

## Health Science

### **CC1260 – PRINCIPLES OF HEALTH SCIENCE**

This course is designed to provide an overview of all phases of the health care industry including diagnostic, therapeutic, and support services. Students will identify the employment opportunities, technology, and safety requirements needed in the industry. They will employ verbal and nonverbal communication skills, develop leadership skills, identify career clusters related to health science, and identify academic requirements for advancement such as certification, licensure, registration, and advanced degrees.

Grade Placement: 9-10

1 credit

Location: Home Campus

### **CC4260 – HEALTH SCIENCE (THEORY AND LAB)**

*Certification opportunity: CPR for Healthcare Providers, OSHA General Industry Healthcare Certification; Phlebotomy Certification, EKG Certification*

Through classroom, laboratory, and simulation experiences, students will learn and apply skills of the health science professional, including vital signs, cardiopulmonary resuscitation, automated external defibrillator, environmental protection, safety in the health care environment, and admission/transfer/discharge procedures. They will learn to perform skills specific to a health science professional such as medical assistant, dental assistant, emergency medical technician-basic, phlebotomy technician, and pharmacy technician.

Grade Placement: 11-12

2 credits

Prerequisite: Principles of Health Science or *(Concepts of Health Care)*; Biology

Location: CTE Center

### **CC1261 – MEDICAL TERMINOLOGY**

Students will be introduced to the structure of medical terms, including prefixes, suffixes, word roots, combining singular and plural forms, medical abbreviations and acronyms. Students will develop a comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.

Grade Placement: 9-12

1 credit

Location: Home Campus, CTE Center

### **CC1263 – PHARMACOLOGY**

*Certification opportunity: Pharmacy Technician Certification, NRF Customer Service and Sales Certification*

Students will study how chemical agents, both natural and synthetic, affect biological systems. They will study the classification of prescription and nonprescription agents to understand the treatment, care, and restoration of the patient's health. Course content will include routes of drug medication; classes of drugs; terms associated with pharmacology; safety, legal, and ethical issues; medication calculations; and dispensing and administration practices.

Grade Placement: 12

1 credit

Prerequisite: Biology; Chemistry; successfully completed at least one course from Health Science cluster

Location: CTE Center

### **CC4261 – PRACTICUM IN HEALTH SCIENCE I**

*Certification opportunity: Patient Care Technician*

Through classroom instruction and first-hand observation, students will preview a broad range of careers within the health care industry. Students will have the opportunity to observe and to perform practical application of previously studied skills related to the health science field. The practical application experiences may occur in a school lab and/or community health facility location appropriate to the nature and level of experience of each student and under the supervision of the teacher and/or facility mentor.

Grade Placement: 12

2 credits

Prerequisite for 2017-2018: *(Concepts of Health Care)* or two or more PLTW Biomedical classes, Biology, Application

Prerequisite beginning 2018-2019: Principles of Health Science or *(Concepts of Health Care)* or two or more PLTW Biomedical classes, Health Science Theory and Lab, Biology, Application

Location: CTE Center

### **CC1264 – SPORTS MEDICINE I**

*Certification opportunity: CPR for Healthcare Providers*

Students will be provided an opportunity for the study and application of the components of sports medicine as it applies to athletes and the athletic teams. Skills will include emergency injury assessment and treatment, application of splints and braces, and preventive measures that can be taken to prevent injuries. They will learn about the career options available in the field of sports medicine.

Grade Placement: 11

1 credit

Prerequisite: Principles of Health Science or *(Concepts of Health Care)*

Location: CTE Center

### **CC1265 – SPORTS MEDICINE II – Available in 2018-2019**

*Certification opportunity: American College of Sports Medicine Certified Personal Trainer*

Students will advance their knowledge of the application of the components of sports medicine. This class will require time outside of the classroom to work with the athletes and athletic teams.

Grade Placement: 12

1 credit

Prerequisite: Sports Medicine I; Application

Location: CTE Center

### **CC1266 – HEALTH INFORMATICS**

*Certification opportunity: Billing and Coding Specialist Certification (CBCS)*

Students will develop a fundamental knowledge of the concepts of health information systems technology and the tools for collecting, storing, and retrieving health care data. They will design, develop and use technologies such as electronic medical records, patient monitoring systems, and digital libraries while managing the vast amount of data generated by these systems.

Grade Placement: 11-12

1 credit

Prerequisite: Business Information Management I or *(Computer Information Applications)*; Medical Terminology

Location: CTE Center

### **CC1360 – PLTW PRINCIPLES OF BIOMEDICAL SCIENCE**

**This course receives weighted GPA.** In this first of a series of four courses, students will investigate the body systems and health conditions, including heart disease, diabetes, sickle-cell disease, and infectious diseases. They determine the factors that led to the death of a fictional person and investigate lifestyle choices and medical treatments that might have prolonged the person's life. Activities and projects introduce students to human physiology, medicine, and research processes. Key biological concepts are embedded in the curriculum.

Grade Placement: 9-12

1 credit

Prerequisite: 9<sup>th</sup>-Biology or concurrent: 10<sup>th</sup>-12<sup>th</sup>-Biology and grade level science

Location: Home Campus

### **CC1361 – PLTW HUMAN BODY SYSTEMS**

**This course receives weighted GPA.** In this second course, students will investigate the human body systems and other health conditions in order to determine the factors that led to the death of a fictional person. Key biological concepts including homeostasis, metabolism, inheritance, feedback systems, and defense against disease are embedded throughout the course.

Grade Placement: 10-12

1 credit

Prerequisite: Principles of Biomedical Science

Location: Home Campus

### **CC1362 – PLTW MEDICAL INTERVENTIONS**

**This course receives weighted GPA.** In this third course, students investigate a variety of interventions involved in the prevention, diagnosis and treatment of disease as they follow the life of a fictitious family. They explore how to prevent and fight infection; screen and evaluate the code in human DNA; prevent, diagnose and treat cancer; and prevail when the organs of the body begin to fail. Through these scenarios, students are exposed to a range of interventions related to immunology, surgery, genetics, pharmacology, medical devices, and diagnostics.

Grade Placement: 11-12

1 credit

Prerequisite: Principles of Biomedical Science; Human Body Systems

Location: Home Campus, CTE Center

### **CC1363 – PLTW BIOMEDICAL INNOVATION**

**This course receives weighted GPA.** In this capstone course, students design innovative solutions for the health challenges of the 21<sup>st</sup> century. They work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. They have the opportunity to work on an independent project with a mentor or advisor from a university, hospital, research institution, or the biomedical industry. Students are expected to present their work to an audience of STEM professionals.

Grade Placement: 12

1 credit

Prerequisite: Prin. of Biomedical Science; Human Body Systems; Medical Interventions (may be concurrent)

Location: Home Campus, CTE Center

### **SC1223 – ANATOMY AND PHYSIOLOGY OF HUMAN SYSTEMS** (below)

See description under the Science section of the Course Description Handbook

Location: Home Campus

1 credit

**SC1224 – MEDICAL MICROBIOLOGY**

See description under the Science section of the Course Description Handbook (below)

Location: CTE Center

1 credit

**SC1225 – PATHOPHYSIOLOGY**

See description under the Science section of the Course Description Handbook (below)

Location: CTE Center

1 credit

**CC6869 – EMERGENCY MEDICAL TECHNICIAN**

*Certification opportunity: National Registry Emergency Medical Technician Certification*

This course will prepare students to sit for the National Registry Emergency Medical Technicians exam for certification as Emergency Medical Technician (EMT)-Basic, the entry-level certification for Emergency Medical Services. This course includes the skills necessary to provide emergency medical care at a basic life support level with an emergency service or other specialized services. EMTs work beside paramedics in the delivery of pre-hospital care. Enrollment is limited but is open to students from all Arlington high schools. Interested students should see their counselor for information about the application and selection process.

Grade Placement: 12 only

1.5 credits

Prerequisite: Eligible for Early Enrollment at TCC, Application, Interview; Medical Terminology and Anatomy & Physiology or PLTW Human Body Systems

Location: CTE Center

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**\*\*\*\* Supplemental SCIENCE Course Descriptions\*\*\*\***

*All science classes require at least 40% laboratory time conducting laboratory and field investigations using safe, environmentally appropriate, and ethical practices. All students must take one unit of Biology/Pre-AP Biology, one unit of IPC, Chemistry or Physics, and one additional unit of science for graduation. For any of the endorsements, one additional science unit is necessary. Check requirements of your preferred university, as some universities accept only Biology, Chemistry and Physics courses. The information for Prerequisites and Recommended Prerequisites are based on Science TEKS (Subchapter C. High School) adopted in 2010 and Science TEKS (Subchapter D. Other Science Courses) adopted in 2016. This does not reflect the expected revised TEKS of 2017.*

**SC1223 - ANATOMY AND PHYSIOLOGY OF HUMAN SYSTEMS**

This course focuses on the study of the structure and function of the human body, its individual systems, processes, and the integration of the body systems into an efficiently functioning organism. Each organ system is presented with an emphasis upon its anatomy and an in-depth study of its physiology and its application to human health and well-being.

Dissection is a major component of this course, as well as independent lab skills and techniques

Grade Placement: 10-12

1 credit

Prerequisite: One unit of Biology and one credit of an additional science.

Location: Home Campus

**SC1224 – MEDICAL MICROBIOLOGY**

This course is an advanced science course designed for students interested in exploring the microbial world. Students will study topics ranging from pathogenic and nonpathogenic microorganisms to emerging diseases. Students that are successful in this class are eligible to participate in HOSA conferences and events.

Grade Placement: 10-12

1 credit

Prerequisites: One unit of Biology and one unit of Chemistry.

Recommended prerequisite: One unit of Health Science course

Location: CTE Center

**SC1225 – PATHOPHYSIOLOGY** This one semester advanced science course is designed to allow students an opportunity to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students will study disease processes, prevention and treatment of disease and differentiation between normal and abnormal physiology. Students who are successful in this class are eligible to participate in HOSA conferences and events.

Grade Placement: 11-12

1 credit

Prerequisites: One unit of Biology and one unit of Chemistry

Recommended prerequisite: one unit of Health Science course

Location: CTE Center