

Division of Earth, Life & Natural Sciences

Biology Department

<https://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/biology/>

# BIOL 1306: General Biology | Lecture | #11071

Spring 2020 | 16 Weeks (8.26.2019-12.15.2019)

In-Person | Central 315 | T/R 12:30 p.m.- 1:50 p.m.

1 Credit Hours | 48 hours per semester

## Instructor Contact Information

Instructor: Brian C. Mahon, Ph.D. Office Phone: 713-718-6423

Office: LHSB, Room 313 Office Hours: T/R 11- Noon @Central - M/W 11- 11:30a.m.@WHI

HCC Email: brian.mahon@hccs.edu Office Location: Central, LHSB Room 313

 Or use Canvas Message WHI, TBA

Please feel free to contact me concerning any problems that you are experiencing in this course. Your performance in my class is very important to me. I am available to hear the concerns and just to discuss course topics.

### Instructor’s Preferred Method of Contact

HCC Email: brian.mahon@hccs.edu. Or Canvas Messages.I will respond to emails within 24-36 hours Monday through Friday; I will reply to weekend messages during the following week.

## What’s Exciting About This Course

Biology is an endless adventure with constant new developments. Biology is the study of life. Perhaps, the first thing that comes to mind when you think about life on earth is humans and familiar animals. In this course, you will also learn about bacteria, fungi, plants and other life forms on earth. This course introduces students to the nature of life, including the chemical foundation of life; plants, animal, humans and bacterial cell structure and function; DNA, genetics and evolution. You will learn about the various techniques used to study biology; gene cloning, gene editing and the exciting field of Genetic Engineering.

## My Personal Welcome

Welcome to General Biology—I’m delighted that you have chosen this course! One of my passions is to know as much as I can about life on earth, and I can hardly wait to pass that on. I will present the information in the most exciting way I know, so that you can grasp the concepts and apply them now and hopefully throughout your life.

As you read and wrestle with new ideas and facts that may challenge you, I am available to support you. The fastest way to reach me is by my HCC email. The best way to really discuss issues is in person and I’m available during posted office hours to tackle the questions. My goal is for you to walk out of the course with a better understanding of yourself and of our fellow life. So please visit me or contact me by email whenever you have a question.

## Prerequisites and/or Co-Requisites

Recommended prerequisite: MATH 1314 or 1414 Successful completion of College Algebra or concurrent enrollment in higher-level mathematics is recommended.

Recommended co-requisite: BIOL 1106 Biology for Science Majors I (lab)

Please carefully read the repeater policy in the [HCCS Student Handbook.](http://www.hccs.edu/resources-for/current-students/student-handbook/)

## Canvas Learning Management System

All Biology sections utilize [Canvas](file:///C%3A%5CUsers%5CMatt%20Webster%5CAppData%5CLocal%5CTemp%5CCanvas) (<https://eagleonline.hccs.edu>) to supplement in-class assignments, exams, and activities.

## Open Lab Locations

[HCCS Open Computer Lab locations](https://www.hccs.edu/departments/division-of-instructional-services/institute-for-instructional-engagement--development/open-lab-schedule/) may be used to access the Internet and Canvas. **USE** [**FIREFOX**](https://www.mozilla.org/en-US/firefox/new/) **OR** [**CHROME**](https://www.google.com/chrome/browser/desktop/index.html) **AS THE INTERNET BROWSER**.

## Scoring Rubrics, Sample Assignments, etc.

When applicable, look in Canvas for the scoring rubrics for assignments, samples of class assignments, and other information to assist you in the course.

<https://eagleonline.hccs.edu/login/ldap>

# Instructional Materials

## Required Resources

 The textbook listed below is ***required*** for this course.



“Campbell Biology in Focus”, Volume I with Modified Mastering Biology Package for Houston Community College" ISBN: 1323751432 //9781323751435

The book is included in a package that contains the text as well as an access code and are found at the [HCC Bookstore](https://hccs.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=19561&catalogId=10001&langId=-1). You may either use a hard copy of the book or rent the e-book from Pearson. Order your book here: [HCC Bookstore](https://hccs.bncollege.com/webapp/wcs/stores/servlet/BNCBHomePage?storeId=19561&catalogId=10001&langId=-1)

## Suggested Resources



### HCCS Biology Lab Study Pages

[Click here to access Biology lab study pages online.](https://iied21.hccs.edu/JyotiW/BiologyLabs/index.html)

## Other Instructional Resources

### Tutoring

HCC provides free, confidential, and convenient academic support, including writing critiques, to HCC students in an online environment and on campus. Tutoring is provided by HCC personnel in order to ensure that it is contextual and appropriate. Visit the [HCC Tutoring Services](http://www.hccs.edu/resources-for/current-students/tutoring/) website for services provided.

### Libraries

The HCC Library System consists of 9 libraries and 6 Electronic Resource Centers (ERCs) that are inviting places to study and collaborate on projects. Librarians are available both at the libraries and online to show you how to locate and use the resources you need. The libraries maintain a large selection of electronic resources as well as collections of books, magazines, newspapers, and audiovisual materials. The portal to all libraries’ resources and services is the HCCS library web page at [http://library.hccs.edu](http://library.hccs.edu/).

### Supplementary Instruction

Supplemental Instruction is an academic enrichment and support program that uses peer-assisted study sessions to improve student retention and success in historically difficult courses. Peer Support is provided by students who have already succeeded in completion of the specified course, and who earned a grade of A or B. Find details at <http://www.hccs.edu/resources-for/current-students/supplemental-instruction/>.

# Course Overview

In BIOL 1306, fundamental principles of living organisms will be studied, including physical and chemical properties of life, organization, function, evolutionary adaptation, and classification. Concepts of cytology, reproduction, genetics, and scientific reasoning are included.

## [Core Curriculum Objectives (CCOs)](https://www.hccs.edu/programs/catalog/academic-information/)

BIOL 1306 satisfies the Natural Science requirement in the HCCS core curriculum. The HCCS Biology Discipline Committee has specified that the course address the following core objectives:

* ***Critical Thinking***: Students will demonstrate the ability to engage in inquiry and analysis, evaluation and synthesis of information, and creative thinking by completing a written assignment such as a book report, research paper, or essay.
* ***Communication Skills***: Students will demonstrate effective development, interpretation and expression of ideas through written, oral, and visual communication by completing a written assignment such as a book report, research paper, or essay.
* ***Quantitative and Empirical Literacy***: Students will explore the scientific research methods that are used in the study of biology. They will learn to interpret numerical data in charts, graphs, and tables that are in their textbooks and other resources. Students should be able to carry out basic mathematical operations including calculating percentages and frequencies. In addition, students will complete textbook reading assignments and answer questions on quizzes and exams that pertain to Course Student Learning Outcome #2
* ***Social Responsibility***: Students will demonstrate the ability to engage effectively in class activities and discussions, complete textbook reading assignments, and answer questions on quizzes and exams that pertain to Course Student Learning Outcome #10 below.

## Program Student Learning Outcomes (PSLOs)

Can be found at:

<http://www.hccs.edu/programs/areas-of-study/social--behavioral-sciences/psychology/>

## Course Student Learning Outcomes (CSLOs)

Upon completion of BIOL 1306, the student will be able to:

1. Describe the characteristics of life.
2. Explain the methods of inquiry used by scientists.
3. Identify the basic requirements of life and the properties of the major molecules needed for life.
4. Compare and contrast the structures, reproduction, and characteristics of viruses, prokaryotic cells, and eukaryotic cells.
5. Describe the structure of cell membranes and the movement of molecules across a membrane.
6. Identify the substrates, products, and important chemical pathways in metabolism.
7. Identify the principles of inheritance and solve classical genetic problems.
8. Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
9. Describe the unity and diversity of life and the evidence for evolution through natural selection.
10. Develop critical thinking skills and habits of active collaborative learning.

## Learning Objectives

Learning Objectives for each CSLO can be found at [Learning Objectives for BIOL 1306](http://learning.hccs.edu/programs/biology)

# Student Success

Academic standards require a minimum of 3 study hours for every contact hour; meaning for a class that meets 3 hours per week, you need to budget and set aside a minimum of 9 hours each week to study and prep for your course success. Expect to spend at least twice as many hours per week outside of class as you do in class studying the course content. Additional time will be required for written assignments. The assignments provided will help you use your study hours wisely. Successful completion of this course requires a combination of the following:

* Reading the textbook
* Attending class in person and/or online
* Timely completion of assignments
* Participating in class activities
* Successful exam performance, including the mandatory final

There is no short cut for success in this course; it requires reading and studying the material using the course objectives as a guide.

## Instructor and Student Responsibilities

As your Instructor, it is my responsibility to**:**

* Provide the grading scale and detailed grading formula explaining how student grades are to be derived
* Facilitate an effective learning environment through learner-centered instructional techniques
* Provide a description of any special projects or assignments
* Inform students of policies such as attendance, withdrawal, tardiness, and making up assignments
* Provide the course outline and class calendar that will include a description of any special projects or assignments
* Arrange to meet with individual students before and after class as required

As a student, it is your responsibility to**:**

* Attend class in person and/or online
* Participate actively by reviewing course material, interacting with classmates, and responding promptly in your communication with me
* Read and comprehend the textbook
* Complete the required assignments and exams
* Ask for help when there is a question or problem
* Keep copies of all paperwork, including this syllabus, handouts, and all assignments
* Attain a raw score of at least 50% on the departmental final exam
* Be aware of and comply with academic honesty policies in the [HCCS Student Handbook](http://www.hccs.edu/resources-for/current-students/student-handbook/)

# Assignments, Exams, and Activities

## Exams

There will be FOUR lecture exams. All lecture exams are closed book. Out of the above four exams one exam grade will be dropped. If you take all four exams, your lowest grade automatically becomes your drop grade. If you miss an exam it automatically becomes your drop exam*. NO MAKEUP or RETAKES will be given for the lecture exams without prior contact and a documented and excepted reason.*

Topics and concepts covered during lecture or included in the assigned reading will be included in exams. Exams will be primarily fill in the blank and short answer type of questions. The exam are made up of 50 to 70 questions. Lecture exams make up a total of 75% of the final grade in this course.

## In-Class Activities

Students will be asked questions of the topics and concepts in class. Lecture activities are hands on and you are expected to be actively involved. Students who are not in the class will not be allowed to make up missed quizzes or activities. Students will be graded for their participation and/or accuracy in the activities. Students in a group may have different grades based on their level of participation.

## Final Exam

All students will be required to take a comprehensive departmental final exam consisting of 50 multiple- choice questions. Students must provide their own Scantron forms (FORM NUMBER 882-E-LOVAS). The Final is worth 10% of the final course grade.

## Grading Formula

4 LECTURE EXAMS 250 PTS EACH \_\_\_\_\_\_\_\_\_\_\_\_\_ 75%

***LOWEST TEST DROPPED (750 PTS)***

1 FINAL EXAM 10% 100 PTS \_\_\_\_\_\_\_\_\_\_\_\_\_ 10%

Mastering Home Work 100 PTS \_\_\_\_\_\_\_\_\_\_\_\_\_ 10%

OTHER ASSIGNMENTS 50 PTS \_\_\_\_\_\_\_\_\_\_\_\_\_ 5%

**Total 1000 PTS \_\_\_\_\_\_\_\_\_\_\_\_\_ 100%**

**Possible Extra Credit Assignment for up to 2.5% may be available later in the semester.**

**The HCC grading scale is:**

A = 100 – 90;……………………………………4 points per semester hour

B = 89 – 80: …………………………………….3 points per semester hour

C = 79 – 70: …………………………………….2 points per semester hour

D = 69 – 60: …………………………………….1 point per semester hour

59 and below = F………………………………..0 points per semester hour

### Incomplete Policy:

In this course, the purposes of the “I” (incomplete) grade is for students who are caught up and passing at the student withdrawal deadline, and then have a medical or other problem that prevents them from completing the course. If you are not passing at the student withdrawal deadline, you should drop yourself from the course, or you will likely earn an “F.” An incomplete “I” grade will be given only if all of the following conditions are met:

* You have earned at least 85% of the available points by the date that the “I” grade is requested.
* You can provide documentation showing why you should earn an incomplete, such as a doctor's note, etc.
* You must be passing with a grade of “C” or better.
* You must request the incomplete in writing BEFORE **the final exam date**
* In all cases, the instructor reserves the right to decline a student’s request to receive a grade of Incomplete.

### HCC Grading Scale can be found on this site under Academic Information:

[**http://www.hccs.edu/resources-for/current-students/student-handbook/**](http://www.hccs.edu/resources-for/current-students/student-handbook/)

# Course Calendar

### TENTATIVE INSTRUCTIONAL OUTLINE

|  |  |
| --- | --- |
| **Week** | **LECTURE** |
| 1.  | **Chapter 1 Introduction to Biology** **Chapter 2** The Chemical Context of Life |
| 2.  | **Chapter 2** The Chemical Context of Life**Chapter 3** Carbon and the Molecular diversity of Life |
| 3.  | **Chapter 3** Carbon and the Molecular diversity of Life**Chapter 4 A Tour of the Cell** |
| 4.  | **Chapter 4 A Tour of the Cell****Chapter 5** Membrane Transport and Cell Signaling**Mastering Homework (Chaps 1-4)**  |
| 5.  | **LECTURE EXAM #1 (Chaps 1-4)****Chapter 5** Membrane Transport and Cell Signaling *cont.* |
| 6.  | **Chapter 6** An Introduction to Metabolism |
| 7.  | **Chapter 7** Cellular Respiration**Mastering Homework (Chaps 5-7)**  |
| 8.  | **Chapter 8** Photosynthesis**LECTURE EXAM #2 (Chaps 5-7)** |
|  | **Spring Break March 16-20** |
| 10.  | **Chapter 9** The Cell Cycle**Chapter 10** Meiosis and Sexual Life Cycles |
| 11.  | **Chapter 11** Mendel and the Gene Idea**Chapter 12:** The Chromosomal Basis of Inheritance**Mastering Homework (Chaps 8-12)**  |
| 12.  | **LECTURE EXAM #3 (Chaps 8-12)****Chapter 13** The Molecular Basis of Inheritance |
| 13.  | **Chapter 14** Gene Expression: From Gene to Protein**Chapter 15** Regulation of gene Expression |
| 14.  | **Chapter 16** Development, Stem Cells and Cancer**Chapter 17** Viruses **Chapter 18 Genomes** |
| 15.  | **LECTURE EXAM #4 (Chaps 13-18)****Mastering Homework (Chaps 13-18)** |
| 16.  |  **Departmental Final Comprehensive Exam (Mandatory)** |
|  |  |
|  |  |

## Syllabus Modifications

The instructor reserves the right to modify the syllabus at any time during the semester and will promptly notify students in writing, typically by e-mail, of any such changes.

# Instructor’s Practices and Procedures

## Missed Assignments

There are “no makeups” for missed exams as I drop the lowest exam. I require documentation of an emergency to allow a make-up. Complete all online work prior to the due date.

## Academic Integrity

Students are responsible for academic 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. Cheating includes merely looking at or copying from another student's exam, orally communicating or receiving answers during an exam, having another person complete a project or assignment, using unauthorized notes, texts, smart watches, 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. Beware cell phones and smart watches are NOT allowed on or near your person during

proctored exams, nor may you take a bathroom break during an exam. Please remember to

keep your eyes on your own test or on the ceiling. Scholastic Dishonesty will result in a referral to the Dean of Student Services. See the link below for details.

Here’s the link to the HCC information about academic integrity (Scholastic Dishonesty and Violation of Academic Scholastic Dishonesty and Grievance):

<http://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-procedures/>

## Attendance Procedures

You MUST come to class and actively participate, or you will not do well. Missed assignments may not be possible to make up.

## Student Conduct

All official HCC policies, student services and student responsibilities are clearly stated in the

HCC Student Handbook, including academic honesty, support, withdrawal, repeating courses,

grade of FX and international students, FERPA and privacy, the HCC grading scale, campus

carry and safety, transfer planning, complaints, student services, rights and responsibilities

etc.: <http://www.hccs.edu/resources-for/current-students/student-handbook/>

Those engaged in disruptive behavior will be warned. If the behavior persists, the student

will be asked to leave the class session and the incident will be reported in Maxient.

Recurring disruptive behavior will be referred to the Chair and/or Dean for disciplinary action.

## Instructor’s Course-Specific Information (As Needed)

Exam/Assignment Grades will be entered into the Canvas Gradebook. They will not be given by email or phone.

## Electronic Devices

No electronic devices (smartphones, tables, computers, smartwatches etc.) are allowed in

use during class, unless requested by the instructor. If you wish to use an electronic device

during class, you may step outside to do so. All personal electronic devices must be turned

off and placed in closed bags for exams.

# [Biology Program Information](https://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/biology/)

The Biology area of study here at HCC covers the smallest and simplest organisms (microbiology) to the largest and most complex organisms (human anatomy and physiology, zoology, botany).

AWARD TYPES: Associate in Science

AREA OF STUDY: Science, Technology, Engineering & Math

Please visit link: <https://www.hccs.edu/programs/areas-of-study/science-technology-engineering--math/biology/>

# HCC Policies

Here’s the link to the HCC Student Handbook <http://www.hccs.edu/resources-for/current-students/student-handbook/> In it you will find information about the following:

* Academic Information
* Academic Support
* Attendance, Repeating Courses, and Withdrawal
* Career Planning and Job Search
* Childcare
* disAbility Support Services
* Electronic Devices
* Equal Educational Opportunity
* Financial Aid TV (FATV)
* General Student Complaints
* Grade of FX
* Incomplete Grades
* International Student Services
* Health Awareness
* Libraries/Bookstore
* Police Services & Campus Safety
* Student Life at HCC
* Student Rights and Responsibilities
* Student Services
* Testing
* Transfer Planning
* Veteran Services

## EGLS3

The EGLS3 ([Evaluation for Greater Learning Student Survey System](http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/)) will be available for most courses near the end of the term until finals start. This brief survey will give invaluable information to your faculty about their teaching. Results are anonymous and will be available to faculty and division chairs after the end of the term. EGLS3 surveys are only available for the Fall and Spring semesters. EGLS3 surveys are not offered during the Summer semester due to logistical constraints.

<http://www.hccs.edu/resources-for/current-students/egls3-evaluate-your-professors/>

## Campus Carry Link

Here’s the link to the HCC information about Campus Carry: <http://www.hccs.edu/departments/police/campus-carry/>

## HCC Email Policy

When communicating via email, HCC requires students to communicate only through the HCC email system to protect your privacy. If you have not activated your HCC student email account, you can go [to HCC Eagle ID](http://www.hccs.edu/resources-for/current-students/student-e-maileagle-id/) and activate it now. You may also use Canvas Inbox to communicate.

## Housing and Food Assistance for Students

Any student who faces challenges securing their foods or housing and believes this may affect their performance in the course is urged to contact the Dean of Students at their college for support. Furthermore, please notify the professor if you are comfortable in doing so.

This will enable HCC to provide any resources that HCC may possess.

# Office of Institutional Equity

Use the link below to access the HCC Office of Institutional Equity, Inclusion, and Engagement (<http://www.hccs.edu/departments/institutional-equity/>)

## disAbility Services

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including long and short term conditions, mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law. For more information, please go to <http://www.hccs.edu/support-services/disability-services/>

## Title IX

Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual’s fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex-including pregnancy and parental status in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

David Cross
Director EEO/Compliance
Office of Institutional Equity & Diversity
3100 Main
(713) 718-8271
Houston, TX 77266-7517 or Institutional.Equity@hccs.edu

<http://www.hccs.edu/departments/institutional-equity/title-ix-know-your-rights/>

## Office of the Dean of Students

Contact the office of the Dean of Students to seek assistance in determining the correct complaint procedure to follow or to identify the appropriate academic dean or supervisor for informal resolution of complaints.

<https://www.hccs.edu/about-hcc/procedures/student-rights-policies--procedures/student-complaints/speak-with-the-dean-of-students/>

## Department Chair Contact Information

Dr. DaeJan Grigsby

Email: daejan.grigsby@hccs.edu

Phone: 713-718-7775