COLLEGE/SCHOOL/SECTION: Department of Biology and Chemistry
College of Arts and Sciences

Course:  Add: X Delete: ___
(check all that apply) Change: Number BIOL 3405 Title Human Physiology SCH 4
Description Attached Prerequisite BIOL 3403

Response Required: New course will be part of major ___ minor ___ as a required ___
or elective X course

Response Required: New course will introduce X, reinforce___, or apply ___ concepts

If new, provide Course Prefix, Number, Title, Measurable Student Learning Outcomes, SCH Value, Description, prerequisite, and lecture/lab hours if applicable. If in current online catalog, provide change and attach text with changes in red and provide a brief justification.

Attachment.

Program: Delete: ___ Add: ___ Change: ___
Attach new/changed Program of Study description and 4-year plan. If in current online catalog, provide change and attach text with changes in red.

Minor: Add: ___ Delete: ___ Change: ___
Attach new/changed minor. If in current online catalog, provide change and attach text with changes in red.

College Introductory Pages: Add information: ___ Change information: ___
Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Other: Add information: ___ Change information: ___
Attach new/changed information. If in current online catalog, provide change and attach text with changes in red.

Approvals:

Chair
Department Curriculum Committee

Signature
Tom Vaughan

Date

Chair
Department

Signature
Dan Mott

Date

Chair
College Curriculum Committee

Signature
James A Norris

Date

Dean

Signature
Kevin Lindberg

Date
BIOL 3405 Human Physiology

BIOL 3001 Human Physiology Lab

Course description:

BIOL 3405 Human Physiology. Four semester hours
A study of the function of the human body including cell function, tissue functions, homeostasis, metabolism, nervous system, endocrine system, muscle function, cardiovascular system, breathing and gas exchange, digestive system, urinary system, water and electrolyte balance, acid base balance. Prerequisite: Twelve hours of Biology, BIOL 3403, and junior standing. Lecture/Laboratory. Lab fee: $30.00.

Measurable Student Learning Outcomes:

After completing the course the student will be able to:

1. Describe the relationship between the internal and external environment
2. Define homeostasis
3. Define metabolism
4. Explain the importance of chemical bonds in human physiology
5. Explain the importance of water in human physiology
6. Explain the importance of acids and alkalis in human physiology
7. Explain the importance of buffers in human physiology
8. Explain the importance of osmosis in human physiology
9. Explain the importance of electrolytes in human physiology
10. Describe the biomolecules and their function
11. Explain the importance of enzymatic processes in the human body
12. Explain the aerobic and anaerobic energy pathways
13. Describe the structure of the cell membranes
14. Describe membrane transport including diffusion, facilitated diffusion, active transport, endocytosis, exocytosis, and phagocytosis
15. Explain the resting membrane potential
16. Describe the structure and function of the human cell organelles
17. Describe the structure and function of epithelia
18. Describe the structure and function of the skin
19. Describe the processes of cell to cell communication
20. Define neurotransmitters and hormones
21. Describe endocrine reflex pathways
22. Describe the endocrine glands, hormones, their effects, and interactions
23. Describe neuron electric signals
24. Explain cell to cell communication among neurons
25. Explain the integration of the nervous system
26. Describe the physiology of the sensory systems
27. Describe the physiology of the autonomic nervous system
28. Describe muscle physiology
29. Explain the skeletal muscle reflexes
30. Describe the physiology of the cardiovascular system
31. Describe the physiology of the respiratory system
32. Describe the physiology of the digestive system
33. Describe the physiology of the urinary system
34. Explain electrolyte and water balance
35. Explain acid-base balance

Selected Laboratories

1. Water flow Across membranes
2. Diffusion
3. Buffers and Homeostasis
4. Membrane transport
5. Hematology
6. Electrocardiogram
7. Blood pressure and pulse
8. Skeletal muscle physiology
9. Respiratory system physiology
10. Digestion
11. Urine Screening Tests
12. General senses
13. Human brain and memory
14. Physiology of Reproduction

BIOL 3405 Human Physiology

Justification

Medicine and Physician Assistant academic programs include courses in Human Anatomy and Human Physiology as suggested pre-requisite courses to acquire basic knowledge for admission to their programs. TAMIU offers the course Human Anatomy, adding the course Human Physiology will increase the possibility for TAMIU students to have access to medical academic programs.