

## APPROVED PATHWAY:

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



## HEALTH AND BIO SCIENCES CAREER CLUSTER DESIGN

# Biomedical Pathway

CIP CODE 14.0501

### INTRODUCTORY LEVEL

Title	Code	Credit	Title	Code	Credit
Biology	03051/03052	1 credit	Computing Systems (8-9)	10002/60002	1 credit
Chemistry	03101	1 credit	Computer Application (8-9)	10004/60004	1 credit

### TECHNICAL LEVEL

Must choose **ONE** course in each boxed courses.

Title	Code	Credit	Title	Code	Credit
Prin. of Biomedical Science	14251	1 credit	Pharmacology	14253	1 credit
Medical Interventions	14105	1 credit	Food Science	22203	1 credit
*Human Body Systems	14102	1 credit	Agricultural Food Science	18305	1 credit
*Anatomy and Physiology	03053	1 credit	AP Biology	03056	1 credit
Robotics	21009	1 credit			

### APPLICATION LEVEL

Must choose **ONE** of the boxed courses.

Title	Code	Credit	Title	Code	Credit
Biomedical Innovation	14255	1 credit	Emerging Technologies	21053	1 credit
*Bioengineering	21020	1 credit	Particular Topics in Engineering	21015	1 credit
*Biotechnical Engineering	21014	1 credit	Biomedical Workplace Experience	14998	1 credit

\* One course OR the other is required for pathway approval

# Kansas Health & BioScience Cluster

BioMedical Pathway – Introductory Level

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: _____
<b>I certify that the student has received training in the areas indicated.</b>

Benchmark 1: State Standards	3	2	1	0
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1.1	Meet all state academic standards for biology				
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<b>Benchmark 2: Health Science Related</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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				

<b>Benchmark 4: Human Body</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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				

<b>Benchmark 5: Safety</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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.				

## Health & BioScience Cluster

BioMedical Pathway – Introductory Level

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.**

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: <b>Chemistry Performance Expectations</b>		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 BioMedical Pathway

<b>Course:</b>	Computing Systems	<b>Course #:</b>	10002	<b>Credit:</b>	1
<b>CIP Codes:</b>					

### COURSE DESCRIPTION:

The Computing Systems course offers a broad exploration of the use of computers in a variety of fields. This course has a considerable range of content, but typically includes the introduction of robotics and control systems, computer-assisted design, computer-aided manufacturing systems, and computer technologies as they relate to industry applications.

<p><b>Rating Scale:</b>          3. Skilled-Works Independently          2. Limited Skills-Requires Assistance          1. Skill Undeveloped          0. No exposure, instruction or training</p>	<p>Student: _____          Graduation Date: _____          I certify that the student has received training in the areas indicated.          Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

**\*See Programming and Software Development Pathway (1.0201) for course competencies.**

## Kansas BioMedical Pathway

<b>Course:</b>	Computer Applications	<b>Course #:</b>	10002	<b>Credit:</b>	1
<b>CIP Codes:</b>					

### COURSE DESCRIPTION:

In Computer Applications, students acquire knowledge of and experience in the proper and efficient use of previously written software applications. This course explore a wide range of applications, including (but not limited to) word-processing, spreadsheets, graphics, and database programs, and they may cover the use of electronic mail and desktop publishing.

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<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

**\*See Competencies in Programming and Software Development Pathway (1.0201) for course competencies.**

## Kansas BioMedical Pathway

<b>Course:</b>	Principles of BioMedical Science	<b>Course #:</b>	14251	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

Application Level Course

### COURSE DESCRIPTION:

*In this capstone course, students apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for the health challenges of the 21st century by working through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. They have the opportunity to work on an independent project and may work with a mentor or advisor from industry. Throughout the course, students are expected to present their work to an adult representatives from the local business and healthcare community. I*

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<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

<b>Benchmark 1 Demonstrate research and problem-solving skills</b>		3	2	1	0
1.1	List the health challenges of the 21st Century				
1.2	Describe the design of an effective oral presentation.				
1.3	Demonstrate how to locate a research journal articles using the Internet.				
1.4	Explain emergency room procedures used to triage and rank patients.				
1.5	Analyze medical website content and assess the overall credibility of the information				
1.6	Propose solutions to the health-related problems of the 21st century.				
1.7	Demonstrate an understanding of the different research study designs by designing a study.				
1.8	Critique science data presented in popular media and compare with science data presented in scientific journals.				

1.9	Apply knowledge of statistical analysis methods to analyze the results of experimental studies analysis methods to analyze the results of experimental studies				
1.10	Design and conduct an experimental study.				
1.11	Reflect on various biomedical career fields involved in the topics covered in this class.				
1.12	Use the design process to create a model, prototype, or schematic for a chosen solution.				
1.13	Identify a biomedical problem related to a medical condition you or someone you know has experienced and design a new or better product				

<b>Benchmark 2 Demonstrate understanding of global biomedical concerns related to water quality</b>		3	2	1	0
2.1	List multiple sources of water contamination.				
2.2	Explain why water quality is a global issue.				
2.3	Interpret the results of various chemical assays and identify specific contaminants.				
2.4	Analyze and evaluate a local water source				
2.5	Develop an action plan to prevent or treat water contamination				
2.6	Describe how to set up case control and cohort studies				
2.7	Interpret evidence such as laboratory data, imaging results, disease maps, and molecular data to determine source of a mystery illness				
2.8	Apply what has been learned about epidemiology, human body systems, and laboratory testing to deduce the source of a mystery infection.				
2.9	Investigate the medical conditions of a foreign country and discuss how culture, geographical location, and access to care affect health.				

<b>Benchmark 3 Understand sickle cell anemia on the human body</b>		3	2	1	0
3.1	Describe the differences in the appearance of normal and sickle red blood cells				
3.2	List the symptoms and complications of sickle cell disease.				
3.3	Explain how sickle cell disease is transmitted genetically.				
3.4	Define and describe the structure of a chromosome				
3.5	Outline the DNA code				
3.6	Explain how karyotypes are used to diagnose medical conditions.				

<b>Benchmark 4 Understand signs and implications of cholesterol disease</b>		3	2	1	0
<b>Competencies</b>					
4.1	Explain the differences between saturated and non-saturated fats				
4.2	Describe bacterial reproduction				
4.3	Summarize antibiotic resistance, and explain why it is a major health problem today.				
4.4	Describe the general structure of a virus				
4.5	Explain the structural and functional differences between bacterial cells and virus particles.				

<b>Benchmark 5 Understand categories of medical interventions</b>		3	2	1	0
<b>Competencies</b>					
5.1	Define and explain types of medical interventions				
5.2	Explain how biomedical engineers apply engineering principles to design and produce medical devices				

## ***Kansas BioMedical Pathway***

<b>Course:</b>	Medical Interventions	<b>Course #:</b>	14105	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

Technical Level Course

### **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.*

<b>Rating Scale:</b> 3. Skilled-Works Independently 2. Limited Skills-Requires Assistance 1. Skill Undeveloped 0. No exposure, instruction or training	
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<b>Benchmark 1 Understanding Infection</b>		3	2	1	0
1.1	List medical interventions to create a classroom display				
1.2	Illustrates connections between individuals in a disease outbreak.				
1.3	Calculate serial dilutions and calculate resultant concentrations.				
1.4	Describe the applications of bioinformatics in health and wellness.				
1.5	Explain how bacteria can be identified using their DNA sequences				
1.6	Propose a plan to treat patients in an outbreak as well as prevent future spread. an outbreak as well as prevent				
1.7	Draw and label a diagram of a bacteria cell.				
1.8	Explain the importance of taking antibiotics as described and infer the results of not taking antibiotics as prescribed.				
1.9	Create a model of the structure of the ear				
1.10	Explain what causes hearing loss.				
1.11	Recommend appropriate interventions for particular types of hearing loss.				
1.12	Explain how sound waves are produced, travel and are interpreted by the ear.				
1.13	Summarize how vaccines work.				
1.14	Explain what recombinant DNA is and why it is important to vaccine creation.				

<b>Benchmark 2 Understand genes and genetics</b>		3	2	1	0
2.1	Show how the process of PCR amplifies a specific gene amplifies a specific gene.				
2.2	Interpret gel electrophoresis results to determine genotype				
2.3	Predict how restriction enzymes will cut DNA based on single nucleotide polymorphisms (SNPs) at restriction sequences.				
2.4	Compare amniocentesis and chorionic villus sampling.				

2.5	Explain how gene therapy can treat a genetic disorder.				
2.6	Debate the safety and overall effectiveness of gene therapy.				
2.7	Describe medical interventions available to parents who wish to choose the gender of their next child.				
2.8	Outline the process of reproductive cloning				

<b>Benchmark 3 Understand terms and concepts about cancer</b>		3	2	1	0
3.1	Describe the differences in the appearance of normal cells and cancer cells				
3.2	Describe the different uses for X- rays, CT scans, and MRIs.				
3.3	Describe the potential risk factors for different types of cancer as well as the ways to reduce the risks.				
3.4	Outline the various cancer screenings they should have performed throughout their lives				
3.5	Consider the implications of genetic tests that detect hereditary breast cancer.				
3.6	Describe the differences between chemotherapy and radiation.				
3.7	Describe how specific chemotherapy drugs interact with and destroy cancer cells.				
3.8	Explain how SNP (Single- nucleotide polymorphism) profiles may factor in to the decision to prescribe a specific medication.				
3.9	Describe how cases of human abuse have led to strict regulations of human participation in clinical trials.				
3.10	Describe an application of nanotechnology in medicine.				

<b>Benchmark 4 Understand signs and symptoms of organ failure</b>		3	2	1	0
<b>Competencies</b>					
4.1	Outline the evolution of the methods used to diagnose and treat diabetes from the 1800s to today				
4.2	Predict results of a bacterial transformation.				
4.3	Outline the steps required to produce a protein in the laboratory.				
4.4	Summarize the options available to patients with ESRD (End Stage Renal Disease).				
4.5	Explain how dialysis machines work to remove wastes from the blood and adjust fluid and electrolyte imbalances.				
4.6	Describe the procedures involved in a live donor laparoscopic nephrectomy.				
4.7	Compare and contrast heart and kidney transplants				

4.8	Summarizes what factors need to be taken into account when deciding which patient should receive an organ donation.				
4.9	Describe how xenotransplantation or tissue engineering work, as well as their potential risks, benefits, challenges, and ethical or moral concerns.				
4.10	Evaluate current methods of disease prevention				

## *Kansas Health & BioScience Cluster*

BioMedical Pathway – Technical Level

Course: Human Body Systems

Course #: 14102

Credit: 1.0

### COURSE DESCRIPTION:

In Human Body Systems, students engage in the study of the processes, structures, and interactions of the human body. Important concepts in the course include: communication, transport of substances, locomotion, metabolic processes, defense, and

protection. Students design experiments, investigate the structures and functions of body systems, and use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary actions, and respiratory operation.

\*At the completion of this course, students take the PLTW end-of-course assessment.

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- 1. Skill Undeveloped
- 0. No exposure, instruction or training

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Student: \_\_\_\_\_

Graduation Date: \_\_\_\_\_

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

Benchmark 1: Explain the functions of different human body systems, and list major organs within each system.		3	2	1	0
1.1	Describe how multiple body systems are interconnected and how those interconnections and interactions are necessary for life.				
1.2	Describe the differences in the appearance of epithelial and connective tissue				
1.3	Explain the basic structure and function of the skeletal system				

1.4	Describe how bone markings, bone landmarks and bone measurements can provide information about gender, race, ethnicity and height of a missing person				
1.5	Describe how the structure of DNA is linked to function in the body				
1.6	Explain how restriction enzymes cut DNA				
1.7	Define Biometrics				
1.8	Identify how gel electrophoresis results can help solve a missing persons' case				
1.9	Explain how restriction enzymes cut DNA				
1.10	Outline the structure and function of the central nervous system				
1.11	Summarize the techniques scientists use to map brain function				
1.12	Correctly predict how electrical signals are created and transmitted in the human body				
1.13	Summarize the roles of ions in creating electrical impulses in the human body				
1.14	Explain how neurotransmitters help propagate electrical impulses				
1.15	Describe the way in which hormones interact with target cells				
1.16	Differentiate between endocrine and exocrine glands as well as protein/peptide and steroid hormones				
1.17	Illustrate how the structure of the eye focuses light on the retina				
1.18	Describe how the eye and the brain work together to allow a person to see				
1.19	Explain visual perception, including visual acuity, depth perception, peripheral vision, color visio				
1.20	Predict how long the body can function in the absence of water, food or oxygen				

1.21	List and describe the human body systems that create, process and distribute food, water and oxygen				
1.22	Deduce the factors, both environmental and personal that can impact the body's ability to survive with limited fuel				
1.23	Describe the structure and function of the organs in the digestive system				
1.24	Explain how energy is stored in ATP and how energy is released from ATP				
1.25	Infer how the calories consumed in daily diet versus the calories expended in daily activities affects overall health				

Benchmark 2: Structures and functions of the body		3	2	1	0
2.1	Describe the structure of the respiratory system, especially the lungs, and the basic mechanics of breathing				
2.2	Illustrate how the structure of the lungs facilitates the exchange of oxygen and carbon dioxide between air and the body				
2.3	Analyze the process through which the respiratory and cardiovascular systems facilitates the transport of oxygen to all cells in the body				
2.4	Describe the structure and function of the human urinary system				
2.5	Describe how the structure of the kidney relates to its function in the body				
2.6	Illustrate the composition of normal blood and normal urine				
2.7	Explain how the body uses hormones to maintain a water balance				
2.8	Describe how the types of joints found in the human body differ in both structure and function				

Benchmark 3: Understand terms and concepts for nerve and muscle systems		3	2	1	0
3.1	Demonstrate the meaning of terms that describe the motion at joints, such as flexion and extension				
3.2	Describe the requirements for muscle contraction				
3.3	Illustrate the connection between nerves and muscles				

Benchmark 4: Understand terms and concepts of the circulatory system.		3	2	1	0
4.1	Explain the relationship between the heart and the lungs and trace the path of major circulatory routes				
4.2	Define pulse and blood pressure and name and locate several pulse points on the body				
4.3	Identify the body's major arteries and veins and name the body region supplied by each				
4.4	Describe the ways in which the human body can generate ATP as well as how long the energy will last in each case				
4.5	Describe the structure and function of the lymphatic and immune system				
4.6	Describe the interaction between antigens and antibodies				
4.7	Explain how the systems work together to maintain homeostasis in the body and to complete basic functions such as movement and communication				

Benchmark 5: Understand terms and concepts about skin and bone in the human body.		3	2	1	0
5.1	Describe the structure and function of human skin				
5.2	Explain how different degrees of burns damage layers of the skin				
5.3	Describe how the human body senses and processes signals of pain				
5.4	Compare the structure and function of compact and spongy bone				
5.5	Describe the types of bone fractures				
5.6	Outline what happens to bone structure as we age				

## ***Kansas Health & BioScience Cluster***

BioMedical Pathway – Technical Level

**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: _____
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**Academics Standards:**

- Standard 1:** Explore and describe the body plan organization and homeostasis
- Standard 2:** Explain basic principles of body chemistry
- Standard 3:** Describe basic concepts of structures and functions of cells
- Standard 4:** Describe basic concepts of structures and functions of histology and the integumentary system
- Standard 5:** Describe the structures and functions of the skeletal system
- Standard 6:** Describe the structures and functions of the muscular system and its components
- Standard 7:** Describe the structures and functions of the nervous system and special senses
- Standard 8:** Describe the structures and functions associated with the endocrine system
- Standard 9:** Describe the components and functions associated with blood
- Standard 10:** Describe the structures and functions of the lymphatic system
- Standard 11:** Describe the structures and functions of the cardiovascular system
- Standard 12:** Describe the structures and functions associated with the respiratory system
- Standard 13:** Perform basic life support skills

**Standard 14:** Describe the structures and functions associated with the urinary system

**Standard 15:** Describe the structures and functions associated with the reproductive system

*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 BioMedical Pathway***

Technical Level

<b>Course:</b>	Robotics	<b>Course #:</b>	21	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

COURSE DESCRIPTION:

<p><b>Rating Scale:</b>  3. Skilled-Works Independently  2. Limited Skills-Requires Assistance  1. Skill Undeveloped  0. No exposure, instruction or training</p>	<p>Student: _____  Graduation Date: _____  <b>I certify that the student has received training in the areas indicated.</b>    Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

**\*See Engineering & Applied Mathematics pathway (14.0101) for course competencies.**

# Kansas Health & BioScience Cluster

BioMedical Pathway – Technical Level

**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: _____  <p style="text-align: center;"><b>I certify that the student has received training in the areas indicated.</b></p>
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<b>Benchmark 1 Demonstrate Knowledge of Pharmacology Basics</b>		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				

<b>Benchmark 2 – Identify Medical and Legal Considerations Related to the Practice of Pharmacy</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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 kit 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				

<b>Benchmark 3.1 Demonstrate Measurement and Calculating Techniques</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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				

<b>Benchmark 4.1 Safety</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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 BioMedical Pathway

<b>Course:</b>	Food Science	<b>Course #:</b>	22203	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

### COURSE DESCRIPTION:

#### Technical Level Course

<p><b>Rating Scale:</b>          3. Skilled-Works Independently          2. Limited Skills-Requires Assistance          1. Skill Undeveloped          0. No exposure, instruction or training</p>	<p>Student: _____</p> <p>Graduation Date: _____</p> <p><b>I certify that the student has received training in the areas indicated.</b></p> <p>Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

**\*See Restaurant & Event Management pathway (12.0504) for course competencies.**

## Kansas BioMedical Pathway

<b>Course:</b>	Ag Food Science	<b>Course #:</b>	18305	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

Technical level

### COURSE DESCRIPTION:

<p><b>Rating Scale:</b>          3. Skilled-Works Independently          2. Limited Skills-Requires Assistance          1. Skill Undeveloped          0. No exposure, instruction or training</p>	<p>Student: _____</p> <p>Graduation Date: _____</p> <p><b>I certify that the student has received training in the areas indicated.</b></p> <p>Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

**\*See Food Products & Processing Systems pathway (01.0401) for course competencies.**

## Kansas Health & BioScience Cluster

BioMedical Pathway – Technical Level

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: _____
<b>I certify that the student has received training in the areas indicated.</b>

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 BioMedical Pathway

<b>Course:</b>	Biomedical Innovation	<b>Course #:</b>	14255	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

Application Level Course

**COURSE DESCRIPTION:** In this capstone course, students apply their knowledge and skills to answer questions or solve problems related to the biomedical sciences. Students design innovative solutions for the health challenges of the 21st century by working through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health. They have the opportunity to work on an independent project and may work with a mentor or advisor from industry. Throughout the course, students are expected to present their work to an adult representatives from the local business and healthcare community.

<p><b>Rating Scale:</b>          3. Skilled-Works Independently          2. Limited Skills-Requires Assistance          1. Skill Undeveloped          0. No exposure, instruction or training</p>	<p>Student: _____</p> <p>Graduation Date: _____</p> <p>I certify that the student has received training in the areas indicated.</p> <p>Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

Benchmark 1 Demonstrate Research & Problem-solving skills		3	2	1	0
1.1	List the health challenges of the 21st Century				
1.2	Describe the design of an effective oral presentation.				
1.3	Demonstrate how to locate a research journal articles using the Internet.				

1.4	Explain emergency room procedures used to triage and rank patients.				
1.5	Analyze medical website content and assess the overall credibility of the information				
1.6	Propose solutions to the health-related problems of the 21st century.				
1.7	Demonstrate an understanding of the different research study designs by designing a study.				
1.8	Critique science data presented in popular media and compare with science data presented in scientific journals.				
1.9	Apply knowledge of statistical analysis methods to analyze the results of experimental studies analysis methods to analyze the results of experimental studies				
1.10	Design and conduct an experimental study.				
1.11	Reflect on various biomedical career fields involved in the topics covered in this class.				
1.12	Use the design process to create a model, prototype, or schematic for a chosen solution.				
1.13	Identify a biomedical problem related to a medical condition you or someone you know has experienced and design a new or better product				

<b>Benchmark 2 Demonstrate understanding of global biomedical concerns related to water quality</b>		3	2	1	0
2.1	List multiple sources of water contamination.				
2.2	Explain why water quality is a global issue.				
2.3	Interpret the results of various chemical assays and identify specific contaminants.				
2.4	Interpret maps indicating land use to determine possible sources of water contamination.				
2.5	Analyze and evaluate a local water source				
2.6	Develop an action plan to prevent or treat water contamination				
2.7	Describe how to set up case control and cohort studies				
2.8	Interpret evidence such as laboratory data, imaging results, disease maps, and molecular data to determine source of a mystery illness				
2.9	Apply what has been learned about epidemiology, human body systems, and laboratory testing to deduce the source of a mystery infection.				
2.10	Investigate the medical conditions of a foreign country and discuss how culture, geographical location, and access to care affect health.				

<b>Benchmark 3 Understand sickle cell anemia and the human body</b>		3	2	1	0
3.1	Describe the differences in the appearance of normal and sickle red blood cells				
3.2	List the symptoms and complications of sickle cell disease.				
3.3	Explain how sickle cell disease is transmitted genetically.				
3.4	Define and describe the structure of a chromosome				
3.5	Outline the DNA code				

3.6	Explain how karyotypes are used to diagnose medical conditions.				
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<b>Benchmark 4 Understand signs and implications of cholesterol disease</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
4.1	Explain the differences between saturated and non-saturated fats				
4.2	Define stearic acid, oleic acid, linoleic acid				
4.3	Describe how the polymerase chain action amplifies DNA				

<b>Benchmark 5 Understand how infectious disease is spread</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
5.1	Explain what bacteria are				
5.2	Describe bacterial reproduction				
5.3	Summarize antibiotic resistance, and explain why it is a major health problem today.				
5.4	Describe the general structure of a virus				
5.5	Explain the structural and functional differences between bacterial cells and virus particles.				

<b>Benchmark 6 Understand categories of medical interventions</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
6.1	Define and explain types of medical interventions				
6.2	Explain how biomedical engineers apply engineering principles to design and produce medical devices				

## *Kansas Health & BioScience Cluster*

BioMedical Pathway – Application level

**Course:** BioEngineering/Biotechnical Engineering      **Course #:** 21020/21014      **Credit:** 1.0

### **COURSE DESCRIPTION:**

Students will have the opportunity to develop projects that are responsive to real-world problems, using solutions that depend on biological technologies by learning the techniques, strategies and vocabulary related to the engineering of synthetic biological systems. This subject will provide an engaging introduction for would-be biological engineers.

#### **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**

Student: \_\_\_\_\_

Graduation Date: \_\_\_\_\_

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

**to all Health Science careers. Check the appropriate number to indicate the level of competency reached for learner evaluation.**

Benchmark 1: Understands Biotechnology Engineering procedures		3	2	1	0
1.1	Summarize the components of effective communication.				
1.2	List the forms of documentation needed for effective communication.				
1.3	Outline the steps necessary to keep one's self safe in a laboratory setting.				
1.4	Relates what could happen to experiment results if measurement is performed or recorded incorrectly.				
1.5	Describe the difference between accuracy and precision and the role each plays in the design process.				

Benchmark 2: Investigate the history of BioTechnical Engineering		3	2	1	0
2.1	Outline the evolution of biotechnical engineering.				
2.2	Illustrate and assess the major biotechnical engineering milestones using a wide variety of internet resources.				
2.3	Identify the fundamental concepts common to all major industries in biotechnical engineering.				
2.4	Identify and explain how biotechnical engineered products impact society.				
2.5	Predict future developments in biotechnical engineering.				
2.6	Investigate the relationship between financial markets and scientific research				

Benchmark 3: Values & Ethics in BioEngineering		3	2	1	0
3.1	Distinguish between values and morals.				
3.2	Identify some of the parameters that shape an individual's ethics.				
3.3	Discuss and explain why it is important to consider the bioethical issues of technological advancements.				
3.4	Outline the steps that might be used in determining the societal and environmental ramifications of biotechnology research.				
3.5	Explain why it is important to keep an open mind to different perspectives in biotechnical research				

Benchmark 4: Understanding principles of Bioinformatics		3	2	1	0
4.1	Summarize the molecular techniques that are used by bioinformaticists				
4.2	Create a portfolio demonstrating the research and integration of forensics with engineering.				
4.3	Analyze the technology utilized in the field of forensics.				
4.4	Apply knowledge of genetic engineering to the design of a novel and beneficial application of the reporter gene, green fluorescent protein				
4.5	Describe how to isolate protein				
4.6	Demonstrate the application of engineering principles by improving upon existing hospital designs or surgical procedures				
4.7	Explain the concepts of product liability, product reliability, product reusability and product failure.				

Benchmark 5: Applying principles of Fermentation		3	2	1	0
5.1	Describe the applications of fermentation in food production and renewable energy.				
5.2	Design a method of instrumentation to be used for measuring rates of fermentation				
5.3	Explain what variables affect CO <sub>2</sub> production in yeast in order to determine the ideal conditions for fermentation				

Benchmark 5: Understanding Biomedical Engineering		3	2	1	0
5.1	Demonstrate the application of engineering principles by improving upon existing hospital designs or surgical equipment designs				
5.2	Explain the concepts of product liability, product reliability, product reusability and product failure.				

5.3	Identify anatomical joint features and movements.				
5.4	Design a joint model with the same degrees of freedom as the human counterpart.				
5.5	Synthesize skeletal system concepts with the design process for engineering joints.				
5.6	Summarize the most common forms of heart disease and disorders..				
5.7	Explain procedures involving artificial heart surgery.				
5.8	Estimate the cost of a proposed noninvasive implant.				
5.9	Design a portable ECG monitor and study the electrical aspects associated with the heart.				

## *Kansas Health & BioScience Cluster*

BioMedical Pathway – Application Level

Course: Particular Topics in  
Engineering

Course #: 21015

Credit: 1.0

### COURSE DESCRIPTION:

#### 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.**

***\*See The Engineering & Applied Mathematics Pathway (14.0101) for competencies***

## Kansas Health & BioScience Cluster

BioMedical Pathway – Application Level

Course: Emerging Technologies

Course #: 21053

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.**

See Engineering & Applied Mathematics Pathway for competencies (14.0101)

**Kansas BioMedical Pathway**

<b>Course:</b>	Biomedical Workplace Experience	<b>Course #:</b>	14998	<b>Credit:</b>	.1
<b>CIP Codes:</b>					

Application Level Course

**COURSE DESCRIPTION:**

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

<p><b>Rating Scale:</b>          3. Skilled-Works Independently          2. Limited Skills-Requires Assistance          1. Skill Undeveloped          0. No exposure, instruction or training</p>	<p>Student: _____</p> <p>Graduation Date: _____</p> <p>I certify that the student has received training in the areas indicated.</p> <p>Instructor Signature: _____</p>
<p><b>Directions:</b> The following competencies are required for full approval of a course in a Health Science Cluster. These skills are <b>directly tied</b> 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.</p>	

<b>Benchmark 1</b>	3	2	1	0
<b>Analyze strategies to balance roles and responsibilities in the health sciences (individual and</b>				

<b>career)</b>					
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,).				

<b>Benchmark 2 Enhance job application and retention</b>		<b>3</b>	<b>2</b>	<b>1</b>	<b>0</b>
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.				

