

# Health Science Cluster

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Concentration and Course Descriptions

**2012-2013**

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## Health Science Career Cluster

### Cluster Description:

The Health Science Cluster offers a sequence of courses that provide coherent and rigorous content aligned with challenging academic standards and the relevant technical knowledge and skills needed to prepare for further education and careers in the Health Science Career Cluster. It prepares students for careers in planning, managing and providing therapeutic services, diagnostic services, health informatics, support services and biotechnology research and development.

### Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions

**Concentration:** HE0715 Allied Health Sciences

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science

**Select one of the following (A, B, C, or D):**

**Dental Assisting (A)**

0746 Dental Science

0743 Dental Assisting Clinical Science

**Medical Assisting (B)**

0737 Medical Assistant Laboratory and Diagnostic Procedures

0733 Medical Assistant Clinical Procedures

**PTCB Prep (C)**

0771 PTCB Preparation

0772 PTCB Clinical Applications

**EMT-B (D)**

0792 EMT-B (2 credits)

### Concentration Description:

The Allied Health Concentration allows the student to explore careers focused primarily on changing the health status of the patient over time. Health professionals in this concentration work directly with patients; they may provide care, treatment and health education information.

### Course Descriptions:

#### 0711 Foundations of Health Science

This course is designed to allow instructional content to focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the

student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **Dental Assisting (A)**

#### **0746 Dental Science**

This course provides an introduction to dental laboratory techniques and procedures while preparing the student for entry-level employment as a dental laboratory assistant. Students will obtain the knowledge and skills necessary to assist and/or perform basic laboratory and diagnostic procedures. With participation and input of therapeutic services professionals, instructional content will incorporate project and problem-based therapeutic practices and procedures to demonstrate the criticality of these skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0743 Dental Assisting Clinical Science**

The student completing this course will be able to use knowledge from previously required courses to perform and practice all aspects of Dental Laboratory Assisting in a clinical setting. Students will obtain the knowledge and skills necessary to assist and/or perform basic laboratory and diagnostic procedures. With participation and input of therapeutic services professionals, instructional content will incorporate project and problem-based therapeutic

practices and procedures to demonstrate the criticality of these skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **Medical Assisting (B)**

### **0737 Medical Assistant Laboratory and Diagnostic Procedures**

Instructional content will focus on an introduction to the medical laboratory, safety, principles of disease transmission and prevention, as well as medical and surgical asepsis. Students will obtain the knowledge and skills necessary to assist and/or perform basic laboratory and diagnostic procedures. With participation and input of therapeutic services professionals, instructional content will incorporate project and problem-based therapeutic practices and procedures to demonstrate the criticality of these skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0733 Medical Assistant Clinical Procedures**

Instructional content in this will focus on clinical procedures utilized within medical offices. Major components include emergency medical care, physical exam, basic pharmacology and administration of medication. Students will focus upon employability strategies and career development necessary for successful employment. Students will participate in a work-based clinical externship within a medical office or equivalent health care facility. Due to health care industry standards, exemplary attendance is mandatory. All content standards and objectives must be mastered before students are eligible to attain established credentials and/or industry validation. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **PTCB Prep (C)**

### **0771 PTCB Preparation**

The PTCB Preparation class prepares the student to participate in a clinical internship in PTCB Clinical Applications. Instructional focus is on a self-paced curriculum provided by PassAssured's Pharmacy Technician Training Program, Pass Assured, LLC. This curriculum is supported by teacher instruction and a variety of textbook and online resources. Using a modular format, this system allows the student to gain the knowledge and skills required for certification and entry-level employment as a Pharmacy Technician. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0772 PTCB Clinical Applications**

Students will be provided an opportunity to participate in a clinical internship, applying the knowledge and skills mastered during the PTCB Preparation course. The clinical internship will allow hands-on practice under the direction of a pharmacist. Students participate in 100-130 hours of activities that reflect current and future entry-level pharmacy technician functions and responsibilities, utilizing both the institutional and retail settings. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **EMT-B (D)**

### **0792 EMT-B (2 credits)**

EMT-B is recognized by the United States Department of Transportation. Instructional content will focus upon expanded and enhanced biology content specific to human structure, function and diseases/disorders common to medical and traumatic emergencies. In addition, course content will include treatment and care of the sick or injured, methods and techniques of patient assessment and of gaining access to the patient, stabilization and transport. Skills necessary for proper documentation are integrated throughout the course. According to national criteria, students must successfully complete a mid-course exam, with a minimum score of 80%, in order to continue in the course and maintain eligibility to take the national EMT-B exam. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21

Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions**

**Concentration:** HE0718 Diagnostic Services

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science  
Choose Medical Specialization A or B or C  
**Medical Specialization A**  
Medical Laboratory Technician  
0755 Medical Laboratory and Diagnostic Procedures  
0756 Medical Laboratory Diagnostic Procedures and Applications  
**Medical Specialization B**  
Radiography Technician  
0787 Radiography for Health Care Provider  
0788 Radiography Applications  
**Medical Specialization C**  
0810 Electrocardiograph Technician  
0825 Phlebotomist

### **Concentration Description:**

The Diagnostic Services Concentration prepares students for careers in health care that perform tests and evaluations that aid in the detection, diagnosis and treatment of diseases, injuries or other physical conditions.

### **Course Descriptions:**

#### **0711 Foundations of Health Science**

This course is designed to allow instructional content to focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of

these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **Medical Specialization (A)**

#### **Medical Laboratory Technician**

##### **0755 Medical Laboratory and Diagnostic Procedures**

In this course, the Point of Care Technician and the laboratory student will be introduced to procedures in the hematology, coagulation and microbiology departments of the laboratory. Additional content within this course includes measurement and assessment, metrics and measurements, communication skills, legal and ethical issues, medical and surgical asepsis, microbiology techniques, as well as body structure and function. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

##### **0756 Medical Laboratory Diagnostic Procedures and Applications**

The instructional content will focus on advanced procedures necessary for entry-level employment in the physician's office and the medical laboratory. Course content will include blood bank and serology procedures, basic chemistry procedures, fecal testing and electrocardiography. Additional instruction will provide students with key employability skills for job seeking and keeping. Eligible students will participate in a clinical internship and upon successful completion will prepare for credentialing, postsecondary education, and/or employment opportunities. A review of guidelines for test taking and an exploration of the college requirements for the laboratory occupation and other healthcare careers will be provided. All standards and objectives must be mastered before the student is approved to pursue credentialing and/or industry validation. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers

are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

### **Medical Specialization (B)**

#### **Radiography Aide**

##### **0787 Radiography for Health Care Provider**

This course includes knowledge necessary for the student to be able to discuss various methods of radiation protection for personnel in the radiography department and patient by utilizing the cardinal rules of radiation protection. Students will be able to describe several devices used to detect and measure exposure to ionizing radiation. Instructional content includes technical skills, hands-on aspects of patient care, aseptic and non-aseptic techniques, transporting and immobilization of the patient. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

##### **0788 Radiography Applications**

This course includes both simulated clinical experiences in the classroom and a clinical rotation in a health care facility. The course begins with an orientation to clinical education. Radiographic room responsibilities for the radiology aide are then discussed and the student may be tested on several skills either in the classroom lab and/or at a clinical site. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

### **Medical Specialization (C)**

#### **0810 Electrocardiograph Technician**

Instructional content will focus on basic operation of a 12-lead electrocardiograph machine, explanation of the Einthoven triangle related to the cardiac system. Students will identify the anatomic position of each of the chest leads, prepare a patient for a 12-Lead EKG, maintain the EKG machine and maintain EKG tracings in the patient's chart. The student will interpret and evaluate electrocardiogram tracing. Students participate in clinical practicum for the EKG Technician. Clinical experiences may occur in a variety of settings that utilize EKG monitors. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of

the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

### **0825 Phlebotomist**

Instructional content will focus on performing laboratory duties requiring accuracy, timeliness and documentation. The student will be able to function in the laboratory setting utilizing these skills. This course will enhance the student's knowledge of safety procedures as they relate to phlebotomy. They will be provided with the knowledge and skills necessary in maintaining the standard procedures required for a laboratory. Legal and ethical issues to consider in the profession are an integral part of this course. The phlebotomist must be able to recognize appropriate methods for analyzing specimens. In this course the student will learn these methods in collecting and processing the specimen to be analyzed. This externship is designed to provide students with hands-on experience in a clinical, physician's office or laboratory setting. They are required to complete 120 hours in the externship in order to receive credit for the course. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

## **Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions**

**Concentration:** HE0723 Therapeutic Services

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science  
0789 Clinical Specialty I  
0790 Clinical Specialty II

### **Concentration Description:**

The Therapeutic Services Concentration allows the student to explore careers focused primarily on changing the health status of the patient over time. Health professionals in this concentration work directly with patients; they may provide care, treatment, counseling and health education information.

### **Course Descriptions:**

#### **0711 Foundations of Health Science**

This course is designed to allow instructional content to focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and

Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0789 Clinical Specialty I**

This course is designed to allow the student to choose a career work-based experience from the following specializations:

**Select 1:** Home Health Aide **(A)** Certified Nursing Assistant **(B)** Certified Patient Care Technician **(C)** ECG Certified Technician **(D)** Certified Health Unit Coordinator **(E)** Certified Phlebotomy Technician **(F)**

Upon successful completion of the prerequisite courses in the Health Science Education concentration, students will be provided the opportunity in Clinical Specialty I to participate in a work-based clinical experience. Students choose a health career specialty for in-depth study and must complete a minimum of 55-100 hours in an applicable clinical rotation. Instruction is guided by career-specific content standards and objectives that must be mastered before students are eligible to attain established credentials and/or industry validation. Within this course, students focus upon employability skills and career development, and apply healthcare information technology and technical skills. Instruction will incorporate project and problem-based healthcare practices and procedures to demonstrate the criticality of these skills. Due to healthcare industry standards, exemplary attendance is mandatory. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0790 Clinical Specialty II**

This course is designed to allow the student to choose a career work-based experience from the following specializations:

**Select 1:** Patient Care Technician **((G)** Pre-Pharmacy Technician **(H)** Veterinary Science **(I)** Physical Therapy Aide **(J)** Sports Trainer **(K)** Advanced Health Seminar **(L)** Certified Health Unit Coordinator **(M)** Family Caregiver **(N)**

Upon successful completion of the prerequisite courses in the Health Science Education concentration, students will be provided the opportunity in Clinical Specialty II to participate in a work-based clinical experience. Students choose a health career specialty for in-depth study and must complete a minimum of 55-100 hours in an applicable clinical rotation. Instruction is guided by career-specific content standards and objectives that must be mastered before students are eligible to attain established credentials and/or industry validation. Within this course, students focus upon employability skills and career development, and apply healthcare information technology and technical skills. Instruction will incorporate project and problem-

based healthcare practices and procedures to demonstrate the criticality of these skills. Due to healthcare industry standards, exemplary attendance is mandatory.

Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions**

**Concentration:** HE0728 Support Services

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science  
0710 Employment in Health Occupations  
0712 Introduction to Support Services Clinical

### **Concentration Description:**

The Support Services Concentration provides students opportunities to explore careers that provide a therapeutic environment for the delivery of health care. Support Services offers a full range of career opportunities from entry level to management including technical and professional careers.

### **Course Descriptions:**

#### **0711 Foundations of Health Science**

This course is designed to allow instructional content to focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and

Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0710 Employment in Health Occupations**

Instructional content will focus on healthcare information technology applications, employability skills, career development and technical skill preparation. The knowledge and skills acquired in this course provide guidance for career selection and application for both entry-level employment and postsecondary preparation. Instruction will incorporate project and problem-based healthcare practices and procedures to demonstrate the criticality of these skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0712 Introduction to Support Services Clinical**

Instructional content will focus on support services career options and opportunities along with their accompanying educational requirements and employment projections, aseptic procedures, resource management and aesthetics. Instructional content will enhance, expand and reinforce ethical and legal responsibilities, quality measurement and improvement as well as compliance, as introduced in Employment in Health Occupations. With participation and input of support services professionals, instructional content will incorporate project- and problem-based support services practices and procedures to demonstrate the criticality of these skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

## **Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions**

**Concentration:** HE0740 Health Informatics

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science  
1443 Medical Office Management  
1705 Fundamentals of Computer Systems

### **Concentration Description:**

The Health Informatics Concentration allows the student to explore careers in many different levels of health care related employment. This concentration would include careers such as health care administrators who manage health care agencies as well as those individuals who are responsible for managing all of the patient data and information, financial information and computer applications related to health care processes and procedures.

### **Course Descriptions:**

#### **0711 Foundations of Health Science**

This course is designed to allow instructional content to focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy, and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and

Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **1443 Medical Office Management**

This area of study is designed to provide *high school* students with the knowledge of procedures and job skills needed in medical office management. Major instructional objectives include telephoning skills, scheduling appointments, filing, processing mail, patient interaction and effective communications. Students will also work with medical records, patient billing/coding, health insurance and financial records. Teachers should provide each student with real world learning opportunities and instruction related to medical occupations. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

### **1705 Fundamentals of Computer Systems**

This course introduces the student to the knowledge and technical skills for all courses in repair of computer systems. Areas of study include computer hardware, data representation, operating system, utility, productivity software, communications and networks and the Internet. Emphasis will be placed on personal and professional ethics, and students will explore a variety of career opportunities. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organizations, WV HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

## **Strongly recommended elective (grades 9 or 10): 0700 Exploring Health Professions**

**Concentration:** HE0780 Biotechnology Research and Development

**Courses:** 0711 Foundations of Health Science  
0715 Advanced Principles of Health Science  
0707 Biomedical Applications  
0708 Biomedical Innovation

### **Concentration Description:**

The Biotechnology Research and Development concentration focuses on careers that involve bioscience research and development as it applies to human health. These scientists may study diseases to discover new treatments or invent medical devices used to directly assist patients or to improve the accuracy of diagnostic tests.

### **Course Descriptions:**

#### **0711 Foundations of Health Science**

Instructional content will focus on basic medical terminology, growth and development, nutrition, health maintenance practices and healthcare delivery systems. It is designed to provide the student with the knowledge and technical skills required for infection control and the prevention of disease transmission, CPR and First Aid. Students will be provided with the opportunity to acquire certification in these areas. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

#### **0715 Advanced Principles of Health Science**

Instructional content will focus on healthcare safety, environmental safety processes and procedures, ethical and legal responsibilities and mathematical computations. Medical terminology and the reinforcement, expansion and enhancement of biology content specific to diseases and disorders are an integral part of the course. Instruction will incorporate project and problem based healthcare practices and procedures to demonstrate the importance of these skills. Students will develop basic technical skills required for all health career specialties including patient privacy, communication, teamwork and occupational safety and be provided with opportunities to obtain certifications in HIPPA/Data Privacy and health care safety. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and

Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools and content standards and objectives.

### **0707 Biomedical Applications**

This course is designed to provide an overview of human body systems and various health conditions, and lay the scientific foundation for the Biomedical Innovation course. Students are introduced to human physiology, medicine, research processes and bioinformatics. Key biological concepts including homeostasis, metabolism, inheritance of traits and defense against disease are embedded in the curriculum. Engineering principles including the design process, feedback loops and the relationship of structure to function are also incorporated. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.

### **0708 Biomedical Innovation**

This course is designed for students to apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for 21st Century health challenges as they work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering and public health. The students will develop three projects that will incorporate information from the previous three prerequisite courses. Throughout the course, students are presented with various scenarios for which they must apply academic and problem-solving skills. Students utilize problem-solving techniques and participate in hands-on activities to develop an understanding of course concepts. Teachers should provide each student with real world learning opportunities and instruction. Students are encouraged to become active members of the student organization, HOSA. The West Virginia Standards for Global 21 Learning include the following components: Global 21 Content, Literacy and Numeracy, Entrepreneurship and Technology Standards. All West Virginia teachers are responsible for classroom instruction that integrates learning skills, technology tools, and content standards and objectives.