Introduction to Human Biology
Human Biology 102
Spring 2019

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Course Overview:

This course provides the student with a broad overview of biology with respect to humans. It is designed to explore human biology as a process, evolution, energy transfer, continuity and change, relationship of structure to function, regulation, interdependence in nature, and the unified understanding of the human biology as it pertains to science, technology, and society. This class is a UWGB College Credit in High School (CCIHS) class.

Length of Course: 18 weeks, Block Schedule (90 class days, 95 minutes per day, 12:05-1:40 pm)

Prerequisite: Biology and Chemistry

Recommended Grade Level: 11 or 12

Course Credit: 3 credits - UWGB

1 credit – Sturgeon Bay High School

Text:

Goodenough, J., & McGuire, B. (2014). *Biology of humans: Concepts, applications, and issues*. San Francisco: Pearson Benjamin Cummings

Course Format:

Lectures, discussions, Greek and Latin root word meanings, histology labs, content specific labs, models/charts/diagrams, and interactive SMART Board activities will all be a regular part of this class. Students are responsible for learning this information along with other topics covered in assigned readings.

Evaluation:

Exams cover information from lecture, labs, demonstrations, and discussions along with information from assigned readings. Exams include fill in the blank, short essay questions, long essay questions, and anatomical diagram labeling. Most units will include vocabulary quizzes and anatomy quizzes. Lab assessments will include written responses to lab questions.

Grading

Students will be graded on a variety of different activities in a total points category. The total points category includes labs, quizzes, and unit tests, and comprises 80% of your final grade.

Total Points

Unit Tests- approximately 60% of total points

Quizzes- approximately 30% of total points

Labs- approximately 10% of total points

Your final exam is worth the remaining 20% of your final grade.

Grading Scale		**UWGB Equivalent Grade**
A	93-100	A
A-	90 – 92	AB
B+	88 – 89	AB
B	83 – 87	B
B-	80 – 82	BC
C+	78 – 79	BC
C	73 – 77	C
C-	70 – 72	CD
D+	68 – 69	CD
D	63 – 67	D
D-	60 – 62	D
F	<60	F

Human Biology Programmatic Outcomes

1. Demonstrate a basic knowledge of molecular / biochemical processes.
2. Demonstrate a basic knowledge of cell structure, organelles and cellular processes.
3. Demonstrate a basic knowledge of the anatomy and physiology of human organs and organ systems.
4. Demonstrate an understanding of the impact of evolutionary forces on the human organism.
5. Demonstrate an understanding of the ecological context of humans.
6. Demonstrate an understanding of the impact of nutrients on human physiology.
7. Demonstrate an understanding of the interactions of exercise and human physiology.
8. Demonstrate an understanding of scientific processes, including inductive and deductive reasoning, formulation of hypotheses and experimental design.
9. Demonstrate an understanding of research methodologies and the relative value of information obtained from experiments involving observation, correlation and examination of cause/effect relationships.
10. Know and execute state-of-the-art laboratory techniques.
11. Analyze and interpret scientific information.
12. Demonstrate an appreciation for the ethical and social dimensions of science, as well as weaknesses/limitations and assumptions of science as practiced in the US.
13. Demonstrate the awareness, understanding and skills necessary to work in a diverse world.

Course Schedule

Week	Topics	Text Reading
1	Biology Review/Integumentary System Chemistry, biochemistry, cells, anatomical terms, integumentary system functions, epidermis Lab: Histology-stratified epithelium	pgs. 20-63
2	Integumentary System Skin color, skin cancer, epidermis, dermis, hypodermis, accessory organs of the skin Lab: Histology-epidermis cross section areolar tissue adipose tissue	pgs. 64-84
3	Skeletal System Bone identification, skeletal system functions, bone macrostructure, bone microstructure, bone growth, bone repair Lab: Histology-bone tissue cross section	pgs. 85-99
4	Skeletal System Bone identification, joints, cartilage, skeletal diseases and disorders Lab: Histology-cartilage tissue Virtual knee and hip replacement surgery	pgs. 85-99
5	Muscular System Muscle identification, muscular system functions, muscle macrostructure and function, tendons, muscle microstructure, types of muscle cells, muscle contraction Lab: Histology-tendon cross section skeletal muscle	pgs.100-112

6	Muscular System Muscle identification, muscle contraction, energy for muscle contraction, oxygen debt, muscular exhaustion Lab: Histology-cardiac muscle smooth muscle Muscular exhaustion lab	pgs.100-112
7	Digestive System Digestive system identification, digestive system functions, digestive system organ groups, digestive system microanatomy Lab: Histology-intestine cross section-low power	pgs.286-298
8	Digestive System Digestive system identification, organs of the digestive tract, digestive system accessory organs, diabetes	pgs.286-313 190-197
9	Digestive System/Term 1 Finals Digestive system identification, organs of the digestive tract,term 1 histology exam, term 1 root word exam, term 1 final exam Lab: Histology-intestine cross section-high power	pgs. 286-313
10	Respiratory System Respiratory system functions, respiratory system macroanatomy, respiratory system microanatomy, mechanics of breathing Lab: Histology-lung tissue Spirometer Lab	pgs.268-285
11	Respiratory System Mechanics of breathing, smoking and lung disease, chemistry of gas exchange, control of breathing	pgs.268-285
12	Blood Blood functions and characteristics, blood plasma, red blood cells, white blood cells, platelets Lab: Histology-human blood smear	pgs.198-212

13	<u>Blood/Circulatory System</u> Hemostasis, hemophilia, blood groups, blood typing, circulatory system functions, heart anatomy, artery identification Lab: Blood typing and virtual blood transfusion	pgs.198-212 213-238
14	<u>Circulatory System</u> Circulatory system identification, heart valves, arteries, capillaries, veins, cardiac contraction, blood pressure, heart health, bypass surgery, angioplasty Lab: Histology-artery and vein cross section Blood pressure lab	pgs.213-238
15	<u>Circulatory System/Urinary System</u> Heart murmurs, lymphatic system, urinary system macrostructure, kidney macrostructure (internal and external), kidney blood supply, kidney microstructure	pgs.312-329
16	<u>Urinary System</u> Kideny functions, urinary tract, hemodialysis, renal failure, kidney stones Lab: Histology-kidney cross section Fetal pig dissection-3 days	pgs.322-341
17	<u>Nervous System</u> Nervous system functions, nervous system macroanatomy, nervous system microanatomy, neuron structure, resting membrane potential, action potential, synapse, spinal cord Lab: Histology-nerve cross section nerve smear Nervous system lab	pgs.113-141
18	<u>Nervous System</u> Spinal cord, brain, Alzheimer's disease, term 2 histology exam, term 2 root word exam, term 2 final exam Lab: Sheep brain dissection	pgs.113-141