Syllabus: BIO 100N-1 Biology Concepts

Course Information

Course Title: Biology Concepts
Course Prefix/Number: BIO 100N-1
Semester: Spring 2022
Class Days/Times: Tuesdays and Thursdays 3:00-5:45 PM, https://us06web.zoom.us/j/81889095559
Delivery: Virtual via Zoom
Credit Hours: 4 (includes lab)
Prerequisites: None

Instructor Information

Name: Kimberly Danny, M.S.
Office Phone/Voice Mail: (520) 479-2300 Ext. 1518
E-mail: kdanny@tocc.edu
Office location: Ha-Maṣcamdam Ha-Ki: (Faculty Building), Room 121, S-Cuk Du'ag Maṣcamakuḍ (Main Campus), Sells, AZ
Office hours:

- In-person: Tuesdays & Thursdays 1:45-2:45 PM
- Zoom: https://us06web.zoom.us/j/9262129224
  - BIO 100N Study Session (Optional): Monday 4:45-5:30 PM
  - BIO 105N Study Session (Optional): Monday 5:30-6:15 PM
  - Open to all: Wednesdays 12-1:30 PM
- Or by appointment

Course Description

Basic principles and concepts of biology. Includes methods of scientific inquiry, cell structure, chemistry, metabolism, reproduction, genetics, molecular biology, evolution, ecology, and current issues in biology. Lecture and lab are taught simultaneously.

Student Learning Outcomes

After completion of the course students will be able to:

1. Perform activities to demonstrate improvement in the general education goals of communication, critical thinking and mathematics.
2. Describe characteristics of living organisms that distinguish them from non-living constituents of the biosphere.
3. Utilize scientific methods to formulate and answer questions and discuss its strengths and limitations.
4. Describe and explain the properties and roles of biologically important molecules, including proteins, carbohydrates, lipids, and nucleic acids.

5. Describe the structure and function of cells and cellular components in single and multicellular organisms.
6. Describe how energy is acquired and used by living organisms.
7. Describe how traits are inherited and apply patterns of inheritance.
8. Explain the molecular biology of genes and their expression.
9. Describe potential impacts of genetic technologies on society.
10. Explain possible origins of life on Earth and mechanism(s) of evolution that help us account for the amazing diversity of life we now find on our planet.
11. Explain how the flow of energy through an ecosystem influences its structure.
12. Describe how organisms interact with each other and their environment.
13. Apply biological and ecological principles to discuss current issues in human health, and human impact on the environment.

Course Structure

BIO 100N-1 will be delivered virtually via Zoom on the specified days and times. Learners are required to actively engage in the live Zoom sessions. I intend to include short breaks, interactive discussions, and more. Please note that your attendance in the synchronous sessions will be included into your final grade. Outside of the Zoom sessions, learners are expected to complete the activities listed below.

This course is divided into three modules, each with a broad focus. The modules are 1) Cellular foundation of life, 2) Cell division and genetics, 3) Evolution and Ecology. Each module consists of the elements below. In addition, learners will be asked complete to complete one individual research presentation this semester.

- Weekly reading assignments from the text and PowerPoint presentations
- Micro-lectures via an unlisted YouTube Channel
- Assignments, labs, and online discussions
- One online exam

There will be an optional Zoom meeting Mondays from 4:45-5:30 PM MST (Arizona time). This optional meeting will be a space where BIO 100N-1 and BIO 100N-2 students can ask questions, review content, and more. If this Zoom meeting is cancelled or rescheduled, I will make an announcement in Canvas.

Course Learning Materials and Textbook Information

Canvas, https://tocc.instructure.com/login/canvas

I highly recommend bookmarking Canvas on your web browser and/or downloading the "Canvas Student" app and setting notifications to your preference. All assignments, quizzes, lab reports, and presentations should be submitted via Canvas. I will only accept assignments by email in unavoidable cases. Please note that assignments submitted via email are more likely to get lost or graded later than the rest of the class.

Textbook

Great news: your textbook for this class is available for free online! BIO 100N will be using two OpenStax textbooks: Concepts of Biology and Biology 2e. Both textbooks are available for free via web view, PDF, app, iBooks, Kindle, and more. If learners prefer a print copy, low-cost copies can be ordered via the OpenStax website. All formats can be reached or ordered (print copy) at the web addresses below.

1. Fowler, S., Roush, R., & Wise, J. (2013). Concepts of biology. OpenStax, Rice University. Print ISBN 1938168119. www.openstax.org/details/concepts-biology
2. Clark, M. A., Choi, J. H., & Douglas, M. M. (2018). Biology 2e. OpenStax, Rice University. Print ISBN 1947172514. www.openstax.org/details/books/biology-2e

Other Materials

You will also need the following basic household items to complete the online activities: measuring tape, water bottle, water, cup, water dropper (optional), 100+ pennies, and a phone/camera for taking photos.

Course Outline and Important Dates

Course Outline

I. The Nature and Science of Biology
   a. Characteristics of Living Things
   b. Scientific Processes

II. The Chemical and Cellular Basis of Life
   a. Fundamentals of General and Organic Chemistry
   b. Cellular Structure and Function
   c. Energy Pathways

III. Principles of Inheritance
   a. Cellular Life Cycles
   b. Patterns of Inheritance

IV. Molecular Biology
   a. DNA Structure and Function
   b. Genetic Technologies and Society

V. Evolution and Diversity of Life
   a. Principles of Evolution
   b. Diversity of Life
   c. Organismal Structure and Function

VI. Principles of Ecology

VII. Current Issues in Biology

Important Dates

The TOCC 2021-2022 Academic Calendar can be viewed at the following webpage: https://tocc.edu/wp-content/uploads/2021/10/2021-2022-Academic-Calendar-10.29.2021_MSC.pdf.

Evaluations and Grading & Assignments

Your grade will be determined by the following:

GRADE	PERCENTAGE (%)
A	90-100
B	80-89.9
C	70-79.9
D	60-69.9
F	0-59.9

Evaluation	# of Assignments	Points per Assignment	Total Pts	Approx. % of Grade
Attendance, Participation	15	5	75	9%
Practice Quizzes (2 lowest scores dropped)	15	5	65	8%
Discussion Boards (2 lowest scores dropped)	14	10	120	14%
Lab Activities/Reports (Lowest score dropped)	12	25	275	33%
Exams (Lowest score dropped)	4	50	150	18%

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Individual Research Presentation	1	150	150	18%
Total			**835**	**100%**

Himdag Cultural Component

Tohono O'odham traditions and cultural beliefs will be discussed as relevant course topics, and only as appropriate to the Tohono O'odham Nation's traditional standards for sharing information as determined by the *Himdag* committee.

Policies and Expectations

Attendance Policy (Virtual via Zoom)

You are expected to arrive to class on time and be prepared to participate in each class period. Four unexcused absences may result in a letter grade of "F" or an instructor withdrawal "FW" (*see* 45th-Day Instructor Withdrawal policy). You may request to be excused from class for religious observances and practices, for illness, for school or work-related travel or for personal or family emergency. If you will be absent, please notify the instructor as soon as possible.

Incomplete Policy

A student may be considered for an incomplete (I) if:

1. The student completed 50% of the course. (Note: Students who have emergencies before 50% of the course is complete should withdraw "W" from the course).
2. While completing the course the student was in "good standing" (i.e. had a grade of "C" or better and had good attendance).
3. The reason for not completing course was COVID related (ex. student contracted COVID, student had to care for someone with COVID or had to take on major care taking roles, had a change in jobs, etc.)

For the incomplete, the Instructor must develop a plan with student and obtain permission from the student to grant an Incomplete. The student has until the end of FALL 2022 to complete the course. Failure to complete the required plan will result in the incomplete (I) being replaced by a grade of F.

45th–Day Instructor Withdrawal Policy, "FW", Virtual via Zoom

Students who have missed four (4) consecutive classes, has not submitted any assignments, nor taken any quizzes by the 45th-day census report, due on **March 4, 2022** are assumed NOT to be participating in the class and may be withdrawn at the faculty member's discretion. After the 45th-day census, if a student needs to stop attending a course, they must withdraw from the course (*see* Student Withdrawal Policy).

Student Withdrawal Policy, "W"

Students may withdraw from class at any time during the first two-thirds (2/3) of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by **March 30, 2022**, if you do not expect to complete the class, otherwise you may receive an "F" grade. For more information on the student withdraw process email admissions@tocc.edu.

Special Withdrawals (Y) Grade

The "Y" grade is an administrative withdrawal given at the instructor's option when no other grade is deemed appropriate. Your instructor must file a form stating the specific rationale for awarding this grade. "Y" grades are discouraged since they often affect students negatively. Your instructor will not award a "Y" grade without a strong reason.

Academic Integrity

Violations of scholastic ethics are considered serious offenses by Tohono O'odham Community College, the Student Services Department, and by your instructor. Students may consult the TOCC Student Handbook sections on student code of conduct, on scholastic ethics and on the grade appeal procedure. Copies are available at Tohono O'odham Community College.

All work done for this class must be your own, or the original work of your group. While you may discuss assignments with other class members, the final written project must clearly be original. You may use work from books and other materials if it is properly cited. Copying from a book without proper reference or from a person under any circumstances will result in an "F" for the assignment, and at the instructor's discretion, possibly an "F" for the course. If you are uncertain about proper citations, ask your instructor or the librarian.

Course Feedback

All assignments will be graded and returned to the students promptly, typically within a week after the assignment is closed for handing in. Email and phone messages will be returned within two days. A student or the instructor may request a student conference at any time during the semester. Quarterly grade reports will be provided to each student, either in person, by email or via the electronic system of Canvas.

Equal Access Statement/Disability Accommodations

Tohono O'odham Community College seeks to provide reasonable accommodations for qualified individuals with disabilities. The College will comply with all applicable regulations, and guidelines with respect to providing reasonable accommodations as required to ensure an equal educational opportunity. This process includes self-identifying as a student with a disability, providing supporting documentation of their disability, and being approved for services through the Disability Resources Office (DRO). It is the student's responsibility to make known to their instructor(s) the student's specific needs within the context of each class in order to receive appropriate accommodations. We will work together in order to develop an accommodation plan specifically designed to meet the individual student's requirements.

For more information or to request academic accommodations, please contact: Anthony Osborn, TOCC Disabilities Resource Coordinator, aosborn@tocc.edu, or 520-383-0033 for additional information and assistance.

Title IX

Tohono O'odham Community College encourages each student to have the knowledge and skills to be an active bystander who intervenes when anyone is observed or being harassed or endangered by sexual violence. Sexual discrimination and sexual violence can undermine students' academic success and quality of life on campus and beyond. We encourage students who have experienced or witnessed any form of sexual misconduct to talk about their experience and seek the support they need.

Confidential support and academic advocacy can be found with: Student Services Title IX Coordinator/Counselor, Alberta Espinoza, M.Ed. located in I-We:mta Ki: Room 18. Phone: (520) 479-2300 Extension 1210. Email: aespinoza@tocc.edu.

Conduct: Bias, Bullying, Discrimination and Harassment

Tohono O'odham Community College faculty and staff are dedicated to creating a safe and supportive campus environment as a core value. Harassment based on age, class, color, culture, disability and ability, ethnicity, gender, gender identity and expression, immigration status, marital status, political ideology, race, religion/spirituality, sex, sexual orientation, and tribal sovereign status will not be tolerated.

Instructor Policies and Expectations

Course Policies

- Class participation and preparation are essential to student success. Students must read textual material, prepare for projects, and complete required research as stated on the course schedule.
- No work is accepted after the last day of classes unless specified.
- Unacceptable student behavior is also detailed in the TOCC Student Handbook under Student Code of Conduct Violations.

Late Work

- **If you are experiencing hardships, please contact me as soon as possible so we can attempt to work something out.**
- Late work is accepted until a certain date. Each assignment will have a hard deadline, after which no submissions will be allowed.
- Extra credit opportunities and optional activities are provided at the instructor's discretion.
- A missed exam or presentation with no communication prior, during, or after the due date, the assignment will be marked zero.

Netiquette

(Adapted from Association of College & University Educators participation norms)

BIO 100 includes discussion boards and other opportunities to provide feedback to fellow participants. Maintaining appropriate etiquette for online forms of communication—or netiquette—is crucial to ensuring that these discussion forums offer a rich learning experience for all participants. Learners are asked to kindly follow six norms for proper netiquette:

1. **Actively participate.** A greater number of voices enriches the course. Engaged learners can further their understanding of biology concepts through discussions and group activities.
2. **Read and respond to the discussion threads.** Learning is enhanced by engaging in meaningful discussions. A discussion does not take place by solely reading and responding to the initial prompts, but rather by reading other classmates' posts and providing feedback, offering encouragement, and sharing relevant resources.
3. **Embrace the diversity among learners.** Learners benefit from the exchange of diverse perspectives and experiences. Everyone is expected to be respectful of these differences.
4. **Be timely.** Discussions are most beneficial when people respond to one another in a timely manner. Please do your best to stay on track to maximize learning.
5. **Be specific.** Please provide specific evidence from instructional materials or your own classroom experiences when posting to the discussion forums. Citing evidence whenever possible allows you to effectively support your ideas.

6. **Use an appropriate tone and language.** Without nonverbal cues, humor and sarcasm can be mistaken as cold or insulting. Please be aware of your use of tone and language before submitting discussion posts.

Course Schedule

This schedule is designed to evolve and change throughout the semester based on class progress and interests. You will be notified of any changes as they occur.

Key:
CoB = Concepts of Biology Textbook
B2E = Biology 2e Textbook
W_D_: Week _ Discussion or Reflection
W_PQ _: Week _ Practice Quiz
W_Q = Week _ Quiz
W_LAB _ = Week _ Lab Activity
RP = Research Presentation

S = Sunday
M = Monday
T = Tuesday
W = Wednesday
R = Thursday
F = Friday

Week	Dates	Important dates	Topic	Book section(s)	Assignments
0	1/17-1/24	T 1/18: 1st Day of class	Getting Started		W0Q; W0D
Unit 1: The Cellular Foundation of Life					
1	1/17-1/24	F 1/21: Course Registration Deadline	Intro to biology & the scientific method	B2E: 1.1	W1PQ; W1D; W1LAB
2	1/24-1/31	M 1/31: Full Refund for Dropped Course(s) Deadline	The chemical foundation of life	B2E: 2.1-2.3	W2PQ; W2D; W2LAB
3	1/31-2/7		Biological macromolecules	B2E: 3.1-3.6	W3PQ; W3D; W3LAB
4	2/7-2/14	F 2/11: Week 4 Progress Report	Cell structures and functions	B2E: 4.1-4.5, 5.1	W4PQ; W4D; W4LAB
5	2/14-2/21	M 2/21: President's Day – College Closed	Cell energy and metabolism	B2E: 6.1-6.5	W5PQ; W5D; W5LAB
6	2/21-2/28		Cell Respiration, Photosynthesis, and Energy Flow	B2E: 7.1, 8.1-8.3, 42.6	W6PQ; W6D; W6LAB; Exam 1
Unit 2: Cell Division and Genetics					
7	2/28-3/7	F 3/4: 45th-day Census	Molecular Biology	CoB: 9.1, 9.3, 9.4	W7PQ; W7D; W7LAB; RP1 Topic
3/7-3/11: Spring Break					
8	3/14-3/21	M 3/14: Graduation Application Due F 3/18: Week 8 Progress Report	Cell reproduction and mitosis	B2E: 10.1-10.5	W8PQ; W8D; W8LAB

9	3/21-3/28	M 3/21: Summer/Fall Registration Opens	Meiosis and Sexual Reproduction	CoB: 7.1-7.3	W9PQ; W9D; W9LAB
10	3/28-4/4	W 3/30: Student Withdrawal Deadline	Patterns of Inheritance	CoB: 8.1-8.3	W10PQ; W10D; W10LAB
11	4/4-4/11		Biotechnology	CoB: 10.1-10.3	W11PQ; W11D; W11LAB; Exam 2
Unit 3: Evolution and Ecology					
12	4/11-4/18	F 4/15: Week 12 Progress Report	Evolution	B2E: 18.1; CoB: 11.2; B2E: 19.2 (p476)	W12PQ; W12D; W12LAB
13	4/18-4/25		Diversity and Study of Life	CoB: 12.1-12.2; B2E: 1.2	W13PQ; W13D; W13LAB
14	4/25-5/2		Ecology	TBD	W14PQ; W14D; RP1; Exam 3
15	5/2-5/6	F 5/6: Last Day of Instruction			Final Exam Final Presentation
-	5/13	Course Grades Due			

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