Reedley College

CREDIT COURSE OUTLINE

I. COVER PAGE

(1) BIOL 5   (2) HUMAN BIOLOGY   (3) 4

Number   Title   Units

(4) Lecture / Lab Hours:				(8) Classification:			
Total Course Hours							
	Total Lec hours:		3.00		Degree applicable:		X
	Total Lab hours:		2.00		Non-degree applicable:		
	Total Contact hours:		90.00		Basic skills:		

Lec will generate _0_ hour(s) outside work.	(9) RC Fulfills AS/AA degree requirement: (area)
Lab will generate _0_ hour(s) outside work.	General education category:

(5) Grading Basis:	Grading Scale Only		Area A Natural Sciences
	Pass/No Pass option	X	Major: BIOLOGICAL SCIENCE
	Pass/No Pass only		LIBERAL ARTS & SCIENCES
(6) Advisories:			PHYSICAL EDUCATION

	Certificate of:	
Eligibility for Math 101	Certificate in:	

ENGL 1A - READING AND COMPOSITION and	(10) CSU	Baccalaureate:	X
	(11) Repeatable: (A course may be repeated three times)		0

(7) Pre-requisites(requires C grade or better):
Corequisites:

(12) Catalog Description:

This course is an introductory human biology course that examines science and societal issues. There is special emphasis on the following body systems: circulatory, digestive, respiratory, urinary, skeletal, muscular, nervous, sensory, endocrine, reproductive, and genetics.

II. COURSE OUTCOMES:

(Specify the learning skills the student demonstrates through completing the course and link critical thinking skills to specific course content and objectives.)

Upon completion of this course, students will be able to:
- A. demonstrate knowledge regarding the process of science and society, microscopy, and the cell
- B. identify human body levels of organization and homeostatic mechanisms
- C. demonstrate knowledge of the chemical basis of life
- D. evaluate scientific literature and current biological achievements
- E. apply the principles of genetics to humans and understand the outcome of normal and abnormal DNA
- F. demonstrate knowledge regarding the structure and function of the following systems: circulation, digestive, respiratory, urinary, skeletal, muscular, nervous, sensory, endocrine, reproduction, and genetics and evolution

III. COURSE OBJECTIVES:

(Specify major objectives in terms of the observable knowledge and/or skills to be attained.)

In the process of completing this course, students will:
- A. read, analyze, evaluate, and discuss scientific method, the cell, and human levels of organization

B.   learn the periodic table of the elements, the chemistry of the carbon atom, and the chemical structure of humans
C.   analyze and interpret data on the homeostatic mechanisms within the human body
D.   learn the cell's structure, function, and the cell cycle in relation to the multicellular human body
E.   observe and document the structure and function of the human body by examining human body systems including: circulatory, digestive, respiratory, urinary, skeletal, muscular, nervous, sensory, endocrine, and reproduction
F.   review classical and molecular genetics and learn the processes of replication, transcription, and translation
G.   perform experiments, observe, and record data
H.   study evolution
I.   discuss social issues between humans and science

IV. COURSE OUTLINE:

Lecture Content:

A. Science and Society: What basic characteristics do all living things share?
 What is the evidence that living organisms share an evolutionary history?
 Scientific method helps to gather information and leads to conclusions.

B. The Chemistry of Life
 Basic chemistry used in the understanding of human biology. ie. Atomic elements, the carbon atom, bonding patterns of elements, and water, the essential compound of life.
 The major macromolecules of life: carbohydrates, lipids, proteins, and nucleic acids.

C. The Cell: Eukaryotes vs. Prokaryotes.
 The plasma membrane, intracellular structures, and functions and the cell cycle.
 Human cells use cellular respiration and fermentation to generate ATP.
 Mitosis, Meiosis: in normal and abnormal cases.

D. Human Body Organization and Homeostasis
 The human body from the cell to its complex organ systems.
 The skin as an organ system.
 Internal homeostasis is maintained by negative and positive feedback mechanisms.

E. Maintenance of the human body: Circulatory System. Digestive System, Respiratory System, Urinary System. The structures and functions of the cells, organs, and related structures to the preceding systems.

F. Control and coordination of the human body: The Skeletal, Muscular, Nervous, Sensory, and Endocrine Systems. The structures and functions of the cells, organs, chemicals, and mechanisms of control of the human body.

G. Reproductive Systems: Structures of the male and female systems. The male system from production and delivery of the sperm.
 The female system from production of the eggs, to conception, to nurturing of the embryo and fetus.

H. DNA: Structure and Function and Inheritance
 The structure of DNA is nucleotides.
 Demonstrate knowledge of replication, transcription, and translation.
 Apply biotechnology techniques to cloning, recombinant DNA, and stem cell research.
 Set up and perform genetic cross matches demonstrating Mendelian patterns of inheritance.
 Create and interpret pedigree charts.

I. Evolution and Biodiversity
 Natural Selection, artificial selection, mutations, and the Hardy-Weinburg Equilibrium.
 The evidence for evolution: fossil record, biochemistry, comparative anatomy and embryology.
 Ecosystems, Energy flow, conservation, and extinction of species.

Lab Content:

Lab: The Microscope and Scientific Method
Lab: Chemistry of the macromolecules of life.
Lab: The cell: its cycle, mitosis, meiosis

Lab: Human organization and histology: epithelial, connective, muscular, and nervous tissue.
Labs: Maintenance of the human body: Circulatory, Digestive, Respiratory, & Urinary Systems
Labs: Control and Coordination of the human body: skeletal, muscular, nervous, sensory, & endocrine
Lab: Reproduction: Meiosis: Male and Female
Lab: DNA — structure, function, and inheritance
Lab: Evolution and Biodiversity: Examination of evolutionary evidence, Ecosystems, extinction of species

V. APPROPRIATE READINGS

Reading assignments may include but are not limited to the following:
    A.   Sample Text Title:
        1.   Recommended - Johnson, M.D., Atsma, B., & Hsu, S. *Laboratory Manual for Human Biology: Concepts and Current Issues,* ed. 5th Pearson/Benjamin Cummings, 2010, ISBN: 978-0-13-2443
        2.   Recommended - Goodenough, McGuire and Wallace *Biology of Humans - Concepts, Applications, and Issues,* ed. 3rd Pearson Prentice Hall, 2009,
        3.   Recommended - Sylvia S. Mader *Inquiry into Life,* ed. 11th McGraw Hill Publishers, 2006,
        4.   Recommended - Vodopich & Moore *Biology Laboratory Manual,* ed. 7th McGraw Hill Publishers, 2005,

    B.   Other Readings
        1.   Recommended - *Scientific American*

  X Global or international materials or concepts are appropriately included in this course
  X Multicultural materials and concepts are appropriately included in this course

If either line is checked, write a paragraph indicating specifically how global/international and/or multicultural materials and concepts relate to content outline and/or readings.
We will be reading, evaluating, and discussing issues about human diseases in certain populations. The topic of genetics will cover anomalies that have global effects and can be found in locations all over the world.

VI. METHODS TO MEASURE STUDENT ACHIEVEMENT AND DETERMINE GRADES:

Students in this course will be graded in at least one of the following four categories. Please check those appropriate. A degree applicable course must have a minimum of one response in category A, B, or C.

A. Writing			
	Check either 1 or 2 below		
X	*1. Substantial writing assignments are required. Check the appropriate boxes below and provide a written description in the space provided.*		
	2. Substantial writing assignments are NOT required. If this box is checked leave this section blank. For degree applicable courses you must complete category B and/or C.		
X	a) essay exam(s)	X	d) written homework
	b) term or other paper(s)		e) reading reports
X	c) laboratory report(s)	X	f) other (specify)

Required assignments may include but are not limited to the following:
1. Critical thinking questions as essay questions
2. Written laboratory reports to support laboratory lessons
3. Reading assignments pertinent to lab and lecture

B. Problem Solving			
Computational or non-computational problem-solving demonstrations, including:			
X	a) exam(s)	X	d) laboratory reports
X	b) quizzes	X	e) field work

X	c) homework problems		f) other (specify):	

Required assignments may include but are not limited to the following:
1. Laboratory and Lecture exams

2. Written Laboratory reports

3. Quizzes

4. Text and journal reading and answering of questions

C. Skill demonstrations, including:				
X	a) class performance(s)	X	c) performance exams(s)	
X	b) field work		d) other (specify)	

Required assignments may include but are not limited to the following:
1. Class discussion and participation

2. Performance of standard laboratory skills, microscope usage, instrument usage and calibration, field and analysis techniques, data analysis, and laboratory safety procedures

3. Lecture and Laboratory Exams

D. Objective examinations including:				
X	a) multiple choice	X	d) completion	
X	b) true/false	X	e) other (specify):	
X	c) matching items			

COURSE GRADE DETERMINATION:
Description/Explanation: Based on the categories checked in A-D, it is the recommendation of the department that the instructor's grading methods fall within the following departmental guidelines; however, the final method of grading is still at the discretion of the individual instructor. The instructor's syllabus must reflect the criteria by which the student's grade has been determined. (A minimum of five (5) grades must be recorded on the final roster.)

If several methods to measure student achievement are used, indicate here the approximate weight or percentage each has in determining student final grades.
60% - 70% exams (lecture and laboratory) 40% - 50% laboratory reports, writing assignments and homework 0 - 20% quizzes

VII. EDUCATIONAL MATERIALS

For degree applicable courses, the adopted texts, as listed in the college bookstore, or instructor-prepared materials have been certified to contain college-level materials.

College-Level Criteria Met

Validation Language Level (check where applicable):

	YES	NO
Textbook	X	
Reference materials	X	
Instructor-prepared materials	X	
Audio-visual materials	X	

Indicate Method of evaluation:
Used readability formulae (grade level 10 or higher)		
Text is used in a college-level course	X	
Used grading provided by publisher		
Other: (please explain; relate to Skills Levels)		
	X	

Computation Level (Eligible for MATH 101 level or higher where applicable)
Content
 Breadth of ideas covered clearly meets college-level learning objectives of this course   __X__   _____
 Presentation of content and/or exercises/projects:
 Requires a variety of problem-solving strategies including inductive and deductive reasoning.   __X__   _____
 Requires independent thought and study   __X__   _____
 Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.   __X__   _____

List of Reading/Educational Materials
Recommended - Johnson, M.D., Atsma, B., & Hsu, S. *Laboratory Manual for Human Biology: Concepts and Current Issues,* ed. 5th Pearson/Benjamin Cummings, 2010, ISBN: 978-0-13-2443
Recommended - Goodenough, McGuire and Wallace *Biology of Humans - Concepts, Applications, and Issues,* ed. 3rd Pearson Prentice Hall, 2009,
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Comments:

_____   This course requires special or additional library materials (list attached).
__X__   This course requires special facilities:
      Laboratory

Attached Files:

BASIC SKILLS ADVISORIES PAGE The skills listed are those needed for eligibility for English 125, 126, and Math 101. These skills are listed as the outcomes from English 252, 262, and Math 250. In the right hand column, list at least three major basic skills needed at the beginning of the target course and check off the corresponding basic skills listed at the left.	
(eligibility for Math 101) (as outcomes for Math 250) __X__ Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions. __X__ Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the process. __X__ Applying the concepts listed above to proportions, percents, simple interest, markup and discount. __X__ Applying the operations of integers in solving simple equations. __X__ Converting between the metric and English measurement systems	1. Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions. 2. Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the

	process. 3. Converting between the metric and English measurement systems.

Check the appropriate spaces.

__X__ Eligibility for Math 101 is advisory for the target course.

_____ Eligibility for English 126 is advisory for the target course.

_____ Eligibility for English 125 is advisory for the target course.

If the reviewers determine that an advisory or advisories in Basic Skills are all that are necessary for success in the target course, stop here, provide the required signatures, and forward this form to the department chair, the appropriate associate dean, and the curriculum committee.

CONTENT REVIEW

REQUISITES

No requisites