

West Hills Community College

Course Revision Packet

Course Name/Title: **BIO35 - HUMAN PHYSIOLOGY**

Originator: **Bret Niedens**

Date: **14 January 2003**

Checklist:

- Course Articulation: A Checklist**
- Course Revision Proposal Form**
- Course Outline**
- Learning Resources Collection Survey Form**
- Adopted Textbook Form**
- Distance Education Addendum**
- Prerequisite forms (see Section 5 in handbook)**

Signatures:

_____ Date _____
Curriculum Department Representative approval

_____ Date _____
Curriculum Committee approval

_____ Date _____
Vice President of Educational Services/Assistant Superintendent

Date of Board approval

Course Articulation: A Checklist

West Hills Community College

BIO 35, Human Physiology

Bret Niedens

Course

Instructor

Faculty should include each of the following steps in order to guarantee correct articulation of a course revision.

This completed checklist must be attached to each course proposal submitted to the Curriculum Committee.

1. Faculty member who initiates a course revision must discuss it with appropriate colleagues, Instructional Administrator and Department Curriculum Committee representative.

Signature, Instructional Administrator

Date

2. Consult with Articulation Officer.

Signature, Articulation Officer

Date

3. For vocational courses, consult with the Associate Dean of Vocational Education.

Signature, Associate Dean of Vocational Education

Date

4. Consult with any other department on campus with similar or overlapping course content.

Signature, Department Curriculum Representative
(Originating Department)

Date

Agreement: Yes No

Comments: _____

Signature, Department Curriculum Representative
(Consulting Department)

Date

Course Revision Form

WEST HILLS COMMUNITY COLLEGE DISTRICT
COURSE REVISION

Initiated by: Bret Niedens Date: 14 January 2003

Department: Science/Math/Engineering

Course Name and #: BIO 35 Title: Physiology

Change(s):

- Number
- Title
- Prerequisite (See Section 5 for Prerequisite forms)
- Units
- Catalog Description Update
- Grading Option
- Prefix
- Deletion
- Textbook change
- Five Year Review
- Other

Significant Change - *Does this change affect the course content to the degree a student could retake the course?*
yes or no

From:

Strongly Recommended Preparation: A college biology course.

To: (Write new information here for any changes checked above.)

Strongly Recommended Preparation: A college biology course and introductory college freshman chemistry

Justification: (Reason(s) for the above changes.)

Physiology is a course that investigates the characteristics of the human body at the functional level, and chemistry is an integral part of this investigation.

CSUF, COS and other institutions have a chemistry advisory or prerequisite for their physiology courses. This will not place an extra burden on our students.

The math prerequisites for chemistry will not place an extra burden on students since those math courses are already required in those programs that include physiology.

Course Outline with Guidelines

Date: 14 January 2003

Department: Science/Math/Engineering

Course Name & Number: BIO 35

Course Title: HUMAN PHYSIOLOGY

Units: 4

Grading option (select one): Standard Grading Only Credit/No Credit Only
 Standard Grading/Credit/No Credit

Materials Fee: \$ _____

Full Semester Lec Hours: 3 Short Term Lec Hours: 6 / 9 wks.

Full Semester Lab Hours: 3 Short Term Lab Hours: 6 / 9 wks.

How many times may this course be taken for credit? 2

1. PREREQUISITE(S): None

and/or

ADVISORY(S): Strongly Recommended Preparation: A college biology course and introductory college freshman chemistry.

2. CATALOG DESCRIPTION:

Biology 35 is an introductory study in the functioning of human systems, with an emphasis on maintaining homeostasis. This course is recommended for health related programs, physical education, and biology majors.

3. INSTRUCTIONAL OBJECTIVES (Use measurable objectives only):

Upon completion of the course the student will be able to:

- A. describe fundamental concepts and principles of cell biology.
- B. list the systems of the human body and describe how they function.
- C. differentiate how the various parts of the body interact for the purpose of coordinating the whole body and maintaining homeostasis.
- D. record and analyze chemical and physical data.

4. COURSE CONTENT AND SCOPE (Instructional topics or units):

This is based on the suggestions of the Core Curriculum Committee of the Human Anatomy and Physiology Society.

Lecture:

- A. Homeostasis
 1. Negative Feedback
 2. Positive Feedback
 3. Homeostatic mechanisms
 4. Control Systems
- B. Chemistry and Cell Biology Review
 1. Atoms and molecules
 2. Chemical bonding

3. Inorganic compounds/solutions (including the concept of pH)
 4. Energy Transfer using ATP
 5. Intracellular organization of nucleus and cytoplasm
 6. Membrane structure
 7. Mechanisms for movement of materials across cellular membranes
 8. Organelles
 9. Protein synthesis
 10. Cellular respiration (introduction)
 11. Somatic cell division (mitosis and cytokinesis)
- C. Integumentary System
1. General functions of skin
 2. Roles of the specific tissue layers of skin
 3. Roles of the accessory structures
- D. Skeletal System
1. General functions of bone and the skeletal system
 2. Physiology of bone formation, growth, remodeling and repair
- E. Muscular System
1. General functions of muscle tissue
 2. Compare characteristics of skeletal, smooth and cardiac muscle tissue
 3. Physiology of skeletal muscle contraction
 4. Skeletal muscle metabolism
 5. Principles and types of whole muscle contraction
- F. Special Senses
1. Roles of specific tissues of the eye in vision
 2. Roles of specific tissues of the ear in hearing and equilibrium
 3. Olfactory receptors and their role in smell
 4. Gustatory receptors and their role in taste
- G. Nervous System
1. General functions of the nervous system
 2. Microscopic anatomy of nerve tissue
 3. Neurophysiology, including mechanism of resting membrane potential, production of action potentials, and impulse transmission
 4. Neurotransmitters and their roles in synaptic transmission
 5. Sensory receptors and their roles
 6. Division, and function of component parts of the brain
 7. Reflexes and their roles in nervous system function
 8. Physiology of sensory and motor pathways in the brain and spinal cord
 9. Functions of the autonomic nervous system
 10. Comparison of somatic and autonomic nervous systems
- H. Endocrine System
1. General functions of the endocrine system
 2. Definition and classification of hormones
 3. Control of hormone secretion
 4. Mechanisms of hormone actions at effectors
 5. Roles of the hypothalamus and pituitary gland
 6. Identity, secretory control, and functional roles of the major hormones of the pituitary, adrenal, thyroid, parathyroid, pancreas, gonads, and pineal glands, including the effects of hypo- and hypersecretion
 7. Functions of hormones secreted by other endocrine tissues and cells
 8. Hormonal response to stress
- I. Cardiovascular System
1. General functions of the cardiovascular system

2. Formation and composition of blood plasma
 3. Formation and functional roles of the formed elements of the blood
 4. Hemostasis, including coagulation of blood
 5. ABO and Rh blood grouping
 6. Conduction system of the heart
 7. Physiology of cardiac muscle contraction
 8. Cardiac cycle, including basic rhythm of heartbeat, pressure and volume changes, heart sounds, and electrocardiogram
 9. Regulation of stroke volume
 10. Blood pressure and its functional interrelationships with cardiac output, peripheral resistance and hemodynamics
- J. Lymphatic System
1. General functions of the lymphatic system
 2. Lymph formation and flow mechanisms
 3. Non-specific resistance to disease and the inflammation response
 4. Antibody-mediated (humoral) immune response
 5. Cell-mediated immune response
 6. Roles of B cells and T cells in immune response
- K. Respiratory System
1. General functions of the respiratory systems
 2. Mechanism of pulmonary ventilation
 3. Pulmonary air volumes and capacities
 4. Mechanism of gas exchange in lungs and tissues
 5. Mechanisms of gas transport in the blood
 6. Control of pulmonary ventilation
- L. Digestive System and Metabolism
1. General functions of the digestive system
 2. Mechanical and chemical processes of digestion and absorption
 3. Processes of excretion and elimination
 4. Hormonal and neural regulation of digestive processes
 5. Homeostatic integration with other systems
 6. Nutrition and metabolism
 7. Cellular respiration
 8. Catabolism and anabolism of carbohydrates, lipids and proteins
 9. Metabolic roles of specific tissues and organs, including the liver, adipose tissue and skeletal muscle
 10. Hormonal and neural regulation of metabolism
 11. Energy balance, metabolic rate and thermoregulation
- K. Urinary System
1. General functions of the urinary system
 2. Functional processes of urine formation, including filtration, reabsorption, secretion, and excretion
 3. Factors regulating and altering urine volume and composition, including the renin-angiotensin system and the roles of aldosterone and antidiuretic hormone
 4. Innervation and control of the urinary bladder
- M. Fluid/Electrolyte and Acid/Base Balance
1. Regulation of water intake and output
 2. Description of the major fluid compartments, including intracellular, extracellular, intravascular, and interstitial
 3. Volume and chemical composition of major compartment fluids
 4. Movements between the major fluid compartments, causal forces, volumes, and electrolyte balance

5. Buffer systems and their roles in acid/base balance
 6. Role of the respiratory system in acid/base balance
 7. Role of the urinary system in acid/base balance
- N. Reproductive Systems
1. General functions of the reproductive systems
 2. Reproductive cell division
 3. Regulation of reproductive functions, including puberty, the female reproductive cycle, spermatogenesis, and the climacteric
 4. Sex Determination and introductory human genetics

Laboratory (List of possible labs at the discretion of the instructor):

Laboratory Safety, Microscope Use, Histology, Cellular Transport Mechanisms and Permeability, Skeletal Muscle Physiology, Human Reflex Physiology, General Sensation, Neurophysiology of Nerve Impulses, Vision, Hearing, Balance, Endocrine System Physiology, Principles of Heredity, Cardiovascular Dynamics and Physiology, Respiratory System Mechanics, Chemical and Physical Processes of Digestion, Renal Physiology, Acid/Base Balance, Blood Physiology.

5. INSTRUCTIONAL METHODOLOGIES (instructor initiated learning strategies):
 - A. lecture
 - B. computer simulation
 - C. facilitate and monitor group work
 - D. facilitate and monitor individual work
6. MULTIPLE METHODS OF EVALUATION (measurements of student achievement):
 - A. quiz
 - B. exam
 - C. laboratory practicum
 - D. Written report
7. WRITING ASSIGNMENTS/PROFICIENCY DEMONSTRATION:
 - A. quizzes or exams may include essay format questions
 - B. written reports
8. ASSIGNMENTS THAT DEMONSTRATE CRITICAL THINKING
 (Use detail when describing student assignments and state in cognitive terms):
 Questions will be used that require students to describe sequential physiological processes, and the effects that changes in the environment may have on a physiological process so that homeostasis is maintained. Students will interpret results of experiments to determine cause and effect relationships.
9. ASSIGNMENTS, METHODOLOGIES, OR OTHER EXAMPLES OF HOW CULTURAL PLURALISM IS ADDRESSED:
 A variety of diseases have higher incidence in particular racial groups (e.g. Sickle Cell Anemia, Tay-Sachs Disease) or genders (e.g. Yeast Infections, Prostate Cancer); the biological importance is discussed.
10. REQUIRED EXTRA CLASS ASSIGNMENTS:
 NONE

Learning Resources Statement and Collection Survey

- Catalog Change
 Five Year Review

Course Title and Number or Discipline: Human Physiology, BIO 35

Department : Science/Math/Engineering Ext. 3611

The holdings of the LRC collection in the subject area(s) related to the proposed new/revised course/discipline have been reviewed.

- The LRC has sufficient resources presently available for support of this course/discipline.
- The LRC resources are not presently adequate to support this course/discipline. Additional needed items have been identified and should be purchased.

Comments: _____

Faculty Signature _____ Date _____

Learning Resources Statement and Collection Survey

It is the policy of the West Hills Community College District to ensure that every course offered in the college curriculum is supported with a basic collection of materials and to ensure that the Coalinga and Lemoore campus libraries are used by faculty and students in the teaching and learning process. Library research assignments are effective means to teach critical thinking. An essential outcome of each course in the curriculum, and fundamental to critical thinking and self-directed learning, is the skill to find information and conduct library research.

When a new course or program is being developed, the faculty responsible should work with library faculty to review collection adequacy and recency and to recommend purchase of materials which will support the course(s). Accordingly, for every new/revised course or program proposed, a library collection survey must be completed and signed by the course originator and the college librarian. Also, to maintain currency, a survey must be completed for each discipline as part of the five year curriculum review. This above summary will be attached to and filed with the course syllabus.

The purpose of the resources survey is:

- 1) To allow the course originator to become familiar with the library holdings in the subject area.
- 2) To inform the library staff of new additions to the curriculum so that supporting materials can be acquired before offering the course.
- 3) To guide the district to build an effective library budget.
- 4) To enable the instructor to integrate library assignments into new courses offered.

While survey completion is required, there are no standards for course or program support that the LRC must meet before a new course is approved or a five year program review is completed.

WEST HILLS COMMUNITY COLLEGE
ADOPTED TEXTBOOK FORM

Course Name, # & Title: BIO 35, Human Physiology

1. Recommended textbook(s):

A. Title: Anatomy and Physiology
Edition: 1 ISBN #: 0805364692
Author(s): Marieb, Elaine
Publisher: Bejamin Cummings
Required Optional
Readability level: 12 (Attach readability materials to original.)

B. Title: Human Anatomy and Physiology Laboratory Manual, Cat Version
Edition: 7 ISBN #: 0805349855
Author(s): Marieb, Elaine
Publisher: Benjamin Cummings
Required Optional
Readability level: 12 (Attach readability materials to original.)

2. Supplemental text(s):

A. Title: _____
Edition: _____ ISBN #: _____
Author(s): _____
Publisher: _____
Required Optional
Readability level: _____ (Attach readability materials to original.)

B. Title: _____
Edition: _____ ISBN #: _____
Author(s): _____
Publisher: _____
Required Optional
Readability level: _____ (Attach readability materials to original.)

Adopted by: **(All appropriate faculty)**

Signed: _____ Date: _____
Signed: _____ Date: _____
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Signed: _____ Date: _____

Distribution: Signed original to Instruction Office to be filed with official Course Outline. One copy must accompany ANY textbook change form to the Bookstore.
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