APPROVED PATHWAY:

1. Includes minimum of three secondary-level credits.
2. Includes a work-based element.
3. Consists of a sequence:
   - Introductory-level.
   - Technical-level.
   - Application-level courses.
4. Supporting documentation includes Articulation Agreement(s), Certification, Program Improvement Plan and a Program of Study.
5. Technical-level and Application-level courses receive .5 state-weighted funding in an approved CTE pathway.

HEALTH AND BIO SCIENCES CAREER CLUSTER DESIGN

Health Science Pathway

CIP CODE 51.9999

INTRODUCTORY LEVEL

Title	Code	Credit
*Intro to Health Care	14000	.5 credit
Biology	03051	1 credit

Title	Code	Credit
Chemistry	03101	1 credit

TECHNICAL LEVEL

Title	Code	Credit
Nutrition and Wellness	19253	.5 credit
*Anatomy and Physiology	03053	1 credit
First Aid/CPR/EMR	44050	.5 credit
Medical Terminology	14154	.5 credit
Health Information (HIT)	14157	1 credit
AP Biology	03056	1 credit
Health Care Research and Clinical Skills A	14254	.5 credit
Health Care Research and Clinical Skills B	36254	1 credit

General Health (PA, Med) Strand

Title	Code	Credit
Fund. of Emergency Services	14055	.5 credit

General Health (PA, Med) Strand

Title	Code	Credit
Medical Interventions	14105	1 credit

Sports Med/Rehabilitation (ATC,PT,OT) Strand

Title	Code	Credit
† Sports Medicine I	14072	1 credit
† Physical Therapy	14060	1 credit
† Care of Athletes	14062	.5 credit

Allied Health (Nursing, X-Ray, EMT, Lab Sciences) Strand

Title	Code	Credit
† Emergency Medical Tech (EMT)	44060	1 credit
† Pharmacology	14253	1 credit
Medical Imaging	14103	.5 credit

APPLICATION LEVEL

Title	Code	Credit
† Certified Medication Aide	36156	.5 credit
† Certified Nursing Assistant	14997	.5 or 1 credit
Health care Work Experience	36992	1 credit
Health care Work Experience	36993	2 credit

General Health (PA, Med) Strand

Title	Code	Credit
† Phlebotomy Technician	14104	.5 credit

Sports Med/Rehabilitation (ATC,PT,OT) Strand

Title	Code	Credit
† Sports Medicine II	14073	1 credit

Allied Health (Nursing, X-Ray, EMT, Lab Sciences) Strand

Title	Code	Credit
† Home Health Aide	36053	.5 credit
† Phlebotomy Technician	14104	.5 credit
† Pharmacy Technician	36157	1 credit
† Dental Assistant	36054	1 credit
† **Emergency Medical Tech II (EMT II)	44065	1 credit

* Required for pathway approval.

** Prerequisite: Emergency Medical Tech (44060)

† Courses may require specialized teacher certification and/or offer professional certification.

Other Courses Recommended by Strand

Strand 1 - Gen Health	Strand 2- Sports Med/Rehab	Strand 3 - Allied Health
Psychology Statistics Algebra Sociology Chem II Physics I/II	Psychology Statistics Algebra Sociology Chem II Physics I/II	Psychology Statistics Algebra

Kansas Health Science Cluster

Course: Intro to Health Care **Course #:** 14000 **Credit**: 0.5

CIP Codes: 51.9999

COURSE DESCRIPTION:

This course provides students with the basic knowledge of health/wellness professionals in private business and industry, community organizations, and health care settings, as well as job opportunities, wage, and duties. This class includes instruction in personal health, community health and welfare, nutrition, epidemiology, disease prevention, fitness and exercise, and health behaviors that are associated with various health careers. This course is required for pathway approval.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

COMPREHENSIVE STANDARD: Students will explore the history of medicine, medical careers/characteristics, and ethics in medicine.

Benchmark 1: Compare and contrast the history of medicine with current trends.		~~3~~	~~2~~	~~1~~	~~0~~
1.1	Create a historical timeline to include: Egyptians, Hippocrates, Clara Barton, Elizabeth Blackwell, Florence Nightingale, William Harvey, Joseph Lister, Ignaz Semmelweis, Jonas Salk and Albert Sabin, Louis Pasture				
1.2	Identify current trends in healthcare				

Benchmark 2: Demonstrate knowledge of Medical Mathematics		3	2	1	0
2.1	Apply mathematical computations related to healthcare procedures				
2.2	Apply mathematical principles to conversion equations used in the healthcare delivery system				
2.3	Apply mathematical principles involving temperature, weights, and measures used in the healthcare delivery system				
2.4	Analyze diagrams, charts, graphs and tables to interpret healthcare results				
2.5	Demonstrate use of the 24-hour clock/military time				

Benchmark 3: Demonstrate knowledge of Written and Verbal Communication Skills in healthcare settings		3	2	1	0
3.1	Recognize, organize, write and compile technical information and summaries using common medical terminology (abbreviations, roots, prefixes, suffixes)				
3.2	Use medical terminology to communicate information, data and observations				
3.3	Use medical terminology within a scope of practice in order to interpret, transcribe and communicate information, data and observations				
3.4	Identify common barriers to communication.				
3.5	Practice communication needs of the patient/client including active listening.				
3.6	Modify communication to meet the needs of the patient/client and be appropriate to the situation				

Benchmark 4: Demonstrate knowledge of Health Care Delivery System		3	2	1	0
4.1	Understand the healthcare delivery system (public, private, government, and non-profit).				
4.2	Describe the responsibilities of consumers within the healthcare system.				
4.3	Assess the impact of emerging issues on healthcare delivery systems.				
4.4	Understand the history and role of health insurance and employer/employee benefits;				

Benchmark 5: Summarize Personal Traits of the Healthcare Professional		3	2	1	0
5.1	Classify the personal traits and attitudes desirable in a member of the healthcare team.				
5.2	Summarize professional standards as they apply to ~~hygiene, dress~~, language, confidentiality, and behavior.				
5.3	Demonstrate proper hyenine of health care worker.				
5.4	Describe proper dress of a health care worker.				
5.5	Discuss proper behavior in a healthcare setting (honesty empathy, dependability, lifelong learner, and teamwork.				

Benchmark 6: Career Exploration in Health Science		3	2	1	0
6.1	Identify a variety of careers in Health Science • Diagnostic Services (Ex.: Radiology, Clinical Lab Tech, Audiologist, Optician) • Therapeutic Services (Ex.: Nursing, Athletic Trainer, Dental Hygienist, Respiratory Therapist, Vet) • Health Informatics (Ex.: Medical Coder, Risk Manager, Healthcare Administrator, Admissions) • Support Services (Ex.: Dietary, Social Work, Mortician, Interpreter, Environmental Advocate) • Biotechnology Research & Development (Ex.: Forensic Pathologist, Pharmaceutical, Biologist)				
6.2	Identify specific careers and the job responsibilities, daily duties, skill requirements, and interaction with patients and/or staff				
6.3	Develop a program of study that lists secondary classes, CTE classes, post-secondary institution program, certifications, and other training needed for a career				

Benchmark 7: Demonstrate knowledge of medical law and medical ethics.		3	2	1	0
7.1	Analyze legal responsibilities, limitations, and implications of actions				
7.2	Apply procedures for accurate documentation and use of electronic and print health care records.				
7.3	Differentiate between medical law and medical ethics including: Hippocratic oath, Patient bill of rights, Patient care partnership, Ethics Committees				
7.4	Describe scope of practice for healthcare workers				
7.5	Explain the importance of expressed consent, implied consent and informed Consent				
7.6	Define legal implications and how they relate to healthcare including: Battery, invasion of privacy, malpractice/negligence, Slander, Libel, Assault, Abuse				
7.7	Describe HIPAA				
7.8	Discuss religious and cultural values as they impact health care (Ethnicity, Race, Religion, Gender)				
7.9	Demonstrate respectful and empathetic treatment of ALL patients/clients (Customer service, Patient satisfaction, civility)				
~~6.1.3~~ 7.10	Utilize procedures for reporting activities and behaviors of patients/clients that affect the health, safety, and welfare of others. (moved this competency from 6.1 benchmark below)				

Benchmark 8: Cultural, Social, and Ethnic Diversity		3	2	1	0
8.1	Identify and demonstrate respectful and empathetic treatment of ALL patients/clients (customer service)				
8.2	Discuss religious and cultural values as they impact healthcare: Ethnicity, Gender, Race, Religion				

Kansas Health Science Cluster

Health Science Pathway – Introductory Level - All strands

Course: Biology **Course #:** 03051 **Credit**: 1.0

COURSE DESCRIPTION:

Biology courses are designed to provide information regarding the fundamental concepts of life and life processes. These courses include (but are not restricted to) such topics as cell structure and function, general plant and animal physiology, genetics, and taxonomy. Special attention should be given to health careers, related technical skills, and technology associated with these professions.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: State Standards		3	2	1	0
1.1	Meet all state academic standards for biology				

Benchmark 2: **Health Science Related**		3	2	1	0
2.1	Identify content, skills and technology related to the health science field				
2.2	Apply mathematical computations related to common health industry procedures				
2.3	Apply mathematical principles to conversion equations commonly used in health-related fields				
2.4	Apply mathematical principles involving temperature, weights, and measures commonly used in health-related fields				
2.5	Analyze diagrams, charts, graphs and tables to interpret results commonly found in health-related fields				
2.6	Recognize, organize, write and compile technical information and summaries that relate to health science				

Benchmark 4: Human Body		3	2	1	0
4.1	Describe the human body systems and common disease processes seen in the home health care setting				
4.2	Describe the difference between chronic and acute disease processes				

Benchmark 5: Safety		3	2	1	0
5.1	Prevent accidents by using proper safety techniques for the prevention of accidents				
5.2	Identify and demonstrated skills mastering emergency care				
5.3	Identify and demonstrated skills mastering disaster preparedness				
5.4	Identify and demonstrated skills mastering safety in the home health setting				

Benchmark 6: State Requirements		3	2	1	0
6.1	Meet all state requirements for Home Health Aide certification and training				
6.2	Identify other requirements in neighboring states for Home Health Aide certification.				

Kansas Health Science Cluster

Health Science Pathway – Introductory Level - All strands

Course: Chemistry **Course #:** 03101 **Credit**: 1.0

COURSE DESCRIPTION:

Chemistry courses involve studying the composition, properties, and reactions of substances. These courses typically explore such concepts as the behaviors of solids, liquids, and gases; acid/base and oxidation/reduction reactions; and atomic structure. Chemical formulas and equations and nuclear reactions are also studied. Special attention should be given to health careers, related technical skills, and technology associated with these professions.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: State Standards		3	2	1	0
1.1	Meet all state academic standards for chemistry				

Benchmark 2: Health Science Related		3	2	1	0
2.1	Identify content, skills and technology related to the health science field				
2.2	Apply mathematical computations related to common health industry procedures				
2.3	Apply mathematical principles to conversion equations commonly used in health-related fields				
2.4	Apply mathematical principles involving temperature, weights, and measures commonly used in health-related fields				
2.5	Analyze diagrams, charts, graphs and tables to interpret results commonly found in health-related fields				
2.6	Recognize, organize, write and compile technical information and summaries that relate to health science				

Benchmark 3: **Chemistry Performance Expectations**		3	2	1	0
3.1	Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms.				
3.2	Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties.				
3.3	Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles.				
3.4	Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.				
3.5	Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs.				
3.6	Refine the design of a chemical system by specifying a change in conditions that would				

	produce increased amounts of products at equilibrium.*				
3.7	Use mathematical representations to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.				
3.8	Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.				
3.9	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.				
3.10	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.				
3.11	Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics).				
3.12	Evaluate the validity and reliability of claims in published materials.				

Kansas Human Services Cluster

Course:	Nutrition & Wellness	**Course #:**	19253	**Credit**:	0.5
Pathways & CIP Codes:	Family, Community and Consumer Services (19.0799); Health Science (51.9999); Restaurant and Event Management (12.0504); Travel and Tourism (52.0901)				
Course Description:	This course will examine components of interpersonal and intrapersonal well-being. Students will prepare for careers related to nutrition and wellness concepts by taking an in-depth look at various types of diets, nutrition information, and disease prevention to identify and apply healthy practices for a lifetime of wellness. Additionally, students will explore a variety of physical activities.				

Directions: *The following competencies are required for full approval of this course. Check the appropriate number to indicate the level of competency reached for learner evaluation.*

Rating Scale:
4. Exemplary Achievement: Student possesses outstanding knowledge, skills, or professional attitude.
3. Proficient Achievement: Student demonstrates good knowledge, skills, or professional attitude. Requires limited supervision.
2. Limited Achievement: Student demonstrates fragmented knowledge, skills, or professional attitude. Requires close supervision.
1. Inadequate Achievement: Student lacks knowledge, skills, or professional attitude.
0. No Instruction / Training: Student has not received instruction or training in this area.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

COMPREHENSIVE STANDARD: 7.0 Demonstrate nutrition, health and wellness practices that enhance individual and family well-being. (NASAFACS 9.0, 13.0 & 14.0)

Benchmark 7.1: Analyze factors that influence wellness across the life span (NASAFACS 14.1)		4	3	2	1	0
7.1.1	Explore the components of wellness. (e.g. Gallup's five elements of well-being, physical, intellectual, emotional, social, spiritual, vocational, financial and environmental)					
7.1.2	Identify the interrelationship of the components of wellness.					
7.1.3	Analyze the relationship of the physical, emotional, social and intellectual components of individual and family wellness.					
7.1.4	Compare and contrast nutritional and wellness challenges across the lifespan for individuals and families.					
7.1.5	Examine the impact of family culture, socio economic and local to global conditions on wellness practices (e.g. local sourcing, food availability, imported foods, etc.)					
7.1.6	Analyze the effects of social and cultural views on body image.					
7.1.7	Identify risky behaviors that affect health and wellness.					
7.1.8	Analyze data related to health and wellness to determine reliable and unreliable sources of nutrition, health and wellness information.					

7.1.9	Identify legislation, regulations and public policies related to personal wellness (e.g. health care, food inspection, labeling laws, bringing eating at home, and requirements for insurance)					
7.1.10	Summarize information about procuring and maintaining health care across the lifespan.					
7.1.11	Analyze options for creating sustainable wellness practices (e.g. water conservation, walking outside vs a treadmill)					

Benchmark 7.2: Demonstrate good nutrition, sound food preparation and selection to enhance healthy behaviors. (NASAFACS 9.3, 9.4, 9.6, 14.2, 14.3)		4	3	2	1	0
7.2.1	Analyze the impact of nutrients on health, appearance and peak performance.					
7.2.2	Identify the effects of diet fads, food addictions, and eating disorders on wellness.					
7.2.3	Compare and contrast food deficiencies and toxicities on mental and physical health (e.g. dementia, potassium/water deficiency).					
7.2.4	Analyze impact of food decisions on social wellness (e.g. aging, family table)					
7.2.5	Apply dietary guidelines in meal planning/food decisions to meet nutritional needs across the life plan (e.g. special diets, age specific considerations, seasonal foods)					
7.2.6	Analyze the relationship between knowing how to cook for prevention of diseases, and/or improvement of health conditions (e.g. obesity prevention, high blood pressure)					
7.2.7 **	****NOTE if Culinary Essentials is taught, you may skip this** Demonstrate various cooking methods that increase nutritional value (e.g. broiling/steaming/baking vs frying, fresh vs frozen, food preservation to enhance healthier foods vs purchase premade foods with additives to increase shelf life)					
7.2.8 **	Practice food innovation, food preparation and sanitation skills to modify foods for improvement of health value (e.g. lower sodium, lower fat content, lower kcals, increase nutritional value of foods and/or other scenarios).					

Benchmark 7.3: Examine physical activity and how it relates to health and wellness. (NASAFACS 14.1)		4	3	2	1	0
7.3.1	Identify the positive benefits of physical activity across the lifespan.					
7.3.2	Explain the relationship between nutrition, physical activity and wellness.					
7.3.3	Implement and monitor a personal health plan, including nutrition and diet, wellness and fitness components.					

Benchmark 7.4: Examine the components of social and mental wellness. (NASAFACS 13.3, 13.5 & 14.1)		4	3	2	1	0
7.4.1	Analyze mental health factors that influence social health.					
7.4.2	Compare and contrast impact of stress on social interaction, physical health and mental wellness.					
7.4.3	Identify agencies and resources to address issues and assist those with health conditions (e.g. mental health, social health, physical health, and emotional health).					
7.4.4	Identify the warning signs of individuals at risk of mental health conditions.					
7.4.5	Determine the components of positive relationships in both social and family settings.					
7.4.6	Analyze influences on health decisions, including technology and the media (e.g. online medical websites, advertising, social media).					

7.4.7	Identify coping strategies to manage life issues.					

Benchmark 7.5: Enhance career readiness through practicing appropriate skills in nutrition and wellness career applications. (NASAFACS 9.1, 9.5 & 9.6)		4	3	2	1	0
7.5.1	Demonstrate collaborative skills to address health and wellness concerns.					
7.5.2	Practice effective communication skills when sharing information about healthy living practices.					
7.5.3	Enhance development of process skills across all contexts (e.g. critical thinking, creativity, goal setting, problem solving, decision making, leadership, management, cooperation)					
7.5.4	Determine how science and technological advances are influencing the availability, safety and nutritional value of foods.					
7.5.5	Apply thinking and practical problem-solving strategies to promote prevention of health and wellness issues.					
7.5.6	Create and share nutrition, health and/or wellness information using multiple modes of technology to advocate for good nutrition, health and/or wellness decisions.					
7.5.7	Summarize education, training, certifications and responsibilities of individuals engaged in nutrition, prevention health and wellness related careers (e.g. advocates, prevention education, intervention resource conduit)					
7.5.8	Analyze benefits of professional organizations to the nutrition, prevention health and wellness professional.					

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Advanced Placement (AP) Biology **Course #:** 03056 **Credit**: 1.0

COURSE DESCRIPTION:

Adhering to the curricula recommended by the College Board and designed to parallel college level introductory biology courses, AP Biology courses stress basic facts and their synthesis into major biological concepts and themes. These courses cover three general areas: molecules and cells (including biological chemistry and energy transformation); genetics and evolution; and organisms and populations (i.e., taxonomy, plants, animals, and ecology). AP Biology courses include college-level laboratory experiments. Special attention should be given to health careers, related technical skills, and technology associated with these professions.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1.: State Standards		3	2	1	0
1.1.	Meet all state academic standards for biology				

Benchmark 2: Health Science Related		3	2	1	0
2.1	Identify content, skills and technology related to the health science field				
2.2	Apply mathematical computations related to common health industry procedures				
2.3	Apply mathematical principles to conversion equations commonly used in health-related fields				
2.4	Apply mathematical principles involving temperature, weights, and measures commonly used in health-related fields				
2.5	Analyze diagrams, charts, graphs and tables to interpret results commonly found in health-related fields				
2.6	Recognize, organize, write and compile technical information and summaries that relate to health science				

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Anatomy and Physiology **Course #:** 03053 **Credit**: 1.0

COURSE DESCRIPTION:

Usually taken after a comprehensive initial study of biology, Anatomy and Physiology presents the human body and biological systems in more detail. In order to understand the structure of the human body and its functions, students learn anatomical terminology, study cells and tissues, explore functional systems (skeletal, muscular, circulatory, respiratory, digestive, reproductive, nervous, and so on), and may dissect mammals. Special attention should be given to health careers, related technical skills, and technology associated with these professions.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

After meeting all state standards for A&P, the following competencies should be covered.

Benchmark 1: **Human Structure and Function**		3	2	1	0
1.1	Describe the basic structures and functions of cells, tissues, organs, and systems as they relate to homeostasis				
1.2	Compare relationships among cells, tissue, organs, and systems				
1.3	Explain body planes, directional terms, quadrants, and cavities				
1.4	Analyze the interdependence of the body systems as they relate to wellness, disease, disorders, therapies, and care rehabilitation				

Benchmark 2.: **Disease and Disorders**		3	2	1	0
2.1	Compare selected diseases/disorders including respective classification(s), causes, diagnoses, therapies, and care/rehabilitation to include biotechnological applications				
2.2	Analyze methods to control the spread of pathogenic microorganisms				
2.3	Analyze body system changes in light of diseases, disorders, and wellness				

Benchmark 3: **Health Care Delivery System**		3	2	1	0
3.1	Identify methods to assess vital signs				

Benchmark 4: **Career Exploration**		3	2	1	0
4.1	Identify a variety of careers that use anatomy and physiology knowledge and how it relates to health careers				

Benchmark 5: **Ethical Practice**		3	2	1	0
5.1	Explain the importance of confidentiality in health care				

Benchmark 6: Safety Practices		3	2	1	0
6.1	Use personal protective equipment as appropriate to the environment				

6.2	Modify the environment to create safe working conditions. Evaluate and modify the environment to create and maintain safe working conditions				
6.3	Prevent accidents by using proper safety techniques for the prevention of accidents				

Benchmark 7: Health Science Related		3	2	1	0
7.1	Identify content, skills and technology related to the health science field				
7.2	Apply mathematical computations related to common health industry procedures				
7.3	Apply mathematical principles to conversion equations commonly used in health-related fields				
7.4	Apply mathematical principles involving temperature, weights, and measures commonly used in health-related fields				
7.5	Analyze diagrams, charts, graphs and tables to interpret results commonly found in health-related fields				
7.6	Recognize, organize, write and compile technical information and summaries that relate to health science				

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Health Information Technology (HIT) **Course #:** 14157 **Credit**: 1.0

COURSE DESCRIPTION:

A class that introduces and prepares students to perform credentialing, electronic record keeping, organizational personnel management, financials, purchasing, technology selection/maintenance, data management systems, and accreditation compliance services for hospitals and other health care facilities and organizations. This class includes basic instruction in medical staff organization and management, medical terminology, credentialing and re-credentialing, healthcare accreditation and regulatory standards, health care law, meeting and negotiation management, organizational budgets, financials, purchasing/maintaining inventory, and office information systems management.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: History of Health Information Systems/Technology (HIT)		3	2	1	0
1.1	Describe historical management / collection of health data				
1.2	Discuss importance of key legislation in development of HIT				
1.3	Discuss major concepts of HIT (meaningful use, principles of usability and design, clinical decision support (CDS) systems, workflow analysis, and process redesign)				
1.4	Discuss how HIT involves both technology and business aspects of healthcare				
1.5	Identify the importance of HIT in daily business transactions, billing, ordering, patient information, personnel, and other factors in health care.				
1.6	Identify the importance of HIT in daily IT/Computing requirements for billing, ordering, patient information, personnel, and other factors in health care.				
1.7	Identify careers in HIT relating to health, business & IT				
1.8	Identify local, regional and national business and industry types related to Health Information (HIT)				
1.9	Identify and discuss employment outlook, average wage/salary, and educational/certification requirements for employment				

Benchmark 2: Electronic Health Record (EHR) and Impact on Healthcare		3	2	1	0
2.1	Identify factors affecting need for EHR in different healthcare settings				
2.2	Define purpose of and functional requirements for EHR				
2.3	Identify components of an electronic health record (EHR) and/or electronic medical record (EMR): Diagnostic tests , History and physical, Medications, Patient demographics, Progress notes, Treatment Plan				
2.4	Discuss key issues in EHR development and implementation				
2.5	Identify and discuss various EHR systems				
2.6	Identify and discuss various EHR forms, documents, and recording options				
2.7	Identify and demonstrate the use of sample EHR systems				
2.8	Identify and demonstrate the use of sample case studies and EHRs				

Benchmark 3: Healthcare Regulations, Ethical, and Cultural Issues		3	2	1	0
3.1	Discuss privacy, confidentiality, security issues, and related legal standards				
3.2	Analyze federal and state regulations related to privacy and quality of care				
3.3	Discuss major ethical and cultural issues in healthcare				
3.4	Describe methods to ensure data security and confidentiality				
3.5	Identify and describe the role of a professional code of ethics in HIT				

Benchmark 4.: Professional Communication in Healthcare Environment		3	2	1	0
4.1	Apply fundamentals of teamwork, leadership, and professional behaviors				
4.2	Practice problem-solving processes and collaboration within work teams				
4.3	Practice effective communication techniques: written communication, prepared speaking, active listening, body language / nonverbal communication				
4.4	Demonstrate cooperative behaviors to contribute to team success				
4.5	Identify and discuss common communication methods within healthcare				
4.6	Identify and discuss common communication procedures and processes within healthcare				
4.7	Identify and discuss professionalism in the workplace				
4.8	Identify and discuss chain of command in the workplace				

Benchmark 5: Medical Terminology in Healthcare					
5.1	Define core principles of medical terminology: word roots, combining forms, prefixes, suffixes, eponyms, and modern language				
5.2	Practice building, spelling, pronouncing, and analyzing common medical terms				
5.3	Define and correctly pronounce medical terms associated with each body system				
5.4	Describe, define, and correctly pronounce common diseases and conditions, laboratory and diagnostic procedures, medical and surgical procedures, and medications				
5.5	Define common terms, acronyms, and abbreviations use in HIT				

Benchmark 6: Business & Information Technology- Computer Science Principles in Healthcare Systems		3	2	1	0
6.1	Describe hardware and software options for computer and server systems in healthcare environment				
6.2	Examine online healthcare applications and discuss associated security and privacy issues				
6.3	Examine examples of application software and the elements that comprise them, focusing on healthcare systems				
6.4	Define and describe functions of operating systems and the usage of file systems				
6.5	Define and describe the different types of programming languages				
6.6	Define and describe the functions and different types of databases				
6.7	Define and describe the various types of network communications and network addressing				
6.8	Examine network standards and protocols within healthcare systems				
6.9	Describe safeguards against security concerns and programming for security				

Benchmark 7: Framework & System Design					
7.1	Define and describe and the building blocks of a large scale system				
7.2	Describe the collection, organization, and presentation of clinical data for record tracking, coding, registries, billing, imaging, and quality improvement				
7.3	Identify and explore existing local systems in EHR and HIT that regional healthcare businesses use				
7.4	Research how to integrate principles and explore the planning, design, implementation, integration, testing, evaluation, and support of healthcare information systems				
7.5	Identify and collaborate with local HIT users about the system(s), documents and uses				
7.6	Describe the process for new software development to meet a specific healthcare setting and need				
7.7	Identify local healthcare businesses that use technology for EHR & HIT				

Benchmark 8: Future of Health Information Systems					
8.1	Explore latest advances in computer technology related to healthcare and HIT				
8.2	Discuss implications and risks for ongoing development of HIT				
8.3	Explore employment opportunities for health information technologists in the workforce				
8.4	Identify and discuss common needs in regional healthcare and how they vary with emerging trends				

Benchmark 9: Business					
9.1	Identify and explore the overall functionality and importance of financial, accounting, marketing and project management within HIT				
9.2	Identify and discuss the basic needs of a health care business related to HIT and how it would relate to a business plan				
9.3	Develop and demonstrate the design and function of a health information system and what requirements are needed				
9.4	Identify regulations and restrictions businesses must follow to meet local, regional and federal requirements				
9.5	Collaborate with local/regional health care businesses that have a HIT and explore the structure, functionality, and challenges				

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: First Aid/CPR/EMR (Certification Course; Instructor must hold appropriate certification) **Course #:** 44050 **Credit**: 0.5

COURSE DESCRIPTION:

A technical level course designed to instruct students in the requirements and skills to obtain national certifications for First Aid, CPR and Emergency Medical Responder.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

See Emergency & Fire Management Services for Competencies 43.0299

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Healthcare Research & Clinical Skills A **Course #:** 14254 **Credit**: 0.5

COURSE DESCRIPTION:

An in-depth look at a specific topic, area of research, occupation/career, technique or skill in the health science area, which has been selected by the teacher of record for study. Students may further explore the special topic by collaborating, observing, and participating in approved activities with local and regional health care professionals to offer Professional Learning Experiences (PLE).

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1.1: Introduction		3	2	1	0
1.1	Understand the scope of the selected special topic to be taught.				
1.2	Identify new and emerging areas				
1.3	Identify business and industry in the region that are related				
1.4	Identify common technologies used				
1.5	Identify the core academics needed to succeed in this area				
1.6	Identify post-secondary programs that connect or relate to this area				
1.7	Research and discuss possible projects related to this area				

Benchmark 2.1: Academics		3	2	1	0
2.1	Demonstrate a wide variety of measuring and common techniques (including but not limited to: solution calculations, data analysis, and graphing)				
2.2	Demonstrate writing and reading skills associated with the topic area (including but not limited to: note booking, research, recording, and findings)				
2.3	Use the scientific method to conduct a valid experiment and compose a thorough statement of results (including evidence, explanations error analysis and practical applications).				
2.4	Identify common calculations and formulas used				

Benchmark 3.1: Lab Skills		3	2	1	0
3.1	Demonstrate competence in any needed lab skills				
3.2	Describe and demonstrate appropriate preparation techniques				
3.3	Design and demonstrate techniques learned in project-based learning				

Benchmark 4.1: Careers		3	2	1	0
4.1	Identify personal traits and attitudes desirable in a career ready member of a health team. • Acceptance of criticism • Competence • Dependability • Discretion				

	• Empathy • Enthusiasm • Honesty • Initiative • Integrity • Patience • Positive Attitude • Responsibility • Self-motivation • Tact • Team player • Willingness to learn				
4.2	Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior.				
4.3	Apply employability skills in healthcare. • Chain of command • Communication Skills • Decision making • Flexible • Organization • Problem Solving • Scope of practice • Time Management • Work Ethic				
4.4	Research levels of education, credentialing requirements, and employment trends in health professions related to selected topic.				
4.5	Distinguish differences among careers within a health science pathway. • Biotechnology research and development • Diagnostic services • Health informatics • Support services • Therapeutic services				
4.6	Develop components of a personal portfolio. • Letter of introduction • Resume • Sample Projects • Writing Sample • Work-based Learning Documentation • Oral Report • Community Service / Service Learning • Credentials • Technology Skills • Leadership Examples				
4.7	Identify strategies for pursuing employment. • Social media • Personal networking				

Benchmark 5.1: Personal Safety		3	2	1	0
5.1	Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.				
5.2	Demonstrate principles of body mechanics during patient care. • Ambulating • Lifting • Positioning				
5.3	Demonstrate and apply the use of personal protective equipment (PPE).				
5.4	Apply safety techniques in the work environment.				

	• Ergonomics • Safe operation of equipment • Patient/client/employee safety measures				
5.5	Observe all safety standards related to the occupational exposure to hazardous chemicals standard (safety data sheets [SDS]).				
5.6	Comply with safety signs, symbols, and labels.				
5.7	Practice fire safety in a healthcare setting.				
5.8	Apply principles of basic emergency response in natural disasters and other emergencies (safe location, contact emergency personnel, follow facility protocols).				

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Healthcare Research & Clinical Skills B **Course #:** 36254 **Credit**: 1.0

COURSE DESCRIPTION:

An in-depth look at a specific topic, area of research, occupation/career, technique or skill in the health science area, which has been selected by the teacher of record for study. Students may further explore the special topic by collaborating, observing, and participating in approved activities with local and regional health care professionals to offer Professional Learning Experiences (PLE).

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Introduction		3	2	1	0
1.1	Understand the scope of the selected special topic to be taught.				
1.2	Identify new and emerging areas				
1.3	Identify business and industry in the region that are related				
1.4	Identify common technologies used				
1.5	Identify the core academics needed to succeed in this area				
1.6	Identify post-secondary programs that connect or relate to this area				
1.7	Research and discuss possible projects related to this area				

Benchmark 2: Academics		3	2	1	0
2.1	Demonstrate a wide variety of measuring and common techniques (including but not limited to: solution calculations, data analysis, and graphing)				
2.2	Demonstrate writing and reading skills associated with the topic area (including but not limited to: note booking, research, recording, and findings)				
2.3	Use the scientific method to conduct a valid experiment and compose a thorough statement of results (including evidence, explanations error analysis and practical applications).				
2.4	Identify common calculations and formulas used				

Benchmark 3: Lab Skills		3	2	1	0
3.1	Demonstrate competence in any needed lab skills				
3.2	Describe and demonstrate appropriate preparation techniques				
3.3	Design and demonstrate techniques learned in project-based learning				

Benchmark 4.1: Careers		3	2	1	0
4.1	Identify personal traits and attitudes desirable in a career ready member of a health team. • Acceptance of criticism • Competence • Dependability • Discretion				

	• Empathy • Enthusiasm • Honesty • Initiative • Integrity • Patience • Positive Attitude • Responsibility • Self-motivation • Tact • Team player • Willingness to learn				
4.2	Summarize professional standards as they apply to hygiene, dress, language, confidentiality and behavior.				
4.3	Apply employability skills in healthcare. • Chain of command • Communication Skills • Decision making • Flexible • Organization • Problem Solving • Scope of practice • Time Management • Work Ethic				
4.4	Research levels of education, credentialing requirements, and employment trends in health professions related to selected topic.				
4.5	Distinguish differences among careers within a health science pathway. • Biotechnology research and development • Diagnostic services • Health informatics • Support services • Therapeutic services				
4.6	Develop components of a personal portfolio. • Letter of introduction • Resume • Sample Projects • Writing Sample • Work-based Learning Documentation • Oral Report • Community Service / Service Learning • Credentials • Technology Skills • Leadership Examples				
4.7	Identify strategies for pursuing employment. • Social media • Personal networking				

Benchmark 5.1: Personal Safety		3	2	1	0
5.1	Apply personal safety procedures based on Occupational Safety and Health Administration (OSHA) and Centers for Disease Control (CDC) regulations.				
5.2	Demonstrate principles of body mechanics during patient care. • Ambulating • Lifting • Positioning				
5.3	Demonstrate and apply the use of personal protective equipment (PPE).				

5.4	Apply safety techniques in the work environment. • Ergonomics • Safe operation of equipment • Patient/client/employee safety measures				
5.5	Observe all safety standards related to the occupational exposure to hazardous chemicals standard (safety data sheets [SDS]).				
5.6	Comply with safety signs, symbols, and labels.				
5.7	Practice fire safety in a healthcare setting.				
5.8	Apply principles of basic emergency response in natural disasters and other emergencies (safe location, contact emergency personnel, follow facility protocols).				

Kansas Health Science Cluster

Health Science Pathway – Technical Level - All strands

Course: Medical Terminology **Course #:** 14154 **Credit**: 0.5

COURSE DESCRIPTION:

In Medical Terminology, students learn how to identify medical terms by analyzing their components. These courses emphasize defining medical prefixes, root words, suffixes, and abbreviations. The primary focus is on developing both oral and written skills in the language used to communicate within health care professions.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are **directly tied** to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Interpret and apply medical terminology used in medical careers.		3	2	1	0
1.1	Identify word parts: root, prefix, suffix				
1.2	Identify combining vowels and proper combining forms				
1.3	Use word elements to analyze and determine the meaning of the term				
1.4	Apply correct pronunciation to medical terms				
1.5	Demonstrate proper use of rules when changing singular terms into plural forms				
1.6	Identify word roots and their relationship to specific body systems and/or anatomical structure				
1.7	Identify common prefixes and suffixes				
1.8	Demonstrate correct spelling of similarly pronounced terms				
1.9	Demonstrate what anatomical position is and how it is used to reference the body.				
1.10	Distinguish between the commonly used anatomical planes and recognize their individual views. 1. Sagittal/Midsagittal Plane 2. Frontal/Coronal Plane 3. Transverse/Horizontal Plane				
1.11	Apply directional terms to their locations on the human body. 1. Superior/Inferior 2. Anterior/Posterior 3. Medial/Lateral 4. Distal/Proximal 5. Superficial/Deep 6. Ventral/Dorsal 7. Prone/Supine 8. Unilateral/Bilateral				
1.12	Recognize color and number word parts				
1.13	Use word parts to describe procedures and/or techniques				

Benchmark 2: Interpret and apply identified medical abbreviations and symbols used in health care settings.		3	2	1	0
2.1	Interpret and extract information from realistic medical documents.				
2.1	Apply medical abbreviations to interpreting and writing prescriptions.				
2.3	Identify pharmacological symbols.				
2.4	Identify medical symbols				

Kansas Health Science Cluster

Course: Fundamentals of Emergency Services (non-certifying course) **Course #:** 14055 **Credit**: 0.5

CIP Codes:

COURSE DESCRIPTION:

This course places a special emphasis on the knowledge and skills needed in medical emergencies. Topics typically include clearing airway obstructions, controlling bleeding, bandaging, methods for lifting and transporting injured persons, simple spinal immobilization, infection control, stabilizing fractures, and responding to cardiac arrest. The courses may also cover the legal and ethical responsibilities involved in dealing with medical emergencies. ***Not a certifying course.***

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Introduction to Emergency Medical Services		3	2	1	0
1.1	Define and describe emergency medical services				
1.2	Identify careers in emergency medical services (emergency first responder, Emergency Medical Technician (EMT), Advanced EMT, Paramedic)				
1.3	Identify and describe common situations where emergency medical ~~technology~~ services is used (including first aid, first responder, emergency medical treatment)				
1.4	Identify various types of clients and how emergency medical services can support meeting those needs (including children, aging adults, adults, and physical disabilities)				
1.5	Identify regional business that offer emergency medical technology services				
1.6	Identify the education, certifications and skills needed to work in emergency medicine				
1.7	Identify the common job duties of an emergency medical technician				
1.8	Identify common emergencies and illnesses.				

Benchmark 2: Legal		3	2	1	0
2.1	Describe the legal and ethical standards of emergency medicine				
2.2	Understand the scope and importance of confidentiality				
2.3	Understand the concepts of Scope of Practice and Standing Orders				
2.4	Identify local, state, and national regulations and laws pertaining to working with or assisting patients				

Benchmark 3: Human Body		3	2	1	0
3.1	Explain and demonstrate the basic knowledge human body systems				
3.2	Identify directional terms, anatomical planes and body position				
3.3	Identify and describe key components of the skeletal system				
3.4	Identify and describe key components of the muscle system				

3.5	Identify and describe key components of the circulatory system				
3.6	Identify and describe key components of the nervous system				

Benchmark 4: Patient Care		3	2	1	0
4.1	Identify and demonstrate the 6 standards of practice (Assessment, Diagnosis, Outcome Identification, Planning, Implementation, and Evaluation)				
4.2	Identify and demonstrate standards of professional performance				
4.3	Demonstrate effective communication (verbally and non-verbally)				
4.4	Understand how accurate observations, recording and reporting are critical to effective care				
4.5	Recognizes individual and cultural differences				
4.6	Recognizes reaction to illness and disability				
4.7	Exhibits professional conduct				

Benchmark 5: Patient Assessment		3	2	1	0
5.1	Identify and describe the techniques for assessing mental status and level of consciousness				
5.2	Identify and describe the techniques for assessing the patient's respiratory function				
5.3	Identify and describe the techniques for the patient's cardiovascular function				
5.4	Identify and describe the techniques for assessing the patient for external bleeding.				
5.5	Identify and describe the techniques for assessing the patient's skin color, temperature, condition, and capillary refill.				
5.6	Identify and describe appropriate tests and measurements for a variety of client types				
5.7	Examine patients/clients by obtaining a history from them and from other sources				
5.8	Examine patients/clients by performing systems reviews				
5.9	Describe an assessment of the medical patient and a trauma patient				
5.10	Identify various normal and abnormal findings during a patient assessment.				

Benchmark 6: ~~Basic Emergency Technology~~ First Aid Assessment & Management		3	2	1	0
6.1	Identify common signs and treatment for performing first aid for fractures, dislocations, sprains, and strains				
6.2	Identify common signs and treatment for performing first aid for seizures				
6.3	Identify common signs and treatment for performing first aid for a choking victim				
6.4	Identify common signs and treatment for performing first aid for an unconscious victim				
6.5	Identify common signs and treatment for performing first aid for controlling various types bleeding				
6.6	Research and identify common technologies, resources, supplies and common items to assist in first aid				
6.7	Research and identify differences in commonly used resources in the field verses a hospital setting				
6.8	Describe and describe the proper technique for CPR				
6.9	Describe and describe the proper technique for use of an AED				

Benchmark 7: Interventions		3	2	1	0
7.1	Identify procedures to move, position and drape a patient				
7.2	Describe and describe proper oxygenation techniques for various medical patients.				
7.3	Discuss the medications that Basic EMT's may administer.				
7.4	Discuss various dispositions available for the medical patient including priority				

	transport, non-emergency transport and treat and release.				

Benchmark 8: Safety		3	2	1	0
8.1	Identify possible accident prevention and appropriate proper safety techniques				
8.2	Identify key bloodborne pathogens and common infectious diseases encountered in the pre-hospital setting				
8.3	Demonstrate standard safety procedures				
8.4	Research and identify local, state and nation safety requirements				
8.5	Demonstrate proper personal safety techniques				
8.6	Accept responsibility for personal well-being and practice and follow safety guidelines.				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 1: General Health (PA, Med)

Course: Medical Interventions **Course #:** 14105 **Credit**: 1.0

COURSE DESCRIPTION:

Students explore and identify the wide area of medical interventions and how health care professionals and researchers have identified causes and solutions to improve overall public healthcare. Such practitioners in allied health, dentistry, midwifery (obstetrics), medicine, nursing, optometry, pharmacy, psychology and other health professions are all involved in medical interventions. Students will explore such areas at infections, genes, cancer, organ failure, immunization, transplants, blood types, medical drugs, legal issues in health care, emerging technology, careers that use medical interventions, and safety.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

See Biomedical Pathway for Competencies 14.0501

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 2: Sports Medicine/Rehabilitation (ATC, PT, OT)

Course: Sports Medicine I **Course #:** 14072 **Credit**: 1.0

COURSE DESCRIPTION

This course is designed to teach students components of exercise science/sports medicine; including exploration of therapeutic careers, medical terminology, anatomy and physiology, first aid, injury prevention principles, the healing process, rehabilitation techniques, therapeutic modalities, sport nutrition, sport psychology, and performance enhancement philosophies.

Rating Scale:
3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are **directly tied** to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Identify members of the Sports Medicine team.		3	2	1	0
1.1	Recognize the primary members of the sports medicine team to include: Coach, Athlete, Parents, Team Physician, Certified Athletic Trainer, and Allied Health professionals.				
1.2	Understand that other careers provide support to the sports medicine team.				
1.3	Compare and contrast the roles of each member of the sports medicine team.				

Benchmark 2: Explore a variety of therapeutic careers and describe the job duties and skills, education required, job settings, and potential salary		3	2	1	0
2.1	Describe the job duties, skills, education required, job setting and potential salary for careers such as: Certified Athletic Trainer Physical Therapist, Physical Therapy Assistant, Physical Therapy Aide, Occupational Therapist, Occupational Therapy Assistant, Occupational Therapy Aide, Exercise Physiologist, Orthopedic Surgeon, Physician, Physician Assistant, Massage Therapist, Chiropractor, Sports Psychologist, Certified Strength & Conditioning Specialist/Personal Trainer, Dietician, Podiatrist				

Benchmark 3: Explain legal issues and legal terminology.		3	2	1	0
3.1	Review preventative measures to reduce potential risks of litigation				
3.2	Medical History & Preparticipation Physical Examination (PPE)				
3.3	Have an emergency action plan				
3.4	Continuing education				
3.5	Maintain adequate supervision				
3.6	Maintain good rapport with the Sports Medicine Team				

Benchmark 4: Identify Bones and soft tissues		3	2	1	0
4.1	Explain the difference between the axial and appendicular skeleton				
4.2	Define the functions of the skeletal system				
4.3	Explain the difference between skeletal, smooth, and cardiac muscle				
4.4	Explain the physiology of a muscle strain				
4.5	Describe the function of a nerve cell				
4.6	Explain nerve injuries and their treatment				
4.7	List the different types of soft tissue injuries and their treatment				
4.8	Explain how the body responds to injuries				

Benchmark 5: Identify and utilize anatomical positions, planes, and directional terms.		3	2	1	0
5.1	Demonstrate what anatomical position is and how it is used to reference the body				
5.2	Distinguish between the commonly used anatomical planes and recognize their individual views • Sagittal/Midsagittal Plane • Frontal/Coronal Plane • Transverse/Horizontal Plane				
5.3	Apply directional terms to their location on the human body • Superior/Inferior • Anterior/Posterior • Medial/Lateral • Distal/Proximal • Superficial/Deep • Ventral/Dorsal • Prone/Supine • Unilateral/Bilateral				

Benchmark 6: Demonstrate body movements.		3	2	1	0
6.1	Compare and contrast the various movements of the body and their counter-movement • Flexion/Extension/Hyperextension • Adduction/Abduction • Pronation/Supination • Retraction/Protraction • Elevation/Depression • Rotation/Circumduction • External Rotation/Internal Rotation • Lateral Flexion (side-bending left or right				
6.2	Compare and contrast the various movements of the foot/ankle and their counter-movements Inversion/Eversion, Dorsiflexion/Plantarflexion, Pronation/Supination				
6.3	Compare and contrast the lateral movements of the wrist/hand and their counter-movements Radial Deviation/Ulnar Deviation, Opposition				

Benchmark 7: Define terms associated with Exercise Science.		3	2	1	0
7.1	Define the terminology that describes common sports injuries				
7.2	Define the concepts related to the injury process				

Benchmark 8: Demonstrate fundamental terms associated with performance enhancement		3	2	1	0
8.1	Define and interpret cardiovascular endurance				
8.2	Define and interpret muscular endurance				
8.3	Define and interpret power				
8.4	Define and interpret speed				
8.5	Define and interpret strength				

Benchmark 9: Develop an understanding of general conditional principles		3	2	1	0
9.1	Unerstand adaption				
9.2	Understand overload				
9.3	Understand specificity				
9.4	Understand reversibility				
9.5	Understand periodization				

Benchmark 10: Examine the role the cardiovascular/respiratory systems have on fitness/athletic performance		3	2	1	0
10.1	Describe the anatomy of the cardiovascular/respiratory systems • Heart-4 chambers, 4 valves, 4 blood vessels • Lungs-oxygen exchange from alveoli to capillaries				
10.2	Identify vital signs related to the cardiovascular/respiratory system • Describe and accurately measure blood pressure (systolic/diastolic) • Describe and accurately measure respiratory rate • Describe and accurately measure pulse rate • Describe lung volume • Describe the importance of cardiac output, stroke volume, and heart rate during • exercise				
10.3	Examine different types of tests used to quantify cardiovascular fitness o VO_2max • Harvard step test • 12 minute run test				
10.4	Describe the effects exercise has on the cardiovascular/respiratory systems • Immediate effects of exercise (heart rate, ventilation) • Long term effects of exercise (heart rate, stroke volume, cardiac output)				
10.5	Compare and contrast aerobic/anaerobic training				
10.6	Examine the importance of a warm up/cool down in a training program				
10.7	Examine different cardiovascular training methods o Interval • Fartlek • Circuit • Continuous				
10.8	Apply general conditioning principles to improve cardiovascular fitness • Rate of perceived exertion (BORG scale) • Target heart rate				

Benchmark 11: Examine the effects of the environment on training and performance.		3	2	1	0
11.1	Discuss the effect of high and low altitude				
11.2	Describe the effects of acclimatization				
11.3	Recognize the effects of travel on the body				

Benchmark 12: Examine the role strength training has on fitness/athletic performance.		3	2	1	0
12.1	Compare and contrast the difference between slow twitch and fast twitch muscle fibers and the type of athletic performance each influence				

12.2	Compare and contrast different types of movements related to strength training o Isometric/isotonic/isokinetic • Eccentric/concentric • Closed chain/open chain • Plyometrics				
12.3	Identify methods of resistance				
12.4	Apply general conditioning principles to improve strength o Speed • Muscular endurance • Power				

Benchmark 13: Examine the importance of flexibility in fitness/athletic performance.		3	2	1	0
13.1	Explain the general guidelines of flexibility				
13.2	Define ROM and how it relates to fitness/athletic performance				
13.3	Identify the benefits of flexibility • Decrease risk of injury • Reduce muscle soreness • Improve muscular balance and postural awareness				
13.4	Demonstrate proper timing of flexibility techniques (before/after activity)				
13.5	Identify the different methods to increase flexibility (static stretching, ballistic stretching, dynamic stretching, proprioceptive neuromuscular facilitation stretching)				
13.6	Explain the safety/effectiveness of each method of increasing flexibility (static stretching, ballistic stretching, dynamic stretching, proprioceptive neuromuscular facilitation stretching-PNF)				
13.7	Demonstrate the proper techniques of static stretching for all major muscle groups				

Benchmark 14: Describe the basic components of nutrition and sources of nutrients		3	2	1	0
14.1	Utilize the Choose My Plate at www.choosemyplate.gov to recognize the components of a sound diet.				
14.2	Recognize the basic human needs and the sources of the following nutrients (Carbohydrates, Proteins, Fats, Vitamins, Minerals, Water)				

Benchmark 15: Describe basic body composition		3	2	1	0
15.1	Compare and contrast the most common methods for analyzing body composition (Hydrostatic, Bod Pod, Calipers, BIA, Infrared)				
15.2	Describe the parameters of safe weight loss and weight gain				

Benchmark 16: Examine the importance of fluid replacement and hydration.		3	2	1	0
16.1	Examine the importance of water and its role in the body				
16.2	Explain the correct process of hydration during athletic activity				
16.3	Identify the dangers of inappropriate hydration techniques				
16.4	Identify the dangers of dehydration				
16.5	Compare and contrast advantages and disadvantages of sports drinks				
16.6	Identify the role of sports drinks in hydration				
16.7	Discuss the correct chemical make-up of sports drinks				
16.8	Discuss the dangers of energy drinks and their effects on the body				

Benchmark 17: Identify the components of a pre and post event meal and explain the value of each.		3	2	1	0
17.1	Describe recommended nutrient percentages of pre and post event meals				

17.2	Identify foods that are easily digested				
17.3	Identify food that should be avoided				
17.4	Identify when pre and post event meals should be eaten				
17.5	Explain the process of carbohydrate loading and discuss when it is most effective				

Benchmark 18: Recognize disorders associated with nutrition.		3	2	1	0
18.1	Identify signs, symptoms, and effects of Anorexia Nervosa				
18.2	Identify signs, symptoms, and effects of Bulimia Nervosa				
18.3	Identify signs, symptoms, and effects of the Female Athlete Triad				

Benchmark 19: Compare and contrast the physiological and psychological effects of ergogenic aids.		3	2	1	0
19.1	Define ergogenic aid				
19.2	Recognize the effects and possible dangers of common ergogenic aides (Stimulants, Narcotics, Anabolic steroids, Beta blockers, Diuretics, Human growth hormone, Blood doping products, Erythropoietin, Anesthetics, Corticosteroids, Creatine)				

Benchmark 20: Discuss the inflammatory response and the healing process.		3	2	1	0
20.1	Compare and contrast acute and chronic injuries				
20.2	Discuss the purpose of inflammation				
20.3	Categorize the stages of acute injury healing (Acute-Inflammation Phase, Subacute-Repair & Regeneration Phase, & Remodeling-Maturation Phase)				
20.4	Explain the process involved in the Acute (Inflammation) Phase of injury healing				
20.5	Describe the signs and symptoms of inflammation (heat, redness, swelling, pain, loss of function)				
20.6	Understand the time frame of the Acute (Inflammation) Phase				
20.7	Define vasodilation and explain why it occurs				
20.8	Define hypoxia and explain its role in secondary injury				
20.9	Explain the process involved in the Subacute (Repair and Regeneration) Phase of injury healing				
20.10	Understand the time frame of the Subacute (Repair and Regeneration) Phase				
20.11	Explain what is a fibroblast				
20.12	Explain what collagen is and its role in scar tissue formation				
20.13	Explain the process involved in the Remodeling (Maturation) Phase of injury healing				
20.14	Understand the time frame of the Remodeling (Maturation) Phase				
20.15	Define adhesions as they relate to the Remodeling (Maturation) Phase				
20.16	Explain Wolff's Law as it relates to the Remodeling (Maturation) Phase				

Benchmark 21: Compare and contrast injury classifications.		3	2	1	0
21.1	Describe first degree injuries				
21.2	Describe second degree injuries				
21.3	Describe third degree injuries				

Benchmark22: Explore therapeutic modalities		3	2	1	0
22.1	Identify the purpose of therapeutic modalities				
22.2	Explain how to properly select the use of therapeutic modalities				
22.3	Identify the Gate Control Theory as a principle of pain management and describe the physiological process of the theory				

Benchmark 23: Demonstrate an understanding of the physiologic effects, indications, contraindications, and application of therapeutic modalities and rehabilitation techniques.		3	2	1	0
23.1	Describe the physiologic effects, indications, contraindications, and application of Cryotherapy (Ice packs /Prepare an ice bag/pack, Ice massage, Ice immersion, Cold whirlpool, Chemical coolant, Describe the R.I.C.E. method for acute injuries /Apply a compression wrap to an ankle /Apply a compression wrap to a knee)				
23.2	Describe the physiologic effects, indications, contraindications, and application of Thermotherapy (Heat packs, Ultrasound, Hot whirlpool, Contrast baths, Electrotherapy, Massage)				

Benchmark 24: Discuss the components and goals of a rehabilitation program.		3	2	1	0
24.1	Identify the general guidelines of a rehabilitation program (Individualize each program, Be as aggressive as possible without causing harm, Use a variety of equipment, Common mistakes, Appropriate goal setting, Components of a rehabilitation program)				
24.2	Identify Phase I of a rehabilitation program • Body conditioning/maintain cardiovascular fitness throughout all phases • Control swelling • Control pain • Increase range of motion				
24.3	Identify Phase II of a rehabilitation program • Restore full range of motion • Strength, endurance, speed, power in all muscle groups • Begin skill patterns and proprioception				
24.4	Identify Phase III of a rehabilitation program • Functional and sport specific skills • Restore balance and proprioception • Return to sport				
24.5	Relate the different exercise principles to rehabilitation (SAID, Overload)				

Benchmark 25: Identify the psychological implications of an injury to an athlete.		3	2	1	0
25.1	Describe the five psychological phases an athlete experiences following an injury (Denial, Anger, Bargaining, Depression, Acceptance)				
25.2	Compare and contrast athletes that deny pain and loss of function or view injury as a source of relief				

Benchmark 26: Identify effective psychological intervention skills.		3	2	1	0
26.1	Describe the importance of goal setting (Performance goals, Outcome goals, SMART goals)				
26.2	Examine different relaxation techniques and how they can help performance (Focused breathing, Progressive muscle relaxation)				
26.3	Analyze the use of visual imagery in sport (Aid in rehabilitation and healing, reduce anxiety, Improve performance)				

Benchmark27: Identify potential problems associated with overtraining.		3	2	1	0
27.1	Compare and contrast staleness and burnout				
27.2	Identify interventions to prevent or treat staleness or burnout • Remove from activity • Time off • Allow athlete to have more control • Decreasing emotional and stressful demands • Avoid repetition • Sufficient attention to complaints and small injuries • Supportive and caring environment				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 2: Sports Medicine/Rehabilitation (ATC, PT, OT)

Course: Physical Therapy **Course #:** 14060 **Credit**: 1

COURSE DESCRIPTION

Physical Therapy courses provide students with the knowledge and skills necessary to work with patients who need to achieve and maintain functional rehabilitation and to prevent malfunction or deformity. Topics covered typically include therapeutic exercises and activities (such as stretching and strengthening), how to train patients to perform the activities of daily living, the use of special equipment, and evaluation of patient progress.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are **directly tied** to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Explore the rehabilitation medicine career fields.		3	2	1	0
1.1	Define rehabilitation therapy				
1.2	Identify careers in the rehabilitation therapy pathway				
1.3	Explore the history of rehabilitation therapy				
1.4	Examine the roles and responsibilities of a physical therapist, Occupational Therapist, Speech Therapist, and sports medicine (hospital setting, long-term care facility, Clinic, Schools)				
1.5	Identify the members and roles of the rehabilitative therapy team including: surgeon/physician/physician assistant, Nurse, physical therapist/physical therapy assistant/ physical therapy aide, athletic trainer, Chiropractor, massage therapist				

Benchmark 2: Explore the history of physical therapy, occupational therapy and speech therapy and sports medicine		3	2	1	0
2.1	Create a historical timeline of the significant contributors, modalities, and treatments in physical therapy, occupational therapy, speech therapy and sports medicine				
2.2	Compare and contrast current and historical modality treatment				

Benchmark 3: Explore the modern profession of physical therapy, occupational therapy, speech therapy and sports medicine		3	2	1	0
3.1	Explore current trends of physical therapy, occupational therapy, speech therapy and sports medicine				
3.2	Analyze current issues of physical therapy, occupational therapy, speech therapy and sports medicine				
3.3	Identify innovative approaches in physical therapy, occupational therapy, speech therapy and sports medicine				
3.4	Research various treatments in physical therapy, occupational therapy, speech therapy and sports medicine				

Benchmark 4: Explain the role of the professional associations		3	2	1	0
4.1	Identify the functions of the individual association (American Physical Therapy Association (APTA), American Occupational Therapy Association (AOTA), American Speech language Hearing Association (ASHA), National Athletic Training Association (NATA)				
4.2	Outline the *Standards of Practice* as defined by the individual association (American Physical Therapy Association (APTA), American Occupational Therapy Association (AOTA), American Speech language Hearing Association (ASHA), National Athletic Training Association (NATA)				
4.3	Describe the importance of involvement in professional associations to further career development				

Benchmark 5: Create a career development plan within the physical therapy field or occupational therapy or speech therapy or sports medicine		3	2	1	0
5.1	Explore educational requirements, credentialing exams, and costs for a career in: physical therapy, Occupational Therapy, Speech Therapy, Athletic Training/Sports Medicine				
5.2	Explore educational offerings to enhance career development				
5.3	Compare and evaluate different types of educational opportunities				
5.4	Describe the benefits of mentoring as a career development tool (job shadows/internships)				
5.5	Describe the importance of involvement in organizations such as APTA, AOTA, ASHA, NATA to further career development				
5.6	Explore specialty areas within the field of physical therapy as described by any of the following: American Board of Physical Therapy Specialties (ABPTS), American Occupational Therapy Association or America, American Speech-language Hearing Association (ASHA, National Athletic Training Association (NATA)				

Benchmark 6: Identify the rules and regulations of individually identifiable health information.		3	2	1	0
2.1.1	Examine the Health Insurance Portability and Accountability Act (HIPAA)				
2.1.2	Identify consequences of violating Health Insurance Portability and Accountability Act (HIPAA)				
2.1.3	Explain personal responsibilities within the parameters of Health Insurance Portability and Accountability Act (HIPAA)				

Benchmark 7: Discuss desirable attitudes and behaviors when providing healthcare to diverse patients.		3	2	1	0
7.1	Describe cultural sensitivity in relation to healthcare				
7.2	Explore ways to treat the underserved and under-represented populations				
7.3	Identify ways that people from different cultures and backgrounds are stereotyped				
7.4	Describe the importance of treating patients as individuals				

Benchmark 8: Describe the required documentation related to therapy visits and treatment.		3	2	1	0
8.1	Analyze medical records used in a physical therapy setting				
8.2	Create a SOAP note for each of the following conditions: musculoskeletal, neuromuscular, cardiovascular, and integumentary				

Benchmark 9: Discuss the *Kansas Practice Act per profession* and how it relates to the roles and relationship between the therapy team.		3	2	1	0
9.1	Identify the scope of practice for the individual professions				

Benchmark 10: Investigate the various types of health insurance and the reimbursement process for rehabilitative therapy team		3	2	1	0
10.1	Describe health insurance plans (Premium, Copay, deductible)				
10.2	Compare and contrast government funded plans and private insurance plans in regard to the number of reimbursed visits				
10.3	Identify CPT codes (treatment codes used for billing)				
10.4	Identify ICD 10 codes (Diagnosis codes also used for billing/documentation)				

Benchmark 11: Describe the characteristics of an effective healthcare provider in personal and professional terms.		3	2	1	0
11.1	Examine productivity and time management strategies				
11.2	Discuss implications of dress and other personal behaviors within the healthcare setting				
11.3	Identify best practices in respect to client relations				
11.4	Understand the implications the following have on healthcare employment: (Criminal background check, Drug Testing)				

Benchmark 12: Explain effective communication strategies of a therapist with patients and all members of the therapy team.		3	2	1	0
12.1	Demonstrate appropriate verbal communication skills in a healthcare setting				
12.2	Demonstrate appropriate non-verbal communication skills in a healthcare setting				
12.3	Demonstrate and understand the Core Values (Accountability, Altruism, Compassion/Caring, Excellence, Integrity, Professional Duty, Social Responsibility)				

Benchmark 4.1: Describe positional terminology in regard to the human body.		3	2	1	0
13.1	Describe anatomical position				
13.2	Identify body planes and directional terms (Sagittal, Mid-sagittal, coronal/frontal, transverse/horizontal, Superior, Inferior, Anterior, Posterior, Medial, Lateral, Proximal, Distal, Superficial, Deep)				
13.3	Compare and contrast body movements. ● Flexion, extension, and hypertension ● Adduction and abduction ● Pronation and supination ● Retraction and protraction ● Elevation and depression ● Rotation and circumduction ● External rotation and internal rotation ● Lateral flexion (side-bending left and right) ● Inversion and eversion ● Dorsiflexion and plantar flexion ● Radial deviation and ulnar deviation ● Opposition				
13.4	Define common medical terminology: ● Ataxia ● Base of support ● Bilateral ● Calcaneal valgus ● Calcaneal varum ● Cervical ● Contracture ● Core ● Hyperextension ● Hypermobility ● Hypertonic ● Hypotonic ● Internal rotation ● Instability ● Kinesthesia ● Kyphosis ● Proximal ● Quadriceps ● Range of motion ● Recurvatum ● Reflex ● Ring sitting ● Sacral ● Side-sitting				

	• Deformity • Dissociation • Distal • Dynamic • Extension • External rotation • Fine motor • Flexion • Genu valgus • Genu varum • Gross motor • Hamstrings	• Long-sitting • Lordosis • Lumbar • Manual therapy • Midline • Motor control • Motor planning • Obliquity • Pes planus • Prone • Proprioception	• Spasticity • Static • Supine • Symmetrical • Tactile defensiveness • Tailor-sitting • Thoracic • Tone (muscle) • Unilateral • Vestibular stimulation • Weight shift				
13.5	Define the following abbreviations/acronyms: • L • R • B	• Tx • Fx • PT	• PTA • OT • OTA				

Benchmark 14: Identify conditions and injuries associated with the musculoskeletal systems.		3	2	1	0
14.1	Identify General conditions including: Osteoarthritis, Osteoporosis, Fibromyalgia, TMJ dysfunction				
14.2	Identify Shoulder injuries including: rotator cuff tear, Dislocation, frozen shoulder, Tendinitis, Fracture, shoulder impingement, thoracic outlet syndrome				
14.3	Identify Elbow injuries including: golfer's elbow, tennis elbow, Sprain, Strain, fractures				
14.4	Identify Wrist injuries including: carpal tunnel syndrome, Sprain, Strain, fractures				
14.5	Identify Neck and low back injuries including: Sprain, Strain, disc herniation, Stenosis, muscle spasm, Posture, SI joint dysfunction, coccygodynia				
14.6	Identify Hip and Knee conditions including: acetabular labral tears, Bursitis, IT band tightness/syndrome, Tendinitis, total knee replacement				
14.7	Identify Ankle injuries including: Achilles tendinitis, peroneal tendonitis, Sprain, Strain, fractures				
14.8	Identify Foot and toe injuries including: plantar fasciitis, tarsal tunnel syndrome, Bunionectomies, Sprain, Strain, fractures				

Benchmark 15: Identify how to assess musculoskeletal conditions.		3	2	1	0
15.1	Identify current concerns and General health				
15.2	Identify life style/ADLs/functional status (employment, activity level, recent or past injuries) Joint inspection/ROM, Muscle strength, ADL/functional abilities and Activity tolerance				

Benchmark 16: Explain the progress of a patient through the phases of rehabilitation for musculoskeletal conditions.		3	2	1	0
16.1	Identify short- and long-term goals for rehabilitation				
16.2	Communicate how to control inflammation and pain				
16.3	Communicate how to increase range of motion				
16.4	Communicate how to increase strength and function				
16.5	Generate plan how to return to normal function				

Benchmark 17: Model therapeutic exercises and modalities used to treat musculoskeletal conditions and injuries.		3	2	1	0
17.1	Demonstrate manual therapy (mobilization, myofascial release, soft tissue mobilization)				
17.2	Demonstrate strengthening (therapeutic exercises, stabilization)				

17.3	Demonstrate range of motion (stretching)				
17.4	Demonstrate modalities (traction, e-stimulation, ultrasound, heat/ice, taping, Astym)				
17.5	Communicate patient education				
17.6	Create Home exercise program (HEP)				

Benchmark 18: Compare and contrast assessment, therapeutic exercises, and modalities in an adult and a child patient.		3	2	1	0
18.1	Modify the assessment for a pediatric patient				
18.2	Modify the therapeutic exercises and modalities for a pediatric patient				

Benchmark 19: Compare and contrast assessment, therapeutic exercises, and modalities in an adult and a geriatric patient.					
19.1	Modify the assessment for a geriatric patient				
19.2	Modify the therapeutic exercises and modalities for a geriatric patient				

Benchmark 20: Identify conditions and injuries associated with the neuromuscular system.		3	2	1	0
20.1	Identify the following conditions and injuries: Parkinson's disease, Guillian-Barre Syndrome, Multiple sclerosis (MS), Chronic inflammatory demyelinating neuropathy, Cerebral palsy, ALS, Traumatic Brain Injury, Spinal cord injuries				

Benchmark 21: Identify how to assess neuromuscular conditions.		3	2	1	0
21.1	Assess the impact on life expectancy for neuromuscular conditions				
21.2	Identify the involvement of organ systems for neuromuscular conditions				
21.3	Assess the impact of Family, social, community roles for neuromuscular conditions				
21.4	Assess the impact of daily functioning for neuromuscular conditions ● Ambulation ● ADLs ● Communication ● nutritional status ● community mobility ● work performance ● Functional Tasks				
21.5	Assess muscle strength for neuromuscular conditions				
21.6	Assess Joint contractures for neuromuscular conditions				
21.7	Assess Pulmonary function for neuromuscular conditions				
21.8	Assess Cardiomyopathy for neuromuscular conditions				
21.9	Assess Intellectual capacity for neuromuscular conditions				

Benchmark 22: Explain the progress of a patient through the phases of rehabilitative therapy for neuromuscular conditions.		3	2	1	0
22.1	Identify short- and long-term goals for rehabilitative therapy for neuromuscular conditions.				
22.2	Communicate how to control inflammation and pain for neuromuscular conditions.				
22.3	Communicate how to increase range of motion for neuromuscular conditions.				
22.4	Communicate how to increase strength and function for neuromuscular conditions.				
22.5	Generate plan how to return to normal function for neuromuscular conditions.				

Benchmark 23: Model therapeutic exercises and modalities used to treat neuromuscular conditions and injuries.	3	2	1	0

23.1	Demonstrate manual therapy (mobilization, myofascial release, soft tissue mobilization) used to treat neuromuscular conditions and injuries.				
23.2	Demonstrate strengthening (therapeutic exercises, stabilization) used to treat neuromuscular conditions and injuries.				
23.3	Demonstrate range of motion (stretching) used to treat neuromuscular conditions and injuries.				
23.4	Demonstrate modalities (Traction, E-stimulation, Ultrasound, heat/ice, Aquatic Therapy) used to treat neuromuscular conditions and injuries.				
23.5	Communicate patient education used to treat neuromuscular conditions and injuries.				
23.6	Create Home exercise program (HEP) used to treat neuromuscular conditions and injuries.				
23.7	Identify Assistive and adaptive devices used to treat neuromuscular conditions and injuries (Crutches, prostheses, Wheelchairs, Canes, Transfers, Walkers)				

Benchmark 24: Identify conditions and defects associated with the cardiovascular systems.		3	2	1	0
24.1	Identify conditions and defects associated with Pulmonary Embolism, Cardiomyopathy, Myocardial infarction, Coronary artery-bypass graft (CABG), High Blood Pressure/Hypertension, Pacemaker, Left Ventricular Assist Device, Heart Transplant, Aortic Aneurysm, Cardiomyopathy				
24.2	Identify how to assess cardiovascular conditions including: Onset and duration of symptoms, Previous and ongoing medical and/or surgical treatment, Lab results and diagnostic tests, Social history, Prior functional endurance level, Home environment, Family/caregiver support, Family, professional, social, and community roles, Patient's goals and expectations of returning to previous life roles, Prior drug, tobacco, and alcohol use, Current Medications				
24.3	Identify tests that are used to determine cardiovascular injuries/deformities including: Pulse oximeter, Blood pressure, Pulse, Respirations, VO2 max, 6-minute walk test, Step up test, Pulmonary drainage, Spirometry, Low-impact aerobic exercises				
24.4	Explain the progress of a patient through the phases of therapy for cardiovascular conditions (i.e. Exercises to improve mobility, Determine cardiac responses to exercise and activity, Increase flexibility, Increase strength and function, Increase aerobic exercise, Independent exercise and conditioning)				
24.5	Model therapeutic exercises and modalities used to treat cardiovascular conditions and defects (i.e. Standing and walking, Low-impact aerobic exercises (treadmill, exercise bike, or rowing machine), Increase flexibility (ROM), Strength-training)				

Benchmark 25: Compare and contrast assessment, therapeutic exercises, and modalities in an adult and a child patient with cardiovascular conditions.		3	2	1	0
25.1	Modify the assessment for a pediatric patient				
25.2	Modify the therapeutic exercises and modalities for a pediatric patient				

Benchmark 26: Compare and contrast assessment, therapeutic exercises, and modalities in an adult and a geriatric patient with cardiovascular conditions.		3	2	1	0
26.1	Modify the assessment for a geriatric patient				
26.2	Modify the therapeutic exercises and modalities for a geriatric patient				

Benchmark 27: Analyze conditions and injuries associated with the integumentary system.		3	2	1	0
27.1	Identify conditions associated with the integumentary system including burns, contusions, pressure ulcers, neuropathic ulcers, infection, surgical wounds, vascular disease, abscess, and traumatic injury.				
27.2	Assess patient history including: phases of wound healing, wound location and size, tunneling and undermining, and wound characteristics (distinctness, thickness, attachment to the base of the wound, epithelialization/pigmentation)				

27.3	Explain the progress of a patient through the phases of therapy for integumentary conditions and injuries (Pain management, Maximize movement and function (ROM and strengthening), Facilitate wound healing (wound debridement and dressing application), Minimize scar/contracture development)				
27.4	Model therapeutic exercises and modalities used to treat integumentary conditions and injuries including: Hydrotherapy, Thermotherapy, Hyperbaric oxygen therapy, Compression therapies (IPC, VAC), Electrotherapy, Manual therapy (massage), ROM stretching, Strengthening exercises, and Adaptive, protective, or assistive equipment				

Benchmark 28: Analyze factors that influence human growth and development.		3	2	1	0
28.1	Identify normal and developmental milestones of child development				
28.2	Identify different diseases common amount pediatric patients including: Developmental Disorders, Club Foot, Scoliosis, Torticollis, Juvenile Rheumatoid Arthritis, Duchenne Muscular Dystrophy, Down Syndrome, Cerebral Palsy, Fetal Alcohol Syndrome, Cystic Fibrosis, Developmental Coordination Disorder, Neural Tube Defects, Osteogenesis Imperfecta, Hip Dysplasia				
28.3	Assess special considerations for pediatric patients such as Child Abuse, Size of patient, Modifications to therapeutic treatment				

Benchmark 29: Analyze factors that influence geriatric patients		3	2	1	0
29.1	Identify common conditions treated in geriatric patients including: Osteoarthritis, Rheumatoid arthritis, Osteoporosis, Hip fractures, Diabetes, Polio				
29.2	Compare and contrast common facilities used for geriatric patients including: Hospital, Long-term rehab, Skilled nursing, Short-term rehab, Assisted living, Memory Care, Home health, Hospice				
29.3	Analyze special considerations for geriatric patients including: Elderly abuse, Age, Modifications to therapeutic treatment				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 2: Sports Medicine/Rehabilitation (ATC, PT, OT)

Course: Care of Athletes **Course #:** 14062 **Credit**: 0.5

COURSE DESCRIPTION:

Provide students with the knowledge of therapeutic tasks that would be designated by a certified athletic trainer or fitness specialist. Topics covered will include an overview of the athletic medicine team, basic legal and ethical considerations in athletic medicine, basic anatomy terms and concepts, basic patient assessment and basic principles of assessment, management and rehabilitation as it relates to an athletic population.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Introduction		3	2	1	0
1.1	Define and describe careers in the athletic medicine field (including, but not limited to, orthopedists, general practitioners, and athletic trainers)				
1.2	Identify and describe common situations where athletic medicine is used				
1.3	Identify various types of clients and how health care professionals can support meeting those needs (including children, aging adults, adults, and physical disabilities)				
1.4	Identify regional providers that offer services in athletic medicine				
1.5	Identify the education, certifications, and skills needed to work in various athletic medicine careers				
1.6	Identify the common job duties of health care providers associated with athletic medicine				
1.7	Identify the common impairments and disabilities health care providers may experience in the area of athletic medicine				

Benchmark: 2: Legal		3	2	1	0
2.1	Differentiate between Scope of Practice and Standard of Care as they pertain to athletic medicine.				
2.2	Understand the scope and importance of confidentiality (including HIPAA)				
2.3	Identify common ethical concerns in athletic medicine including.				

Benchmark 3: Human Body		3	2	1	0
3.1	Identify directional terms, anatomical planes, and body positions				
3.2	Identify various joint motions & actions (including but not limited to Flexion/Extension, Adduction/Abduction, Pronation/Supination, Protraction/Retraction, Elevation/Depression, Rotation, Circumduction)				
3.3	Explain and demonstrate ~~the~~ basic knowledge human body systems				
3.4	Identify and describe key components of the skeletal system				
3.5	Identify and describe key components of the muscle system				
3.6	Identify key Mechanisms of Injury as they relate to different tissue types (including but not limited to, sprains, strains, fractures, dislocations, lacerations, contusions, neuropathy, etc.)				

Benchmark 4: Patient Care		3	2	1	0
4.1	Identify and demonstrate standards of professional performance				

4.2	Demonstrate effective communication (verbally and non-verbally)				
4.3	Recognize individual and cultural differences as they relate to care of athletes				
4.4	Recognize reaction to illness and disability as they relate to care of athletes				

Benchmark 5.1: Examination		3	2	1	0
5.1	Describe ways to obtain a medical history from the patient/client or other interested parties (i.e. parents, coaches, bystanders)				
5.2	Understand how accurate observations, recording, and reporting are critical to effective care (Including HIPS, HOPS, SOAP Notes)				
5.3	Describe how to examine patients/clients by selecting and administering appropriate special tests/examination related to the injury/illness				
5.4	Evaluate data obtained from the examination to make initial judgment regarding the nature of the injury/illness and potential differential diagnoses				

Benchmark 6: Intervention and Rehabilitation		3	2	1	0
6.1	Identify procedures to move, position, and drape a patient				
6.2	Identify and apply principles of posture and body mechanics				
6.3	Describe and demonstrate various Range of Motion (ROM) exercises				
6.4	Identify various types of manual therapy				
6.5	Identify appropriate techniques of basic injury intervention (including, but not limited to basic wound care, basic principles of P.R.I.C.E., taping, padding & bracing)				
6.6	Define and describe basics of manual therapy (including, but not limited to, massage, mobilization, and manipulation)				
6.7	Identify and describe stretching exercises for increased range of motion				
6.8	Identify and describe exercises for strength training various parts of the body for different types of clients				
6.9	Develop and instruct a safe progression of a rehabilitation plan for a selected fictitious client				
6.10	Describe balance and coordination exercises				
6.11	Identify various types of aerobic conditioning used in athletic medicine				

Benchmark 7: Modalities		3	2	1	0
7.1	Describe the application of superficial heat and cold modalities				
7.2	Describe several forms of therapeutic massage				
7.3	Identify other therapeutic modalities available to the athletic medicine practitioner (including, but not limited to, traction, electrical stimulation, and ultrasound)				

Benchmark 8: Patient Records		3	2	1	0
8.1	Understand how accurate observations, recording, and reporting are critical to effective car				
8.2	Demonstrate mastery in recording, note booking, record completion, and visual records				

Benchmark 9: Safety		3	2	1	0
9.1	Identify possible accident prevention and appropriate proper safety techniques				
9.2	Demonstrate standard safety procedures including, but not limited to, equipment and environment as it relates to athletics				
9.3	Research and identify local, state and nation safety requirements and recommendations				
9.4	Demonstrate proper personal safety techniques				

Benchmark 10: Literature and Research		3	2	1	0
10.1	Demonstrate understanding of different types of professional publications (including, but not limited to, peer reviewed journals)				
10.2	Demonstrate mastery in citing professional sources when writing research reports				
10.3	Demonstrate understanding of the importance of ethical acknowledgement of professionals' intellectual property				
10.4	Demonstrate mastery of data analysis (including, but not limited to, data reports such as charts and graphs)				

10.5	Demonstrate mastery of medical calculations (including, but not limited to measurement, conversion, percentages, fractions, decimals and formulas)				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Emergency Medical Technician (EMT) – *Certification Course, Instructor must hold appropriate certification*

Course #: 44060 **Credit**: 1.0

COURSE DESCRIPTION:

EMTs are clinicians, trained to respond quickly to emergency situations regarding medical issues, traumatic injuries and accident scenes. This class is designed to provide skills and knowledge necessary to sit for the EMT certification test. The class is taught by a certified EMT instructor and follows competencies set forth by the certifying agency.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

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Instructor Signature: _____

See Emergency & Fire Management Services Pathway for Competencies 43.0299

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Pharmacology **Course #:** 14253 **Credit**: 1.0

COURSE DESCRIPTION:

Pharmacology courses involve a study of how humans can be changed by chemical substances, especially by the actions of drugs and other substances used to treat disease. Basic concepts of physiology, pathology, biochemistry, and bacteriology are typically brought into play as students examine the effects of drugs and their mechanisms of action.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

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Instructor Signature: _____

Benchmark 1 Demonstrate Knowledge of Pharmacology Basics		3	2	1	0
1.1	Review of basic body systems and normal body processes				
1.2	Define and discuss the major areas of pharmacology not limited to: pharmacodynamics, pharmacokinetics, pharmacotherapeutics, pharmacy, posology, toxicology				
1.3	Explain factors affecting the action of drugs including dosage forms, drug absorption, distribution, metabolism, excretion, and blood drug levels				
1.4	Explain common conditions, use and side effects of prescriptions or over the counter (OTC) medications used to treat these conditions not limited to: hypertension, hypothyroidism, diabetes, weight loss, cardiovascular disease, chronic obstructive pulmonary diseases, arthritis, anxiety, and insomnia				
1.5	Define and use as common language; pharmaceutical and medical terminology not limited to: indication, side effect, adverse effect, toxic effect, action, contraindication, allergic reaction, therapeutic effect, and cumulative effect				
1.6	Define and distinguish the difference between drug abuse, drug dependence and drug tolerance				
1.7	Identify and define common classifications of drugs including classifications for prescriptions, controlled substances, and over the counter (OTC) drugs not limited to: anesthetics, sedatives, (hypnotic drugs and alcohol), antipsychotic, antiemetic, antianxiety, antidepressants, psychomotor stimulants, and lithium, antiepileptics, antiparkinson, narcotic analgesics, non-narcotic analgesics, anti-inflammatory, antiarrhythmics, diuretics, antihypertensive, anticoagulants and coagulants, antianemics, antiallergics and antihistamines, bronchodilators, antiulcer, hormones, steroids, antibacterials, and miscellaneous anti-infectives, antifungals and antivirals				
1.8	Identify 200 common drugs and match them to indications				
1.9	Define and differentiate drug nomenclature to include chemical, generic and brand (trade) names of medications				
1.10	Identify common drug interactions not limited to: drug-drug, food-drug, prescription drug-OTC, and prescription drugs-herbal preparations				
1.11	Identify contraindications to use of drugs not limited to: drug-disease, drug-laboratory, food-drug				
1.12	Identify conditions affected by drugs not limited to: pregnancy, breastfeeding and allergies				
1.13	Discuss common alternative therapies not limited to: herbal preparations, dietary supplements,				

	homeopathy, and lifestyle changes				
1.14	Identify common OTC medications not limited to: antacids, laxatives, cold remedies, allergy remedies and pain relievers				
1.15	Explain symptoms of adverse drug reactions not limited to: rash, hives, light headedness, nausea, and vomiting				

Benchmark 2 – Identify Medical and Legal Considerations Related to the Practice of Pharmacy		3	2	1	0
2.1	Identify the purpose of the FDA and the duties they perform				
2.2	Identify the process that drugs must go through to be developed and approved for use				
2.3	Identify methods used to store, handle, and dispose of hazardous substances and wastes according to federal standards				
2.4	Explain hazardous substances exposure, prevention and treatment not limited to: eyewash, spill kid and safety data sheets (SDS)				
2.5	Explain controlled substance regulations according to the drug enforcement agency (DEA) not limited to: receiving, ordering, returning, loss/theft, and destruction				
2.6	Discuss the regulations that affect the production and distribution of a variety of types of drugs				
2.7	Identify the responsibilities and liabilities of a pharmacist preparing and filling prescriptions				
2.8	Identify the responsibilities and liabilities of a doctor prescribing drugs				
2.9	Define and discuss the illegal use of legal drugs				
2.10	Explain the FDA mandatory versus voluntary recall classification				
2.11	Discuss the roles and responsibilities of pharmacy careers not limited to: pharmacists, pharmacy technicians or other pharmacy employees according to the Board of Pharmacy (BOP)				
2.12	Describe record keeping requirements related to pharmacy not limited to: length of time prescriptions are maintained, repackaging products, recalled products and supplies, and invoicing				
2.13	Identify professional standards relating to data integrity, security and confidentiality not limited to HIPPA, archiving records, and OBRA				

Benchmark 3.1 Demonstrate Measurement and Calculating Techniques		3	2	1	0
3.1	Demonstrate the use of Arabic and Roman numerals, weights and measures, and the metric system				
3.2	Recognize and use the metric units of length, weight volume and temperature in mathematical problems				
3.3	Demonstrate the ability to perform pharmacology math-related problems not limited to calculations, data analysis and graphing				

Benchmark 4.1 Safety		3	2	1	0
4.1	Identify methods to reduce errors in prescription or medication orders not limited to: correct patient, look-alike sound-alike medications, leading and trailing zeros and error prone abbreviations				
4.2	Identify requirements for the package insert and medication guidelines				
4.3	Identify and define the published list of high-alert/risk medications				
4.4	Identify what belongs on a drug product label, including auxiliary labels not limited to: poison, shake well, store away from direct sunlight, external use only and take on empty stomach				
4.5	Demonstrate the understanding of the importance and how to perform data searches for accurate pharmacology information				
4.6	Identify issues that require pharmacist intervention not limited to: drug utilization review, adverse drug events, substitutions, misuse and missed dosages				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Medical Imaging **Course #:** 14103 **Credit**: 0.5

COURSE DESCRIPTION:

Students acquire the knowledge and understanding of the skills needed for variety of careers in medical/diagnostic imaging. This class will look at the areas of X-ray radiography, magnetic resonance imaging (MRI), medical ultrasonography or ultrasound, endoscopy, elastography, tactile imaging, thermography, medical photography and nuclear medicine functional imaging techniques as positron emission tomography. These courses usually include general health care topics as well, such as basic anatomy and physiology, patient care, identification and use of medical equipment, and medical terminology. Collaboration with local healthcare professionals and businesses related to this area is encouraged.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Introduction		3	2	1	0
1.1	Describe the three basic areas of Medical/Diagnostic Imaging				
1.2	Define Radiology and common imaging devices used within the area				
1.3	Define Nuclear Medicine and types of computer technologies				
1.4	Define Ultrasound and various procedures performed				
1.5	Identify common situations medical imagining would be used in health related fields				
1.6	Research latest technological advancements within medical imaging				

Benchmark 2: Academics		3	2	1	0
2.1	Identify the medical calculations needed to perform various duties in several fields of imaging				
2.2	Identify common terms and vocabulary used in medical imaging				
2.3	Identify and demonstrate correct term spelling, coding, notebooks, records, and reports				
2.4	Identify academic requirements for a Radiologic Technologist program				

Benchmark 3: Technical Skills		3	2	1	0
3.1	Determine and discuss the basic process for x-rays and how they are used				
3.2	Determine and discuss the basic process for magnetic resonance imaging and how it is used				
3.3	Determine and discuss the basic process for ultrasonography (ultrasound) and how it is used				
3.4	Determine and discuss the basic process for endoscopy and how it is used				
3.5	Identify internal structures hidden by the skin and bones				
3.6	Identify various visual representations of the interior of a body used for clinical analysis				
3.7	Explain the role of infection control within diagnostic imaging				
3.8	Identify and describe common illnesses, trauma, and conditions identified with medical imaging				
3.9	Determine and discuss the basic process for nuclear medicine functional imaging and how it is used				
3.10	Determine and discuss the basic process for thermography and how it is used				
3.11	Determine and discuss the basic process for electroencephalography (EEG) and				

	electrocardiography (EKG) and how they are used Identify and describe common uses of ultrasound in relation to pediatrics				
3.12	Explain the process of film development				
3.13	Describe the process for how the films are studied and stored				
3.14	Perform basic record keeping and written records commonly found with patient data				
3.15	Describe what interventional radiology is and common procedures performed within this area				
3.16	Explain the process of a “time out” and the importance of completing it				

Benchmark 4: Human Body		3	2	1	0
4.1	Identify directional terms, anatomical planes and body position				
4.2	Identify body cavities and their major organs				
4.3	Describe the structure and function of the organs in the digestive system.				
4.4	Describe the structure of the respiratory system, especially the lungs, and the basic mechanics of breathing.				
4.5	Explain the basic structure and function of the skeletal system.				
4.6	Identify the body’s major arteries and veins and name the body region supplied by each.				
4.7	Describe the structure and function of the human urinary system.				
4.8	Outline the structure and function of the central nervous system.				

Benchmark 5: Legal		3	2	1	0
5.1	Describe the importance of patient confidentiality within the diagnostic imaging services				

Benchmark 6: Safety		3	2	1	0
6.1	Identify appropriate safety precautions taken by health care workers while working in each imaging department				
6.2	Identify common patient safety precautions for a variety of diagnostic procedures				
6.3	Identify common industry safety procedures and regulations				
6.4	Identify protective clothing used by Diagnostic Imaging staff and patients				

Benchmark 7: Career		3	2	1	0
7.1	Identify and discuss occupations that use medical/diagnostic imaging				
7.2	Determine and discuss occupations in medical/diagnostic imaging				
7.3	Describe the job responsibilities of a radiologist				
7.4	Describe the job responsibilities of a ultrasound technician				
7.5	Describe the job responsibilities of a MRI technician				
7.6	Identify regional businesses that use medical/diagnostic imaging				

Kansas Health Science Cluster

Health Science Pathway – Application Level-All strands

Course: Certified Medication Aide (CMA) **Course #:** 36156 **Credit**: 0.5

COURSE DESCRIPTION:

This course includes the development of knowledge related to many commonly prescribed medications. Students will learn the classification, side effects and techniques of administration, including preparation and accurate distribution of medications. Safe administration of oral medications is discussed and demonstrated. Students will be prepared to take the Kansas CMA examination.

Rating Scale:

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2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

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Instructor Signature: _____

Benchmark 1: Safety practices		3	2	1	0
1.1	Demonstrate proper infection control practices including standard precautions, CMA role in facility policies, hand hygiene and additional methods of infection control.				
1.2	Describe and demonstrate safety practices in relation to preparation for drug administration, administering medication, mathematics, weights and measures, and monitoring for side effects				
1.3	Describe and demonstrate safety practices in relation to forms of medication and appropriate route and techniques of administration of medications				
1.4	Describe and demonstrate safety practices in relation to drug standards, names and drug resource information				

Benchmark 2: Orientation to Medications		3	2	1	0
2.1	Demonstrate ability to use drug resource materials				
2.2	Differentiate between a generic and brand name for a drug.				
2.3	Describe the basic expectations of a medication aide.				
2.4	Explain what is meant by the term side effect when discussing drug action.				

Benchmark 3: Pharmacodynamics		3	2	1	0
3.1	Identify what happens to medications when they enter the human body and how they produce their effects.				
3.2	Discuss how medications are affected by normal body processes, the individual and modes of administration.				
3.3	Recognize adverse reactions that occur with medication administration.				

Benchmark 4: Fundamentals of Medication		3	2	1	0
4.1	Describe different medication forms used in practice and their nursing implications.				
4.2	Determine from a list which medicines should not be crushed and give explanations.				
4.3	Accurately interpret simulated medicine orders using abbreviations pertaining to medication.				
4.4	Write abbreviations for units of measure with the meaning.				

Benchmark 5: Dosage Calculation	3	2	1	0

5.1	Recognize three systems of measurement used in the calculation of dosage.				
5.2	Solve simple dosage problems involving decimals, fractions and percent.				
5.3	Perform simple conversions among systems of measurement.				

Benchmark 6: Medications for Infection and Cancer		3	2	1	0
6.1	State the structure of a body system from simple to complex.				
6.2	Identify all the systems of the body as reviewed in the unit.				
6.3	Describe two disorders that can affect any system.				
6.4	Explain how anti-infectives/antibiotics are effective in the treatment of pathogenic invasion.				
6.5	Distinguish between the various classifications of anti-infectives.				
6.6	State universal precaution guidelines.				

Benchmark 7: Medication and the Elderly		3	2	1	0
7.1	Describe normal physical changes of aging.				
7.2	Recognize the effects of aging on the pharmacokinetics of medication.				

Benchmark 8: Medication for the Respiratory System		3	2	1	0
8.1	Correctly describe the structure and function of the respiratory system.				
8.2	Identify common respiratory disorders and applied nursing interventions.				
8.3	Classify medications used to treat respiratory disorders.				
8.4	Discuss conditions that affect the ear.				

Benchmark 9: Medications for the Urinary System		3	2	1	0
9.1	Recognize structure and function of the urinary system.				
9.2	Differentiate the medications used to treat urinary disorders, their actions and nursing implications for care that accompany them.				
9.3	Discuss and demonstrate the importance of accurate intake-output measurement.				

Benchmark 10: Role and Routine Responsibilities of the Medication Aide		3	2	1	0
10.1	Role and Routine Responsibilities of the Medication Aide				
10.2	Describe how to order, store, dispose of and account for medications.				
10.3	Illustrate medication administration documentation.				
10.4	Successfully demonstrate medication administration.				
10.5	Apply the “6 Rights” to medication administration.				
10.6	Describe the role and responsibility of a CMA in Kansas, including statutes and regulations, and ethical standards of conduct				
10.7	Demonstrate effective communication including: resident communication, staff communication, and written communication (documentation).				
10.8	Identify and describe jobs where a Certified Medication Aide certification is needed				
10.9	Identify and describe job opportunities that a Certified Medication Aide certification can lead to				

Benchmark 11: Medication Affecting the Nervous and Sensory System		3	2	1	0
11.1	Describe basic normal function of the nervous system.				
11.2	Explain the major action of medication used to treat disorders of the nervous system.				
11.3	Apply basic nursing interventions to the care of nervous system disorders.				

Benchmark 12: Medications Affecting the Digestive System, Vitamins and Minerals		3	2	1	0
12.1	State structures and functions of digestion and elimination.				
12.2	Determine how various abnormal conditions may affect medication efficacy.				
12.3	Apply nursing assessment and interventions associated with drug therapy and diseases of the digestive system.				
12.4	Determine appropriate level of treatments performed by the CMA.				

Benchmark 13: Medications for the Musculoskeletal System		3	2	1	0
13.1	Discuss the structure and functions of the musculoskeletal system.				

13.2	Identify common disorders that affect the musculoskeletal system.				
13.3	Classify medications used to treat disorders of the musculoskeletal system.				
13.4	Determine what nursing interventions would be appropriate for the musculoskeletal system.				

Benchmark 14: Medications for the Integumentary System		3	2	1	0
14.1	Describe the structures and functions of the integumentary system.				
14.2	Identify disorders that affect the integumentary system and the medications used to treat them.				
14.3	Demonstrate correctly the procedures involved in the application of topical medications.				

Benchmark 15: Medications Used for Endocrine/Reproductive Systems		3	2	1	0
15.1	Discuss the structures and functions of the endocrine system.				
15.2	Identify and classify medications used in the treatment of disorders of the endocrine system.				
15.3	Demonstrate basic knowledge of diabetes mellitus, cause of condition and systemic effects related to condition.				

Benchmark 16: State Requirements		3	2	1	0
16.1	Meet all state requirements for Certified Medication Aide certification and training.				
16.2	Meet any requirements for Certified Medication Aide to work in the state of Kansas and identify other requirements in neighboring states.				

Kansas Health Science Cluster

Health Science Pathway – Application Level-All strands

Course: Certified Nursing Assistant (CNA) **Course #:** 14997 **Credit**: 1

COURSE DESCRIPTION:

A program that prepares students to perform routine nursing-related services to patients in hospitals or long-term care facilities, under the training and supervision of an approved teacher, registered nurse or licensed practical nurse. This class results in the opportunity to test for KS certification in CNA.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

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Instructor Signature: _____

STANDARD 1: Communication

Benchmark 1: **Understand communicating information.**		3	2	1	0
1.1	Observe and report resident data including significant changes in resident's condition (i.e. change in vital signs, changes in level of consciousness, changes to resident's baseline status)				
1.2	Record observation (written) subjective and objective resident data using acceptable terminology and facility approved abbreviations				
1.3	Communicate with resident, staff and family within HIPPA guidelines				
1.4	Write reports concerning resident care and condition, accidents and incidents				
1.5	Check and understand current documentation of resident status and care				
1.6	Ability to prioritize / differentiate signals (i.e. bed or bathroom or shower) and respond timely.				
1.7	Knowledge of "what" information a Certified Nursing Assistant is allowed to reinforce (i.e. Diet, activity, ambulation and discharge plans).				
1.8	Knowledge of "what" information a CNA may assist with teaching (i.e. donning of Personal Protective Equipment).				
1.9	Know resources available to reinforce / assist with resident education for questions outside a CNA scope of practice (combined duty A008 and A009)				
1.10	Know facility's chain for reporting pests.				
1.11	Communicate with limited English proficient resident				
1.12	Understand the principals involved in communicating with person experiencing varied disabilities. (i.e. blind, hearing, dementia, and unresponsive).				
1.13	Communicate need for changes in care plan				
1.14	Calculate, report and record fluid intake and output				
1.15	Assist with unit admitting, transfer, and discharge procedures.				
1.16	Instruct resident in use of body mechanics.				
1.17	Communicate successful techniques with nursing supervisor and other staff members				
1.18	Observe, report, and record changes in resident's behavior pattern				

STANDARD 2: Basic skills

Benchmark 2: Perform basic nursing skills		3	2	1	0
2.1	Understanding of isolation procedures and techniques.				
2.2	Provide and promote clean, dry, wrinkle-free beds following standard precautions and the Blood-borne Pathogen Standards				
2.3	Maintained clean, neat, safe, and comfortable patient areas at all times				
2.4	Apply infection control measures whenever providing nursing care.				
2.5	Assist with care of pressure ulcers.				
2.6	Support and maintain urinary catheter drainage systems.				
2.7	Provide safe and appropriate care to a resident with a colostomy/ileostomy following standard precautions and the Blood-borne pathogen standards.				
2.8	Measure and interpret accurate 5 vital signs and height and weight.				
2.9	Obtain and transport specimens appropriately, following standard precautions and facility policies and procedures.				
2.10	Provide appropriate care to the dying person, including postmortem care, while maintaining person's dignity and following facility policies and procedures.				
2.11	Provide care for resident receiving Oxygen treatment.				
2.12	Perform and assist nursing staff in an emergency situation.				
2.13	Recognize and understand common diseases, conditions and care of resident/patient.				
2.14	Prioritize order of care for residents with various needs.				

STANDARD 3: Personal Care skills

Benchmark 3: Understand personal Care Skills		3	2	1	0
3.1	Assess body alignment of resident				
3.2	Give a resident a bed bath				
3.3	Place alternating pressure mattress on bed				
3.4	Apply heel and elbow protectors / hand rolls				
3.5	Assist resident in care of dentures				
3.6	Give back rub to resident				
3.7	Provide skin care to resident				
3.8	Assist resident in performing oral hygiene				
3.9	Administer oral hygiene for unconscious client				
3.10	Assist resident in using toilet or bedside commode				
3.11	Assist resident in using urinal				
3.12	Assist in resident using bedpan				
3.13	Assist resident with shaving, shampooing hair, personal grooming				
3.14	Give or assist resident with bath or shower				
3.15	Feed or assist resident with eating				
3.16	Identify general / therapeutic diet				
3.17	Assist resident in dressing and undressing				
3.18	Care for incontinent resident.				
3.19	Administer Perineal Care				
3.20	Implement Nursing Measures to Promote Comfort, Rest and Sleep				
3.21	Provide Care for Hearing Aide, eye glasses/contacts				
3.22	Provide Assistance for Visually Impaired				
3.23	Provide care for resident with fever				
3.24	Provide Care for the Terminally Ill Resident				
3.25	Assist with preoperative and postoperative care				

STANDARD 4: Restorative skills

Benchmark 4: Perform basic restorative skills		3	2	1	0
4.1	Orient visually impaired resident to environment				
4..2	Assist resident in sitting position				
4.3	Apply cold / warm compress / hot soak / ice bag				
4.4	Assist with whirlpool treatment / therapeutic bath (if not medicated) / or tepid bath				

4.5	Assist with dressing change				
4.6	Use transfer/safety belt properly and to assist with ambulation				
4.7	Assist resident with dangling standing & walking				
4.8	Assist resident using a walker, can, wheelchair				
4.9	Transfer resident to beside commode / from bed to shower				
4.10	Apply brace & splint				
4.11	Transport resident by wheelchair / stretcher / mechanical lift				
4.12	Move resident in bed using lift sheet				
4.13	Assist resident in remaining mobile with exercise / active & active assistive range of motion				
4.14	Assist resident with passive range of motion				
4.15	Knowledge of specific types of equipment as per facility policy & / or manufacturer's instructions				
4.16	Ability to move resident between stretcher & bed using 3 person transfer technique				
4.17	Assist resident in bladder & bowel training				
4.18	Knowledge of procedure for logrolling resident (i.e. facility policy & procedure)				
4.19	Knowledge to apply arm sling as per manufacturer's instructions				

STANDARD 5: Mental Health and Social Service needs

Benchmark 5: Understand how to provide mental health and social service needs.		3	2	1	0
5.1	Provide care to resident with different levels of cognitive function.				
5.2	Provide emotional and spiritual support/care for residents and their families.				
5.3	Assist resident in following recreation/activity plan.				

STANDARD 6: Resident's Rights

Benchmark 6: Understand providing resident's rights.		3	2	1	0
6.1	Maintain residents right to privacy, confidentiality and care of residents' belongings along with demonstrating professional ethics and behaviors.				
6.2	Provide safe and appropriate care, keeping resident and resident's property free from any type of mistreatment, abuse or neglect at all times.				
6.3	Maintain resident's right to quality care and assist resident in making personal choices at all times.				
6.4	Demonstrate an understanding of how to assist with validation for dementia patients.				

Kansas Health Science Cluster

Health Science Pathway – Application Level-All strands

Course: Health Care Workplace Experience **Course #:** 36992 **Credit**: 1.0

COURSE DESCRIPTION:

Health Career Workplace Experience provides students with Professional Learning Experiences (PLE) to gain extensive knowledge of health/wellness professionals in private/public industry, community organizations, and health care settings, as well as job opportunities, wage, and duties. Students will gain extensive knowledge in selected areas of health care, specific occupations, skills sets, educational requirements, credentials/licensure, and daily routines by participating in Job Shadows or Internships. This class includes instruction in specific skill sets related to health occupations, research on emerging trends, exploration of daily routines, understanding code of ethics, patient rights, standards and regulations, safety, and legal requirements. Collaboration with local healthcare professionals, organizations and businesses is highly encouraged to offer PLE with documentation of the student experience.

Rating Scale:

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1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

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Student: _____

Graduation Date: _____

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Instructor Signature: _____

Benchmark 1: Analyze strategies to balance roles and responsibilities in the health sciences (individual and career).		3	2	1	0
1.1	Compare and contrast occupations that fit individual interests and personal life goals (i.e. interest survey results).				
1.2	Research, and evaluate information to set SMART career goals. .				
1.3	Apply fundamental knowledge of cost benefits related to personal career goal achievement.				
1.4	Summarize local and global policies, issues, and trends in the health sciences.				
1.5	Research new technologies to meet future health or medical needs				
1.6	Predict potential impact of career path decisions on balancing work and family responsibilities.				
1.7	Identify community and human resources for meeting individual career needs (i.e. personal knowledge, non-profit agencies, educational institutions,).				

Benchmark 2: Enhance job application and retention.		3	2	1	0
2.1	Analyze career choices to determine the knowledge, skills, and personality traits associated with health science careers.				
2.2	Practice public speaking skills to build personal confidence and enhance employability.				
2.3	Demonstrate job seeking skills.				
2.4	Analyze strategies for job retention, addressing job performance weaknesses and how to leave a job appropriately.				
2.5	Assess health, wellness, and work safety considerations of the health science worker.				
2.6	Analyze the impact of an individual's career decision on personal goals, relationships, financial benefit, and the impact on the national and global community .as in picking one health care field over another).				
2.7	Demonstrate teamwork and leadership skills in school and community settings (e.g. HOSA experience).				
2.8	Demonstrate respect for others regardless of age, gender, socio-economic or culture.				

Benchmark 3: Enhance career readiness through practicing appropriate skills in classroom and community		3	2	1	0
3.1	Demonstrate appropriate communication skills (verbal, listening, and writing skills) to communicate clearly.				
3.2	Practice appropriate social skills, manners, and etiquette in a variety of settings.				
3.3	Identify common tasks that require individuals to use problem-solving skills.				
3.4	Apply problem-solving and critical thinking skills important to health science settings.				
3.5	Create ideas, proposals, and solutions to overcome barriers to personal goal achievement.				
3.6.	Use math and science (as appropriate) principles when addressing career and life goals.				
3.7	Evaluate career portfolios (electronic or physical) to learn how to document knowledge, skills, and experiences.				
3.8	Establish a personal portfolio (electronic or hard copy) to begin to document personal achievements and experiences.				
3.9	Use technology appropriately to access, manage and/or create career information (i.e. practice internet ethics, avoid identify theft).				
3.10	Critique the physical and social environment to reduce conflict and promote safety in health science career settings.				
3.11	Identify personal rights and responsibilities as an employee and how to address violations.				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 1 & 3: General Health (PA, Med); Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Phlebotomy Technician **Course #:** 14104 **Credit**: .5

COURSE DESCRIPTION:

Students acquire knowledge, skills, and experiences related to the drawing of blood and typically learn about such topics as infection control, sterilization practices, medical/hospital procedures and environments, diagnostic procedures, and the process of drawing blood.

Rating Scale:
3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Use Verbal and Written Communications		3	2	1	0
1.1	Identify and use various forms of communication				
1.2	Identify barriers to communication				
1.3	Use basic medical terminology and approved abbreviations				
1.4	Demonstrate basic computer skills				
1.5	Properly identify patients				
1.6	Assist with explaining activities to patient				
1.7	Demonstrate effective teamwork as a member of the healthcare tea				

Benchmark 2: Demonstrate Accepted Professional Communications And Interpersonal Skills		3	2	1	0
2.1	Recognize appropriate, effective, and professional behavior				
2.2	Communicate appropriately with the patients and members of the healthcare team				
2.3	Explain, to the patient, the procedure to be used in specimen collection				
2.4	Maintain acceptable appearance, grooming, and personal hygiene (professionalism)				

Benchmark 3: Demonstrate And Understand All Legal Issues In The Healthcare Setting		3	2	1	0
3.1	Explain the policies of patient rights and responsibilities				
3.2	Describe appropriate and legal use of the patients medical records				
3.3	Demonstrate understanding of ethical behavior, professional liability, legal aspects, and the importance of following protocol and chain of command				

Benchmark 4: Discuss Phlebotomy In Relation To The Health Care Setting		3	2	1	0
4.1	List, classify, and discuss various departments and services within the healthcare setting in which the phlebotomist must interact to obtain laboratory specimens from patients				
4.2	Identify the major departments/sections within the clinical laboratory, the major types of procedures run in each department/section and their specimen requirements				
4.3	Describe roles of the major classifications of clinical laboratory personnel				
4.4	Describe the phlebotomist's role and responsibilities in problem-solving situations (for example: problem draws, when to call the lab)				
4.5	Identify phlebotomy procedures that may change from facility to facility				
4.6	Identify and describe jobs where a Phlebotomy Technician certification is needed				
	Identify and describe job opportunities that a Phlebotomy Technician certification can lead to				

Benchmark 5: Discuss Phlebotomy In Relation To The Health Care Setting		3	2	1	0
5.1	List, classify, and discuss various departments and services within the healthcare setting in which the phlebotomist must interact to obtain laboratory specimens from patients				
5.2	Identify the major departments/sections within the clinical laboratory, the major types of procedures run in each department/section and their specimen requirements				
5.3	Describe roles of the major classifications of clinical laboratory personnel				
5.4	Describe the phlebotomist's role and responsibilities in problem-solving situations (for example: problem draws, when to call the lab)				
5.5	Identify phlebotomy procedures that may change from facility to facility				
5.6	Identify and describe jobs where a Phlebotomy Technician certification is needed				
5.7	Identify and describe job opportunities that a Phlebotomy Technician certification can lead to				

Benchmark 6: Basic Math Skills		3	2	1	0
6.1	Make and use measurements in both traditional and metric units				
6.2	Convert from regular time to 24-hour time (military time)				

Benchmark 7: Identify The Anatomic Structure And Function Of Body Systems In Relation To Services Performed By The Phlebotomist		3	2	1	0
7.1	Describe and define the circulatory system				
7.2	Identify, with 100% accuracy, the main superficial veins used in performing venipuncture				
7.3	Identify, with 100% accuracy, the most appropriate sites for venipuncture				
7.4	Describe, with 90% accuracy, the characteristics of whole blood, serum, plasma, and the following blood components: erythrocytes, thrombocytes (platelets), and leukocytes				
7.5	Coagulation: intrinsic and extrinsic pathways, hemostasis, and fibrinolysis				

Benchmark 8: Recognize And Identify Collection Reagents, Supplies, Equipment		3	2	1	0
8.1	Gather, with 100% accuracy, proper equipment needed to collect various clinical laboratory blood specimens by venipuncture				
8.2	Explain the special precautions and types of equipment needed to collect blood from a neonate				
8.3	Identify and discuss proper use of supplies used in collecting micro specimens				
8.4	Discuss, with 95% accuracy, the proper use of the various types of anticoagulants, preservatives, and gels used in blood collection and the vacuum tube color-codes for these additives				
8.5	Describe, with 90% accuracy, the types of patients' specimens that are analyzed in the clinical laboratory and the phlebotomist's role in collecting and/or transporting these specimens to the laboratory				
8.6	Define and utilize correct medical terminology and metric equipment needed for specimen collection				
8.7	Describe and perform (as permitted) uses of the centrifuge				

Benchmark 9: Identifies And Understands Errors Before, During And After Specimen Collection That Can Cause Specimens To Be Rejected, To Give Erroneous Results, Severe Patient Complications		3	2	1	0
9.1	Describe, with 90% accuracy, pre-analytical errors which can occur before specimen collection				
9.2	Describe, with 90% accuracy, pre-analytical errors which can occur during specimen collection				
9.3	Describe, with 90% accuracy, pre-analytical errors which can occur after specimen collection				

Benchmark 10: Demonstrate Skills And Knowledge Necessary To Perform Phlebotomy		3	2	1	0
10.1	Demonstrate skills and knowledge necessary to perform phlebotomy				
10.2	Discuss and perform, with 100% accuracy, methods for facilitating venipuncture collection and capillary collection				
10.3	List, with 100% accuracy, appropriate antiseptic agents useful in preparing sites for venipuncture/capillary puncture				
10.4	Perform, with 100% accuracy, appropriate methods for preparing a site for venipuncture and capillary collection, including choosing the best site				
10.5	Perform venipuncture by evacuated tube system, syringe, and winged infusion set (butterfly). Demonstrating appropriate use of supplies, proper handling of equipment and specimens, and patient care				
10.6	Describe, with 100% accuracy, the correct order of draw during venipuncture and capillary collection				
10.7	Demonstrate skills and knowledge necessary to perform phlebotomy for special procedures/complications				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 2: Sports Mediine/Rehabilitation (ATC, PT, OT)

Course: Sports Medicine II **Course #:** 14073 **Credit**: 1.0

COURSE DESCRIPTION

This course is a continuation of Sports Medicine I. This course provides advanced sports medicine students with instruction in advanced techniques and processes. This course will give students hands-on experience evaluating injuries commonly sustained by the competitive athlete. It includes all areas of sports medicine such as sports medicine terminology, musculoskeletal anatomy, evaluation, assessment, rehabilitation, and prevention of athletic injuries. Emphasis will be placed on evaluating and assessing athletic injuries. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

Rating Scale:

3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Explain legal issues and legal terminology.		3	2	1	0
1.1	Discuss risk management in an athletic setting (collision, contact, non-contact, surfaces)				
1.2	Define legal terminology and discuss issues including: Assumption of risk, Battery, Commission and omission, Failure to warn, HIPAA, Informed consent, Liability, Malpractice, Negligence (duty of care, breach of duty, damage/injury, proximal cause, Standard of care				
1.3	Discuss parameters of ethical conduct and associated issues including: Americans with Disabilities Act, Cheating, Drug testing, Fair play and sportsmanship, Performance enhancing drugs, Scope of practice, Title IX (gender equity in sports), Winning at all costs				
1.4	Review preventative measures to reduce potential risks of litigation • Be familiar with athletes • Carry liability insurance • Demonstrate appropriate documentation (SOAP) • Follow physician orders and recommendations				

Benchmark 2: Describe the basic principles and specialized equipment used in the prevention of athletic injury.		3	2	1	0
2.1	Recognize types and functions of protective equipment including: Helmet, facemask, ear guards, Mouth guards, Neck collars, Padding, Sports bras, Athletic supporter/cup, Shin guards, Shoe, Other sport specific protection devices				
2.2	Discuss the legal ramifications of manufacturing, buying, and issuing equipment including: NOCSAE warning, Modification of equipment, Proper fit and selection, Use of defective or worn out equipment				

Benchmark 3: Demonstrate theory and principles of prophylactic taping.		3	2	1	0
3.1	Analyze the basic principles of prophylactic taping				

3.2	Identify the necessary supplies and their purpose for prophylactic taping including: Athletic tape (various size), Underwrap, Heel and lace pad, Adhesive spray, Shark/Scissors				
3.3	Analyze the basic principles of proper tape removal				
3.4	Explain the terminology associated with prophylactic taping procedures including: Anchor, Stirrup, Horseshoe, Spica, Heel-lock, Checkrein/fan				
3.5	Demonstrate how to tape an ankle using the standard prophylactic taping method				
3.6	Demonstrate how to tape an arch using the standard prophylactic taping method				
3.7	Demonstrate how to tape and thumb using the standard prophylactic taping method				
3.8	Demonstrate how to tape and wrist using the standard prophylactic taping method				

Benchmark 4: Identify principles of protective bracing. Discuss the differences between functional and prophylactic bracing		3	2	1	0
4.1	Identify the function of joint sleeves (compression)				

Benchmark 5: Explain an injury assessment (HIPS)		3	2	1	0
5.1	Identify proper PPE/BSI precautions				
5.2	Identify the components included in obtaining an accurate history				
5.3	Identify the components of an inspection				
5.4	Describe the process of palpation				
5.5	Describe the purposes of special tests such as: Range of Motion, Stress Tests (structural integrity), Neurological, Functional				
5.6	Discuss the decisions that can be made from a HIPS evaluation				
5.7	Explain a HIPS assessment				

Benchmark 6: Identify soft tissue injuries and skin conditions.		3	2	1	0
6.1	Differentiate signs, symptoms, and treatment for: Avulsions, Abrasions, Bites, Blisters, Contusions, Lacerations, Stings				
6.2	Differentiate signs, symptoms, and treatment for: Ring worm, Jock itch, Athlete's foot, Impetigo, MRSA/STAPH, Warts, Eczema				

Benchmark 7: Recognize abdominal injuries, bleeding, and shock.		3	2	1	0
7.1	Discuss external bleeding				
7.2	Demonstrate proper procedures to control bleeding (Apply direct pressure with sterile gauze pad, Apply a pressure dressing, Check circulation)				
7.3	Identify signs, symptoms, and treatment of internal bleeding				
7.4	Identify signs, symptoms, and treatment of abdominal injuries (Ruptured spleen, Appendicitis, Hernia)				
7.5	Describe shock and the treatment for shock				

Benchmark 8: Discuss immobilization techniques.		3	2	1	0
8.1	Identify fracture signs and symptoms				
8.2	Explain the steps to immobilization o Splint in the position found o Immobilize the joint above and the joint below o Check circulation distal to the injury				
8.3	Explain head/neck immobilization o Maintain in-line stabilization o Monitor ABC's				
8.4	Demonstrate crutch fitting to any size individual				

Benchmark 9: Describe the treatment for medical conditions.		3	2	1	0
9.1	Describe the treatment for Seizures				
9.2	Describe the treatment for Fainting				
9.3	Describe the treatment for Diabetes Type 1 & 2				
9.4	Describe the treatment for Anaphylactic shock				
9.5	Describe the treatment for Asthma				

Benchmark 10: Recognize and provide treatment for environmental conditions.		3	2	1	0
10.1	Compare and contrast the causes, signs, symptoms, and treatment of heat illnesses (Heat cramps, Heat exhaustion, Heat stroke, Dehydration, Sunburn)				
10.2	Compare and contrast the causes, signs, symptoms, and treatment of cold exposure (Hypothermia, Frostbite)				
10.3	Compare and contrast signs of Altitude sickness (HAPE, HACE)				

Benchmark 11: Certify students in American Heart Association Basic Life Support		3	2	1	0
11.1	Obtain Certification in BLS				

Benchmark 12: Recognize common injuries to the head.		3	2	1	0
12.1	Understand the anatomy of the head including: • Bones (Frontal, Occipital, Parietal, Temporal, Mandible, Maxilla, Zygomatic, Nasal), • Muscles (Sternocleidomastoid, Trapezius) • Structures (Brain, Intervertebral disks)				
12.2	Identify the mechanism of injury				
12.3	Identify the signs and symptoms of the injury (Concussion, Postconcussion Syndrome, Second-Impact Syndrome, Mandible Fracture, Temporomandibular Joint Dysfunction/TMJ, Cauliflower ear, Swimmers Ear, Nasal Fractures, Nose Bleed)				
12.4	Perform History, Observation, Palpation and Special Tests according to upper extremity injuries.				
12.5	Demonstrate: Balance Tests/Romberg, Balance Error Scoring System, Perform Concussion Assessment/SCAT 5, VOMS				
12.6	Indicate appropriate treatment for the injury				
12.7	Describe injury prevention strategies				

Benchmark 13: Recognize Common Injuries to the Spine.		3	2	1	0
13.1	Identify Anatomy of the Spine including: Cervical Vertebrae, Thoracic Vertebrae, Lumbar Vertebrae, Sacrum, Coccyx, Spinous process, Iliac Crest, Iliac Tubercle, Greater Trochanter, Sciatic Nerve				
13.2	Identify surface anatomy/muscles for the entire spine including: Cervical Vertebrae, Thoracic Vertebrae, Lumbar Vertebrae, Latissimus dorsi, Erector spinae, Iliac crest, Sacrum, Coccyx				
13.3	Describe the peripheral and autonomic nervous system				
13.4	Identify the 12 cranial nerves				
13.5	Identify the Spinal Nerves and functions including Cervical Plexus, Brachial Plexus, Lumbar Plexus, Sacral Plexus				
13.6	Identify the mechanism of injury				
13.7	Identify the signs and symptoms of the injury (Whiplash, Burner, Cervical Disk, Lumbar Sprains, Low back Muscle Strain, Sciatica, Herniated Lumbar Disk, Back Contusions)				
13.8	Perform History, Observation, Palpation and Special Tests according to spinal injuries.				
13.9	Perform: Brachial Plexus test, Cervical Compression test, Spurling's Tests, Vertebral Artery Test,				

	Shoulder Abduction Test, Foraminal/Cervical Distraction Test, Trendelenburg's Test, Slump Test, Sitting Root Test, Tension Test, Bowstring Test, Straight Leg Raises, Kernig's/Brudzinski's Test, Well Straight Leg Raising Test, Hoover Test, Valsalva Manuever				
13.10	Indicate appropriate treatment for the injury				
13.11	Describe injury prevention strategies				

Benchmark 14: Recognize common injuries to the shoulder complex.		3	2	1	0
14.1	Identify the anatomy of the upper extremity including: Bones (Scapula, Humeral Head, Greater Tuberosity of the humerus, Lesser Tuberosity of the humerus, Bicipital groove, Acromion process, Coracoid process, Clavicle)				
14.2	Identify the Joints of the shoulder complex including: Sternoclavicular, Acromioclavicular, Glenohumeral, Scapulothoracic				
14.3	Identify the Soft tissues associated with the shoulder complex including: Subacromial bursa, Acromioclavicular ligament, Sternoclavicular ligament, Coracoclavicular ligament, Anterior and middle Deltoid, Rotator cuff tendons, Pectoralis Major Muscle, Sternocleidomastoid muscle, Biceps muscle and tendon, Coracoacromial ligament, Glenohumeral joint Capsule				
14.4	Identify the Muscles of the shoulder complex including: Posterior Deltoid, Rhomboids, Serratus Anterior, Levator scapulae, Trapezius, Latissimus Dorsi, SITS				
14.5	Identify the mechanism of injury				
14.6	Identify the signs and symptoms of the injury including: Frozen Shoulder, Clavicular Fracture, Acromioclavicular sprain, Glenohumeral dislocation, Shoulder Impingement, Rotator Cuff Tear, Dislocation, Bursitis, AC joint separation, Bicipital Tenosynovitis				
14.7	Perform History, Observation, Palpation and Special Tests according to shoulder injuries.				
14.8	Perform: Anterior & Posterior Drawer Tests, Clunk Test, Apprehension, O'Briens Test, Piano Key, Drop Arm, Hawkins/Kennedy, Empty Can, Neer's Test, Speeds Test, Passive ROM, Active ROM, Resistive ROM				
14.9	Indicate appropriate treatment for the injury (i.e. Modalities, Wraps, Braces)				
14.10	Describe injury prevention strategies				

Benchmark 15: Recognize common injuries to the Elbow.		3	2	1	0
15.1	Identify the anatomy of the Elbow including: Bones (Medial epicondyle, Lateral epicondyle, Olecranon process, Radial Head, Radius, Ulna), Soft-Tissue (Biceps Brachii, Brachialis, Brachioradialis, Pronator Teres, Triceps, Supinator, Ulnar collateral ligament, Wrist Flexors, Radial collateral ligament, Annular ligament, Wrist extensor muscles)				
15.2	Identify the mechanism of injury				
15.3	Identify the signs and symptoms of the injury for each: Golfers Elbow, Olecranon Bursitis, Medial Epicondylitis, Lateral Epicondylitis (Tennis Elbow), Ulnar collateral ligament injuries, Bicep/Tricep Strain, Fractures, Pronator Teres Syndrome, Dislocation				
15.4	Perform History, Observation, Palpation and Special Tests according to elbow injuries.				
15.5	Perform: Valgus stress test, Varus stress test, Lateral and Medial Epicondylitis, Pinch Grip test, Tinel's Sign				
15.6	Indicate appropriate treatment for the injury (Modalities, Wraps, Bracing)				
15.7	Describe injury prevention strategies				

Benchmark 16: Recognize common injuries to the wrist and hand.		3	2	1	0
16.1	Identify the anatomy of the wrist and hand including: Bones (Ulna, Radius, Scaphoid (anatomical snuffbox), Trapezium, Lunate, Hamate (hook of the hamate), Pisiform, Metacarpals1-5, Proximal, middle, and distal phalanges of the fingers and thumb); Soft tissues				

	(Extensor digitorum Tendon, Ulnar Collateral Ligament, Anterior & Posterior Collateral ligaments, Volar plate, Extensor carpi radialis longus, Extensor carpi brevis, extensor digitorum extensor carpi ulnaris, flexor carpi radialis, palmaris longus, Flexor carpi ulnaris				
16.2	Identify the mechanism of injury				
16.3	Identify the signs and symptoms of the injury including Wrist injuries (Scaphoid Fracture, Hamate Fracture, Wrist Sprains); Finger injuries (Mallet Finger, Jersey Finger, Gamekeepers Thumb/Sprain, Sprains of the interphalangeal joints of the finger, PIP Dorsal and palmer Dislocation, MCP Dislocation, Metacarpal Fracture, Distal, Middle and Proximal Phalangeal Fracture, Subluxation/Dislocations, Nerve Impingement)				
16.4	Perform History, Observation, Palpation and Special Tests according to elbow injuries				
16.5	Perform: Valgus/Varus & glide stress tests, ROM/Functional Evaluation, Allen's Test				
16.6	Indicate appropriate treatment for the injury (Modalities, Taping, Bracing)				
16.7	Describe injury prevention strategies				

Benchmark 17: Recognize common injuries to the foot, ankle and lower leg.		3	2	1	0
17.1	Identify the anatomy of the foot, ankle and lower leg including: Bones (Hallux, Phalanges, 1st metatarsalphalangeal joint, Sesamoid bones, Metatarsal heads, Tarsals, Styloid process (5th metatarsal) Tibia, Medial and lateral Condyle, Tibial Tuberosity, Shaft, Medial Malleolus, Fibula, Head, Neck, Shaft, Lateral Malleolus)				
17.2	Identify Ligaments and Arteries (Deltoid, Anterior Talofibular (ATF), Calcaneofibular (CF), Posterior Talofibular (PTF), Anterior Tibiofibular (ATIF), Spring Ligament, Calcaneonavicular, Deltoid ligaments (4), Dorsal Pedal Artery, Posterior Tibial Artery)				
17.3	Identify Soft Tissue/Muscles (Plantar fascia, Tibialis Anterior and posterior, Extensor Digitorum longus, Extensor Hallucis longus, Soleus, Gastrocnemius, Achilles Tendon, Flexor Digitorum brevis, Peroneus Brevis, Peroneus Longus)				
17.4	Identify the mechanism of injury				
17.5	Identify the signs and symptoms of the injury (Achilles rupture, Sprains, Deltoid/Malleolus Fracture, Pes Planus, Pes Cavus, Strains, plantar fasciitis, Hammertoe/mallet toe/claw toe, turf toe, medial tibial stress syndrome (shin splints).				
17.6	Perform History, Observation, Palpation and Special Tests according to the foot, ankle and lower leg injuries				
17.7	Perform: Anterior Drawer, Talar Tilt, Thompson Squeeze, Tap test, Percussion & Compression tests, Tinel's sign, Morton's test				
17.8	Indicate appropriate treatment for the injury (Modalities, Bracing, Taping Techniques)				
17.9	Describe injury prevention strategies				

Benchmark 18: Recognize common injuries to the knee		3	2	1	0
18.1	Identify the anatomy of the Knee including: Bones (Femur, Tibia, Patella, Fibula, Tibial plateau, Tibial tuberosity, Epicondyle)				
18.2	Identify Ligaments (Anterior cruciate ligament (ACL), Posterior cruciate ligament (PCL), Medial collateral ligament (MCL), Lateral collateral ligament (LCL)				

18.3	Identify Soft tissue/muscles (Meniscus/Lateral and Medial, Iliotibial band, Biceps femoris, Semitendinous, Semimembranous, Gracilis, Sartorius, Gastocnemius, Popliteal, Plantaris, Vastus medialis, lateralis and intermedius (quadriceps), Rectus femoris, Patellar tendon, Biceps tendon)				
18.4	Identify the mechanism of injury				
18.5	Identify the signs and symptoms of the injury (1st degree medial collateral ligament sprain, 2nd degree medial collateral ligament sprain, 3rd degree medial collateral ligament sprain, Lateral Collateral ligament sprain, Anterior cruciate ligament sprain, Posterior cruciate ligament sprain, Meniscal Tears, Knee Plica)				
18.6	Perform History, Observation, Palpation and Special Tests according to knee injuries				
18.7	Perform: Valgus and Varus Stress Tests, Anterior cruciate ligament tests, Lachman Drawer Test, Posterior Cruciate Ligament tests, Meniscal Tests, Girth Measurments, Q-Angle				
18.8	Indicate appropriate treatment for the injury (Modalities, Taping Techniques, Bracing)				
18.9	Describe injury prevention strategies				

Kansas Health Science Cluster

Health Science Pathway – Application Level-Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Home Health Aide **Course #:** 36053 **Credit**: 0.5

This course will teach students how to care for individuals within their homes under the direct supervision of a nurse. Course content will include patient care, comfort, and safety; anatomy and physiology; the prevention of disease and infection; nutrition and meal preparation; human relations; and first aid and CPR. Additional topics that must be included to receive a full credit are therapy strategies, household management and employability. This class results in the opportunity to test for KS certification of Home Health Aide.

Rating Scale:
3. Skilled-Works Independently, Proficient Achievement
2. Limited Skills-Requires Assistance
1. Skill Undeveloped, Inadequate Achievement
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are **directly tied** to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Introduction		3	2	1	0
1.1	Describe and define Home Health Care and the Home Health Care Team				
1.2	Identify needs that children clients may have and how the home health worker can support meeting those needs				
1.3	Identify needs that aging adult clients may have and how the home health worker can support meeting those needs				
1.4	Identify needs that clients with mental health issues may have and how the home health worker can support meeting those needs				
1.5	Identify needs that clients with developmental challenges may have and how the home health worker can support meeting those needs				
1.6	Identify needs that clients with physical disabilities may have and how the home health worker can support meeting those needs				
1.7	Describe and demonstrate the responsibility for the health care worker's health and management of a job including professionalism				
1.8	Identify and describe jobs where a Home Health Aide certification is needed				
1.9	Identify and describe job opportunities that a Home Health Aide certification can lead to				

Benchmark 2: Legal		3	2	1	0
2.1	Describe the legal and ethical standards of caring for individuals in the home				

Benchmark 3: Home Health Skills		3	2	1	0
3.1	Explain and demonstrate the basic knowledge and procedures required to master prior to working in the home health setting				
3.2	Describe and demonstrate adaptive effective body mechanics when performing ADL tasks in the home care setting				
3.3	Describe and demonstrate ability to provide a client with basic nutrition in a home health setting				
3.4	Identify and demonstrate procedures relating to infection control practices in the home health setting				

Benchmark 4: Human Body	3	2	1	0

4.1	Describe the human body systems and common disease processes seen in the home health care setting				
4.2	Describe the difference between chronic and acute disease processes				

Benchmark 5: Safety		3	2	1	0
5.1	Prevent accidents by using proper safety techniques for the prevention of accidents				
5.2	Identify and demonstrated skills mastering emergency care				
5.3	Identify and demonstrated skills mastering disaster preparedness				
5.4	Identify and demonstrated skills mastering safety in the home health setting				

Benchmark 6: State Requirements		3	2	1	0
6.1	Meet all state requirements for Home Health Aide certification and training				
6.2	Identify other requirements in neighboring states for Home Health Aide certification.				

Kansas Health Science Cluster

Health Science Pathway – Application Level – Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Pharmacy Technician **Course #:** 36157 **Credit**: 1.0

COURSE DESCRIPTION:

This course will help students learn the information needed to start a career as a Pharmacy Technician. Course content will include an understanding of the role the pharmacy profession, pharmacy procedures and safety, drug interactions and reactions, an overview of various drug categories, pharmacy law and ethical responsibilities, and a pharmacy technician practicum. These standards will prepare the student for a technical assessment directly aligned to the standards.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Benchmark 1: Identify the role of the pharmacy profession in health care		3	2	1	0
1.1	Differentiate between tasks that may be performed by a pharmacy technician and those that must be performed by a pharmacist. • Explain the role of the pharmacist • Explain the role of the technician				
1.2	Assist pharmacist in medication reconciliation • Purpose and benefits of medication reconciliation and pharmacy technician's role in medication reconciliation • Medical terminology (pharmacy abbreviations, prefixes, suffixes, root words, combining vowels) • Communication methods and strategies (interviewing techniques, non-verbal cues, communication styles)				
1.3	Assist pharmacist in medication therapy management.				
1.4	Assist patient in selecting compliance aids and devices.				
1.5	Identify the role of the prescriber				
1.6	Explain the prescription cycle				
1.7	Compare types of pharmacies and other pharmacy services				
1.8	Describe the organization/layout of various pharmacy types				
1.9	Maintain pharmacy security (for example: secure medications, prevent unauthorized access).				
1.10	Interpret basic medical terminology commonly used in the pharmacy.				
1.11	Tailor communications to different audiences, including patients, caregivers, staff, and health care professionals.				
1.12	Interact with customers and patients in a professional manner, including internal and external customers.				
1.13	Confirm final product verification has been completed by pharmacist prior to release to patient.				
1.14	Assist the pharmacist in managing inventory by placing, receiving, verifying, rotating, and stocking orders.				

1.15	Store medications following manufacturers' requirements (for example: light, temperature, humidity).				
1.16	Identify and remove expired products in a pharmacy's inventory. Identify and remove recalled products from inventory.				
1.17	Dispose of medications based on product-specific requirements.				
1.18	Access and use references and resources as needed to perform job duties.				

Benchmark 2: Understand the legal and ethical responsibilities within the pharmacy practice.		3	2	1	0
2.1	Comply with federal laws and regulations applicable to pharmacy practice.				
2.2	Summarize timelines regarding federal laws.				
2.3	Compare licensure, certification, registration, and legislated scope of practice of pharmacy professionals.				
2.4	Maintain HIPAA compliance while communicating and disclosing information with patients, caregivers, health care professionals, and others.				
2.5	Comply with HIPAA requirements regarding collection, storage, and disposal of patient information.				
2.6	Understand United States Pharmacopeia (USP) Guidelines 795, 797, 800				
2.7	Understand the role of the Food and Drug Administration (FDA)				
2.8	Comply with applicable laws and regulations when filling prescriptions.				
2.9	Follow laws and regulations for non-controlled substances when handling refills and/or partial filling of prescriptions.				
2.10	Package prescription medications in child-resistant containers or other approved containers as required.				
2.11	Understand the related guidelines of the Occupational Safety and Health Administration (OSHA) and safety data sheets (SDS)				
2.12	Comply with OSHA regulations for disposal of sharps.				
2.13	Comply with laws related to monitoring and reporting fraud, waste, and abuse.				
2.14	Follow record-keeping and retention procedures per federal requirements.				
2.15	Distinguish between accrediting bodies.				

Benchmark 3: Understand processing and handling of medication and medication orders/prescriptions.		3	2	1	0
3.1	Differentiate between a prescription and medication order				
3.2	Analyze a prescription or medication order for completeness and obtain missing information.				
3.3	Process prescription orders (for example: telephone, facsimile, and electronic).				
3.4	Process prescription refill authorization requests from prescribers.				
3.5	Obtain information for the patient profile from patients, such as demographics, medication history (including OTCs and herbal supplements), health conditions, concurrent medications, allergies, and third-party payers.				
3.6	Enter and maintain electronic patient profiles.				
3.7	Identify and input third-party payer identifier numbers.				
3.8	Process third-party prescriptions (for example: coordination of benefits, rejections, copays, prior authorizations).				
3.9	Communicate with patients, providers, and/or third-party payers about prescription coverage.				
3.10	Translate prescriber's directions for use into accurate and complete directions for the patient.				
3.11	Interpret abbreviations used on prescriptions or medication orders.				
3.12	Utilize technology to input pharmacy data.				
3.13	Use correct DAW codes when entering prescription data into the computer.				
3.14	Respond to electronic alerts (for example: compliance, interaction, third party payers) while processing a prescription.				
3.155	Process Durable Medical Equipment (DME) prescriptions, including coordination of benefits with Medicare Part B or D.				

Benchmark 4: Understand how to assist pharmacist in special handling and documentation.		3	2	1	0
4.1	Explain immunization and wellness programs				

4.2	Demonstrate chemotherapy compounding (USP 800 Guidelines)				
4.3	Understand Total Parenteral Nutrition (TPN)				
4.4	Identify controlled substances and their processes				
4.5	Document investigational drugs (clinical trials)				
4.6	Identify drugs categorized as Risk Evaluation Mitigation Strategies (REMS)				

Benchmark 5: Understand patient and medication safety and quality assurance.		3	2	1	0
5.1	Follow best practices for quality assurance and medication safety.				
5.2	Define and recognize a possible Drug Utilization Review (DUR)				
5.3	Describe the role of Institute for Safe Medical Practices (ISMP), Medical Error Reporting Program (MERP), Joint Commission Accreditation of Hospital Organizations (JCAHO)				
5.4	Explain the "5 Rights" of prescribing				
5.5	Explain the "5 Whys" of "root cause analysis"				
5.6	Assist pharmacist in identifying patient medication adherence issues.				
5.7	Use safety strategies to prevent mix ups between look-alike, sound-alike products, errors with high alert/high risk medications, and medications with different routes of administration.				
5.8	Match patient information to prescription or medication order.				
5.9	Follow procedures to assure delivery of the correct prescriptions to patients.				
5.10	Take corrective action after detecting potential medication errors or near misses.				
5.11	Maintain a clean work environment in the drug dispensing and patient care areas.				
5.12	Perform quality assurance checks of floor stock (for example: credits, unsecured medication, expired or outdated medications, emergency medications).				
5.13	List the registration process of a drug				
5.14	Identify sound-alike/look-alike drugs				
5.15	Identify high alert/high risk medications				
5.16	Identify common safety strategies				

Benchmark 6: Apply mathematics in pharmaceutical practice		3	2	1	0
6.1	Demonstrate knowledge of Measurement Systems (temperature conversions, conversions from household to metric)				
6.2	Convert within and between each of the systems of measurement.				
6.3	Demonstrate ratios and proportions (dimensional analysis)				
6.4	Understand drug strengths in percentages				
6.5	Calculate the quantities of prescriptions or medication orders to be dispensed.				
6.6	Demonstrate dosage calculations (based on age, weight, and body surface area; drip rates)				
6.7	Calculate the days' supply for prescriptions.				
6.8	Calculate individual and total daily dosages.				
6.9	Perform sterile and nonsterile compounding calculations.				
6.10	Perform basic pharmacy business calculations (for example: pricing and inventory control).				
6.11	Perform temperature conversions.				
6.12	Calculate percentages.				

Benchmark 7: Sterile and Nonsterile Products, Compounding, Unit Dose and Repackaging		3	2	1	0
7.1	Follow universal precautions for sterile and non-sterile compounding				
7.2	Research the scope of USP 795, 797 Guidelines				
7.3	Understand how to read a prescription for compounding				
7.4	Identify the equipment, apparatus, and technology used in sterile and non-sterile compounding				
7.5	Determine the correct amounts of ingredients				
7.6	Demonstrate reconstitution of sterile and non-sterile products				

Benchmark 8: Understand Pharmacology		3	2	1	0
8.1	Understand absorption, distribution, metabolism, excretion (ADME) and the related organs				
8.2	Understand drug classifications				
8.3	Recognize generic and brand name				

8.4	Identify drug interactions/side effects				
8.5	Explain strengths/dosage, dosage forms				
8.6	Differentiate routes of administration				
8.7	Recognize over-the-counter (OTC) products				
8.8	Classify vitamin and minerals				
8.9	Understand herbal supplements				
8.10	Compare and contrast dietary/nutritional supplements				
8.11	Identify devices and durable medical equipment (DME), like testing devices, first aid, and wound care =				

Benchmark 9: Understand professional standards and interpersonal skills within the pharmacy practice.		3	2	1	0
9.1	Understand pharmacy culture				
9.2	Demonstrate knowledge of continuing education and training				
9.3	Practice conflict resolution				
9.4	Identify personal traits (desirable and undesirable) and attitudes of pharmacy team members				
9.5	Model professional standards of pharmacy workers as they apply to hygiene, dress, language, confidentiality, civil behavior, substance use and abuse.				
9.6	Practice confidentiality when communicating				
9.7	Understand the implications of social media				
9.8	Understand various cultural differences and beliefs.				

Kansas Health Science Cluster

Health Science Pathway – Application Level – Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Dental Assistant **Course #:** 36054 **Credit**: 1.0

COURSE DESCRIPTION:

This course prepares students to assist a dentist or dental hygienist performing the functions of a dental practice. Topics include a detailed study of dental instruments, their care and function, chairside assisting, patient preparation, front office functions, and selected dental office laboratory procedures.

Rating Scale:
3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Cluster. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

Semester 1:

Benchmark 1: Examine the field of dentistry		3	2	1	0
1.1	Identify the important contributions of the key people to the field of dentistry (e.g. G.V.Black, Wilhelm Conrad Roentgen, C. Edmund Kells, Pierre Fauchard, Horace Wells, Paul Revere, Ida Gray-Rollins, Emeline Roberts Jones, Malvina Cueria, Irene Newman, Lucy B. Hobbs-Taylor, Juliette, A. Southard).				
1.2	Describe dental health team members including educational requirements, professional organizations, responsibilities, and licensure (e.g. Dentist, Dental Hygienist, Dental Assistant Administrative Assistant, Dental Laboratory Technician).				
1.3	Describe the areas of specialization in dentistry (Dental Public Health, Endodontics, Oral & Maxillofacial Radiology, Oral & Maxillofacial Surgery, Oral Pathology, Orthodontics, Pediatric Dentistry, Peridontics, Prosthodontics).				
1.4	Describe the characteristics of a professional dental assistant.				
1.5	Identify professional work habits for a dental assistant.				
1.6	Outline methods for helping patients feel comfortable before, during, and after treatment.				
1.7	Explain patient confidentiality.				
1.8	Describe communication with patients including telephone, special needs patients, and team members.				
1.9	Demonstrate professional appearance, hygiene, dental health, and behaviors				

Benchmark 2: Identify areas of the dental office and basic dental equipment		3	2	1	0
2.1	Identify and describe the areas of the dental office (dental operatory-treatment area, reception area, administration/business area, sterilization area, dental laboratory, dentists private office, consultation room, dental staff lounge).				
2.2	Identify and describe proper use and maintenance of clinical equipment (operator stool, assistant stool, dental chair, operating light, air water syringe, oral evacuation system, curing light, amalgamator, rheostat-foot control, x-ray systems).				
2.3	Outline basic morning & evening routines.				

Benchmark 3: Demonstrate an understanding of appropriate ethical and legal behavior in a dental setting	3	2	1	0

3.1	Define the difference between ethics and laws, including the importance of professional and personal ethics in the workplace.				
3.2	Discuss ethical and legal responsibilities for the dental healthcare worker.				
3.3	Identify standards of the Health Insurance Portability and Accountability Act/HIPAA and discuss the need to protect the patient's privacy.				
3.4	Explain the purpose of the state dental practice act and how it applies to the role of the dental assistant.				
3.5	Discuss the role of the dental assistant in recognizing and reporting domestic violence, neglect, and child abuse.				

Benchmark 4: Demonstrate personal safety procedures based on OSHA and CDC guidelines.		3	2	1	0
4.1	Outline the Centers for Disease Control and Prevention guidelines and identify components of a written exposure control plan.				
4.2	Explain the OSHA Bloodborne Pathogen Standard, including: 1. Training requirements 2. Employee medical records 3. Exposure protocol				
4.3	Demonstrate proper use of PPE and correct hand washing technique.				
4.4	Outline the OSHA Hazard Communication Standard, including: 1. Training program 2. Chemical inventory 3. Locate OSHA posters and MSDS sheets on site				

Benchmark 5: Demonstrate infection control protocol		3	2	1	0
5.1	Identify methods of disease transmission, including chain of infection and modes of transmission in the dental office.				
5.2	Outline standards for prevention of disease transmission including preventing cross contamination and maintaining aseptic conditions.				
5.3	Identify how to properly dispose of waste.				
5.4	Perform sterilization procedures including proper chemicals and methods used for sterilization and the purpose of sterilization.				
5.5	Perform disinfection procedures including chemicals and methods used for disinfection and the purposes of disinfection.				

Benchmark 6: Identify intra-oral anatomy and surrounding structures		3	2	1	0
6.1	Identify teeth by name; location; and permanent, primary, or mixed dentition.				
6.2	Identify anatomical parts, tissues, and surfaces of a tooth.				
6.3	Identify supporting structures (periodontal ligaments, alveolar bones, gingival, and cementum).				
6.4	Identify primary and permanent teeth using the Universal Tooth Numbering System.				
6.5	Identify major landmarks of the oral cavity and surrounding structures (maxillary sinus, salivary glands and ducts, maxilla, mandible, TMJ, incisive papilla, rugae, uvula, frenulums, soft palate, hard palate, tongue, teeth, oral mucosa, gingival tissue, temporal bone, and trigeminal nerve).				
6.6	Describe genetic and developmental factors that can affect dental development (tori, geographic tongue, fissure tongue, supernumerary, enamel dysplasia, cleft palate, cleft lip, tongue-tied, anodontia, microdontia, and macrodontia).				

Benchmark 7: Identify the infectious process of dental caries and other diseases of the oral cavity.		3	2	1	0
7.1	Outline the dental caries process.				
7.2	Describe the clinical characteristics of gingivitis (red, swollen gingival tissues that bleed easily).				
7.3	Recognize the diseases/conditions of the oral cavity, including oral cancer, candidiasis (thrush), cellulitis, conditions of the tongue (fissured tongue, geographic tongue, and glossitis), and herpes.				
7.4	Identify the effects of methamphetamine use.				
7.5	Describe the oral conditions of a patient with eating disorders.				

Benchmark 8: Identify components of a comprehensive preventive dentistry program.		3	2	1	0
8.1	Explain the parts of a preventive dentistry program including nutrition, patient education, plaque control, fluoride therapy, and dental check-ups.				
8.2	Identify different products used for oral hygiene and their uses including toothbrushes, dental				

	floss/tape, interdental aids, toothpastes, mouth rinses.				
8.3	Outline techniques for educating patients in oral hygiene including tooth brushing methods, flossing, disclosing.				
8.4	Instruct a patient in preventive education and oral hygiene instruction.				
8.5	Explain how diet and nutrition can affect oral conditions.				
8.6	Analyze the six areas of the food pyramid (grains, vegetables, fruits, oils, milk, and meat/beans).				

Benchmark 9: Perform the skills and responsibilities of a dental assistant in the front office.		3	2	1	0
9.1	Discuss and apply oral communications.				
9.2	Demonstrate good phone courtesy.				
9.3	Discuss the importance of understanding cultural diversity in the dental office.				
9.4	Outline the process of scheduling appointments				
9.5	Identify the functions of computerized practice management systems and manual bookkeeping practices.				
9.6	Identify the data gathering process and prepare a patient record including registration forms, medical-dental health history forms, clinical examination forms, progress note forms.				
9.7	Describe how to use these filing systems: alphabetic, numeric, cross-reference, and chronologic.				
9.8	Define terminology related to insurance including assignement of benefits, carrier, co-insurance, deductible, dependent, eligibility, exclusions, maximum, provider, subscriber.				

Benchmark 10: Perform basic life support skills		3	2	1	0
10.1	Describe the signs and symptoms of a common medical emergency and describe how to respond to them.				
10.2	Demonstrate how to treat syncope.				
10.3	Demonstrate how to treat postural hypotension.				
10.4	Obtain current CPR certification.				

Semester 2:

Benchmark 11: Perform the skills and responsibilities expected of a dental assistant in a dental examination.		3	2	1	0
11.1	Describe the role of the dental assistant in the clinical examination.				
11.2	Receive patients and prepare room for treatment				
11.3	Take, record, and monitor vital signs (using automated systems)				
11.4	Chart existing restorations or conditions.				
11.5	Explain the importance of a treatment plan.				
11.6	Maintain field of operation during dental procedures.				
11.7	Explain the difference between an oral prophylaxis and coronal polishing				
11.8	Demonstrate safety precautions to be followed during coronal polish.				
11.9	Perform coronal polish.				
11.10	Outline the methods of fluoride therapy				
11.11	Apply topical fluoride.				
11.12	Maintain records in accordance with legal guidelines.				
11.13	Record the examination in patient record				
11.14	Demonstrate how to correct an error on the patient chart.				

Benchmark 12: Demonstrate patient and operator protection, infection control procedures, expose and process, evaluate, mount, and label dental x-rays.		3	2	1	0
12.1	Explain to a patient the benefits of dental x-rays				
12.2	Identify types of intraoral and extraoral radiographs and the purpose of each				
12.3	Identify the components of the dental x-ray machine and their use				
12.4	Demonstrate methods of radiation protection for the patient during x-ray exposure				
12.5	Demonstrate methods of radiation protection for the operator during x-ray exposure				
12.6	Demonstrate infection control during x-ray procedures				
12.7	Assemble the XCP instrument				
12.8	Demonstrate techniques for intraoral x-rays				
12.9	Outline the advantages and disadvantages of digital radiography				

12.10	Demonstrate extraoral x-ray techniques				
12.11	Evaluate x-rays for diagnostic quality				
12.12	Identify common exposure and technique error				
12.13	Identify common processing errors				
12.14	Outline care of the automatic processor				
12.15	Identify radiographic landmarks for mounting intraoral films				
12.16	Mount and label radiographs				

Benchmark 13: Examine pharmacology and pain control in the dental office setting.		3	2	1	0
13.1	List each part of a prescription				
13.2	Identify common prescription abbreviations				
13.3	Record prescription in the patient record				
13.4	List commonly prescribed drugs in dentistry				
13.5	Prepare for a local anesthetic injection				
13.6	Identify local anesthetic agents				
13.7	Identify the complications and precautions for dental anesthesia				
13.8	Explain the use and purpose of nitrous oxide in dental treatment				
13.9	Describe the procedure for monitoring nitrous oxide/oxygen analgesia				
13.10	Document the use of anesthesia and pain control in the patient record				

Benchmark 14: Identify components of operative procedures and assist in patient treatment		3	2	1	0
14.1	Identify reasons for restorative and esthetic dental treatment				
14.2	Outline responsibilities of the dental assistant in operative dental procedures				
14.3	Identify handpieces and burs, their common uses in operative dentistry, and maintenance				
14.4	Mix restorative dental materials				
14.5	Outline treatment options for vital bleaching				
14.6	Outline steps for instrument setup and care				
14.7	Set up for a Class II amalgam procedure using proper instruments and accessories				
14.8	Set up for a composite procedure using proper instruments and accessories.				
14.9	Provide post-operative instructions for restorative procedures				
14.10	Record the amalgam procedure in patient record				
14.11	Record the composite procedure in patient record				

Kansas Health Science Cluster

Health Science Pathway – Technical Level-Strand 3: Allied Health (Nursing, X-Ray, EMT, Lab Sciences)

Course: Emergency Medical Technician II (EMT) – *Certification Course, Instructor must hold appropriate certification* **Course #:** 44065 **Credit**: 1.0

COURSE DESCRIPTION:

An Application Level course that is a continuation the EMT I Technical Level course, designed to further the students' knowledge and skills needed to attain EMT certification.

Rating Scale:

3. Skilled-Works Independently
2. Limited Skills-Requires Assistance
1. Skill Undeveloped
0. No exposure, instruction or training

Directions: The following competencies are required for full approval of a course in a Health Science Pathway. These skills are directly tied to the career ready practices and therefore important to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.

Student: _____

Graduation Date: _____

I certify that the student has received training in the areas indicated.

Instructor Signature: _____

See Emergency & Fire Management Services Pathway for Competencies 43.0299