Education Amendments of 1972 requires that institutions have policies and procedures that protect students’ rights with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Students-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understands and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations. Log in to: [www.edurisksolutions.org](http://www.edurisksolutions.org). Sign in using your HCC student e-mail account, then go to the button at the top right that says Login and enter your student number.

**HCC Campus Carry**

At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page At <http://www.hccs.edu/district/departments/police/campus-carry/>

**HURRICANE HARVEY IMPACT**

Statement from Dr. Norma Perez, Interim Vice Chancellor, Instructional Services/Chief Academic Officer

“Any student who faces challenges securing their food or housing and believes this may affect their

performance in the course is urged to contact the Dean of Students (Jason Wilson, Dean Student

Development, Central College, 713.718.8084 Jason.wilson@hccs.edu ) for support. Furthermore, please

notify the professor if you are comfortable in doing so”

**Grade Determination:**

|  |  |  |
| --- | --- | --- |
| **Your grade will be determined by the following** | **Details** | **Percent of Final Average** |
| Lecture Exams | 4 Exams: T/F, short answer, multiple choice, essay | 60% |
| Online LaunchPad Work | Covering topics from Lecture Chapters | 10% |
| Lab Reports includes Mini-Reports on selected Labs | Turned in following lab sessions |  10% |
| Genomics Modules, in class workshops & quizes | Using the NCBI and other web data bases: details will be explained the second week | 10% |
| Genetic Condition Presentation | Near end of Semester  | 10% |
| Total: |  | 100% |

**Letter Grade Assignment:**

|  |  |
| --- | --- |
| Letter Grade | Final Average in Percent |
| A | > 89.5 |
| B | 80 – 89.5 |
| C | 70 – 79.5 |
| D | 60 – 69.5 |
| F | < 59.5 |

##### *IMPORTANT DAYS*

See HCC calendar for exact date and time/ withdrawal, drop, holidays…etc. Also pay attention to HCC course withdrawal policy. Many of these have changed post-Harvey.

**The final withdrawal deadline for regular term is Apr 3rd 2018 at 4:30pm.**

**It’s your responsibility to withdrawal prior to the withdrawal deadline; your absences or disappearance from the class doesn’t mean you will receive a (W). You will receive a (W) only if you withdraw prior to the deadline.**

**A VERY TENTATIVE COURSE SCHEDULE:**

|  |  |
| --- | --- |
| Date |  |
| 01/19 | Chapters 1 Lab 1: Microscope use and care  |
| 01/26 | Chapters 2, 3, 4,5 Lab 2: Mitosis/Meiosis / Karyotype 24 / Quant.Genetics Workshop 1 |
| 02/02 | Chapters 4, 5, 6, 7 Lab 3: ABO blood type /Genetics Conditions Intro. 2 |
| 02/09 | **TEST 1** Lab 4: Fruit flies live and simulation + data set for χ2 \* |
| 02/16 | Chapters 9, 10, 11 Lab 5: Fruit flies simulation + data set for χ2 \* |
| 02/23 | Chapters 12, 13,14 Lab 6: Micropipette and Centrifuge, 2 topics GCSP 2  |
| 03/03 | Chapters 15, 16, 17 Lab 7: DNA extraction |
| 03/09 | **TEST 2** Lab: 8A PCR Lab 1; 1/2 page summary & refs GCSP 2 |
| 03/16 | **Spring Break**  |
| 03/23 | Chapters 18, 19, 20Lab: 8B PCR Lab 2; Lab 9A: Transformation |
| 03/30 | **Spring Holiday** Genomics worksheets online 3 |
| 04/06 | Chapters 21, 224 Lab 9B: Transformation 2; Lab: 8C PCR Lab 3 \* |
| 04/13 | **TEST 3** |
| 04/20 | Chapters 234, |
| 04/27 | Chapters 25,26 Lab 10 Population / Evolutionary Genetics |
| 05/04 | GCSP Seminar Presentation 2  (8 am until we finish all presentations) |
| 05/11 | **Final Exam** at 8 am, followed by Genetics Concept Assessment (bonus) |

\* **Fruit Fly and PCR Labs will have a short 1 page typed mini-report for turn in.**

**Additional Out of Class Supplemental Activities.**

1. Punnett Square & Pedigree Workshop (as take home lab w/ video tutorial)
2. Genetics Conditions Seminar Presentation Project (out of class research project)
3. Genomics Worksheets (using public online Genetics Databases out of class)
4. HHMI Videos (w/ worksheets)

**THE INSTRUTOR RESERVES THE RIGHT TO CHANGE INFORMATION IN THIS SYLLABUS.**

**Macmillan LaunchPad enrollment instructions for course code**

Dear Students,

My online course is open for student registration. Follow these steps to get started. If you need additional guidance, consult the [support site](https://community.macmillan.com/community/digital-product-support), especially the system requirements which list recommended browsers.

Go to <http://www.macmillanhighered.com/launchpad/pierce5e/7234747>

Bookmark the page to make it easy to return to (although note the the URL will look different due to security measures).

Enroll in this course using one of the following options:

If you have an access code, select "I have a student access code", enter the code exactly as it appears on the card, and click Submit.

If you don't have an access code, either purchase a text package that includes one OR click "I want to purchase access" and follow the instructions.

If you need to start working but can't purchase right away, select "I want temporary access" and follow the instructions. Please note: Your grades are linked to your Launchpad account username (email address). If you use temporary access, make sure you purchase or register your code using the same email address for your paid access.

If you have problems registering, purchasing, or logging in, please [contact Customer Support](https://community.macmillan.com/community/digital-product-support).

You can reach a representative 7 days a week:

* through the online form
* by chat
* by phone at (800) 936-6899

Looking forward to seeing you in class!

Brian Mahon