Introduction to Human Biology
Human Biology 102
2014 - 2015

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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.

Length of Course: 18 weeks, Block Schedule (90 class days, 90 minutes per day)

Prerequisite: Biology and Chemistry

Recommended Grade Level: 11 or 12

Course Credit: 3 credits - UWGB

1 credit – Sturgeon Bay High School

Text:
Text purchase is the responsibility of the student. Students must have the text book the first day of class.


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.

<table>
<thead>
<tr>
<th>Grading Scale</th>
<th>UWGB Equivalent Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>93-100</td>
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<tr>
<td>A-</td>
<td>90 - 92</td>
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<tr>
<td>B+</td>
<td>88 - 89</td>
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<tr>
<td>B</td>
<td>83 - 87</td>
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<tr>
<td>B-</td>
<td>80 - 82</td>
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<tr>
<td>C+</td>
<td>78 - 79</td>
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<td>C</td>
<td>73 - 77</td>
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<td>C-</td>
<td>70 - 72</td>
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<td>D+</td>
<td>68 - 69</td>
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<td>D</td>
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<td>D-</td>
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<td>&lt;60</td>
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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.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics</th>
<th>Text Reading</th>
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<tbody>
<tr>
<td>1-2</td>
<td>Biology Review/Integumentary System</td>
<td>pgs. 14-33</td>
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<tr>
<td></td>
<td>Chemistry, biochemistry, cells, anatomical terms, integumentary system functions, epidermis</td>
<td>45-57</td>
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<tr>
<td></td>
<td>Lab: Histology-stratified epithelium</td>
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<tr>
<td>3-4</td>
<td>Integumentary System</td>
<td>pgs. 68-82</td>
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<td>Skin color, skin cancer, epidermis, dermis, hypodermis, accessory organs of the skin</td>
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<td>Lab: Histology-epidermis cross section</td>
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<td></td>
<td>areolar tissue</td>
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<tr>
<td></td>
<td>adipose tissue</td>
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<tr>
<td>5-6</td>
<td>Skeletal System</td>
<td>pgs. 88-100</td>
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<tr>
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<td>Bone identification, skeletal system functions, bone macrostructure, bone microstructure, bone growth, bone repair</td>
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<td>Lab: Histology-bone tissue cross section</td>
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<tr>
<td>7-8</td>
<td>Skeletal System</td>
<td>pgs. 88-100</td>
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<td>Bone identification, joints, cartilage, skeletal diseases and disorders</td>
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<td>Lab: Histology-cartilage tissue</td>
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<td>Virtual knee and hip replacement surgery</td>
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<td>9-10</td>
<td>Muscular System</td>
<td>pgs.103-113</td>
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<tr>
<td></td>
<td>Muscle identification, muscular system functions, muscle macrostructure and function, tendons, muscle microstructure, types of muscle cells, muscle contraction</td>
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<td>Lab: Histology-tendon cross section</td>
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<tr>
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<td>skeletal muscle</td>
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11-12 **Muscular System**
Muscle identification, muscle contraction, energy for muscle contraction, oxygen debt, muscular exhaustion
Lab: Histology-cardiac muscle
smooth muscle
Muscular exhaustion lab

13-14 **Digestive System**
Digestive system identification, digestive system functions, digestive system organ groups, digestive system microanatomy
Lab: Histology-intestine cross section-low power

15-16 **Digestive System**
Digestive system identification, organs of the digestive tract, digestive system accessory organs, diabetes

17-18 **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

19-20 **Respiratory System**
Respiratory system functions, respiratory system macroanatomy, respiratory system microanatomy, mechanics of breathing
Lab: Histology-lung tissue
Spirometer Lab

21-22 **Respiratory System**
Mechanics of breathing, smoking and lung disease, chemistry of gas exchange, control of breathing

23-24 **Blood**
Blood functions and characteristics, blood plasma, red blood cells, white blood cells, platelets
Lab: Histology-human blood smear
25-26  **Blood/Circulatory System**
Hemostasis, hemophilia, blood groups, blood typing, pgs.199-211
circulatory system functions, heart anatomy, artery identification
Lab: Blood typing and virtual blood transfusion

27-28  **Circulatory System**
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

29-30  **Circulatory System/Urinary System**
Heart murmurs, lymphatic system, urinary system macrostructure, kidney macrostructure (internal and external), kidney blood supply, kidney microstructure

31-32  **Urinary System**
Kidney functions, urinary tract, hemodialysis, renal failure, kidney stones
Lab: Histology-kidney cross section
Fetal pig dissection-3 days

33-34  **Nervous System**
Nervous system functions, nervous system macroanatomy, pgs.116-141
nervous system microanatomy, neuron structure, resting membrane potential, action potential, synapse, spinal cord
Lab: Histology-nerve cross section
nerve smear
Nervous system lab

35-36  **Nervous System**
Spinal cord, brain, Alzheimer’s disease, term 2 histology exam, term 2 root word exam, term 2 final exam
Lab: Sheep brain dissection