



CREDIT COURSE OUTLINE

I. COVER PAGE

<u>(1) BIOL 20</u>	<u>(2) HUMAN ANATOMY</u>	<u>(3) 4</u>
Number	Title	Units

<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="3">(4) Lecture / Lab Hours:</td> </tr> <tr> <td colspan="3">Total Course Hours</td> </tr> <tr> <td style="width:30%;"></td> <td style="width:30%;">Total Lec hours:</td> <td style="width:40%; text-align: center;">3.00</td> </tr> <tr> <td></td> <td>Total Lab hours:</td> <td style="text-align: center;">3.00</td> </tr> <tr> <td></td> <td>Total Contact hours:</td> <td style="text-align: center;">108.00</td> </tr> <tr> <td colspan="3">Lec will generate <u>0</u> hour(s) outside work.</td> </tr> <tr> <td colspan="3">Lab will generate <u>0</u> hour(s) outside work.</td> </tr> <tr> <td>(5) Grading Basis:</td> <td>Grading Scale Only</td> <td style="text-align: center;">X</td> </tr> <tr> <td></td> <td>Pass/No Pass option</td> <td></td> </tr> <tr> <td></td> <td>Pass/No Pass only</td> <td></td> </tr> <tr> <td colspan="3">(6) Advisories:</td> </tr> <tr> <td colspan="3">Eligibility for English 125</td> </tr> <tr> <td colspan="3">Eligibility for English 126</td> </tr> <tr> <td colspan="3">Eligibility for Math 101</td> </tr> <tr> <td colspan="3">(7) Pre-requisites(requires C grade or better):</td> </tr> <tr> <td colspan="3">BIOL 1 , or</td> </tr> <tr> <td colspan="3">BIOL 5 , or</td> </tr> <tr> <td colspan="3">BIOL 11A</td> </tr> <tr> <td colspan="3">Corequisites:</td> </tr> </table>	(4) Lecture / Lab Hours:			Total Course Hours				Total Lec hours:	3.00		Total Lab hours:	3.00		Total Contact hours:	108.00	Lec will generate <u>0</u> hour(s) outside work.			Lab will generate <u>0</u> hour(s) outside work.			(5) Grading Basis:	Grading Scale Only	X		Pass/No Pass option			Pass/No Pass only		(6) Advisories:			Eligibility for English 125			Eligibility for English 126			Eligibility for Math 101			(7) Pre-requisites(requires C grade or better):			BIOL 1 , or			BIOL 5 , or			BIOL 11A			Corequisites:			<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td colspan="3">(8)Classification:</td> </tr> <tr> <td style="width:33%;"></td> <td style="width:33%;">Degree applicable:</td> <td style="width:33%; text-align: center;">X</td> </tr> <tr> <td></td> <td>Non-degree applicable:</td> <td></td> </tr> <tr> <td></td> <td>Basic skills:</td> <td></td> </tr> <tr> <td>(9)RC</td> <td>Fulfills AS/AA degree requirement: (area)</td> <td></td> </tr> <tr> <td></td> <td>General education category:</td> <td></td> </tr> <tr> <td></td> <td>Area A Natural Sciences</td> <td></td> </tr> <tr> <td></td> <td>Major:</td> <td style="text-align: center;">BIOLOGICAL SCIENCE</td> </tr> <tr> <td></td> <td>Certificate of:</td> <td></td> </tr> <tr> <td></td> <td>Certificate in:</td> <td></td> </tr> <tr> <td>(10)CSU</td> <td>Baccalaureate:</td> <td style="text-align: center;">X</td> </tr> <tr> <td>(11)Repeatable: (A course may be repeated three times)</td> <td></td> <td style="text-align: center;">0</td> </tr> </table>	(8)Classification:				Degree applicable:	X		Non-degree applicable:			Basic skills:		(9)RC	Fulfills AS/AA degree requirement: (area)			General education category:			Area A Natural Sciences			Major:	BIOLOGICAL SCIENCE		Certificate of:			Certificate in:		(10)CSU	Baccalaureate:	X	(11)Repeatable: (A course may be repeated three times)		0
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(12) Catalog Description:
 This is a course providing a basic understanding and working knowledge of the human body with emphasis on the structure of each major system. The interrelationship between human systems and the relationships between the structure and functions of each system will be studied at several levels: cellular, tissue, organ, system, and organismal.

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:

- I. Identify the major body systems macroscopically.
- II. Identify the major body tissue and cell types microscopically.
- III. Use a microscope to identify tissues and cells.
- IV. Describe the functions of the body systems.
- V. Describe functions of the cells and tissues.

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:

- I. Identify the basic structure and function of each human system at the macroscopic and microscopic levels.
- II. Develop important critical thinking skills as they evaluate lecture topics and the results of laboratory demonstrations and experiments.
- III. Learn how to use scientific methods.
- IV. Develop important manual dexterity skills associated with dissections, free-hand drawings, completion of anatomical color plates, and the operation of microscopes, computers, and other laboratory equipment.

IV. COURSE OUTLINE:

Lecture Content:

A. Section I: Lecture and Lab Exam 1 at the end of the 5 week section:

1. Introduction: Anatomical Terminology, Homeostasis, Feedback, and Biochemistry
 - a. The Cell: Cytosol, Intracellular Organelles, DNA
 - b. Mitosis and Meiosis
 - c. The Microscope: Light, SEM and TEM
 - d. Four types of human tissues: Histology – Epithelial, Connective, Muscle, & Nervous
 - e. Gastrointestinal Tract:
 - 1) Structure and Function
 - 2) GI Tract Lining
2. The Urinary System:
 - a. All Components: Kidneys, Ureters, Bladder, and Urethra
 - b. Microscopic and macroscopic study of the urinary system
 - c. Disorders

B. Section II: Lecture and Lab Exam 2 at the end of the 5 week section (or 11th week):

1. Body Systems
 - a. Muscular System:
 - 1) Identification of muscles: origin, insertion, and major action
 - 2) Muscle Histology
 - b. Muscular Contraction: Neuro muscular junction
 - 1) Structure
 - 2) Chemistry of membranes
2. Bones: Axial and Appendicular Systems
3. Articulations
 - a. Classification
 - b. Examples: knee, shoulder, and elbow
4. Endocrine System
 - a. Glands and Location
 - b. Hormones and Control
5. Reproductive Systems: Human male and female
 - a. Male and Female Reproductive Structures
 - b. Spermatogenesis and Oogenesis
 - c. Pregnant vs Non-pregnant Condition
 - 1) Embryology
 - 2) Disorders

C. Section III: Lecture and Lab Exam 3 at the end last 5 week section (or the 17th week)

1. Body Systems II
 - a. Nervous System
 - 1) Histology
 - 2) The Brain and Cranial Nerves
 - 3) The Spinal Cord and Spinal Nerves
 - 4) Disorders
 2. Cardiovascular System
 - a. The Blood (functions, components, disorders)
 - b. The heart (anatomy and disorders)
 - c. Vessels: arteries, capillaries, and veins
 - d. Circulatory Routes: systemic, pulmonary, cardiac, hepatic portal, & fetal
 3. Special Senses
 - a. Hearing and Balance
 - b. Smelling
 - c. Taste
 - 1) Touch
 - 2) Eyesight
 4. Respiratory System
 - a. Anatomy and Functions
 - b. Disorders
 5. Lymphatic System
 - a. Anatomy and Functions
 - b. Disorders

Lab Content:

Lab content :

Week 1: anatomical terminology, quadrants, regions

Week 2: the cell, mitosis and meiosis

Week 3: Histology and the integument

Week 4: Digestive System

Week 5: Urinary System

Week 6: Laboratory Exam

Week 7: Skeletal System

- Week 8: Muscular System
- Week 9: Articulations
- Week 10: Endocrine System
- Week 11: Reproductive System
- Week 12 : Laboratory Exam
- Week 13: Nervous System
- Week 14: Cardiovascular System
- Week 15: Special Senses
- Week 16: Respiratory and Lymphatic Systems'
- Week 17: Laboratory Exam

V. APPROPRIATE READINGS

Reading assignments may include but are not limited to the following:

I. Sample Text Title:

1. Recommended - Martini and Timmons *Human Anatomy*, ed. 6th Pearson/ Benjamin Cummings, 2009,

II. Other Readings

- Global or international materials or concepts are appropriately included in this course
- 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.

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)	X	e) reading reports
X	c) laboratory report(s)	X	f) other (specify)

Required assignments may include but are not limited to the following:

1. journal reading assignments.
2. lab reports.
3. essay questions involving critical thinking.
4. written homework including the muscle list.
5. online exercises.

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

Required assignments may include but are not limited to the following:

1. metric system conversion from the English system.
2. quizzes on microscopic and macroscopic anatomy.
3. exams will be multiple choice, matching, and essay questions.
4. lab reports on each human body system.

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

Required assignments may include but are not limited to the following:

1. Correctly use a Bright field Compound Microscope
2. Know the procedure to test a hypothesis

D. Objective examinations including:			
X	a) multiple choice	X	d) completion
X	b) true/false		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.

- 30% Lecture Exams
- 30% Laboratory Exams
- 20% Quizzes
- 20% Laboratory Reports

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.

Validation Language Level (check where applicable):	College-Level Criteria Met	
	YES	NO
Textbook	<u> X </u>	_____
Reference materials	<u> X </u>	_____
Instructor-prepared materials	<u> X </u>	_____
Audio-visual materials	<u> X </u>	_____

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

<i>Computation Level</i> (Eligible for MATH 101 level or higher where applicable)	<u> X </u>	_____
Content		
Breadth of ideas covered clearly meets college-level learning objectives of this course	<u> X </u>	_____
Presentation of content and/or exercises/projects:		
Requires a variety of problem-solving strategies including inductive and deductive reasoning.	<u> X </u>	_____
Requires independent thought and study	<u> X </u>	_____
Applies transferring knowledge and skills appropriately and efficiently to new situations or problems.	<u> X </u>	_____
List of Reading/Educational Materials		
Recommended - Martini and Timmons <i>Human Anatomy</i> , ed. 6th Pearson/ Benjamin Cummings, 2009,		

Comments:

-
- _____ This course requires special or additional library materials (list attached).
 - _____ This course requires special facilities:
 - X Human Anatomy requires the use of microscopes, dissection tools, and areas for working with body parts (i.e. cow eyes, hearts, and brains). This course requires biohazard disposal.

Attached Files:
[BIOL 20 FORMS ABC](#)

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.

<p>(eligibility for Math 101) (as outcomes for Math 250)</p> <p><input checked="" type="checkbox"/> Performing the four arithmetic operations on whole numbers, arithmetic fractions, and decimal fractions.</p> <p><input checked="" type="checkbox"/> Making the conversions from arithmetic fractions to decimal fractions, from decimal fractions to percents, and then reversing the process.</p> <p><input checked="" type="checkbox"/> Applying the concepts listed above to proportions, percents, simple interest, markup and discount.</p> <p><input checked="" type="checkbox"/> Applying the operations of integers in solving simple equations.</p> <p><input checked="" type="checkbox"/> Converting between the metric and English measurement systems</p>	<ol style="list-style-type: none"> 1. use ratios and exponents 2. convert numbers to percent 3. know the conversion of the English to the Metric systems for weight, volume, temperature, and mass
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<p>(eligibility for English 126) (as outcomes for English 262)</p> <p><input checked="" type="checkbox"/> Using phonetic, structural, contextual, and dictionary skills to attack and understand words.</p> <p><input checked="" type="checkbox"/> Applying word analysis skills to reading in context.</p> <p><input checked="" type="checkbox"/> Using adequate basic functional vocabulary skills.</p> <p><input checked="" type="checkbox"/> Using textbook study skills and outlining skills.</p> <p><input checked="" type="checkbox"/> Using a full range of literal comprehension skills and basic analytical skills such as predicting, inferring, concluding, and evaluating.</p>	<ol style="list-style-type: none"> 1. use a college level textbook 2. ability to learn biological terminology 3. ability to outline lecture, read, evaluate, and understand case studies
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<p>(eligibility for English 125) (as outcomes for English 252)</p> <p><input checked="" type="checkbox"/> Writing complete English sentences and avoiding errors most of the time.</p> <p><input checked="" type="checkbox"/> Using the conventions of English writing: capitalization, punctuation, spelling, etc.</p> <p><input checked="" type="checkbox"/> Using verbs correctly in present, past, future, and present perfect tenses, and using the correct forms of common irregular verbs.</p> <p><input checked="" type="checkbox"/> Expanding and developing basic sentence structure with appropriate modification.</p> <p><input checked="" type="checkbox"/> Combining sentences using coordination, subordination, and phrases.</p> <p><input checked="" type="checkbox"/> Expressing the writer's ideas in short personal papers utilizing the writing process in their development.</p>	<ol style="list-style-type: none"> 1. ability to write lab reports 2. ability to answer short essay questions 3. ability to use correct anatomical terminology in answering questions
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Check the appropriate spaces.

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
BIOL 1 PRINCIPLES OF BIOLOGY
BIOL 11A BIOLOGY FOR SCIENCE MAJORS I
BIOL 5 HUMAN BIOLOGY

REQUISITES	
Subject Prerequisite -- BIOL 1 PRINCIPLES OF BIOLOGY	
<ul style="list-style-type: none"> • understand scientific method and be able to apply the process to any situation that needs evaluation and recommendations. For example: the pre-nursing students are learning how to approach each patient and the evaluative process. • evaluate comparative anatomy and physiology in living organisms. This applies to the normal vs. abnormal anatomy and physiology as well as comparing totally different organisms. • use inductive and deductive reasoning in any environmental or ecological issue. 	<ul style="list-style-type: none"> • Identify the basic structure and function of each human system at the macroscopic and microscopic levels. • Develop important critical thinking skills as they evaluate lecture topics and the results of laboratory demonstrations and experiments. • Learn how to use scientific methods. • Develop important manual dexterity skills associated with dissections, free-hand drawings, completion of anatomical color plates, and the operation of microscopes, computers, and other laboratory equipment.
Subject Prerequisite -- BIOL 5 HUMAN BIOLOGY	
<ul style="list-style-type: none"> • understand the structure and function of the following systems: circulation, digestive, respiratory, urinary, skeletal, muscular, nervous, sensory, endocrine, reproduction, and genetics and evolution • apply the principles of genetics to humans and understand the outcome of normal and abnormal DNA • understand the process of science and society, microscopy, and the cell • identify human body levels of organization and homeostatic mechanisms • understand the chemical basis of life 	<ul style="list-style-type: none"> • Identify the basic structure and function of each human system at the macroscopic and microscopic levels. • Develop important critical thinking skills as they evaluate lecture topics and the results of laboratory demonstrations and experiments. • Learn how to use scientific methods. • Develop important manual dexterity skills associated with dissections, free-hand drawings, completion of anatomical color plates, and the operation of microscopes, computers, and other laboratory equipment.
Subject Prerequisite -- BIOL 11A BIOLOGY FOR SCIENCE MAJORS I	
<ul style="list-style-type: none"> • apply the scientific method to design an experiment to test a hypothesis using appropriate controls based on current theories in biology. • describe the cell's structural components and their function. • apply Darwin's theory of natural selection to genetic variation and its effects on environmental adaptation. 	<ul style="list-style-type: none"> • Develop important critical thinking skills as they evaluate lecture topics and the results of laboratory demonstrations and experiments.

ESTABLISHING PREREQUISITES OR COREQUISITES

Every prerequisite or corequisite requires content review plus justification of at least one of the seven kinds below. Prerequisite courses in communication and math outside of their disciplines require justification through statistical evidence. Kinds of justification that may establish a prerequisite are listed below.

Check one of the following that apply. Documentation may be attached.

1. ___ The prerequisite/corequisite is required by law or government regulations.
Explain or cite regulation numbers:
2. ___ The health or safety of the students in this course requires the prerequisite.
Justification: Indicate how this is so.
3. X The safety or equipment operation skills learned in the prerequisite course are required for the successful or safe completion of this course.
Justification: Indicate how this is so.
Microscopy is essential for microscopic human anatomy. Students must learn the use and safety of dissection tools.
4. ___ The prerequisite is required in order for the course to be accepted for transfer to the UC or CSU systems.
Justification: Indicate how this is so.
5. ___ Significant statistical evidence indicates that the absence of the prerequisite course is related to unsatisfactory performance in the target course.
Justification: Cite the statistical evidence from the research.
6. X The prerequisite course is part of a sequence of courses within or across a discipline.
Biol 1 or 5 then Biol 20 Biol 11A then 11B then Biol 20
7. X Three CSU/UC campuses require an equivalent prerequisite or corequisite for a course equivalent to the target course:
CSU, Hayward San Diego St. CSU, Sonoma CSU, Sacramento