Anatomy and Physiology Course Syllabus

Instructor Name:Haily Clark
School Name: Woodson ISD
Grade Level: 12th Grade
Course Duration: Full Year
Prerequisites: Biology, Chemistry (recommended)

Course Overview

This course provides a comprehensive study of the structure and function of the human body. Students will explore the complex systems of the body, from cellular processes to organ systems. Through lectures, hands-on activities, and laboratory work, students will gain a deep understanding of how the body functions in health and disease.

Course Objectives

By the end of this course, students will be able to:

1. Understand the structure and function of major body systems.
2. Apply anatomical terminology to describe body parts and their functions.
3. Investigate the interrelationships between body systems in maintaining homeostasis.
4. Analyze how diseases and disorders affect normal body function.
5. Conduct experiments and dissections to explore human anatomy.
6. Develop critical thinking skills by solving problems related to human physiology.

Course Units

Unit 1: Introduction to Anatomy and Physiology

- **Topics Covered**:

    - Overview of Anatomy vs. Physiology
    - Anatomical Terminology (Planes, Directions, Cavities)
    - The Scientific Method in A&P
    - Levels of Organization in the Body (Cells, Tissues, Organs, Organ Systems)
- **TEKS**: 6A, 6B, 7A

Unit 2: Cells and Tissues

- **Topics Covered**:
    - Structure and Function of Cells (Cell Theory, Organelles, Transport Mechanisms)
    - Cell Division (Mitosis and Meiosis)
    - Tissue Types (Epithelial, Connective, Muscle, Nervous)
    - Tissue Repair and Regeneration
- **TEKS**: 8A, 8B, 8C

Unit 3: Integumentary System

- **Topics Covered**:
    - Structure and Function of Skin (Layers, Accessory Structures)
    - Homeostasis and Thermoregulation
    - Skin Injuries and Healing
    - Disorders (Burns, Skin Cancer)
- **TEKS**: 9A, 9B

Unit 4: Skeletal System

- **Topics Covered**:

    - Bone Structure and Function
    - Types of Bones and Joints
    - Bone Development and Growth
    - Diseases (Osteoporosis, Arthritis)
- **TEKS**: 10A, 10B, 10C

Unit 5: Muscular System

- **Topics Covered**:
    - Muscle Types (Skeletal, Cardiac, Smooth)
    - Muscle Contraction Mechanism (Actin, Myosin, Sarcomeres)
    - Muscular Movements and Actions
    - Muscle Fatigue and Disorders (Muscle Dystrophy, Myasthenia Gravis)
- **TEKS**: 11A, 11B

Unit 6: Nervous System

- **Topics Covered**:
    - Structure and Function of Neurons and Neurotransmitters
    - Central Nervous System (Brain and Spinal Cord)
    - Peripheral Nervous System and Reflexes
    - Disorders (Stroke, Epilepsy, Alzheimer's)
- **TEKS**: 12A, 12B, 12C

Unit 7: Endocrine System

- **Topics Covered**:

    - Hormones and Their Functions
    - Major Endocrine Glands (Pituitary, Thyroid, Adrenals, etc.)
    - Hormonal Regulation of Metabolism, Growth, and Reproduction
    - Disorders (Diabetes, Hypothyroidism)
- **TEKS**: 13A, 13B

Unit 8: Cardiovascular System

- **Topics Covered**:
    - Heart Structure and Function
    - Blood Vessels and Circulation (Systemic, Pulmonary)
    - Blood Components and Functions
    - Disorders (Hypertension, Atherosclerosis, Heart Attack)
- **TEKS**: 14A, 14B, 14C

Unit 9: Respiratory System

- **Topics Covered**:
    - Anatomy of the Respiratory Tract
    - Mechanism of Breathing (Inhalation and Exhalation)
    - Gas Exchange and Transport
    - Respiratory Disorders (Asthma, Emphysema, Pneumonia)
- **TEKS**: 15A, 15B

Unit 10: Digestive System

- **Topics Covered**:

    - Structure and Function of Digestive Organs
    - Digestion and Absorption of Nutrients
    - Enzymes and Chemical Digestion
    - Disorders (Gastroesophageal Reflux, Ulcers)
- **TEKS**: 16A, 16B

Unit 11: Urinary System

- **Topics Covered**:
    - Kidney Structure and Function
    - Filtration, Reabsorption, and Excretion
    - Acid-Base Balance and Fluid Homeostasis
    - Disorders (Kidney Stones, Chronic Kidney Disease)
- **TEKS**: 17A, 17B

Unit 12: Reproductive System

- **Topics Covered**:
    - Male and Female Reproductive Anatomy
    - Menstrual Cycle, Pregnancy, and Birth
    - Hormonal Regulation of Reproduction
    - Disorders (Infertility, STDs)
- **TEKS**: 18A, 18B, 18C

Unit 13: Immune System

- **Topics Covered**:

    - Components of the Immune System (White Blood Cells, Antibodies)
    - Immune Response (Innate vs. Acquired Immunity)
    - Vaccination and Immunization
    - Disorders (Autoimmune Diseases, HIV/AIDS)
- **TEKS**: 19A, 19B

Assessment and Grading

- **Quizzes and Tests**: 40&
- **Homework and Assignments**: 60%

Classroom Policies

- **Attendance**: Regular attendance is essential. Students are responsible for making up any missed work.
- **Late Work**: Late assignments will be penalized unless prior arrangements are made.
- **Academic Integrity**: Cheating or plagiarism will result in disciplinary action. Students are expected to follow the honor code.
- **Behavior**: Respect for others and the learning environment is expected. Disruptive behavior will be addressed according to school policy.

Materials Needed

- **Textbook**: [Insert Title, e.g., "Human Anatomy and Physiology" by Marieb or equivalent]

- **Lab Notebook**
- **Pencil/Pen**
- **Dissection Kit (for lab work)**
- **Safety Goggles** (Required for lab)
- **Scientific Calculator**

Contact Information

For any questions or concerns, please contact me:

Email:haily.clark@woodsonisd.net

Conclusion

This course is designed to provide students with a deep understanding of the human body and how it functions in health and disease. Through both theoretical learning and hands-on activities, students will develop the knowledge and skills necessary to pursue careers in health, medicine, or science. Let's have a great year together!