NORTH CENTRAL TEXAS COLLEGE
COURSE SYLLABUS

Course Title: General Biology for Non-Science Majors		
Course Prefix & Number: BIOL1408	Section Number: 341/342	Term Code: Spring 2017
Semester Credit Hours: 4	Lecture Hours: online (48)	Lab Hours: online (48)
Course Description (THECB): Provides a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Laboratory activities will reinforce a survey of biological principles with an emphasis on humans, including chemistry of life, cells, structure, function, and reproduction. Course Description (NCTC Catalog): A survey of key concepts including biological chemistry, cell structure and function, genetics, evolution and ecology. An overview of animals, plants and microbes is included with special emphasis given to the morphology and physiology of man. The course includes the dissection of fetal pigs.		
Course Prerequisite(s):		
Course Type:		
☐ - **Academic General Education Course** (from Academic Course Guide Manual but not in NCTC Core) ☒- **Academic NCTC Core Curriculum Course** ☐ - **WECM Course**		

Name of Instructor:	**K Underbrink**
Campus/Office Location:	**Corinth / Room 201**
Telephone Number:	(urgent contact number provided on Canvas)
E-mail Address:	kunderbrink@nctc.edu – use CANVAS for communication

Name of Chair/Coordinator:	Doug Elrod, Ph.D.
Office Location:	Corinth campus room 351
Telephone Number:	940-498-6291
E-mail Address:	daelrod@nctc.edu

REQUIRED OR RECOMMENDED COURSE MATERIALS

Recommended:
Biology In Focus (Campbell), Urey et al, Pearson, 2014 or 2017

GRADING CRITERIA

# of Graded Course Elements	Graded Course Elements	Percentage or Points Values
15	Online Interactive Lessons, 5 pt each	75 pt; 7.5 %
3	Unit Exams, 100 pt each	300 pt; 30 %
12	Virtual Laboratory Reports, 25 pt each	300 pt; 30 %
Semester project	Individual Research, Documentation, & Collaboration	190 pt; 15 %
6	Laboratory Quizzes, 10 pt each	60 pt; 6 %
14 weeks	"Fishbowl", Laboratory & Research Forums	130 pt; 11.5 %

A comprehensive Final Exam of 100 points will be offered. It is optional and can replace one of the previous 100 point exam scores. If the final exam is lower than your previous exam grades, it will be dropped and will not affect your grade.

Grades are calculated on percentage earned of available points.

89.5 % and above is an A, 79.5 % and above is a B, 69.5% and above is a C,
59.5 % and above is a D, and below 59.5% is an F.

ATTENDANCE POLICY

Because this course is delivered online, no face-to-face attendance will be required. CANVAS automatically records the dates & times for viewing of module pages, assignment submission, discussion forum posting, & other activities & communications. **Active, constructive participation in the FISHBOWL Forums 2-3 days per week is expected for online attendance. Waiting until the last day of the assignment window to complete postings is not considered acceptable attendance.**

A face-to-face course meets for 3 hrs per week for lecture & 2.5 hrs per week for lab. Most student success strategies involve devoting a minimum of 2 hrs study time per contact hour - an additional 11 hrs per week for an astounding total of 17 hrs per week on course. Realize that daily work will be part of your routine - plan that time, & you'll find your commitment will greatly facilitate your success.

Attendance in this online course is measured by postings in "FISHBOWL" forums. Additionally, submitted work & quiz/exam completion are required for attendance. Be sure that you are on track, as determined by the "windows" for each module as noted in the syllabus.

NOTE: Your activity will be monitored weekly throughout the semester for attendance documentation. Attendance is included in the "FISHBOWLS" grade.

All Assessments and Assignments are to be completed or submitted **on CANVAS** by the specified due date. Students are expected to contact the instructor for any missed exam before the grace period expires. The instructor will require a valid reason with written documentation for a student missing an exam. EXAMS may not be made up, but the lowest (or missing) will be dropped at the end of the semester upon completion of the **optional comprehensive Final Exam**.

Late individual assignments may be accepted within the specified grace period, but a penalty of up to one letter grade (10% of points) may be assessed for each day late. Contact your instructor IMMEDIATELY via conversations on CANVAS if you cannot meet deadlines for assignments, quizzes or exams due to illness, emergency, or other documentable "absences".

Last day to Withdraw The last day to withdraw from a course with a "W" is Thursday, 6Apr2017.

CORE CURRICULUM FOUNDATIONAL COMPONENT AREA

☐	Communication	☐	American History
☐	Mathematics	☐	Government/Political Science
x	Life and Physical Science	☐	Social and Behavioral Sciences
☐	Language, Philosophy & Culture ☐	☐	Creative Arts

REQUIRED CORE OBJECTIVES

- ☒ Critical Thinking
- ☒ Communication
- ☒ Empirical and Quantitative
- ☒ Teamwork
- ☐ Personal Responsibility
- ☐ Social Responsibility

STUDENT LEARNING OUTCOMES

	Student Learning Outcomes: Lecture
	Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
	Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
	Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
	Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
	Describe karyotyping, pedigrees, and biotechnology and provide an example of the uses of each.
	Identify parts of a DNA molecule, and describe replication, transcription, and translation.
	Analyze evidence for evolution and natural selection.
	Student Learning Outcomes: Laboratory
	Apply scientific reasoning to investigate questions, and utilize scientific tools such as microscopes and laboratory equipment to collect and analyze data.
	Use critical thinking and scientific problem-solving to make informed decisions in the laboratory.
	Communicate effectively the results of scientific investigations.
	Distinguish between prokaryotic, eukaryotic, plant and animal cells, and identify major cell structures.
	Identify stages of the cell cycle, mitosis (plant and animal), and meiosis.
	Interpret results from cell physiology experiments involving movement across membranes, enzymes, photosynthesis, and cellular respiration.
	Apply genetic principles to predict the outcome of genetic crosses and statistically analyze results.
	Identify the importance of karyotypes, pedigrees, and biotechnology.
	Identify parts of a DNA molecule, and describe replication, transcription, and translation.
	Analyze evidence for evolution and natural selection.
	Identify the chemical structures, synthesis, and regulation of nucleic acids and proteins.
	Describe the unity and diversity of life and the evidence for evolution through natural selection.

GENERAL DESCRIPTION: BIOLOGY ONLINE LESSONS:

LESSON 1: INTRODUCTION TO BIOLOGY introduces characteristics of life, classification of organisms, emergent properties, evolution, and the scientific method.

LESSON 2: THE CHEMISTRY OF LIFE introduces atoms and elements, describes how chemical bonds form, and explains the unique properties of water that support life.

LESSON 3: BIOMOLECULES introduces the chemical characteristics of organic molecules, including the properties of carbon, how functional groups change chemical properties, and the four macromolecule groups that together create living cells.

LESSON 4: CELLS discusses cellular structures in prokaryotic and eukaryotic cells.

LESSON 5: BASICS OF ENERGY EXCHANGE introduces energy, chemical reactions, the structure and function of ATP, enzymes, and metabolic pathways.

LESSON 6: CELL MEMBRANES AND MATERIAL MOVEMENT presents diffusion and the relevance of diffusion across membranes in living cells, how osmosis affects living cells, and introduces transport across the plasma membrane through vesicles.

LESSON 7: PHOTOSYNTHESIS describes photosynthesis, including light reactions, the Calvin cycle, and how plants adapt to environments.

LESSON 8: RESPIRATION introduces aerobic and anaerobic respiration, describing glycolysis, the Kreb's cycle, oxidative phosphorylation, and fermentation.

LESSON 9: CELL DIVISION discusses the organization of DNA and explains the events and regulation of the eukaryotic cell cycle including the importance of interphase and the stages of mitosis and cytokinesis.

LESSON 10: DNA REPLICATION introduces DNA including structure, replication, and use in technology.

LESSON 11: GENE EXPRESSION describes gene expression, including transcription and translation involved in protein synthesis.

LESSON 12: SEXUAL REPRODUCTION introduces the reproductive strategies employed by a variety of organisms, but primarily plants and animals, discussing meiosis and gamete production in plants and animals, with an added focus on humans.

LESSON 13: PATTERNS OF INHERITANCE presents the basic principles governing inheritance of alleles and genes, including both classic Mendelian and more complex patterns of inheritance.

LESSON 14: HUMAN GENETICS introduces the human genome and karyotyping, examines how family history and pedigrees support identification of autosomal and sex-linked inheritance patterns, and describes how chromosomal abnormalities arise and their effect on humans.

LESSON 15: REPRODUCTION AND DEVELOPMENT introduces the key events and structures that support reproduction and early development in plant (primarily angiosperm) and animal (primarily human) life cycles.

Laboratories:– online laboratories, simulations, & demonstrations are correlated with online Lessons. Some laboratories are completed using household materials.

ONLINE ATTENDANCE: Forums:

"Fishbowls" – Three related Content Threads for each Module:

A&P and ME – Anatomy & Physiology topics, human emphasis
Evolve! – Evolution topics, interaction of GENES & Environment
Go Green! – Ecology topics, emphasis on human impact on environment

➔ Requirement: posts in TWO of the three threads on TWO different days each week.

Research Forum – students collect resources & discuss a topic of their choice (related to any content in lessons, text, or discussion threads)

➔ Resource Requirement: for the SEMESTER - TEN total resources, FIVE of which must relate to individual topic choice, ONE must be peer-reviewed scientific journal resource.

Laboratory Forum – students collaborate to discuss laboratory activities, emphasis on analysis & interpretation of data, scientific evidence & conclusions.

➔ Home Labs forums in Module 4

Tentative Course Schedule – subject to change

Module	Dates Open	Lessons *** & due dates	Videos for Fishbowls: Laboratory Topics:
One	17Jan-Exam I	Lesson 1 20Jan	Video: MRSA Lab: Dependent & Independent Variables (GMO corn)
Two	17Jan-Exam I	Lesson 2; 25Jan Lesson 3; 26Jan	Videos: Oily Birds; Food Chemistry Lab: Food Chemistry; Digestion & Nutrition (food label)
Three	17Jan-Exam I	Lesson 4 1Feb	Video: Alzheimer's Lab: Virtual Microscope; Cells
Exam I*	**6-7 FEB**	**Modules 1-3; Lessons 1-4**	***Tentative Date***
Four (a)	3Feb Exam II	Lesson 5 9Feb	Video: GERD Lab: Enzymes; Home Labs
Four (b)		Lesson 6 14Feb	Video: Kidney Dialysis Lab: Cell Transport; Home Labs
Five (a)	13Feb-Exam II	Lesson 7 22Feb	Video: Xeriscaping Lab: Photosynthesis; Plant Biology
Five (b)		Lesson 8 1Mar	Video: Physiology (Lance Armstrong) Lab: Cellular Respiration: Carbon Cycle
Exam II*	**8-9 MAR**	**Modules 4-5; Lessons 5-8**	***Tentative Date***
SPRING BREAK 13-18 MARCH: See FISHBOWLS module for Bonus "Spring Break Reflections" forum (optional)			
Six (a)	6Mar-Exam III	Lesson 9 21Mar	Video: Cell Division & Cancer Lab: Virtual Lab – Cell Cycle & Cancer
Six (b)		Lesson 10 28Mar	Video: DNA Replication & Sun Damage Lab: DNA interactive
Seven (a)	13Mar Exam III	Lesson 11 4Apr	Video: Cystic Fibrosis / Gene Therapy Lab: Gene Expression
Seven (b)		Lesson 12 5Apr	Video: Sexual Reproduction & Fertility Lab: Sickle Cell / Genetics
*******	**6APR**	**********	**Last day to withdraw with a W**
Eight (a)	27Mar-Exam III	Lesson 13 11Apr	Video: Genetic Impact on Plants (GMOs) Lab: Genetics/Sex Linked Traits
Eight (b)		Lesson 14 18Apr	Video: Ultrasound (Prenatal Testing) Lab: Stem Cells & Niches
Eight (c)		Lesson 15 25Apr	Video: Plant Reproduction & Food Lab: Stem Cell Differentiation
Exam III*	**1-2 MAY**	**Modules 6-8; Lessons 9-15**	***Tentative Date***
Research	17Jan til Final Exam	See Research Module for Info	**Research-semester project.** **Research Conference – Collaborations & Reports**
Final *optional	**11 MAY**	**Comprehensive: All Modules**	***Taking the final allows you to drop your lowest exam grade (Exams I-III OR Final). Does NOT affect other scores.**

Student Rights & Responsibilities

NCTC Board policy *FLB (Local) Student Rights and Responsibilities* states that each student shall be charged with notice and knowledge of the contents and provisions of the rules and regulations concerning student conduct. These rules and regulations are published in the Student Handbook published in conjunction with the College Catalog.

Scholastic Integrity

Scholastic dishonesty shall constitute a violation of college rules and regulations and is punishable as prescribed by Board policies. Scholastic dishonesty shall include, but not be limited to cheating on a test, plagiarism, and collusion. See the Student Handbook for more information.

STUDENT SUPPORT SERVICES

Disability Services (OSD)

The Office for Students with Disabilities (OSD) provides accommodations for students who have a documented disability. On the Corinth Campus, go to room 170 or call 940-498-6207. On the Gainesville Campus, go to room 110 or call 940-668-4209. Students on the Bowie, Graham, Flower Mound, and online campuses should call 940-668-4209.

North Central Texas College is on record as being committed to both the spirit and letter of federal equal opportunity legislation, including the Americans with Disabilities Act (ADA) of 1990, ADA Amendments Act of 2009, and Section 504 of the Rehabilitation Act of 1973 (P.L. 93-112).

http://www.nctc.edu/StudentServices/SupportServices/Disabilityservices.aspx

Student Success Center

The Student Success Center is designed to help all students at NCTC develop tools to achieve their academic goals. The center links students to FREE tutoring, including a Writing Center, a Math Lab, and free online tutoring in the evening. The program helps students acclimate to college by providing students free interactive workshops. For more information, please visit your nearest Student Success Center.

Early Alert/CARES

The NCTC Early Alert program has been established to assist students who are at risk of failing or withdrawing from a course. Your instructor may refer you to this program if you are missing assignments, failing tests, excessively absent, or have personal circumstances impacting your academic performance. If submitted as an Early Alert you will be notified via your NCTC e-mail address and then contacted by a Counseling and Testing advisor or counselor to discuss possible strategies for completing your course successfully.

The NCTC CARES (Campus Assessment Response Evaluation Services) Team addresses behavior which may be disruptive, harmful or pose a threat to to the health and safety of the NCTC community-such as stalking, harassment, physical or emotional abuse, violent or threatening behavior, or self-harm. As a student, you have the ability to report concerning behavior which could impact your own safety or the safety of another NCTC student. Just click the NCTC CARES Team logo posted on MyNCTC, or send an e-mail to CARESTeam@nctc.edu. As always, if you feel there is an immediate threat to your own safety or welfare (or to another student), please call 911 immediately.

Tobacco-Free Campus NCTC restricts the use of all tobacco products including cigarettes, cigars, pipes and smokeless tobacco on campus property.