

Health Science

Program of Studies

2016-2017



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HEALTH SCIENCE

Health Science - Career Major						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Body Structures and Functions	170167	X	X	X	X	.5 - 1
Emergency Procedures	170141	X	X	X	X	.5 - 1
Medical Math	170169	X	X	X	X	.5 - 1
Medical Terminology	170131	X	X	X	X	.5
Principles of Health Science	170111	X	X	X	X	1

Health Science – Allied Health						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Allied Health Core Skills	170501			X	X	.5 - 1
Internship: Allied Health	170550		X	X	X	.5 - 1
Internship: Dental Assistant	170552			X	X	1-2
EKG Technician	170555		X	X	X	1
Medical Laboratory Aide (Phlebotomist)	170567			X	X	1-2
Pharmacy Technician	170558			X	X	1-2
Special Topics in Allied Health	170591		X	X	X	.5 – 1

Health Science – Biomedical Science						
<i>*District and School must have a valid and current STEM agreement signed with PLTW and the teacher must complete Core Training to offer this Career Pathway and/or any of these courses.</i>						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Principles of Biomedical Science	170701	X	X	X		1
Human Body Systems	170702	X	X	X		1
Medical Interventions	170703		X	X	X	1
Biomedical Innovation	170704			X	X	1

Health Science – Medical Administrative Assistant						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Medical Office Procedures	170920			X	X	1

Health Science – Pre-Nursing						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Co-op (Nursing)	170601			X	X	1
Development of Care Giver Role	170611			X	X	2
Health Science Microbiology/Infection Control	170640			X	X	1.0
Introduction to Nursing and Health Care System	170610			X	X	1.0
Medicaid Nurse Aide	170631			X	X	1 - 2
Pharmacological and Other Therapeutic Modalities	170614			X	X	1.0

Health Science – Sports Medicine						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Essentials of Sports Medicine	170301		X	X	X	1
Applied Sports Medicine	170302			X	X	1

Health Science – Veterinary Assisting						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Principles of Veterinary Assisting	170801		X	X	X	1
Veterinary Assisting Skills	170802		X	X	X	1
Advanced Veterinary Assisting Skills	170803			X	X	1
Veterinary Assisting Internship	170804				X	1

Industrial Education – Public Services						
Course Title	Course Code	Recommended Grade Level				Recommended Credit
		9	10	11	12	
Emergency Medical Technician (EMT)	461022	X	X	X	X	1
EMS Training	461023	X	X	X	X	1-6

Last revised Dec. 10, 2015

Overview of Health Science Program

The Health Science Program provides the secondary student with orientation, exploration, and preparation into the health care industry. Courses are sequenced to provide continuous student progress toward achievement of a career goal in any of the Health Science pathways. The integration of literacy, numeracy, science, employability, 21st Century skills, and technical skills is a vital component of each course offering.

This program assists the student in developing essential skills to pursue a career in the health care field. After obtaining a satisfactory performance level in the health care core competencies, the student may obtain work experience in a health-related facility. Upon successful completion of the program, the student may receive dual/articulation credit through a college/university if an agreement is available.

Why a Health Science Pathway?

Career and Technical Education program offerings should be based on the needs of the community and state—the one occupation needed in all communities across the Commonwealth is health care. Students should have the opportunity to obtain preparation in fields of study that offer the probability of employment once that pathway of courses is completed. Currently, Kentucky joins a nationwide shortage of health care workers. At a time when many industries are downsizing, the health care industry is one of the largest industries in the country with more than 14 million jobs. According to the *U.S. Health Workforce Chartbook*, these individuals represent approximately 10 percent of the nation’s workforce. Of the top 20 professions projected as “fastest growing occupations” by the Occupational Outlook Handbook: U.S. Bureau of Labor Statistics, 11 are health science career pathway occupations. From Personal Care Aides (70%) to Physical Therapists (39%), health occupations make up over 50% of the projected workforce growth.

Health care professionals work in a variety of settings including clinics, laboratories, hospitals, and schools. There are many challenging careers in health care such as biomedical engineer, forensic pathologist, nurse, cardiovascular technician, medical secretary and physical therapist. Combining medical technology and the human touch, the health care industry administers care around the clock responding to the needs of millions of people across the lifespan. More than 460,000 establishments make up the health care industry. Two-thirds of all private health service establishments are offices of physicians or dentists. Although hospitals comprise less than 2 percent of all private health service establishments, they employ nearly 40 percent of all workers.

The number of health care specializations are fueling the overall growth of the industry because of: the Affordable Care Act; an aging population; new forms of information technology; the need for multi-skilled workers; the move toward preventative and primary care; the increase in outpatient surgery; more preventative care in the workplace; a decrease in the number of health care workers in rural and inner city areas; and the exodus of many “mature” workers into other professions or retirement.

Program Requirements

The program shall meet the criteria established by state and national approval/accrediting agencies that certify and/or register the graduates of the program. In a Health Science program, the teacher on record shall be a licensed (active) health care professional in the Commonwealth of Kentucky and meet requirements for teaching in a Career and Technical Education Program area. A teacher of the Medicaid Nurse Aide course must be a Registered Nurse and meet the guidelines as established by the Kentucky Medicaid Program, adhere to a 15:1 student to teacher ratio, and meet the requirements for teaching a Career and Technical Education program area. A recommended list of equipment and supplies and facility guidelines for the program is available.

Work-Based Learning

Work-based learning within the Health Science program may include shadowing, clinical experience, internship, and/or cooperative education. These experiences should be connected to the student's career pathway. Specific guidelines are outlined in 705 KAR 4:041. Information on other types of work-based learning is described in detail in the *Work-Based Learning Manual*, which is available on the KDE web page at:

<http://education.ky.gov/CTE/cter/Pages/WBL.aspx>

Specific guidelines for work-based learning relating to the Health Science program include:

- A health science teacher who is licensed in Kentucky as a Registered Nurse must provide clinical supervision for Medicaid Nurse Aide training;
- All Health Science students must be covered by a professional liability insurance plan as required by the affiliating agency;
- All Health Science students must have completed a series of courses approved by the instructor prior to a work-based experience;
- The school shall use the approved standard agreement with each cooperating agency specifying responsibilities and authority of each party to the agreement;
- A "Statement of Understanding" defining student responsibility shall be signed by student and parent or guardian prior to assignment in a clinical area, practicum, or cooperative experience.

Valid KOSSA and Industry Certification for Career Readiness

The Valid List of KOSSA and Industry Certifications for Career Readiness can be viewed via the following link: <http://education.ky.gov/CTE/kossa/Pages/ValidKOSSAList.aspx>. The valid list is reviewed annually through the established process and publishes by June 1 for the corresponding academic year.

Link to KOSSA Skill Standards documents via:

<http://education.ky.gov/CTE/kossa/Pages/KOSSAStandardsDocs.aspx>

Thanks to the Health Science Career Pathway Curriculum Team

Teacher	School	Specialty Area
Rhonda Whitson	Fleming County High School	Health Science
Sharon Pence	Greenup County ATC	Health Science
Emily Tuel	Harrison County ATC	Health Science
Susan Readnower	Harrodsburg ATC	Health Science
Lori Fulkerson	Henderson County High School	Health Science
Peggy Williford	Jefferson County Public Schools	Health Science
Tammy Combs	Lee County ATC	Health Science
May Arnold	Madison County ATC	Health Science
Rhonda Childress	Rockcastle County ATC	Health Science
Sherry Allen	Shelby County ATC	Health Science
Julye Adams	Elkhorn Crossing School	Biomedical Science
Tonya Burns	Shelby County High School	Biomedical Science
Angie Lewis	Grant County CTC	Biomedical Science
Tim Amshoff	Moore High School – JCPS	Sports Medicine
Michael Campbell	Valley High School – JCPS	Sports Medicine
Scott Rouse	Hardin County Early College & Career Center	Sports Medicine
Stephanie Nichols	Valley High School	Veterinary Assisting
Latissa Higgins	Locust Trace Agriscience School	Veterinary Assisting
Tammy Wright	Central High Schools	Veterinary Assisting
Kathleen Magsam	Locust Trace Agriscience School	Veterinary Assisting

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

ALLIED HEALTH CIP 51.0000.01

PATHWAY DESCRIPTION: A general, introductory, undifferentiated, or joint program in health services occupations that prepares individuals for either entry into specialized training programs or for a variety of concentrations in the allied health area. Includes instruction in the basic sciences, research and clinical procedures, and aspects of the subject matter related to various health occupations.

BEST PRACTICE COURSES

EXAMPLE ILP-RELATED CAREER TITLES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS** from the following:*

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology **
- 170501 Allied Health Core Skills

*Choose (1) **ONE CREDIT** from the following:*

- 170169 Medical Math**
- 170167 Body Structures and Functions OR
302631 Anatomy (Science Course)
- 170550 Internship: Allied Health

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Doctor
Nurse
Pharmacist
Physical Therapist
Psychologist
Radiologist
Surgeon
Veterinarian

**HEALTH SCIENCES CAREER PATHWAYS
2016-2017**

**PLTW BIOMEDICAL SCIENCES
CIP 26.0102.00**

PATHWAY DESCRIPTION: A general, program that focuses on the integrative scientific study of biological issues related to health and medicine, or a program in one or more of the biomedical sciences that is undifferentiated as to title. Includes instruction in any of the basic medical sciences at the research level; biological science research in biomedical faculties; and general studies encompassing a variety of the biomedical disciplines.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (4) **FOUR CREDITS:***

- 170701 Principles of Biomedical Science
- 170702 Human Body Systems
- 170703 Medical Interventions
- 170704 Biomedical Innovations

Note: (PLTW) courses require an agreement between
Project Lead the Way and the Local School District.

Biologist
Biomedical Engineer
Biotechnologist
Coroner
Doctor
Forensic Scientist
Nurse
Pharmacist
Surgeon

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

DENTAL ASSISTING CIP 51.0601.01

PATHWAY DESCRIPTION: A program that prepares individuals to provide patient care, take dental radiographs (x-ray photographs), prepare patients and equipment for dental procedures, and discharge office administrative functions under the supervision of dentists and dental hygienists. Includes instruction in medical record-keeping, general office duties, reception and patient intake, scheduling, equipment maintenance and sterilization, basic radiography, pre- and post-operative patient care and instruction, chairside assisting, taking tooth and mouth impressions, and supervised practice.

BEST PRACTICE COURSES

EXAMPLE ILP-RELATED CAREER TITLES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS** from the following:*

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology***
- 170552 Internship: Dental Assistant

*Choose (1) **ONE CREDIT** from the following:*

- 170167 Body Structures and Functions OR
302631 Anatomy (Science Course)
- 170501 Allied Health Core Skills

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Dentist
Dental Assistant
Dental Lab Tech

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

EKG TECHNOLOGY/TECHNICIAN CIP 51.0902.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of physicians and nurses, to administer EKG and ECG diagnostic examinations and report results to the treatment team. Includes instruction in basic anatomy and physiology, the cardiovascular system, medical terminology, cardiovascular medications and effects, patient care, EKG and ECG administration, equipment operation and maintenance, interpretation of cardiac rhythm, patient record management, and professional standards and ethics.

BEST PRACTICE COURSES

EXAMPLE ILP-RELATED CAREER TITLES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS** from the following:*

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology**
- 170555 EKG Technician

*Choose (1) **ONE CREDIT** from the following:*

- 170167 Body Structures and Functions OR
302631 Anatomy (Science Course)

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Diagnostic Medical
Sonographer

Medical Assistant

Medical Lab Tech

Nurse

Radiologist

**HEALTH SCIENCES CAREER PATHWAYS
2016-2017**

**EMERGENCY MEDICAL TECHNICIAN
CIP 51.0904.01**

PATHWAY DESCRIPTION: A program that prepares individuals, under the remote supervision of physicians, to recognize, assess, and manage medical emergencies in prehospital settings and to supervise Ambulance personnel. Includes instruction in basic, intermediate, and advanced EMT procedures; emergency surgical procedures; medical triage; rescue operations; crisis scene management and personnel supervision; equipment operation and maintenance; patient stabilization, monitoring, and care; drug administration; identification and preliminary diagnosis of diseases and injuries; communication and computer operations; basic anatomy, physiology, pathology, and toxicology; and professional standards and regulations.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (4) **FOUR CREDITS:***

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology**
- 461022 Emergency Medical Technician (EMT)
- 461023 EMS Training

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Note: This pathway requires an agreement with the KY Board of Emergency Medical Services. More information explained via: www.kbems.kctcs.edu.

Paramedic

**HEALTH SCIENCES CAREER PATHWAYS
2016-2017**

**MEDICAL ADMINISTRATIVE ASSISTING
CIP 51.0710.00**

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of office managers and other professionals, to perform routine administrative duties in a medical, clinical, or health care facility/system office environment. Includes instruction in general office skills, data processing, office equipment operation, principles of medical record-keeping and business regulations, medical/clinical office procedures, and communications skills.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (4) **FOUR CREDITS:***

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology**
- 170920 Medical Office Procedures
- 170550 Internship: Allied Health

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Medical Assistant
Medical Secretary
Medical Transcriptionist

**HEALTH SCIENCES CAREER PATHWAYS
2016-2017**

**PHLEBOTOMY TECHNICIAN
CIP 51.1009.01**

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of physicians and other health care professionals, to draw blood samples from patients using a variety of intrusive procedures. Includes instruction in basic vascular anatomy and physiology, blood physiology, skin puncture techniques, venipuncture, venous specimen collection and handling, safety and sanitation procedures, and applicable standards and regulations.

BEST PRACTICE COURSES

**EXAMPLE
ILP-RELATED
CAREER TITLES**

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS** from the following:*

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology**
- 170567 Medical Laboratory Aide (Phlebotomist)

*Choose (1) **ONE CREDIT** from the following:*

- 170169 Medical Math**
- 170167 Body Structures and Functions OR
302631 Anatomy (Science Course)
- 170501 Allied Health Core Skills

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Medical Lab Tech
Phlebotomist

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

PHARMACY TECHNICIAN CIP 51.0805.01

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of pharmacists, to prepare medications, provide medications and related assistance to patients, and manage pharmacy clinical and business operations. Includes instruction in medical and pharmaceutical terminology, principles of pharmacology and pharmaceuticals, drug identification, pharmacy laboratory procedures, prescription interpretation, patient communication and education, safety procedures, record-keeping, measurement and testing techniques, pharmacy business operations, prescription preparation, logistics and dispensing operations, and applicable standards and regulations.

BEST PRACTICE COURSES

EXAMPLE ILP-RELATED CAREER TITLES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (3) **THREE CREDITS** from the following:*

- 170111 Principles of Health Science
- 170141 Emergency Procedures* AND 170131 Medical Terminology**
- 170558 Pharmacy Technician

*Choose (1) **ONE CREDIT** from the following:*

- 170169 Medical Math**
- 170167 Body Structures and Functions OR
302631 Anatomy (Science Course)
- 170501 Allied Health Core Skills
- 170614 Pharmacological and Other Therapeutic Modalities

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) OR a full (1) credit course

Pharmacy Technician

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

PRE-NURSING CIP 51.2699.01

PATHWAY DESCRIPTION: A program that prepares individuals for admission to a professional program in Nursing.

BEST PRACTICE COURSES	EXAMPLE ILP-RELATED CAREER TITLES
<p><i>Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)</i></p> <p><i>Complete (3) THREE CREDITS from the following:</i></p> <ul style="list-style-type: none"> • 170111 Principles of Health Science • 170141 Emergency Procedures* AND 170131 Medical Terminology** • 170631 Medicaid Nurse Aide <p><i>Choose (1) ONE CREDIT from the following:</i></p> <ul style="list-style-type: none"> • 170169 Medical Math** • 170167 Body Structures and Functions <u>OR</u> 302631 Anatomy (Science Course) • 170601 Co-op (Nursing) <p>Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) to a full (1) credit course</p>	<p>Licensed Practical Nurse</p> <p>Nurse</p> <p>Nurse Practitioner</p> <p>Nursing Assistant</p> <p>Physician's Assistant</p> <p>Doctor</p>

**HEALTH SCIENCES CAREER PATHWAYS
2016-2017**

**SPORTS MEDICINE
CIP 51.0913.00**

PATHWAY DESCRIPTION: A program that prepares individuals to work in consultation with, and under the supervision of physicians to prevent and treat sports injuries and associated conditions. Includes instruction in the identification, evaluation, and treatment of athletic injuries and illnesses; first aid and emergency care; therapeutic exercise; anatomy and physiology; exercise physiology; kinesiology and biomechanics; nutrition; sports psychology; personal and community health; knowledge of various sports and their biomechanical and physiological demands; and applicable professional standards and regulations.

BEST PRACTICE COURSES	EXAMPLE ILP-RELATED CAREER TITLES
<p><i>Foundational Skills Necessary for Career-Ready Measure: (KOSSA/Industry Certification)</i></p> <p><i>Complete (4) FOUR CREDITS:</i></p> <ul style="list-style-type: none"> • 170111 Principles of Health Science • 170141 Emergency Procedures* AND 170131 Medical Terminology** • 170301 Essentials of Sports Medicine • 170302 Applied Sports Medicine <p>Note: (*) Indicates half-credit (.5) course Note: (**) Indicates course can be half-credit (.5) to a full (1) credit course</p>	<p>Athletic Trainer</p> <p>Orthopedic Surgeon</p> <p>Physical Therapist</p> <p>Physical Therapy Assistant</p> <p>Physician Assistant</p>

HEALTH SCIENCES CAREER PATHWAYS 2016-2017

VETERINARY ASSISTANT CIP 51.0808.00

PATHWAY DESCRIPTION: A program that prepares individuals, under the supervision of veterinarians, veterinary technicians, laboratory animal specialists, and zoological professionals, to provide patient management, care, and clinical procedures assistance as well as owner communication. Includes instruction in animal nursing care, animal health and nutrition, animal handling, clinical pathology, radiology, surgical assisting, clinical laboratory procedures, office administration skills, patient and owner management, and applicable standards and regulations.

This program follows National Association of Veterinary Technicians in America (NAVTA) guidelines and offers students the opportunity for national certification as an approved Veterinary Assistant.

BEST PRACTICE COURSES

EXAMPLE ILP-RELATED CAREER TITLES

*Foundational Skills Necessary for Career-Ready Measure:
(KOSSA/Industry Certification)*

*Complete (4) **FOUR CREDITS:***

- 170801 Principles of Veterinary Assisting
- 170802 Veterinary Assisting Skills
- 170803 Advanced Veterinary Assisting Skills
- 170804 Veterinary Assisting Internship

Note: (*) Indicates half-credit (.5) course

Note: (**) Indicates course can be half-credit (.5) to a full (1) credit course

Animal Caretaker
Animal Trainer
Marine Biologist
Veterinarian
Veterinary Technician
Zoologist
Zookeeper

**COMPLEMENTARY OR ADVANCED COURSEWORK BEYOND
HEALTH SCIENCES PATHWAY(s)**

Upon completion of a pathway, additional coursework to enhance student learning is encouraged. Credits earned in Advanced or Complementary Coursework “Beyond the Pathway” may not be substituted for pathway courses in order to achieve Preparatory or Completer status.

<u>Course Code</u>	<u>Course Title</u>
170199	Leadership Dynamics – Health Science
170591	Special Topics in Allied Health
170611	Development of Care Giver Role
170640	Health Science Microbiology/Infection Control
170610	Introduction to Nursing and Health Care System

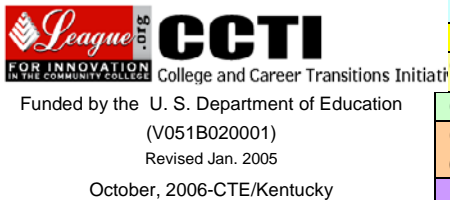
KENTUCKY CAREER PATHWAY/PROGRAM OF STUDY TEMPLATE

COLLEGE/UNIVERSITY:
HIGH SCHOOL (S):

Eastern Kentucky University
Kentucky High School

CLUSTER: Health Science
PATHWAY: Phlebotomy Technician
PROGRAM: Health Science

	GRADE	ENGLISH	MATH	SCIENCE	SOCIAL STUDIES	REQUIRED COURSES RECOMMENDED			CREDENTIAL CERTIFICATE DIPLOMA DEGREE	SAMPLE OCCUPATIONS	
						ELECTIVE COURSES	OTHER ELECTIVE COURSES	CAREER AND TECHNICAL EDUCATION COURSES			
SECONDARY	9	English 9	Algebra I	Physical Science	Civics/ Geography	Health & PE	Computer/Tech Applications	Principles of Health Science		Phlebotomist	
	10	English 10	Algebra II /Geometry	Biology	World History	Foreign Lang/ Arts & Humanities	Child Development	Principles of Health Science		Medical Laboratory Assistant	
	11	English 11	Geometry /Advance Topics	Chemistry/ Physics	US History	Medical Math/Health Wellness	Medical Terminology And Emergency Procedures	Body Structures and Functions	Certification in First Aide and CPR		
	12	English 12	Calculusor College Math Readiness	Chemistry/ Physics	Psychology	Internship Medical Laboratory Aide	Medical Laboratory Aide	Allied Health Core Skills	KOSSA Allied Health Assessment/ Phlebotomy Tech Cert.		Medical Laboratory Technician/Tech nologist
	Year 13	English or Oral Communications	College Algebra	Chemistry/ Biological Science	American Government	Courses Health	Required for Program in	Completion Area of	Of Allied Specialization		
POSTSECONDARY	Year 14	English or Oral Communication	Statistics	Microbiology	American History/ Sociology	Continue	Required	course	Associate Degree In Allied Health		
	Year 15	University Specific	General Education Requirements			Continue	Required	course			
	Year 16	University Specific	General Education Requirements			Continue	Required	course	Baccalaureate Degree in Allied Health	Cardiovascular Technologist	



Required Courses
Recommended Elective Courses
Other Elective Courses
Career and Technical Education Courses
Credit-Based Transition Programs (e.g. Dual/Concurrent Enrollment, Articulated Courses, 2+2+2) (= High School to Community College) (= Com. College to 4-Yr Institution) (=Opportunity to test out)
Mandatory Assessments, Advising, and Additional Preparation

Note: Categories of courses (e.g. Required, Recommended Electives, other Electives and Career and Technical Education apply to both secondary and postsecondary levels.

Health Science – Courses

Body Structures and Functions
Valid Course Code: 170167

Course Description: Body Structures and Functions (formerly Basic Anatomy and Physiology) is designed to provide knowledge of the structure and function of the human body with an emphasis on normalcy. The interactions of all body systems in maintaining homeostasis will promote an understanding of the basic human needs necessary for health maintenance. Academic knowledge from life science content as it relates to the human body will be included. Laboratory activities should be a part of the course when appropriate.

Content/Process

Students will:

1. Describe the basic structures and functions of cells, tissues, organs, and each body system as they relate to homeostasis.
2. Compare relationships among cells, tissues, organs, and systems.
3. Explain body planes, directional terms, quadrants, and cavities.
4. Analyze the interdependence of the body systems as they relate to wellness, disease, disorders, therapies, and care rehabilitation.
5. Analyze body system changes in light of diseases, disorders, and wellness.
6. Compare the aging process among the body systems.
7. Discuss and explain the interrelationships and pathophysiology behind specific illness affecting each body system.
8. Integrate literacy and numeracy concepts and processes across all curricular units.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Emergency Procedures
Valid Course Code: 170141

Course Description: This course will focus on potential emergency situations. It is designed to promote an understanding of standard precautions necessary for personal and professional health maintenance and infection control. Upon successful completion of the course, the student will demonstrate the necessary skills in First Aid and Cardiopulmonary Resuscitation (CPR) and will be given the opportunity to take the completion examination as outlined by the sponsoring agency.

Content/Process

Students will:

1. Demonstrate proper emergency rescue and transport procedures.
2. Analyze emergency situations and determine appropriate emergency care.
3. Investigate legal and ethical issues related to emergency procedures.
4. Demonstrate correct use of PPE in relation to standard precautions for prevention or spread of disease.
5. Compose an emergency plan for the home.
6. Assess the physical and mental status of the client.
7. Research and debate issues concerning organ donation.
8. Evaluate data related to the mortality rate of the local community.
9. Identify and locate designated emergency shelters in the community.
10. Compare and contrast emergency procedures used in the media to reality.
11. Inspect the school and/or home for potential safety hazards.
12. Evaluate current health or safety issues in the community.
13. Research current data available on the economic impact of life support systems.
14. Evaluate emergency services and resources available in the community.
15. Demonstrate proficiency in CPR, AED and first aide techniques.
16. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
17. Use information technology applications as appropriate to health care specialties.
18. Integrate literacy and numeracy concepts and processes across all curricular units.
19. Demonstrate employability and social skills relevant to careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- American Heart Association/National Safety Council
- American Red Cross/American Safety Health Institute (ASHI)
- Occupational Safety and Health Administration Standards (OSHA)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Medical Math
Valid Course Code: 170169

Course Description: This course is designed to focus, utilize and build on mathematical skills commonly used in all health occupations. Students will use applied techniques, problem-solving and critical thinking to perform mathematical operations such as computations, ratio and proportion, weights and measurements and conversions. This course is strongly recommended for all Health Science majors. Successful completion of Algebra I is suggested prior to enrolling in this course.

Content/Process

Students will:

1. Perform fundamental arithmetic operations on whole numbers, fractions, decimals and percent for accuracy and speed.
2. Understand mathematical procedures and use them appropriately.
3. Accurately calculate oral and parenteral dosages.
4. Relate mathematics to activities in health science and discuss the importance of a thorough understanding of mathematics to a successful career in the health profession.
5. Perform conversions with accuracy interchanging apothecary, metric, and household systems.
6. Analyze and compare over-the-counter medications as to the number of doses and unit price.
7. Observe and record the ways measurement is used in a medical laboratory.
8. Describe and perform steps in dosage calculations of oral and parenteral medications.
9. Describe and perform steps in dosage calculations in pediatric dosage calculations.
10. Describe and perform concepts of IV therapy calculation.
11. Use various types of graphs to interpret and analyze information.
12. Organize information using classification rules and systems (e.g. symbols, abbreviations, Roman numerals).
13. Estimate values for operations involving decimals and cognitively compute the results.
14. Represent fractions as ratios in simplest form.
15. Represent numbers in scientific notation.
16. Demonstrate knowledge of measurement systems and conversion principles.
17. Perform addition, subtraction, multiplication, and division of signed numbers.
18. Relate words to algebraic expressions.
19. Set up and solve proportions.
20. Find the mean, median, and mode for a group of values.
21. Use the 24-hour clock (military time).
22. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
23. Use information technology applications as appropriate to health care specialties.
24. Integrate literacy and numeracy concepts and processes across all curricular units.
25. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—FHM 100 or KCTCS course determined through local dual/articulation agreement

Medical Terminology

Valid Course Code: 170131

Course Description: Medical Terminology designed to develop a working knowledge of language in all health science major areas. Students acquire word-building skills by learning prefixes, suffixes, roots and abbreviations. Students will learn correct pronunciation, spelling and application rules. By relating terms to body systems, students identify proper use of words in a medical environment. Knowledge of medical terminology enhances the student's ability to successfully secure employment or pursue advanced education in health care.

Content/Process

Students will:

1. Arrange word roots, prefixes, and suffixes to form medical terms.
2. Categorize word parts by body systems.
3. Interpret terms relating to all major body systems.
4. Correlate origin of terms to other languages.
5. Identify medical acronyms, homonyms and eponyms.
6. Recognize and define plural forms of medical terms.
7. Access resources to enhance understanding of medical terms.
8. Identify and use common medical abbreviations.
9. Relate medical terms to normal anatomy, growth and development, diagnostic procedures, pharmacology, surgery, mental health and medical specialties.
10. Compare the use of medical terms in the media and real-life situations.
11. Pronounce medical terms.
12. Demonstrate employability and social skills relevant to health careers.
13. Use medical terminology within a scope of practice in order to interpret, transcribe and communicate information, data and observations.
14. Recognize and define suffixes that denote noun, adjective, singular, and plural forms of medical words.
15. Categorize major prefixes in the following groups: position, number, measurement, negation, direction, and other prefixes.
16. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
17. Use information technology applications as appropriate to health care specialties.
18. Integrate literacy and numeracy concepts and processes across all curricular units.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS AHS 120 for completion of the .5 credit course **OR** AHS 115 for completion of the 1 credit course

Principles of Health Science

Valid Course Code: 170111

Course Description: Principles of Health Science is an orientation and foundation for occupations and functions in any health care profession. The course includes broad health care core standards that specify the knowledge and skills needed by the vast majority of health care workers. The course focuses on exploring health career options, history of health care, ethical and legal responsibilities, leadership development, safety concepts, health care systems and processes and basic health care industry skills. This introductory course may be a prerequisite for additional courses in the Health Science program.

Content/Process

Students will:

1. Analyze and interpret medical milestones, conditions, trends and issues to develop historical perspectives about the health care industry.
2. Explore the organizational structure of various health care facilities.
3. Observe, analyze and interpret human behaviors, social groupings and institutions to better understand people and the relationship among individuals and among groups.
4. Identify how key systems affect services performed and the quality of health care.
5. Describe ethical practices with respect to cultural, social and ethnic differences within the health care environment.
6. Recognize legal responsibilities, limitations and the implications of actions within the health care industry and manage professional behavior accordingly (specifically related to HIPAA regulations).
7. Evaluate services, products, and resources available in the community and state in order to make effective consumer decisions.
8. Follow health and safety policies and procedures to prevent injury or illness through safe work practices.
9. Understand the roles and responsibilities of the health care team and interact effectively with all team members.
10. Explore Maslows' Hierarchy of Needs.
11. Recognize an acceptable Code of Conduct for a health care worker.
12. Use strategies for choosing and preparing for a career in the health care industry.
13. Apply methods of giving and obtaining information to communicate effectively, both orally and in writing.
14. Demonstrate skills and work habits that lead to success in future schooling and work.
15. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
16. Use information technology applications as appropriate to health care specialties.
17. Integrate literacy and numeracy concepts and processes across all curricular units.
18. Demonstrate key employability skills (e.g. interviewing, writing resumes, and completing applications) needed for further education or employment.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Health Science – Allied Health

Allied Health Core Skills
Valid Course Code: 170501

Course Description: Allied Health Core Skills is designed to provide knowledge, concepts and psychomotor skills necessary for gainful employment as an entry-level health care worker. Assisting students in selecting a career major, classroom instruction and educational objectives are combined with learning experiences, observations, and a work-based learning opportunity such as internship, shadowing, or clinical rotation. This course is designed for students not enrolled in the Medicaid Nurse Aide program.

Prerequisites: Principles of Health Science – 170111

Medical Terminology – 170131

Emergency Procedures - 170141 or Permission of Instructor

Content/Process

Students will:

1. Develop and practice effective oral and written communication skills.
2. Understand the roles and responsibilities of individual members of the health care team.
3. Prepare supplies, equipment and client for procedures according to facility protocol.
4. Use accepted ethical practices with respect to cultural, social and ethnic differences.
5. Discuss legal responsibilities, limitations, and the implications of actions within the health care delivery setting.
6. Examine how key systems relate to the services performed and affect the quality of client care.
7. Prevent injury or illness through safe work practices and following health and safety policies and procedures.
8. Demonstrate professional etiquette and responsibility.
9. Demonstrate knowledge of applicable laws, statutes or regulations in the career major area.
10. Demonstrate performance skills as outlined on approved internship competency list.
11. Assess client health status according to respective professional standards and report results to treatment team.
12. Demonstrate the effective use of time management skills.
13. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
14. Use information technology applications as appropriate to health care specialties.
15. Integrate literacy and numeracy concepts and processes across all curricular units.
16. Demonstrate employability and social skills relevant to health careers.
17. Explore individual health care careers.
18. Demonstrate skills related to specific health professions.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
 - National Health Science Standards by the National Consortium for Health Science Education
 - HOSA-Future Health Professionals (www.hosa.org)
 - Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
 - State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Internship: Allied Health
Valid Course Code: 170550

Course Description: The internship provides supervised on-the-job work experience related to the students' education objectives. Work-based learning is designed to complement the classroom instruction. Students will be required to follow program and agency requirements for attendance and health screenings. These may include but are not limited to: drug screens, TB skin test, and immunization certificates.

Prerequisites: Principles of Health Science – 170111

Medical Terminology – 170131

Emergency Procedures - 170141 or Permission of Instructor

This course may be repeated to accommodate multiple experiences in a variety of health care settings.

Content/Process

Students will:

1. Gain career awareness and the opportunity to test career major choices(s).
2. Name credentialing agencies for careers related to career major.
3. Trace the organizational structure of the career major and affiliating agency.
4. Research the history and rationale of career major specialty.
5. Identify the different specialties in the career major.
6. Review theory related to career pathway.
7. Demonstrate knowledge of applicable laws, statutes, or regulations in the career area.
8. Research common diseases or problems associated with career major.
9. Receive work experience related to the career major prior to graduation.
10. Integrate classroom studies with work experience.
11. Receive exposure to facilities and equipment unavailable in a classroom setting.
12. Increase employability potential after graduation.
13. Demonstrate performance skills related to the career major area.
14. Demonstrate knowledge of first aid and CPR as they relate to the area.
15. Demonstrate professional etiquette and responsibilities.
16. Demonstrate effective communication skills.
17. Practice team building concepts.
18. Demonstrate effective use of time management skills.
19. Incorporate use of related medical terminology and theory related to the career major.
20. Demonstrate correct observation skills.
21. Demonstrate proper use of the telephone, communication system, copying, and faxing.
22. Recognize and provide environmental, personal, and patient safety.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Internship: Dental Assistant
Valid Course Code: 170552

Course Description: This course is designed to assist students with developing skills needed to be successful dental assistants and responsible members of the health care society. The students will develop skills performed by the dental assistant. Work-based learning is designed to complement the classroom instruction. Students will be required to follow program and agency requirements for attendance and health screenings. These may include but are not limited to: drug screens, TB skin test, and immunization certificates.

Prerequisites: Principles of Health Science – 170111

Medical Terminology – 170131

Emergency Procedures - 170141 or Permission of Instructor

Content/Process

Students will:

1. Use correct dental terminology when describing the teeth or landmarks of the teeth.
2. Name the universal codes for each tooth in the permanent teeth.
3. Provide the current location of each permanent tooth.
4. Identify and describe oral lesions.
5. Demonstrate procedures for performing hard tissue charting and accurately record the findings.
6. Demonstrate process of performing extraoral and intraoral examinations and record the findings.
7. Explain the process of tooth decay and the various stages.
8. List three types of dental delivery systems.
9. Apply the principles of chair side assisting to each specialty area.
10. Define pediatric dentistry and procedures common to this specialty.
11. Identify the role of the dental assistant in pediatric dentistry.
12. Discuss effective management of the pediatric patient in the dental operatory.
13. Describe the design of a dental treatment room.
14. List the type of dental equipment in a dental treatment room and their function.
15. Describe how to prepare a dental treatment room for patient treatment.
16. Describe the positioning of the patient and dental team.
17. Describe the principles of transferring and exchanging instruments.
18. Describe the three parts of a dental hand instrument.
19. List the types of hand cutting instruments and their uses.
20. List the types of restorative instruments and their uses.
21. Describe additional accessory instruments used in dentistry.
22. Describe the use of preset trays and tubs.
23. List instruments and supplies contained in a basic setup.
24. Describe the low speed hand piece.
25. Describe the attachments used on the low speed hand piece.
26. Describe the high speed hand piece and its use.
27. Describe rotary instruments and how they are used.
28. List the parts of a bur.
29. Demonstrate procedures used in moisture control.

30. Demonstrate the grasp and positioning of the dental assistant when using the high volume oral evacuator tip.
31. Demonstrate the use of the air water syringe.
32. Correctly follow tooth selection criteria for sealant placement.
33. Discuss/demonstrate accepted sequence in sealant placement.
34. Process exposed intraoral and extraoral dental radiographs.
35. Clean x-ray processing equipment.
36. Mount and label radiographs.
37. Prepare radiographs for legal requirements, viewing and filing.
38. Maintain radiographic equipment.
39. Provide patient safety measures and educate patient in radiographic safety.
40. Practice operator safety measures.
41. Monitor personal radiation exposure.
42. Identify principles and functions of extraoral dental.
43. Expose extraoral dental radiographs.
44. Interpret common conditions found on intraoral and extraoral dental radiographs.
45. Mount and label radiographs.
46. Prepare radiographs for legal requirements viewing and filing.
47. Select appropriate dental film.
48. Prepare/assist with temporary crowns.
49. Apply pit and fissure sealants.
50. Prepare, mix, transfer and store restorative materials.
51. Prepare, mix, transfer and store sedative/palliative materials.
52. Select, manipulate and store impression materials.
53. Apply OSHA safety measures when using toxic dental materials or irritants.
54. Prepare, mix, transfer and store impression materials.
55. Select, manipulate and store gypsum products.
56. Take impressions for study casts.
57. Fabricate and evaluate diagnostic casts.
58. Articulate casts.
59. Fabricate custom impression trays.
60. Apply safety measures when using gypsum materials.
61. Place, carve and finish amalgam restorations.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

EKG Technician

Valid Course Code: 170555

Course Description: This course may be completed as an independent study or as a classroom course during the student's senior year. Upon successful completion of the course, students may be eligible to take the EKG Technician Certification examination. It is best practice for students to participate in a work based learning experience during this course. Students will be required to follow program and agency requirements for attendance and health screenings during the work based learning experience. These may include but are not limited to: drug screens, TB skin test, and immunization certificates.

Students must meet eligibility requirements of the National Healthcareer Association (NHA) in order to take the certification exam.

Content/Process

Students will:

1. Calculate a patient's heart rate from the EKG tracing (e.g., 6-second method, R to R, sequencing).
2. Identify artifacts from the tracing (e.g., wandering baseline, somatic, electrical).
3. Resolve artifacts from the tracing (e.g., wandering baseline, somatic, electrical).
4. Record an EKG lead on a patient (3-lead, 5-lead, 12-lead).
5. Verify the leads recorded on an EKG.
6. Upload a completed EKG to a patient's electronic medical record.
7. Mount a completed EKG for a patient's chart.
8. Measure a patient's heart rhythm from the EKG tracing.
9. Inspect the waveforms of a cardiac cycle for symmetry, direction, and amplitude (e.g., P waves, QRS Complexes, ST segments, T waves).
10. Measure a patient's heart conduction from the EKG tracing (e.g., PR-interval (PRI), QRS duration, QT-interval).
11. Identify the major classifications of arrhythmias from the EKG tracing (e.g., sinus, atrial, ventricular, and junctional).
12. Identify the major variances to waveforms related to ischemia, injury, or infarction.
13. Respond to potentially life threatening arrhythmias.
14. Verify EKG machine paper speed (e.g., 25mm, 50mm).
15. Verify EKG machine sensitivity (e.g., h, 1, 2).
16. Maintain EKG equipment and the work environment.
17. Recognized pacemaker spikes on an EKG trace.
18. Prepare the patient for EKG monitoring, Holter monitoring, stress testing, and telemetry monitoring (e.g., patient history, cardiac medications, patient positioning).
19. Apply electrodes on patients for EKG, Holter monitoring, stress testing, telemetry, pediatric patients, and patients with special considerations (e.g., right sided heart, posterior chest, amputations).
20. Respond to signs and symptoms of cardiopulmonary compromise
21. Adhere to HIPAA regulations regarding Protected Health Information (PHI).
22. Monitor patient condition during stress testing.
23. Respond to complications during stress testing.
24. Verify patient understanding of Holter monitor procedures.

25. Obtain patient vital signs (e.g., heart rate, respirations, temperature, blood pressure, pulse oximetry).
26. On an illustration, identify the structures of the heart and describe their function.
27. On an illustration, trace the flow of blood through the pulmonary and systemic circulatory systems.
28. Describe the electrophysiology of the heart and relate the events of cardiac conduction to the electrocardiogram.
29. Outline the process of electrocardiography.
30. Explain the purpose of measuring the standard 12 lead electrocardiogram.
31. List standards of calibrating and providing general maintenance of an electrocardiograph.
32. Explain the method and rationale for measuring the EKG/ECG in the exercising patient including safety hazards.
33. Evaluate the electrocardiogram for cardiac rate, rhythm, and the presence of absence of ectopic beats.
34. Recognize PAC's, atrial fibrillation, atrial flutter, PVC's, ventricular tachycardia, and ventricular fibrillation.
35. Recognize and describe the actions of various common cardiovascular agents.
36. Discuss arrhythmias and identify how to interpret those of the sinoatrial mode, sinus tachycardia, sinus arrest, and sinus bradycardia.
37. Discuss first-degree and second-degree AV block and explain how they can be identified on the ECG/EKG.
38. Explain the difference between right and left bundle branch blocks and briefly define how each can be identified on an ECG/EKG.
39. Discuss the role of the ECG/EKG technician as it relates to patient care and recording of the ECG.
40. Identify and describe the various types of equipment and supplies used in monitoring and recording electrocardiograms.
41. Perform basic lead placement on the adult, pediatric, and neonatal patient.
42. Prepare and position patient for testing.
43. Attach electrodes to the patient's chest, arms, and legs, connect electrodes to leads from the EKG machine, and operate the machine to obtain a reading.
44. Explain testing procedures to patient to obtain cooperation and reduce anxiety.
45. Monitor patients' blood pressure and heart rate using electrocardiogram (EKG) equipment during diagnostic and therapeutic procedures to notify the physician if something appears wrong.
46. Monitor patients' comfort and safety during tests, alerting physician to abnormalities or changes in patient responses.
47. Observe gauges, recorder, and video screens of data analysis system during imaging of cardiovascular system.
48. Adjust equipment and controls according to physician's orders or established protocol.
49. Check, test, and maintain cardiology equipment.
50. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
51. Use information technology applications as appropriate to health care specialties.

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| 52. Integrate literacy and numeracy concepts and processes across all curricular units.
53. Demonstrate employability and social skills relevant to health careers. |
| Connections |
| <ul style="list-style-type: none">• Kentucky Occupational Skill Standards/National Health Care Skill Standards• National Health Science Standards by the National Consortium for Health Science Education• HOSA-Future Health Professionals (www.hosa.org)• Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)• State Standards for Mathematics, ELA and 21st Century Science Standards• Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement |

Medical Laboratory Aide (Phlebotomist)
Valid Course Code: 170567

Course Description: This course consists of a combination of classroom instruction and hands-on experiences related to the student' education objectives in the area of Medical Laboratory Aide/Phlebotomist. It is best practice for students to participate in a work based learning experience during this course. See Work Based Learning Manual: <http://education.ky.gov/CTE/cter/Pages/WBL.aspx>. Students will be required to follow program and agency requirements for attendance and health screenings during the work based learning experience. These may include but are not limited to: drug screens, TB skin test, and immunization certificates. Students must meet eligibility requirements of the National Healthcareer Association (NHA) in order to take the certification exam.

Content/Process

Students will:

1. Collect, transport, handle, and process blood and urine specimens for analysis.
2. Adhere to all regulations/guidelines outlined by HIPAA.
3. Gain career awareness and the opportunity to test career major choices(s).
4. Name credentialing agencies for careers related to career major.
5. Trace the organizational structure for the career major and affiliating agency.
6. Research the history and rationale of career major specialty.
7. Identify the different specialties in the career major.
8. Demonstrate knowledge of applicable laws, statutes, or regulations in the career area.
9. Research common diseases or problems associated with career major.
10. Receive work experience related to the Medical Laboratory Aide/Phlebotomist career prior to graduation.
11. Integrate classroom studies with work experience.
12. Receive exposure to facilities and equipment unavailable in a classroom setting.
13. Demonstrate performance skills related to the Medical Laboratory Aide/Phlebotomist career.
14. Demonstrate knowledge of first aid and CPR as they relate to the area.
15. Demonstrate professional etiquette and responsibilities including effective communication skills.
16. Demonstrate effective use of time management and team building skills.
17. Demonstrate correct observation skills.
18. Perform procedures to prevent disease transmission utilizing OSHA, CDC regulations, and universal precautions.
19. Recognize and provide environmental, personal, and patient safety.
20. Follow safety and emergency procedures and explain the use of a safety shower and safety apparel.
21. Demonstrate proper use of communication technology (phone, internet, etc.) used in the career area.
22. Receive patients and visitors.
23. Observe, record, and report patient data.
24. Prepare accident and incident reports as necessary.
25. Assist with data entry and billing procedures.
26. Identify supplies and equipment commonly used in lab procedures.

27. Assist with quality control checks of equipment.
28. Log incoming and outgoing specimens.
29. Deliver supplies and lab specimens to designated areas.
30. Prepare specimens for shipment.
31. Maintain lab work surfaces and glassware using proper cleaning and safety procedures.
32. Use appropriate sterilization procedures.
33. Distribute supplies to appropriate laboratory section.
34. Maintain inventory.
35. Maintain, label, and store routine lab chemical solutions.
36. Differentiate between various kinds of collection tubes and anticoagulants.
37. Identify normal values for blood and urine.
38. Name the components of a complete blood count (CBC).
39. Collect fluid and/or tissue specimens using appropriate collection procedures.
40. Explain collection procedures to patients.
41. Match laboratory requisition forms to specimen tubes.
42. Document route of specimens from collection to laboratory analysis and diagnosis.
43. Assist and draw blood from capillaries by dermal puncture, such as heel or finger stick methods.
44. Assist and draw blood from veins by vacuum tube, syringe, or butterfly venipuncture methods.
45. Assist and draw blood from arteries, using arterial collection techniques.
46. Dispose of contaminated sharps, in accordance with applicable laws, standards, and policies.
47. Dispose of blood or other biohazard fluids or tissues, in accordance with applicable laws, standards, and policies.
48. Identify potential hazards in the lab.
49. Obtain a copy of MSDS sheets for materials used in the lab.
50. Demonstrate procedure for use of the eyewash station.
51. Organize and clean blood-drawing trays, ensuring that all instruments are sterile and all needles, syringes or related items are of first-time use.
52. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
53. Use information technology applications as appropriate to health care specialties.
54. Integrate literacy and numeracy concepts and processes across all curricular units.
55. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Pharmacy Technician

Valid Course Code: 170558

Course Description: This course may be completed as an independent study or as a classroom course during the student's senior year. Material covered will include: Orientation, Federal Law, Medication Review, Aseptic Techniques, Calculations, and Pharmacy Operations. It is best practice for students to participate in a work based learning experience at a pharmacy during this course. Students will be required to follow program and agency requirements for attendance and health screenings during the work based learning experience. These may include but are not limited to: drug screens, TB skin test, and Immunization certificates. Upon completion of this course, students are eligible to take the Pharmacy Technician certification examination in order to obtain national certification. Options for the national certification examination include either the ExCPT/CPhT or the PTCB exam.

Content/Process

Students will:

1. Understand, discuss and define basic pharmacy terms and definitions.
2. Discuss the Pharmacy Technician Certification Board, its founding members and purpose.
3. Understand the PTCB certification examination structure, time allowed for exam, and broad topic content.
4. Detail the requirements and process needed to maintain certification.
5. Understand Federal Laws that affects the Pharmacy Industry.
6. Discuss different laws and legislation that affect the Pharmacy Industry (when they were enacted and their importance).
7. Discuss the importance of the Controlled Substance Act of 1970.
8. Outline filing procedures, maintaining records according to State and Federal Laws, and drug substitution requirements.
9. Illustrate how a doctor's DEA Number is determined and its purpose.
10. Discuss storage requirements for Schedule II Drugs.
11. Define the four phases of Investigational Drugs.
12. Define Pharmacology (the varied types of drugs, prescription types, medication dosage forms, and medical devices are discussed).
13. List drug interactions on the human body's major systems.
14. Review the different types of medication dosages (i.e., tablets, caplets, liquids, creams, emulsions, etc.).
15. Describe the different types of administration devices for certain medications and dosages.
16. Review drugs which affect the central nervous system, peripheral nervous system, cardiovascular system, and renal system (to include drug interactions, mechanism of action and manufacturer named drugs).
17. Review drugs classified as hormones (to include drug interactions, mechanism of action and manufacturer named drugs).
18. Review drugs classified as anti-infectant drugs (to include drugs interactions, mechanism of action and manufacturer named drugs).
19. Review drugs classified as chemotherapy drugs (to include drug interactions, mechanism of action and manufacturer named drugs).
20. Review blood and blood formation drugs (to include drug interactions, mechanism of action and manufacturer named drugs).

21. Review vitamins (to include drug interactions, mechanism of action and manufacturer named drugs).
22. Practice and demonstrate aseptic techniques.
23. Demonstrate the proper use of various types of syringes.
24. Define the uses of parenteral routes.
25. Identify the four most widely used parenteral routes.
26. Review of sterile compounding procedures.
27. Review the uses of various solutions used in the Pharmacy (irrigation solutions, parenteral solutions, and TPNs).
28. Examine the safe handling of antineoplastic agents used in the treatment of cancer is provided.
29. List the steps of a parenteral admixture order.
30. Calculate dosages through the aspects of Pharmacy mathematics.
31. Convert units of measurement for the metric, avoirdupois, and apothecary systems.
32. Interpret abbreviations and roman numerals used in prescriptions.
33. Practice the basics of fractions, decimals and percent as used in Pharmacology.
34. Convert Fahrenheit – Centigrade temperatures.
35. Utilize ratio proportion relationships for chemical mixtures used in pharmacy.
36. Calculate the amount of drug product to dispense or the number of days' supply from a dosage regimen.
37. Determine the flow rate of an IV solution.
38. Calculate powder volume.
39. Review the various pricing methods used in retail pharmacy.
40. Manage inventory controls of the Pharmacy business with an overview of insurance claims and “third party” reimbursement.
41. Maintain an accurate patient profile.
42. Detail what should be collected for a proper patient profile.
43. Define key terms used in inventory management.
44. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
45. Use information technology applications as appropriate to health care specialties.
46. Integrate literacy and numeracy concepts and processes across all curricular units.
47. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement
- PassAssured (Exam)
- National Health Association (Exam)

Special Topics in Allied Health

Valid Course Code: 170591

Course Description: Special Topics in Allied Health is an expanded course offering the study of current world health-related issues. Topics may vary at the discretion of the instructor with the approval of the state health science consultant.

Content/Process

Students will:

1. Adhere to all regulations/guidelines outlined by HIPAA.
2. Tasks will vary based on the topic covered.
3. Research current health-related issues.
4. Investigate employment opportunities and responsibilities of health care workers.
5. Develop work habits necessary for individual maturity and job competence.
6. Create a plan for productive time management.
7. Interpret instructional manuals.
8. Discuss articles from professional journals.
9. Formulate a plan for post-secondary education.
10. Prepare a written and oral culminating report based on experiences in the health science program.
11. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
12. Use information technology applications as appropriate to health care specialties.
13. Integrate literacy and numeracy concepts and processes across all curricular units.
14. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Health Science – Biomedical Science

Project Lead the Way (PLTW) Biomedical Science Pathway

Access to curriculum for these 4 courses and certifications require a District/School STEM contract with PLTW. These pages will show course descriptions and valid course codes.

For more information, contact PLTW National (www.pltw.org) or the Biomedical Science State Lead in the Office of Career and Technical Education.

Course Name:	Principles of Biomedical Science
Course Description:	Student work involves the study of human medicine, research processes and an introduction to bioinformatics. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia, and infectious diseases. A theme through the course is to determine the factors that led to the death of a fictional person. After determining the factors responsible for the death, the students investigate lifestyle choices and medical treatments that might have prolonged the person’s life. Key biological concepts including: homeostasis, metabolism, inheritance of traits, feedback systems, and defense against disease are embedded in the curriculum. Engineering principles including: the design process, feedback loops, fluid dynamics, and the relationship of structure to function are incorporated in the curriculum where appropriate. The course is designed to provide an overview of all the courses in the Biomedical Science program and to lay the scientific foundation necessary for student success in the subsequent courses
Valid Course Code:	170701

Course Name:	Human Body Systems
Course Description:	Students will engage in the study of the processes, structures, and interactions of the human body systems. Important concepts in the course include: communication, transport of substances, locomotion, metabolic processes, defense, and protection. The central theme is how the body systems work together to maintain homeostasis and good health. The systems will be studied as “parts of a whole,” working together to keep the amazing human machine functioning at an optimal level. Students will design experiments, investigate the structures and functions of body systems, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary actions, and respiratory operation. Students will work through interesting real world cases and often play the role of biomedical professionals to solve medical mysteries.
Valid Course Code:	170702

Course Name:	Medical Interventions
Course Description:	Student projects will investigate various medical interventions that extend and improve quality of life, including gene therapy, pharmacology, surgery, prosthetics, rehabilitation, and supportive care. Students will study the design and development of various medical interventions including vascular stents, cochlear implants, and prosthetic limbs. They will review the history of organ transplants and gene therapy, and read current scientific literature to be aware of cutting edge developments. Using 3-D imaging software and current scientific research students will design and build a model of a therapeutic protein.
Valid Course Code:	170703

Course Name:	Biomedical Innovation
Course Description:	This capstone course gives student teams the opportunity to work with a mentor, identify a science research topic, conduct research, write a scientific paper, and defend team conclusions and recommendations to a panel of outside reviewers. Each team will have one or more mentors from the scientific and/or medical community guiding their scientific research. This course may be combined with the capstone course from the pre-engineering pathway, allowing students from both pathways to work together to engineer a product that could impact healthcare. This course may also be combined with the EKG Technician course or the Pharmacy Technician course to allow students the opportunity to take the exams for those certifications. Options for the Pharmacy Technician certification examination include either the ExCPT/CPhT or the PTCB exam. The EKG Technician exam is through the National Healthcareer Association (NHA). Students must meet eligibility requirements of the certifying agency in order to take the certification exam.
Valid Course Code:	170704

Health Science – Medical Administrative Assistant

Medical Office Procedures
Valid Course Code: 170920

Course Description: Provides a working knowledge of the duties required in a medical office. Includes professional and career responsibilities, interpersonal communication, administrative responsibilities, and financial administration.

Content/Process

Students will:

1. List a variety of career possibilities and areas of specialization in medical office careers.
2. Identify and demonstrate good work habits.
3. Apply personal communication skills and techniques.
4. Define and demonstrate appropriate business appearance and image.
5. Prepare a letter of application and resume.
6. Demonstrate and describe proper telephone techniques.
7. Process incoming and outgoing mail.
8. Schedule patient office appointments, hospital admissions, outpatient surgery, and ancillary testing.
9. Assist patients in completing medical forms.
10. Identify the various health care insurance plans, their coverage, and requirements for billing.
11. Complete forms to release patient information.
12. Maintain office equipment and supplies.
13. Identify medicolegal and ethical responsibilities.
14. Discuss the role of cultural, social and ethnic diversity affecting health care.
15. Demonstrate an understanding of office safety and ergonomics.
16. Prepare professional reports.
17. Make travel arrangements.
18. Perform bookkeeping tasks: check writing, bank statement reconciliation, billing and collection procedures.
19. File records accurately.
20. Discuss principles of using electronic medical records.
21. Comply with HIPAA rules and regulations.
22. Identify community resources.
23. Identify safety rules applicable to this course and demonstrate appropriate observance of said rules, including but not limited to, trip hazards, electrical cords and outlets, evacuation procedures for emergency situations (including fire, tornado, bomb threat, earthquake, etc.), lockdown procedures for emergency situations, location and contents of first aid kit, MSDS sheets, etc.
24. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
25. Use information technology applications as appropriate to health care specialties.
26. Integrate literacy and numeracy concepts and processes across all curricular units.
27. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Health Science – Pre-Nursing

Co-op (Nursing)
Valid Course Code: 170601

Course Description: Cooperative Education provides supervised on-the-job work experience related to the student's educational objectives. Students participating in the Cooperative Education program receive compensation for their work. Work-based learning is designed to complement the classroom instruction. Students will be required to follow program and agency requirements for attendance and health screenings. These may include but are not limited to: drug screens, TB skin test, and immunization certificates.

Prerequisites: Principles of Health Science – 170111

Medical Terminology – 170131

Emergency Procedures - 170141 or Permission of Instructor

Content/Process

Students will:

1. Gain career awareness and the opportunity to test career choice(s).
2. Receive work experience related to career interests prior to graduation.
3. Integrate classroom studies with work experience.
4. Receive exposure to facilities and equipment unavailable in a classroom setting.
5. Increase employability potential after graduation.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Development for Care Giver Role
Valid Course Code: 170611

Course Description: Introduction to nursing and the nursing process as related to client activities of daily living across the life span; opportunity to develop and practice psychomotor skills related to health assessment, promotion, maintenance, and illness prevention.

Prerequisites: Current CPR card for Health Care Provider and successful completion of a Medicaid Nurse Aide

Content/Process

Students will:

1. Use basic health care measures that maintain, promote, and restore optimal health and wellness.
2. Use the nursing process as the method of problem solving in response to client needs.
3. Demonstrate basic physical assessment techniques.
4. Respond to assistive needs of individuals with functional alterations throughout the life span.
5. Exhibit safe and caring behaviors when providing nursing care.
6. Identify situations where client advocacy is indicated.
7. Develop a beginning awareness of self as a care provider.
8. Effectively use selected technological devices that impact client care in the health care setting.
9. Identify situations beyond one's knowledge and experience and seek appropriate assistance.
10. Give a brief history of persons involved with the early development of microbiology.
11. Describe the infectious process and the etiologic agents.
12. Explain the various body defenses against infection including immune response.
13. Define and list the differences between normal flora and pathogenic organisms affecting the body.
14. Explain the control of microbe growth and standard precautions (OSHA requirements) necessary for a safe work environment for the health care provider.
15. (LAB) Interview an individual recognizing subjective and objective data.
16. (LAB) Identify a nursing diagnosis on a care plan.
17. (LAB) Write goals using proper format.
18. (LAB) Identify nursing actions on a care plan.
19. (LAB) In small groups, discuss principles of documentation.
20. (LAB) Present a sample of documentation of nursing care.
21. (LAB) Perform an admission/transfer/discharge.
22. (LAB) Assist with a physical examination.
23. (LAB) Plan a family menu for one day with consideration to nutritional and economic needs.
24. (LAB) Plan a two-day meal for individuals through each stage of the life cycle.
25. (LAB) Demonstrate the techniques in physical assessment: inspection auscultation, percussion, and palpation.
26. (LAB) Perform vital signs.
27. (LAB) Perform coughing and deep breathing exercises.

28. (LAB) Auscultate the chest breath sounds.
29. (LAB) Identify normal and abnormal breath sounds.
30. (LAB) Obtain diet history of an individual.
31. (LAB) List criteria used in assessing metabolic needs of diverse groups.
32. (LAB) Feed individuals according to age and/or specific needs.
33. (LAB) Weigh and measure individuals.
34. (LAB) Perform blood glucose test.
35. (LAB) Assist with use of bedpan/urinal.
36. (LAB) Diaper an infant.
37. (LAB) Collect urine specimen - routine/clean-catch.
38. (LAB) Calculate and record I & O.
39. (LAB) Apply urine collection devices - infants/external catheters.
40. (LAB) Assess bowel sounds.
41. (LAB) Identify methods of promoting safety across the life span.
42. (LAB) Obtain various cultures from patients - throat/wound/stool/urine.
43. (LAB) Perform proper gloving for prevention of spread of infection.
44. (LAB) Perform concurrent cleaning of patient's room.
45. (LAB) Discuss in pre- and post-conference, various isolation technique precautions.
46. (LAB) Demonstrate standard precautions.
47. (LAB) Discuss, in small groups, community resources/support systems available to promote/maintain psychosocial needs of the individual and ways of reaching self-actualization.
48. (LAB) Demonstrate safe transporting of a patient in a wheelchair, e.g., up and down ramps, on and off elevators.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS NPN 105

Health Science Microbiology/Infection Control
Valid Course Code: 170640

Course Description: This course is designed to promote an understanding of the effects of microorganisms on the human body. The study includes standard precautions necessary for health maintenance and infection control. The focus is on reduction of diseases that interfere with basic human needs.

Content/Process

Students will:

1. Define terms related to Microbiology.
2. Discuss cell structure and taxonomy of prokaryotic/eukaryotic cells and organelles.
3. Explore the diversity and physical characteristics of microorganisms including bacteria, fungi, algae, protozoa, parasites and viruses.
4. Review basic chemistry concepts.
5. Identify the principles of microbial growth, control and death and actions of microbial control agents.
6. Discuss principles of disease, disease transmission and control, and epidemiology including commonly encountered pathological microorganisms.
7. Identify methods to prevent the spread of communicable diseases (OSHA requirements) necessary for a safe work environment for the health care provider.
8. Discuss human defenses against infectious diseases.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Introduction to Nursing and Health Care System
Valid Course Code: 170610

Course Description: Historical overview of current health care including medical economics, ethical and legal parameters, roles and responsibilities of health care team members with an emphasis on reflective nursing practice. Medical terminology, therapeutic communication techniques, concepts of health, health assessment, self-care and basic needs related to activities of daily living (ADL) across the lifespan are explored.

Prerequisites: Current CPR card for Health Care Provider and successful completion of a Medicaid Nurse Aide equivalent course

Content/Process

Students will:

1. Explain the US health care system including delivery systems and the role of health care providers.
2. Explain the history of nursing as it relates to current practice.
3. Explain the ethical and legal parameters governing the practice of practical nursing.
4. Use medical terminology accurately and appropriately.
5. Demonstrate the use of effective therapeutic communication techniques.
6. Relate, at a beginning level, activities of daily living to client age and health status to determine care needs.
7. Collect psychosocial and functional information for the assessment of an individual's health status.
8. Provide basic health care information to promote and maintain health.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS NPN 100

Medicaid Nurse Aide
Valid Course Code: 170631

Course Description: An instructional program that prepares individuals to perform routine nursing-related services to patients in hospitals or long-term care facilities under the training and supervision of an approved registered nurse. State Registry is available upon successful completion of state written and performance examination. Prior to offering this course, the instructor and health science program must be approved for meeting state requirements set by the Cabinet for Health and Family Services.

Content/Process

Students will:

1. Practice good personal hygiene.
2. Maintain good personal health.
3. Exhibit acceptable behavior.
4. Work cooperatively with others.
5. Maintain confidentiality.
6. Observe the Resident's Rights.
7. Identify and report abuse or neglect to appropriate person.
8. Use plan of care to meet resident's needs.
9. Communicate with resident, family, and staff.
10. Assist resident in use of intercom/call system/telephone.
11. Report observations/information to appropriate personnel.
12. Recognize health problems related to the aging process.
13. Recognize needs of the resident with cognitive impairment.
14. Assist with providing recreational activities for the resident.
15. Assist with giving postmortem care.
16. Follow standard precautions and bloodborne pathogens standard.
17. Wash hands aseptically.
18. Provide for environmental safety.
19. Adjust bed and side rails.
20. Assist with application of protective devices.
21. Report unsafe conditions to appropriate person.
22. Assist with care of resident with oxygen.
23. Follow fire and disaster plan.
24. Assist resident who has fallen.
25. Assist resident who has fainted.
26. Assist resident who is having a seizure.
27. Clear the obstructed airway - the conscious adult.
28. Using elevation, direct pressure, and pressure points to control bleeding.
29. Serve meals and collect trays.
30. Recognize diet modifications/restrictions.
31. Check food tray against diet list.
32. Feed or assist resident in eating.
33. Administer after meal care.
34. Record and report intake and output.
35. Give bed bath.

36. Assist resident with the partial bath.
37. Assist resident with tub bath.
38. Assist resident with shower.
39. Make unoccupied (closed) bed.
40. Make occupied bed.
41. Perform or assist in performing oral hygiene for the conscious/unconscious resident.
42. Assist with or shave resident.
43. Give backrub.
44. Give perineal care.
45. Shampoo/groom hair.
46. Give nail care.
47. Assist resident with dressing and undressing.
48. Provide urinary catheter care.
49. Provide care for the urinary incontinent resident.
50. Provide care for the bowel incontinent resident.
51. Assist resident in bladder retraining.
52. Assist resident in bowel retraining.
53. Assist resident in using bedpan/urinal.
54. Assist with enema administration.
55. Collect routine/clean catch urine specimen.
56. Collect stool specimen.
57. Collect sputum specimen.
58. Use good body mechanics.
59. Perform or assist with range of motion exercises.
60. Turn and position the resident in bed.
61. Transfer resident to and from bed/chair.
62. Use a mechanical lift to transfer resident.
63. Apply and use gait belt.
64. Assist resident with standing/walking.
65. Assist resident in using cane/walker.
66. Transport resident by wheelchair.
67. Move resident between stretcher and bed.
68. Assist with admission, in-house transfer, and discharge of resident.
69. Measure and record resident temperature by using oral, auxiliary, rectal and tympanic routes using non-mercury glass/electronic thermometer.
70. Measure and record radial pulse.
71. Measure and record respiration.
72. Measure and record blood pressure.
73. Measure and record height/weight.
74. Assist in prevention of pressure/circulatory ulcers.
75. Apply elastic stockings.
76. Don and doff personal protective equipment.

Connections

- KCTCS Nurse Aide resource page
http://kctcs.edu/en/System_Initiatives/Nurse_Aide.aspx
- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement; MNA 100
- Kentucky Cabinet for Health and Family Services, Department for Medicaid Services, Nurse Aide Training Information <http://chfs.ky.gov/dms/NAT.htm>

Pharmacological and Other Therapeutic Modalities
Valid Course Code: 170614

Course Description: Introduction to techniques used to administer commonly used drugs; dosage calculations; diagnostic studies and other related medical therapies; legal responsibilities.

Prerequisites: Current CPR card for Health Care Provider and Successful completion of Medicaid Nurse Aide course

Content/Process

Students will:

1. Calculate drug dosages accurately.
2. Identify the fundamental principles related to pharmacology when administering medications.
3. Identify legal and ethical responsibilities of the practical nurse when administering medications.
4. Identify common therapeutic and diagnostic procedures with pharmacological implications.
5. (LAB) Perform conversions with accuracy interchanging apothecary, metric and household systems.
6. (LAB) Perform steps in dosage calculations of oral and parenteral medications.
7. (LAB) Perform steps in pediatric dosage calculations.
8. (LAB) Perform IV therapy calculations.
9. (LAB) Practice interpreting abbreviations and symbols of medication orders.
10. (LAB) Discuss the significance of Controlled Substance ACT of 1970.
11. Discuss the legal/ethical nursing responsibilities related to medications.
12. (LAB) Discuss, in small groups, nurse's role in drug action/interaction.
13. (LAB) List the "rights of drug administration."
14. (LAB) List causes of common medication errors.
15. (LAB) Practice various routes of administering drugs in simulated situations and in the clinical facility.
16. (LAB) Practice calculating selected drug dosages.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS NPN 110

Health Science – Sports Medicine

Essentials of Sports Medicine
Valid Course Code: 170301

Course Description: An instructional program that prepares individuals to perform routine sports medicine related services for the physically active, under the training and supervision of an approved licensed athletic trainer. The purpose of this program is to give individuals knowledge and skills to prevent, recognize, and provide basic care for injuries and sudden illness.

Content/Process

Students will:

1. Understand anatomy and physiology.
2. Define and explain the medical terms related to sports medicine.
3. Understand structure and function of the musculoskeletal system.
4. Understand structure of related body systems.
5. Explore the fundamental aspects of sports medicine team.
6. Identify members of a sports medicine team.
7. Explore educational requirements of different sports medicine professionals.
8. Identify different career opportunities for sports medicine professionals.
9. Understand licensure requirements of medical professionals.
10. Explore ethical, legal, and professional responsibilities.
11. Recognize and implement professionalism.
12. Examine ethical behavior in health care.
13. Demonstrate legal responsibilities in health care.
14. Recognize and implement acute care skills.
15. Assess vital signs.
16. Demonstrate management of acute injuries.
17. Investigate the principles of exercise programs.
18. Explain the principles of physical conditioning.
19. Understand physical fitness testing and training.
20. Explore how environmental factors affect performance.
21. Differentiate thermal stresses.
22. Investigate severe weather situations.
23. Identify other physical factors related to performance.
24. Explore mechanisms of injury.
25. Identify common injuries.
26. Explore tissue response to injury.
27. Demonstrate management strategies for injury.
28. Explore special considerations in athletics.
29. Demonstrate safety practices for sports medicine.
30. Understand rehabilitation and reconditioning.
31. Understand therapeutic modalities.
32. Identify assessment techniques of athletic injuries.
33. Perform subjective assessment.
34. Explore objective assessment techniques.
35. Investigate diagnostic testing.
36. Prophylactic taping and bracing.

37. Demonstrate lower and upper extremity taping.
38. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
39. Use information technology applications as appropriate to health care specialties.
40. Integrate literacy and numeracy concepts and processes across all curricular units.
41. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Applied Sports Medicine
Valid Course Code: 170302

Course Description: An instructional program that emphasizes the prevention, assessment and care for injuries and illness to the physically active including the components of exercise science, anatomy, and principles of safety under the supervision of an approved licensed athletic trainer. Subject matter also includes legal issues, acute care skills, nutrition, human performance, taping and wrapping, therapeutic modalities, and application of sports medicine concepts.

Content/Process

Students will:

1. Understand anatomy and physiology.
2. Define and explain sports medicine related medical terms.
3. Understand structure and function of the musculoskeletal system.
4. Identify members of a sports medicine team.
5. Recognize and implement acute care skills.
6. Complete basic first aid and CPR training.
7. Assess vital signs.
8. Demonstrate management of acute injuries.
9. Investigate the principles of an exercise program.
10. Understand nutrition and weight management.
11. Explore mechanisms of injury.
12. Demonstrate management strategies for injury.
13. Explore special considerations in athletics.
14. Research metabolic and related disorders.
15. Investigate special needs in human performance.
16. Understand rehabilitation and reconditioning.
17. Understand therapeutic modalities.
18. Demonstrate therapeutic exercises.
19. Explore psychological response to injuries.
20. Identify assessment and evaluation techniques of athletic injuries.
21. Perform subjective assessment.
22. Explore objective assessment techniques.
23. Investigate diagnostic testing.
24. Prophylactic taping and bracing.
25. Describe the use of braces and other equipment.
26. Utilize activities of Health Occupations Students of America (HOSA) as an integral component of course content, skills application, and leadership development.
27. Use information technology applications as appropriate to health care specialties.
28. Integrate literacy and numeracy concepts and processes across all curricular units.
29. Demonstrate employability and social skills relevant to health careers.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Post-Secondary Connection—KCTCS course determined through local dual/articulation agreement

Health Science – Veterinary Assisting

Principles of Veterinary Assisting
Valid Course Code: 170801

Course Description: Students will explore careers in veterinary medicine, demonstrate knowledge of safety issues in the veterinary field as well as developing core skills for handling large and small animals.

According to industry standards, students must successfully complete each course with a 75% or better in order to advance in the program.

Content/Process

Students will:

1. Interpret the attendance, discipline and grading standards for the school.
2. Demonstrate knowledge of the school's layout, resources and evacuation procedures.
3. Demonstrate knowledge of the program standards, objectives, dress code and safety guidelines.
4. Identify the course grading and internship policies.
5. Demonstrate knowledge of OSHA and DEA regulations for work in a veterinary facility.
6. Describe the roles and responsibilities of different careers in veterinary medicine.
7. Understand the human-animal bond.
8. Demonstrate professional appearance and language in the workplace.
9. Demonstrate appropriate use of electronic communication in the workplace.
10. Demonstrate knowledge of safety precautions with storing, handling and disposing of biological and therapeutic agents, pesticides and hazardous waste.
11. Recognize common zoonotic hazards and how to safely handle animals with zoonotic diseases.
12. Describe isolation procedures and identify when isolation is appropriate.
13. Demonstrate knowledge of chemical hazards and how to safely handle common chemicals in the veterinary hospital.
14. Demonstrate knowledge of proper disposal of hazardous medical waste.
15. Demonstrate knowledge of anatomical terms, physiology and disease processes of basic cell structure.
16. Demonstrate knowledge of anatomical terms, physiology and disease processes of basic tissue structure.
17. Demonstrate knowledge of anatomical terms, physiology and disease processes of the Integumentary System.
18. Demonstrate knowledge of common species terms.
19. Clean and disinfect a kennel or cage.
20. Remove an animal from an enclosure, weigh animal and record weight in medical record.
21. Walk a dog on a slip leash in a controlled manner.
22. Place a halter on a horse and lead it in a controlled manner.
23. Identify normal and abnormal animal behavior.
24. Take an animal's vital signs and record in medical record.
25. Brush a dog or cat using correct grooming tool, including removal of mats.
26. Groom a horse and pick out hooves.

27. Trim a dog's nails.
28. Trim a cat's nails.
29. Demonstrate proper use of clippers and clipper blades.
30. Maintain clippers and clipper blades.
31. Dip a patient.
32. Bathe a patient.
33. Express anal glands using the external method.
34. Clean normal ears.
35. Identify the parts of a medical record.
36. Create a medical record for a new patient and file it alphabetically.
37. Take a patient history and record it in a medical record.
38. Follow intake and discharge procedures for a patient, using release and discharge forms.
39. Answer the phone in a professional manner and make an appointment, determining an emergency and scheduling accurately.
40. Follow legal requirements for the transfer of a medical record.
41. Schedule an appointment using computer appointment book.
42. Bill a client for a procedure using veterinary software.
43. Organize and maintain inventory.
44. Prepare a rabies certificate following state regulations.
45. Prepare a health certificate following national regulations.
46. Describe common exam room procedures to a client.
47. Write a business letter.
48. Restrain a dog in sternal, lateral and ventrodorsal recumbency.
49. Restrain a cat in sternal, lateral and ventrodorsal recumbency.
50. Restrain a dog for jugular venipuncture.
51. Restrain a dog for cephalic venipuncture.
52. Restrain a dog for saphenous venipuncture.
53. Restrain a cat for jugular venipuncture.
54. Restrain a cat for cephalic venipuncture.
55. Restrain a cat for femoral venipuncture.
56. Place a commercial and a leash muzzle on a dog.
57. Place a commercial muzzle on a cat.
58. Utilize a catch pole.
59. Apply an Elizabethan collar to an animal.

Connections

- National Association of Veterinary Technicians in America (NAVTA)
- Kentucky Occupational Skill Standards/National Health Care Skill Standards (www.healthscienceconsortium.org)
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- NAVTA Approved Veterinary Assistant Certification: www.navta.net
- Hill's Pet Nutrition: www.hillsvet.com Veterinary Nutritional Advocate
- Merial- www.vetmedteam.com
- Idexx- www.idexxlearningcenter.com
- FEMA- <http://training.fema.gov/is/>

Veterinary Assisting Skills
Valid Course Code: 170802

Course Description: Students will build on previously mastered animal handling skills and develop specific skills in radiology and surgical assisting for work in a veterinary hospital.

According to industry standards, students must successfully complete each course with a 75% or better in order to advance in the program.

Content/Process

Students will:

1. Demonstrate knowledge of anatomical terms, physiology and disease processes of the renal system.
2. Demonstrate knowledge of anatomical terms, physiology and disease processes of the nervous system.
3. Demonstrate knowledge of anatomical terms, physiology and disease processes of the musculoskeletal system.
4. Demonstrate knowledge of anatomical terms, physiology and disease processes of the circulatory system.
5. Demonstrate knowledge of anatomical terms, physiology and disease processes of the respiratory system.
6. Identify processes and procedures of euthanasia.
7. Explain the equipment needed for a necropsy and proper disposal of a deceased animal.
8. Prepare for and clean up after an exam room appointment.
9. Determine an animal's body condition score.
10. Evaluate an animal's mucous membrane color and hydration as well as capillary refill time.
11. Write business letters and professional electronic communication with clients.
12. Demonstrate appropriate use of electronic communication in the workplace.
13. Sex a cat.
14. Approximate the age of a dog or cat from its dentition.
15. Approximate the age of a horse from its dentition.
16. Identify common ectoparasites.
17. Recognize common AKC dog breeds
18. Prepare a blood smear and stain it.
19. Prepare a PCV.
20. Prepare a total protein.
21. Prepare a blood sample for a laboratory.
22. Set up supplies for a serum serology test.
23. Collect a midstream urine sample.
24. Determine physical properties of urine including color and clarity.
25. Use an in-house analyzer for blood analysis.
26. Explain how to handle rabies suspects and handle samples safely.
27. Assist in the preparation of various specimen staining techniques.
28. Demonstrate knowledge of safety procedures for work with radiation.
29. Demonstrate knowledge of the use of a radiology log.

30. Set up for a radiograph.
31. Assist with positioning of animal for a radiograph or ultrasound.
32. Identify directional terms used in veterinary radiology.
33. Demonstrate knowledge of automatic, manual, and digital film developing techniques.
34. Demonstrate knowledge of proper care for radiology equipment.
35. Label, file and store film and radiographs.
36. Know safety techniques for handling processing chemicals.
37. Maintain a surgery logbook.
38. Evaluate situations and apply aseptic technique.
39. Assist in the pre-anesthetic process.
40. Assist in pre-surgical preparation and induction.
41. Assist with the positioning of surgical patients.
42. Clip and prep a surgical site.
43. Provide post-operative care for a surgical patient.
44. Prepare and open sterile cloth wrapped item while maintaining asepsis.
45. Prepare and open sterile paper wrapped item while maintaining asepsis.
46. Clean surgical instruments.
47. Identify surgical instruments and prepare an instrument pack.
48. Prepare a drape pack, a paper pack, and a gown pack.
49. Use a steam autoclave to sterilize packs.
50. Maintain a steam autoclave.
51. Demonstrate knowledge of gas sterilization techniques.
52. Identify different materials and types of sutures.
53. Explain common surgical procedures.
54. Maintain the surgical suite.
55. Monitor/restrain patients for fluid therapy and record observations.

Connections

- National Association of Veterinary Technicians in America (NAVTA)
- Kentucky Occupational Skill Standards/National Health Care Skill Standards (www.healthscienceconsortium.org)
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- NAVTA Approved Veterinary Assistant Certification: www.navta.net
- Hill's Pet Nutrition: www.hillsvet.com Veterinary Nutritional Advocate
- Merial- www.vetmedteam.com
- Idexx- www.idexxlearningcenter.com
- FEMA- <http://training.fema.gov/is/>

Advanced Veterinary Assisting Skills
Valid Course Code: 170803

Course Description: Students will build on previously mastered animal handling skills and develop advanced skills for work in a veterinary hospital.

According to industry standards, students must successfully complete each course with a 75% or better in order to advance in the program.

Content/Process

Students will:

1. Demonstrate knowledge of anatomical terms, physiology and disease processes of digestive system.
2. Demonstrate knowledge of anatomical terms, physiology and disease processes of the nervous system.
3. Demonstrate knowledge of anatomical terms, physiology and disease processes of the immune system.
4. Differentiate between prescription and over the counter pharmaceuticals.
5. Demonstrate knowledge of legal issues involving drugs in the workplace.
6. Recognize general types and groups of drugs.
7. Demonstrate knowledge of pharmaceutical terminology.
8. Interpret a prescription and fill it using proper labeling, terminology and calculations, including expiration dates.
9. Hand pill a dog and a cat.
10. Administer oral liquid medication.
11. Provide care and maintenance of nursing equipment.
12. Set up for a fecal floatation.
13. Set up for a fecal smear.
14. Set up for a gross exam of feces.
15. Reconstitute vaccines and demonstrate knowledge of vaccine protocols.
16. Describe possible routes and methods of drug and vaccine administration.
17. Record basic physiological observations in a medical record.
18. Monitor and restrain patients for fluid therapy.
19. Apply and remove bandages to healthy animals.
20. Demonstrate knowledge of small animal nutritional requirements including dry matter basis calculations.
21. Prepare prescription diets and normal food for a patient.
22. Provide care and maintenance of nursing equipment.
23. Demonstrate knowledge of nosocomial infections and how to prevent them.
24. Recognize common CFA cat breeds.
25. Demonstrate knowledge of pet food labeling standards, drymatter basis calculations and the differences between pet food products.

Connections

- National Association of Veterinary Technicians in America (NAVTA)
- Kentucky Occupational Skill Standards/National Health Care Skill Standards (www.healthscienceconsortium.org)
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- NAVTA Approved Veterinary Assistant Certification: www.navta.net
- Hill's Pet Nutrition: www.hillsvet.com Veterinary Nutritional Advocate
- Merial- www.vetmedteam.com
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- FEMA- <http://training.fema.gov/is/>

Veterinary Assisting Internship
Valid Course Code: 170804

Course Description: Students will develop problem solving skills and demonstrate workplace applications of skills with the Veterinary Assisting Internship.

Content/Process

Students will:

1. Demonstrate knowledge of anatomical terms, physiology and disease processes of the endocrine system.
2. Demonstrate knowledge of anatomical terms, physiology and disease processes of the reproductive system.
3. Demonstrate knowledge of common veterinary abbreviations and terms.
4. Demonstrate career application of skills and knowledge by completing a veterinary assistant internship in the veterinary industry for a total of 180 hours of contact time.
5. Demonstrate knowledge of the veterinary industry by completing the Level 4 Design Project.

Connections

- National Association of Veterinary Technicians in America (NAVTA)
- Kentucky Occupational Skill Standards/National Health Care Skill Standards (www.healthscienceconsortium.org)
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- NAVTA Approved Veterinary Assistant Certification: www.navta.net
- Hill's Pet Nutrition: www.hillsvet.com Veterinary Nutritional Advocate
- Merial- www.vetmedteam.com
- Idexx- www.idexxlearningcenter.com
- FEMA- <http://training.fema.gov/is/>

Industrial Education – Public Services

Emergency Medical Technician (EMT)

Valid Course Code: 461022

Course Description: This basic Emergency Medical Technician Course covers all knowledge aspects of trauma care as outlined by national standards, created by federal guidelines, considered to be the responsibilities of ambulance operations. Training involves typical anatomy and physiology; patient assessment; care for respiratory and cardiac emergencies; control of bleeding; application of dressing and bandages; treatment for traumatic shock; care for fractures, dislocation, sprains and strains; medical emergencies; emergency child birth; burns and heat emergencies; environmental emergencies; principles of vehicle rescue; transportation of patients and general operations of ambulance systems.

Note: This pathway requires an agreement with the KY Board of Emergency Medical Services. More information explained via: www.kbems.kctcs.edu.

Content/Process

Students will:

1. Identify the human systems, including anatomy, physiology and an introduction and practice in patient assessment.
2. Identify the basic mechanics of respiration, signs of airway obstruction and respiratory arrest, maintaining an open airway, pulmonary resuscitation; lavations for children and infants and special conditions for the laryngectomies.
3. Identify the basics of circulation, signs and symptoms of cardiac arrest.
4. Demonstrate the procedure of cardiopulmonary resuscitation by one rescuer and two rescuers.
5. Demonstrate the use of airways, suction equipment, resuscitation devices and airway adjuncts.
6. Describe signs, symptoms, and prevention of shock and treatment of shock.
7. Identify signs of internal bleeding; external bleeding and demonstrate procedures of bleeding control.
8. Identify indicators and contra indicators relative to the use of pneumatic anti-shock garments and provide for practice in their application.
9. Identify the physiology of the skin and types of wound and demonstrate the care of wounds.
10. Demonstrate and practice the application of dressings and bandages.
11. Identify anatomy and physiology of musculoskeletal systems and definitions and types of fractures and dislocations.
12. Demonstrate the techniques of care for fractures and dislocations, sprains and strains.
13. Identify the signs and symptoms of injury to the pelvis and hip and demonstrate the emergency care for pelvic and hip injury.
14. Identify anatomy and physiology of the nervous systems; signs and symptoms of spinal fractures; general rules of care for patients with spinal injuries; signs of skull fractures; care for skull brain, face and neck injuries and practice immobilization using extrication collars and splint devices.
15. Identify functions of the abdomen, genitalia and the chest including techniques of care of these areas.

16. Describe the signs and symptoms of poisoning, bites and stings; heart attack; stroke and dyspnea and the care for medical emergencies relative to these conditions.
17. Describe the signs and symptoms and techniques of care for diabetic, abdominal distress, and substance abuse emergencies including seizures.
18. Identify relative anatomy, physiology and emergency care for emergency childbirth.
19. Identify components of assessing the newborn, care for premature infants, and pediatric emergencies.
20. Identify the degree and classification of burns and care for each classification.
21. Recognize and identify hazardous materials and precautionary procedures.
22. Identify signs and symptoms and correct techniques for heat emergencies, hypothermia and water related emergencies.
23. Describe considerations when dealing with infants, children, elderly and disadvantaged patients.
24. Identify procedures to deal with abnormal behavior and substance abuse patients.
25. Describe dealing with death and near death situations as an EMT.
26. Identify, demonstrate, and practice the procedures for lifting and transfer of patients.
27. Identify and practice the principles of patient triage.
28. Identify procedures of patient extrication from vehicles.
29. Identify the components of ambulance operations.
30. Identify the components of reports and documents associated with emergency care.
31. Identify the legal aspects of emergency care.
32. Identify communications processes associated with the operations of an emergency medical services system.
33. Identify communicable disease transmission and the universal precautions associated with bloodborne and airborne diseases.
34. Provide for in-hospital observations and training.
35. Provide for field observation of emergency medical care as a member of an ambulance crew.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Kentucky Board of Emergency Medical Services (KBEMS)

EMS Training
Valid Course Code: 461023

Course Description: Training involves typical anatomy and physiology; patient assessment; care for respiratory and cardiac emergencies; control of bleeding, application of dressing and bandages; treatment for traumatic shock; care for fractures, dislocation, sprains and strains; medical emergencies; emergency childbirth; burns and heat emergencies; environmental emergencies; principals of vehicle rescue; transportation of patient, and general operations of emergency medical services.

Note: This pathway requires an agreement with the KY Board of Emergency Medical Services. More information explained via: www.kbems.kctcs.edu.

Content/Process

Students will:

1. Identify the three (3) major roles and responsibilities of the first responder.
2. Describe the legal aspects of providing emergency care.
3. Identify the human systems, including anatomy.
4. Identify the basic mechanics of respiration, signs of airway obstruction and respiratory arrest, maintaining an open airway, pulmonary resuscitation; Variations for children and infants and special consideration for the laryngectomies.
5. Identify comprise of circulation, and signs of cardiac arrest.
6. Demonstrate the procedure of cardiopulmonary resuscitation by one rescuer and two rescuers.
7. Demonstrate the use of airway resuscitator devices and airway adjuncts.
8. Describe signs of shock, prevention of shock and treatment of shock.
9. Identify signs of internal bleeding, external bleeding and demonstrate procedures of bleeding control.
10. Identify the physiology of the skin and classify types of bandages.
11. Demonstrate and practice the application of dressings and bandages.
12. Identify anatomy and physiology of musculoskeletal systems and definitions and types of fractures and dislocations.
13. Demonstrate the techniques of care for fractures and dislocations, sprains, and strains.
14. Identify the signs and symptoms of injury to the pelvis, and hip and demonstrate the emergency care for pelvic and hip injury.
15. Identify anatomy and physiology of the nervous system; signs and symptoms of spinal fractures' general rules of care for patients with spinal injuries; signs of skull fractures; care for skull, brain, face and neck injuries and practice immobilization using extrication collars.
16. Identify functions of the abdomen, genitalia and the chest including techniques of care for these areas.
17. Describe the signs and symptoms of poisoning, bites and medical emergencies relative to these conditions.
18. Describe the signs and symptoms and techniques of care for diabetic, abdominal distress and substance abuse emergencies including seizures.
19. Identify relative anatomy, physiology and emergency care for emergency childbirth.

20. Identify the methods to employ for assessing the newborn, care for premature infants and pediatric emergencies.
21. Identify the degree and classification of burns and care for each classification.
22. Recognize and identify hazardous materials and precautionary procedures.
23. Identify signs and symptoms and care techniques for heat emergencies, hypothermia and water related emergencies.
24. Identify procedures to deal with abnormal behavior and substance abuse patients.
25. Describe dealing with death and near death situations as a first responder.
26. Identify, demonstrate, and practice the procedures for lifting and transfer of patients.
27. Identify and practice the principles of patient triage.
28. Identify procedures of patient extrication from vehicles.
29. Identify the components of ambulance operations.
30. Identify the components of reports and documents associated with emergency care.
31. Identify communication processes associated with the operations of an Emergency Medical Services System.
32. Identify communicable disease transmission and the universal precautions associated with blood borne and airborne pathogens.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- HOSA-Future Health Professionals (www.hosa.org)
- State Standards for Mathematics, ELA and 21st Century Science Standards
- Kentucky Board of Emergency Medical Services (KBEMS)

Non-Classified Complementary Courses

Leadership Dynamics – Health Science
Valid Course Code: 170199

Course Description: This course is designed to assist students with developing skills needed to be successful leaders and responsible members of society. The students will develop personal attributes and social skills necessary for a successful transition into the world of work, and/or further education. Emphasis will be placed on team work, problem solving, critical thinking, communication (oral and written), personal development (work ethics), and leadership. It is recommended that the student be a member of the student organization where they will have opportunities to apply the knowledge gained from this course.

Content/Process

Students will:

1. Define leadership: compare the types of leadership styles, and assess the importance of qualified leaders to the success of organizations.
2. Analyze personal characteristics/qualities of successful leaders; construct a questionnaire and interview a person in a leadership role.
3. Participate in leadership opportunities available in the community.
4. Develop communication skills (verbal and written) to enhance success in school and in transition to the world of work.
5. Prepare and present an informative, illustrative, or persuasive speech.
6. Participate in public relations activities by speaking, writing, or making presentations to a group.
7. Prepare a press release for publication.
8. Contact, in writing, a guest to attend an organizational meeting.
9. Demonstrate techniques used for proper business/professional etiquette—meeting people, travel, and table etiquette.
10. Serve as host when the guest you invite attends a meeting.
11. Analyze organizational structures and their components (including bylaws, officers, committees, and program of work).
12. Identify main components of and compare local, state and national bylaws.
13. Demonstrate the use of parliamentary skills by conducting or presiding over a meeting.
14. List the steps for handling a motion and identify the classes of motions.
15. List the rules for debate.
16. Develop techniques to resolve conflict that arises in the home, school, community, and workplace (conflict management).
17. Prepare an Employability Skills Portfolio.
18. Collaborate in a team setting using critical thinking and problem solving skills.
19. Participate as an active member of HOSA (Future Health Professionals) including local, state, and national events.

Connections

- Kentucky Occupational Skill Standards/National Health Care Skill Standards
- National Health Science Standards by the National Consortium for Health Science Education
- HOSA-Future Health Professionals (www.hosa.org)
- Omnibus Budget Reconciliation Act (OBRA) Guidelines (MNA program regulations)
- State Standards for Mathematics, ELA and 21st Century Science Standards