TOHONO O'ODHAM COMMUNITY COLLEGE

Syllabus

BIO 182N: Unity of Life II—Multicellular Organisms

Course Information	
Course Prefix/Number: Bio 182N Semester: Spring 2017 Class Days/Times: MW 2:15-4:30 plus on-line work & discussions	Credit Hours: 4 (3 lec; 3 lab periods) Course Title: Unity of Life II—Multicellular Organisms Room: Main Building Rm 5

Instructor Information:	Phone/Voice Mail:520-383-0071
Name: Teresa Newberry, Ph.D.	E-mail: tnewberry@tocc.edu Office location: Ed Division Bldg; Room 107 Office hours: MW 11:30-2 p.m.

Course Description: This course is a survey of the principles of structure and function of living things at cellular, organismic and higher levels of organization. Topics include the evolution, classification, diversity and ecology of organisms, structure and function of plants and animals, structure of ecosystems and the biosphere. This course will emphasize holistic perspectives of life emphasizing the unity within the diversity of life, the inter-relatedness of all living organisms and the greater context for biological science.

Student Learning Outcomes (SLOs) :

After completion of the course students will be able to ……

1. Explain scientific theories of the origin of life and the evolution of organisms.
2. Describe schemes for classifying living organisms, including Tohono O'odham classification systems.
3. Explain diverse methods by which different organisms cope with their environment.
4. Explain interactions of organisms with each other and with their environments.
5. Describe how different ecosystems support diverse life forms.
6. Apply the scientific process to address human impacts upon the biosphere.
7. Formulate a personal ethic regarding the use of plants, animals and humans in science teaching and research, incorporating perspectives from Western science and TOCC Himdag core values.
8. Describe the unity within the diversity of life as well as the inter-relatedness or kinship (t-i:migi) of all organisms.

Course Structure:

This course is an integrated lab/lecture course where the labs are integrated into the regular class periods. This course consists of three units. Each unit consists of PowerPoint lectures, assigned reading, films, in-class activities, reflective writing, discussions, laboratory project and several quizzes. The final project for the course is a Bioethics Controversy Report in which students examine ethical issues related to a controversial biological issue including the Himdag perspective.

Course Assessment:

Course assessment consists of exams, quizzes, discussions, short written assignments, informal in-class assessments, laboratory reports and a collaborative service learning project which includes a paper and class presentation. Study guides will be available to help you prepare for exams. In accordance with my teaching philosophy in which I believe student learning occurs primarily through hands-on, real world application of course materials, exams usually comprise 50% or less of the final grade (although they are still an important aspect of course assessment and your grade). In order to facilitate on-going faculty-student feedback and provide formative assessment, many class projects are divided into smaller intermediate steps such as topic choice, project proposals, and rough drafts. Student-to-student assessments are also included in this course though peer review of group participation and written assignments. I welcome student feedback about the course anytime. I will also provide students an opportunity to give me feedback on their course experience through an anonymous mid-course and final course evaluation.

Texts and Materials:

Required Texts: "Biology" P.H. Raven, and G.B. Johnson, Eleventh Edition
iPad ebook: "CK12 Honors Biology"

Textbook Link: http://paris.mcgraw-hill.com/sites/0073532223/student_view0/

Evaluation:	Points:	Percent of Total Points:
Exams	300 (3 @ 100 pts)	30%
Labs	235 pts	23.5%
Quizzes & Homework Assignments	270 pts	27%
Discussions/Reflective Writing	65 pts	6.5%
Videos	62 pts	6.2%
Project—Bioethics Controversy Report	68 pts	6.8%
TOTAL	1000	100

***Himdag* Cultural Component:**

The theme of this course is kinship or t-i:migi. In this course students learn about the unity within the diversity of life and how evolution explains the inter-relatedness or kinship (t-i:migi) of all organisms. Students will also formulate a personal ethic regarding the use of plants, animals and humans in science teaching and research, incorporating perspectives from Western science and TOCC Core values. The Bioethics Controversy Report students give students an opportunity to examine the role of TOCC Himdag core values in guiding ethics of experimentation with plants, animals, and humans.

Policies and expectations-

Course Policies Requirements: (1) Attend class regularly; (2) Complete in-class and out-of-class assignments and submit to the instructor; (3) Attend all field trips; (4) Take all exams (5) Complete all class projects & presentations.

Attendance: You are expected to arrive to class on time and actively participate each class period. Quizzes and exams are given out at the beginning of class time. Field trips and class activities begin at the start of class and may be missed if you do not arrive to class on time. Because exams, labwork and/or other assignments potentially occur every class period, points potentially will be lost each class period missed. If you miss all or a portion of a class, then you are solely responsible for obtaining missed class material from fellow students. Complete attendance is mandatory during student project presentations; otherwise presentation points will be forfeited. Four consecutive, unexcused absences may result in withdrawal. You may request to be excused from class for religious observances and practices, for illness, for travel or for personal or family emergency. If you will be absent or have been absent, please notify the instructor as soon as possible.

Make-up policy: Missed exams can be made up within two days of the exam date. Late assignments that can be made up will be accepted but will be penalized 25%. Laboratories cannot be made up. At the instructor's discretion, extra credit opportunities and optional activities may be provided.

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. While you may discuss assignments with other class members, the final written project must clearly be your own. 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.

ADA Compliance:
Tohono O'odham Community College strives to comply with the provisions of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you have a learning problem, physical disability, or medical illness that requires you to have any special arrangements, please inform your instructor at the beginning of the semester so your academic performance will not suffer because of the disability or handicap.

Classroom Behavior:

- Because of insurance limitations, non-registered visitors are not allowed at class sessions or on field trips.
- Possession of drugs, alcohol or firearms on college property is illegal.
- Food and beverages are allowed in classrooms.
- Pets, telephones, pagers and other electronic devices that distract students are not allowed in classrooms.
- Students creating disturbances that interfere with the conduct of the class or the learning of others will be asked to leave.

Course Feedback:
All assignments, written papers and quizzes will be graded and returned to the students one week after the assignment is due. E-mail 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. A mid-semester grade report will be provided to each student by March 23rd.

Instructor Withdrawals:
Students who have missed four consecutive classes, not submitted any assignments nor taken any quizzes by the 45th day census report, due on March 3rd, 2017 are assumed NOT to be participating in the class and will be withdrawn. Students may withdraw from class at any time during the first 2/3 of the semester without instructor permission and without incurring any grade penalty. Please be sure to withdraw yourself by April 3rd, 2017 if you do not expect to complete the class, otherwise you may receive an "F" grade.

Incomplete (I) grade:
"I" grades are not awarded automatically. The student must request an "I" from the instructor who will judge the student's ability to complete the course on his or her own. Generally the student must have completed over 80% of the course requirements with at least a "C" grade An "I" requires a written contract between the student and the instructor listing work to be completed as well as how and when the work will be done. If the work is not completed within the contract period, the "I" grade automatically reverts to an "F." "I" grades will not be re-evaluated during the final two weeks of the semester when class activities are normally at their most intense.

Special Withdrawal (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.

Final Grades: Students will receive a grade transcript from the college mailed to the address given with registration materials at the end of the semester when all grades have been recorded.

SPECIAL NOTE TO STUDENT:

For privacy and security reasons, instructors are advised **NOT** to give grades over the telephone. Grades will only be emailed with written permission from the student.

Your instructor will make every attempt to follow the above procedures and schedules, but they may be changed in the event of extenuating circumstances.

Students submitting assignments through the mail or by email are advised to make copies for their own protection.

If you move during the semester, please file a change of address form with the Student Services Office, and inform your instructor.

GOOD LUCK!

Course Outline (see schedule for specific dates):

I. EVOLUTION OF LIFE
   A. Current hypothesis on the origin of life
   B. Defining evolution and natural selection
   C. Evidence for evolution

II. CLASSIFICATION OF ORGANISMS
   A. Classification systems, including the Tohono O'odham classification system
   B. Biological concept of species
   C. Three domains

III. SURVIVAL STRATEGIES
   A. Physiological strategies
   B. Reproductive strategies

IV. INTERACTIONS BETWEEN ORGANISMS AND THEIR ENVIRONMENT
   A. Population ecology
   B. Community ecology
   C. Animal behavior

V. ECOSYSTEM STRUCTURE
   A. Energy flow through ecosystems
   B. Biological diversity

VI. HUMAN IMPACTS UPON THE BIOSPHERE
   A. Human population growth
   B. Loss of biodiversity
   C. Science of conservation biology

VII. ETHICS OF EXPERIMENTATION
   A. Role of TOCC Himdag core values in guiding ethics of experimentation with plants, animals, and humans

DISCLAIMER: This syllabus 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.

TENTATIVE SCHEDULE SPRING 2017
NEWBERRY

PART I: Evolution			
Date	**Assigned Reading**	**Topic**	**Assignments, Labs, Class Activities**
1/18		Intro to Class	Film: Darwin's Dangerous Idea Dialectic Journal: Philosophy of Native Science (1/25) **Ch 1 Understand & Apply (U & A)**
1/23-1/25	Ch. 1	Unifying Themes in Biology & The Science of Biology	*Lab: Evolution* Reflection Paper: Darwin's Dangerous Idea Reflection Paper: Philosophy of Native Science
1/30-2/1	Ch. 20	Genes within Populations	*Lab: Natural Selection & Genetic Drift* **Ch 20 Understand & Apply (U & A)**
2/6-2/27	Ch. 22	Origin of Species	*Lab: Statistics* *Lab: Data Pattern* *Lab: Evolution in Action (on-line)* **Ch 22 (U & A)**
3/1-3/8	Ch. 23	Systematics and the Phylogenetic Revolution	Tohono O'odham Classification of Life Activity **Ch 23 (U & A)** **EXAM I**

PART II: DIVERSITY OF LIFE ON EARTH			
3/20-3/27	Ch. 26 & 27.1	The Tree of Life & Intro to Viruses	**Ch 26 (U & A)** *Bacteria Lab* Evolution Film
3/29	Ch. 28	Prokaryotes	**Ch 28 (U & A)**
4/3-4/10	Ch. 29	Protists	**Ch 29 (U & A)** *Lab: Protists*
4/12 - 4/19	Ch. 32-34	Overview of Animal Diversity	**Ch 32-34 (U & A)** *Lab: Animal Symmetry* *Lab: Animal Kingdom* **EXAM II**
4/24	Ch. 31	Fungi—Evolution and Diversity	**Ch 31 (U #1 & #2 only & A)**
PART III: PLANT & ANIMAL FORM AND FUNCTION			
4/26	Ch. 30	Green Plants—Evolution, Diversity, Form & Function	**Ch 30 (U & A)** Concept Map—Plants
5/1	Ch. 44 -53	Animal Organ Systems	Film: Body Atlas *Lab: Human Physiology*
PART IV: ECOLOGY, CONSERVATION & BIOETHICS			
5/3	Ch. 58 & 59	Dynamics of Ecosystems & the Biosphere	**Ch 58 & 59 (U & A)—selected questions**
5/8		Cree Management Systems—A case study	Bioethics Controversy Presentation
5/8			**EXAM III (Parts III & IV) (Take Home)**

TENTATIVE GRADING SYSTEM BIO 182N SPRING 2017	Points to be Earned	Points Earned
Unit 1-1 Intro to Science, Darwin & Evolution-Ch 1		
Chapter 1 Homework—Understand & Apply	**5**	
Etymology Homework	**5**	
Evolution Lab--Part I	**25**	
Darwin's Dangerous Idea-Reflection Paper	**40**	
Philosophy of Native Science--Reflection Paper & Dialectic Journal	**25**	
Chapter 1 Pre & Post-test	**10**	
Quiz 1-1	**15**	
Unit 1-2 Evolution & Natural Selection-Ch 20		
Chapter 20 Homework--Understand & Apply	**5**	
Natural Selection Lab	**60**	
Statistics Lab	**10**	
Pre & Post Test	**10**	
Quiz 1-2	**15**	
Unit 1-3 Origin of Species Ch 22		
Chapter 22 Homework--Understand & Apply	**5**	
Evolution Lab--Part II	**25**	
Pre & Post Test Ch 22	**10**	
Quiz 1-3	**15**	
Evolution in Action Lab (On-line)	**25**	
Unit 1-4 Systematics Ch 23		
Chapter 23 Homework--Understand & Apply	**5**	
Bacteria Lab	**50**	
Pre & Post Test Ch 23	**10**	
Quiz 1-4	**15**	
EXAM I	**100**	
Unit 2-1 Tree of Life Ch 26		
Chapter 26 Homework Understand & Apply	**5**	
Pre & Post test Ch 26	**10**	
Quiz 2-1	**15**	
Evolution Video	**15**	
Unit 2-2 Intro Viruses Ch. 27.1 & Prokaryotes Ch 28		
Chapter 27.1 & 28 Homework	**5**	
Pre & Post Ch 28	**10**	
Quiz 2-2	**15**	

TENTATIVE GRADING SYSTEM BIO 182N SPRING 2017 (continued)	Points to be Earned	Points Earned
Unit 2-3 Introduction to Protists Ch 29		
Chapter 29 Homework--U & A	**5**	
Pre and post test Ch 29	**10**	
Quiz 2-3 Chapter 29	**15**	
Unit 2-4 Overview of Animal Diversity		
Ch 32 Homework	**5**	
Pre and Post test Ch 32	**10**	
Animal Symmetry Lab	**15**	
Quiz 2-4	**15**	
Unit 2-5 Vertebrate Evolution Ch 35		
Evolution DVD--Great Transformations	**15**	
History of Life Lab	**15**	
EXAM 2	**100**	
Unit 3-1 Plants--Evolution, Diversity, Form & Function Ch 30		
Ch 30 Homework	**5**	
Ch 30 Pre- and Post-test	**10**	
Unit 3-2 Fungi--Evolution & Diversity Ch 31.1		
Ch 31 Homework (U1 &2)	**5**	
Unit 3-3--Ecology Ch 59		
Ch 59 Homework (U 1-3, A 4)	**5**	
Ch 59 Pre and Post-test	**10**	
EXAM 3	**100**	
Unit 4-1 Human Physiology		
Body Atlas	**32**	
Bioethics Presentation	**68**	
TOTAL	**1000**	

TOHONO O'ODHAM COMMUNITY COLLEGE

Acknowledgment of Receipt of Syllabus

Please read, sign and return the following acknowledgment to me in class, *or* return to me at the following address:

Teresa Newberry
Tohono O'odham Community College
P.O. Box 3129
Sells, AZ 85634

☐ I have received my Bio 182N syllabus (including course objectives, policies, requirements and schedule) and have read and understood all the enclosed materials

☐ I have no objection to receiving an occasional call from the instructor at the number given with my registration materials.

☐ I prefer that the instructor not call or contact me by phone anytime during the semester.

My reason(s) for taking this course:

_____

_____

_____

My background in this area includes:

_____

_____

_____

☐ I would like to be contacted by the instructor regarding the following concerns:

_____

_____

_____

_____

_____ _____
Print Name Clearly Here Sign Name Here

_____ _____
Student ID Number Telephone Number

_____ _____
Current Mailing Address/City/State/Zip E-mail Address