



# BIOS 1010 General Biology

Michael Zarate

CENTRAL COMMUNITY COLLEGE

## INSTRUCTOR

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Office Hours: before or after class, 7:00 am or 3:25 pm

## COURSE INFORMATION

This course covers fundamental processes of cells and organisms, cell structure, genetics, biotechnology, evolution, classification, diversity, and interaction of organisms at the molecular, cellular, organismic, ecosystems, and biosphere level. It is designed as both a course for non-majors and as a foundation course for those planning additional work in biology (may or may not transfer as a program requirement for biology majors). This course includes labs.

Contact Hours: Class- 45, Practical Lab- 30

For each hour of classroom time, typically you can expect two hours of homework per week.

Credits: 4

Total Hours: 75

## TEXTBOOKS

Textbook information may be found online at the Central Community College [Bookstore](#). Click on the bookstore location then go to the Textbook link at the top of the page and follow the directions provided by entering your student identification number or search by course. If you need additional assistance, please call the bookstore or ask your instructor.

## GRADING INFORMATION- CCC grade scale (dual credit course)

98-100	A+
90-97	A
87-89	B+
80-86	B

77-79	C+
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70-76	C
67-69	D+
60-66	D
≤59	F

Exams 60%

Laboratory 30%

Assignments/Attendance 10%

## COURSE COMPETENCIES

### 1. Demonstrate a working knowledge of plant and animal cell structure and function. (NTI-S3)

#### Criteria

Performance will meet expectations when the student:

- understands the terms used in cataloging
- examines the Internet cataloging resources and describes their usefulness in cataloging

#### Learning Objectives

- Identify protein and lipid features of the cell membrane
- Describe principles of active and passive transport
- Identifies basic aspects of cell structure and function
- Identifies features of eukaryotic cells
- Identifies features of the nucleus, cytomembrane system
- Identifies features of specialized plant organelles, cell walls , central vacuole, and cell junction
- Describes principles of active transport

### 2. Demonstrate a working knowledge of prokaryotic structure and function. (NTI-S3)

#### Criteria

Performance will meet expectations when:

- successfully passing a test

#### Learning Objectives

- Identifies characteristics of bacteria
- Identifies characteristics of bacterial growth and reproduction
- Identifies types of bacteria
- Identifies types of viruses
- Identifies characteristics of viruses

### 3. Explain the chemical basis of life including atomic and molecular structure and bonding. (NTI-S4)

#### Criteria

Your performance will be successful when:

- successfully passing a test

## Learning Objectives

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- Identify the structure of atoms
- Identify the nature of chemical bonds
- Identify the properties of pH, acids, bases, salts, and buffers
- Identify properties of organic compounds
- Identify some carbohydrates and their properties
- Identify some lipids and their properties
- Identify some proteins and their properties
- Identify some nucleotides

### 4. Explain the overview of metabolic pathways, molecular basis of genetic material and protein synthesis. (NTI-S4)

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Identifies general features of energy
- Identifies some major energy related molecules in cells
- Identifies some features of major energy related molecules in cells
- Identifies features of photosynthesis
- Describes processes of acquiring energy from fats and lipids
- Identifies features of glycolysis, Krebs's cycle and electron transport phosphorylation
- Compares aerobic and anaerobic pathways

### 5. Describe the genetic principles of Mendelian Inheritance. (NTI-S5)

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Identifies Mendelian principles and theories of segregation and independent assortment
- Identifies examples and inheritance of nonMendelian inheritance
- Describes features of chromosomes and chromosomal inheritance

### 6. Describe the principles of meiosis and mitosis (NTI-S5)

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Lists stages and features of mitosis
- Lists stages and features of meiosis

- Lists stages and features of gamete formation
- Identifies types of cell division

7. Explain the molecular basis of genetic material and protein synthesis

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Criteria

Your performance will be successful when:

- successfully passing a test

Learning Objectives

- Identifies some nucleotides
- Describes the molecular level of chromosome replication
- Describes mutation at the molecular level

8. Describe the principles of chromosome structure and mutagenesis. (NTI-S5)

Criteria

Your performance will be successful when:

- successfully passing a test

Learning Objectives

- Describes features of chromosomes and chromosomal inheritance
- Describes changes in chromosomal number and structure and their effects

9. Describe the characteristics of the five kingdom classification system

Criteria

Your performance will be successful when:

- successfully passing a test

Learning Objectives

- Identifies animal-like protists
- Identifies plant-like protists and algae
- Identifies general characteristics of fungi
- Identifies types of fungi
- Identifies types of nonvascular plants
- Identifies types of vascular plants
- Identifies general animal characteristics
- Identifies types of invertebrate animals
- Identifies types of vertebrate animals
- Identifies features of prokaryotic cells

10. Describe the theories of evolution and the evidence supporting these theories. (NTI-S7)

Criteria

Your performance will be successful when:

- successfully passing a test

Learning Objectives

- Identifies the principles of genetic drift
- Identifies the principles of macro- and microevolution
- Identifies evidence from biogeography, morphology, patterns of development, comparative biochemistry, and molecular genetics

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- Identifies principles of speciation
- Identifies contributions of Darwin, Wallace, Malthus, and Lamarck
- Demonstrates the principles of Hardy Weinburg Principle

11. Describe the characteristics common to living things and the differences among organism groups. (NTI-S2)

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Identifies morphological differences and similarity between and within groups of organisms
- Identifies nucleic acid and protein similarity and differences between and within groups of organisms

12. Explain the interactions and adaptations of plants and animals within their respective ecosystems. (NTI-S6)

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Identifies the characteristics of populations, communities, and ecosystems
- Describes characteristics of population growth
- Identifies factors that shape communities
- Identifies types of community interactions
- Identifies patterns of biodiversity
- Identifies structures of ecosystems
- Identifies energy flow through ecosystems
- Identifies various biogeochemical cycles
- Identifies impact change in ecosystems

13. Explain the interactions and adaptations of plants and animals within the biosphere

#### Criteria

Your performance will be successful when:

- successfully passing a test

#### Learning Objectives

- Describe the various physical factors that effect the ecological systems
- Explain the distribution of the ecosystems

14. Demonstrate and explain scientific theories and methodologies. (NTI-S1)

## Criteria

Your performance will be successful when:

- successfully passing a test

## Learning Objectives

- Demonstrate the methodologies of the scientific method
- Evaluate experimental data from a scientific experiment

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## **CCC-AMERICANS WITH DISABILITIES ACT**

If you have a disability or want to know if you qualify for accommodations as defined by the Americans with Disabilities Act, you are invited to contact the campus [Director of Disability Services](#). You are not required to disclose or reveal information about your disability to anyone at any time; however, in order to receive accommodations in college, you must make those needs known and request services from the Disability Services office on one of the three CCC campuses. Inquiries concerning the application of the laws and regulations cited above may be directed to CCC's 504 Coordinator at Central Community College, P.O. Box 4903, Grand Island, NE 68802-4903; 308-398-7548, or to the Office of Civil Rights, U.S. Department of Education, Washington, DC 20201.

## **CCC-ARCHIVING OF STUDENT WORK**

To protect the original work of students from plagiarism and to uphold the high academic standards and integrity of CCC, any written assignment in this course may be submitted to an internet based plagiarism detection service such as [Turnitin.com](#) by the student or the instructor. All submitted written assignments will be archived and may be referenced for the purpose of detecting plagiarism.

## **CCC-ATTENDANCE--ONLINE, FACE-TO-FACE, HYBRID**

Central Community College faculty record attendance in courses- including online courses. Class attendance and participation contribute significantly to student academic success. Commonly, students who attend class get more out of their college investment through increased learning, stronger relationships with instructors and classmates, earning higher grades, achieving increased passing rates in courses, which leads to completion of academic, and ultimately, career goals. Attendance in an online course may include timely participation in discussions, submitting assignments, activities, projects, etc. (i.e. completing assignments by their deadline). Students should regularly participate in weekly course activities as led by your instructor to ensure meeting attendance requirements. Failure to consistently attend class(es) - even online class(es) - may jeopardize your financial aid.

## **CCC-COURSE MEETING TIME AND LOCATION**

Course meeting time and location may be found in **WebCentral** through My Services, Services for Students, Academic Planning, Student Planning, Go to Plan & Schedule, Timeline tab or use this quick link:

[Student Planning Timeline Tab](#) > Sign In, if applicable > Navigate to Term > Click on Course Name

## **CCC-EQUAL OPPORTUNITY/AFFIRMATIVE ACTION**

Central Community College does not discriminate on the basis of race, religion, national origin, gender, age, disability, marital status, or military veteran status as is defined by law in employment, admission, scholarship and financial aid programs or operation of its educational programs and activities as prescribed by Titles VI and VII of the Civil Rights Act

of 1964, Title IX of the Education Amendments of 1972, Executive Order 11246 as amended, sections 503 and 504 of the Rehabilitation Act of 1973, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, the Age Discrimination Acts of 1974 and 1975, and other federal and state laws and regulations.

Central Community College offers career and technical education programs for all students regardless of race, color, national origin, age, religion, marital status, including those with limited English proficiency, sex or disability. For a complete list of programs, go to [www.cccneb.edu/programs](http://www.cccneb.edu/programs). Educational programs are offered at but not limited to the

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following locations: Columbus Campus, Grand Island Campus, Hastings Campus, Holdrege Center, Kearney Center, Lexington Center and Ord Learning Center.

## **CCC-EXPECTATIONS FOR ACADEMIC INTEGRITY**

Central Community College believes successful students are independent critical thinkers who possess the work ethic and skills necessary to make a positive difference in their professions and communities. In order to maximize student and community success, CCC is devoted to maintaining an honest academic environment and upholding integrity as a core value. All individuals across all course modalities are expected to practice academic integrity, which encompasses the fundamental values of honesty, trust, respect, fairness, and responsibility. In the case of alleged violations of academic integrity, Central Community College strives for fair resolution.

### **Instances of Academic Dishonesty:**

Behaviors that violate the fundamental values of academic integrity at Central Community College may include but are not limited to the following:

- Plagiarism - direct copying or paraphrasing without citation someone else's work (i.e. writing, images, video or audio)
- Cheating - engaging in any behavior intended to achieve an unfair advantage for self or another in any academic exercise (i.e. unauthorized collaboration or unauthorized use of resources or data in a study)
- Fabricating Information - inventing or falsifying information (i.e. making up resources and/or citations, falsifying academic records)
- Facilitating Academic Dishonesty - soliciting, furnishing, or offering to furnish unauthorized exams, quizzes, or academic materials; participating in academic sabotage
- Use of AI- submitting material that is generated by AI as your own work

Read the [Expectations for Academic Integrity](#) in its entirety.

## **CCC-GENERAL INFORMATION**

All college policies and procedures identified in the student handbook will be adhered to for the course. College policies and procedures include, but are not limited to, conditions for dropping or withdrawing from a class, student academic honesty, etc. A copy of the student handbook is available upon request from the Student Services office on each campus or you may utilize this link to the [Student Handbook](#).

## CCC-PREGNANCY RIGHTS AND RESPONSIBILITIES

Title IX makes it illegal to discriminate on the basis of pregnancy and related conditions. Pregnant students are encouraged to register with Disability Services to accommodate their pregnancy, any complications, and time away from school for labor and delivery. You may not anticipate any academic needs associated with your pregnancy, however, your needs may change as your pregnancy progresses. CCC also offers support to students who are becoming parents through adoption and/or foster care placement. Disability Services provides accommodations, supports students, and communicates plans with faculty. To request accommodations and support, please contact the [Disability Services Director](#) on your campus or email [pregnancy@cccneb.edu](mailto:pregnancy@cccneb.edu). For additional information related to pregnancy rights and responsibilities, please visit [Pregnant and Parenting](#). Additional questions or concerns can be directed to CCC's Title IX Coordinator at [titleixcoordinator@cccneb.edu](mailto:titleixcoordinator@cccneb.edu).

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## CCC-STUDENT POLICIES AND PROCEDURES

All student policies and procedures and services can be found on the Central Community College website: Central Community College>Student Life>[Student Policies and Procedures](#).

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## CCC-TECHNOLOGY USAGE GUIDELINES

In order to support the activities for this course, Central Community College provides access to computers for students. The College established Technology Use Policy and Procedure documentation. This document can be found on the College web site. You may click this link to download a PDF document outlining the College's [Technology Use Guidelines](#).

**Cell Phone Policy- Dual Credit Course** - Cell phone use will not be allowed in class except as part of a specific lesson(s). Cell phones will be kept at the front of the class in the assigned storage areas.

## CCC-TITLE IX

Members of the Central Community College community, guests and visitors have the right to be free from all forms of gender and sex-based discrimination, examples of which can include acts of sexual violence, sexual harassment, domestic violence, dating violence, and stalking. All members of the campus community are expected to conduct themselves in a manner that does not infringe upon the rights of others. Any member of the community, guest or visitor who believes that the policy on Equal Opportunity, Harassment and Nondiscrimination has been violated should contact the Title IX Coordinator at 402-562-1284 or [TitleIXCoordinator@cccneb.edu](mailto:TitleIXCoordinator@cccneb.edu). Students should understand that in cases of gender and sex based discrimination, no College employee, including members of the faculty, can guarantee confidentiality. For more information about CCC's policy please reference CCC's [Student and Employee Sexual Misconduct Resource Guide](#). For confidential counseling services, CCC counselors are available for free to all currently enrolled students. To schedule an appointment or to receive additional information contact 402-562-1244 or email [counselingservices@cccneb.edu](mailto:counselingservices@cccneb.edu).

## Late Work and Absence Policy- Dual Credit Course

Complete all classroom and laboratory assignments on time. Assignments are due at the START of class the day they are due. Work not turned in at the due date/time will be considered late and receive 0% credit. Students that fail to turn in work on time will receive 50% credit for their work turned in within 24 hours after the due date/time. Late work turned in after 24 hours will receive a maximum of 40% credit. If parental contact must be made, a maximum of 35% will be given. Work more than 5 days late will receive no credit. Work/Tests missed because of absences that are pre-excused or due to school activities needs to be turned in/taken, or plans arranged **before** you are gone. Failure to turn in work/take tests will result in it being considered late. All labs must be made up (WITHIN 2 DAYS due to loss of materials) before or after school. (No exceptions!) If you miss a TEST, it is the STUDENT'S responsibility to arrange to make up the test. TESTS must be made up in **2 days**.

**Tests missed due to activities/pre-excused must be taken prior to their absence. FAILURE TO DO SO WILL RESULT IN A LOSS OF 10% FROM TEST SCORE FOR EACH DAY AFTER THE TEST IS GIVEN!**