

2024 – 2025

HEALTH SCIENCE COURSES

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HEALTH SCIENCE COURSES 2024 – 2025

Table of Contents

HEALTH SCIENCE COURSES	2
Acute Care Basic Skills 170502	4
Advanced Veterinary Assisting Skills 170803	7
Allied Health Core Skills 170501	8
Biomedical Innovation 170704	9
Body Structures and Functions 170167	10
Co-op (Allied Health) 170503	11
Co-op (Medical Assisting) 170581	12
Co-op (Nursing) 170601	13
Co-op (Patient Care Technician) 170505	14
Co-op (Pharmacy Technician) 170561	15
Development of Care Giver Role 170611	16
EKG Technician 170555	18
Emergency Medical Technician (EMT) 461022	21
Emergency Procedures 170141	23
EMS Training 461023	24
Health Science Microbiology/Infection Control 170640	26
Human Body Systems 170702	27
Internship: Allied Health 170550	28
Internship: Biomedical Science 170708	29
Internship: Dental Assistant 170552	30
Internship: EKG 170549	32
Internship: Medical Administrative Assistant 170922	33
Internship: Medical Assisting 170582	34
Internship: Patient Care Technician 170504	35
Internship: Pharmacy Technician 170562	36
Internship: Phlebotomy Technician 170570	37
Internship: Pre-Nursing 170603	38
Introduction to Nursing and Health Care System 170610	39

Introduction to Public Health 170143	40
Leadership Dynamics 170199	41
Medicaid Nurse Aide 170631	42
Medical Assisting Clinical Procedures 170580	44
Medical Interventions 170703	45
Medical Laboratory Aide (Phlebotomist) 170567	47
Medical Math 170169	49
Medical Office Procedures 170920	51
Medical Terminology 170131	52
Pharmacological and Other Therapeutic Modalities 170614	53
Pharmacy Technician 170558	54
Principles of Biomedical Science 170701	56
Principles of Health Science 170111	57
Principles of Veterinary Assisting 170801	58
Special Topics in Allied Health 170591	60
Veterinary Assisting Internship 170804	61
Veterinary Assisting Skills 170802	62

Acute Care Basic Skills 170502

This course introduces students to basic health care skills. It prepares individuals to perform routine nursing-related services to patients in an acute care setting under the training and supervision of an approved registered nurse. Certification is available upon successful completion of the National Healthcare Association (NHA) Patient Care Technician exam. This course is designed for students not enrolled in the Medicaid Nurse Aide program. A registered nurse teaches this course.

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 12

Recommended Credit: 1 – 2

Students will:

1. Provide basic patient care under the direction of nursing staff (e.g., bathing, bed making, catheter care, assisting with ADLs and positioning).
2. Provide emotional support for a patient and family while performing patient care.
3. Set up equipment to be used by a patient (e.g., oxygen, suction, and monitors).
4. Provide care for a patient who has a feeding tube (e.g., monitor for aspiration precautions, observe tubing for kinks or problems).
5. Recognize and adapt approach to care for a patient who has functional limitations (e.g. physical, sensory, cognitive, or mental impairment).
6. Report any changes in a patient's condition (e.g., level of consciousness, shortness of breath).
7. Monitor and record functions related to bodily functions (e.g., urine output, emesis, bowel movements).
8. Perform ostomy care, excluding irrigation.
9. Assist with ostomy care.
10. Monitor, record, and accurately measure intake and output (e.g., percentage of meal eaten, mL of fluid).
11. Perform passive range-of-motion exercises for patients.
12. Assist the patient with adaptive devices for ADLs (e.g., feeding and dressing devices, ambulatory assistive devices).
13. Perform patient rounding (e.g., check for consciousness, breathing, positioning.)
14. Remove peripheral IVS.
15. Assist in sterile and aseptic dressing changes.
16. Assist a patient with ambulation.
17. Transfer a non-weight-bearing patient (e.g. stretcher to bed.)
18. Transfer a weight-bearing patient.
19. Transport a patient via bed, stretcher, or wheelchair.
20. Apply immobility splints to a patient.
21. Provide skin care (e.g., repositioning, nonprescription creams, moisture barriers) and devices (e.g., air mattresses, draw sheets to prevent skin breakdown).
22. Identify and report changes in skin integrity.

23. Apply sequential compression devices.
24. Apply antiembolism stockings/compression hose.
25. Assist a patient with turn, cough, and deep breathing exercises.
26. Assist a patient with incentive spirometry.
27. Administer first aid.
28. Perform healthcare provider CPR.
29. Report critical values (e.g., blood glucose levels, vital signs) to the appropriate nurse assigned to the patient.
30. Recognize and report edema.
31. Recognize and report patient pain using a pain scale.
32. Recognize and report signs and symptoms of a wound infection.
33. Follow the Five Rights of Delegation.
34. Prioritize patient care based on patient's needs.
35. Recognize visual abnormalities in patient specimens (e.g. stool, sputum, urine, emesis).
36. Obtain, record, monitor, and report vital signs.
37. Weigh a patient (e.g., standing, wheelchair-bound, using bed scales).
38. Provide a noncurative care to a patient who is receiving hospice care.
39. Support the coping mechanisms of a patient and family who are dealing with grief, death, and dying.
40. Perform postmortem care.
41. Define, identify, and report abuse or neglect.
42. Prevent workplace injuries by following Occupational Safety and Health Administration (OSHA) guidelines.
43. Recognize and respond to emergency situations (e.g., fire, hostage, and biological hazard).
44. Follow procedures for identifying patients.
45. Follow Joint Commission patient safety guidelines.
46. Follow safety procedures when using medical supplies and equipment (e.g., lock hospital bed, lock wheelchairs, raise stretcher side rails, apply safety belts and restraints).
47. Report and document work-related accidents.
48. Adhere to HIPPA regulations regarding protected health information.
49. Adhere to Patients' Bill of Rights.
50. Communicate with other health care professionals using electronic health records and appropriate medical terminology.
51. Follow the chain of command.
52. Adhere to operational standards (e.g. JC, Clinical Laboratory Standards Institute, national standards, Hospital Consumer Assessment of Healthcare Providers, medical code of ethics).
53. Practice within defined scope of patient care technician practice.
54. Use standard and transmission-based precautions.
55. Disinfect equipment before and after use.
56. Dispose of biohazardous materials (e.g., sharps containers, red bags) according to OSHA standards.
57. Follow exposure control plans in the event of occupational exposure.
58. Perform aseptic technique.

59. Perform sterile technique.
60. Perform capillary punctures.
61. Perform venipuncture (e.g., winged infusion set, evacuated tube system, syringe).
62. Collect nonblood specimens.
63. Perform blood culture collections.
64. Identify and respond to adverse reactions to collection (e.g., syncope, diaphoresis, nausea, and seizures).
65. Handle and transport blood samples.
66. Transport specimens based on handling requirements (e.g., temperature, light, time)
67. Label specimens at the bedside.
68. Verify appropriate functioning of equipment (e.g., sterility, expiration date, manufacturer's defects).
69. Perform quality control related to Clinical Laboratory Improvement Amendments - waived procedures.
70. Explain nonblood specimen collection procedures to patient (e.g., stool, urine, semen, sputum).
71. Handle and transport patient-collected nonblood specimens.
72. Avoid preanalytical errors when collecting blood specimens (e.g., quantity not sufficient, hemolysis).
73. Adhere to chain of custody guidelines when required (e.g., forensic studies, blood alcohol, drug screen).
74. Prepare the patient for an EKG (e.g., patient history, patient positioning, skin preparation, lead placement).
75. Apply EKG electrodes on patient.
76. Identify and respond to signs and symptoms of cardiopulmonary compromise.
77. Identify and resolve artifacts from the tracing (e.g., wandering baseline, somatic, electrical).
78. Recognize and report dysrhythmias.
79. Respond to potentially life threatening arrhythmias (e.g., ventricular tachycardia, ventricular fibrillation).
80. Verify EKG machine paper speed (e.g., 25mm, 50mm).
81. Verify EKG machine sensitivity (e.g. h, 1, 2).
82. Maintain EKG equipment.

Advanced Veterinary Assisting Skills 170803

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

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

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

Allied Health Core Skills 170501

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: .5 – 1

Students will:

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

Biomedical Innovation 170704

This capstone course gives students the opportunity to work with a mentor, identify a science research topic, conduct research, write a scientific paper, and defend conclusions/ recommendations to a panel of outside reviewers. The student will have one or more mentors from the scientific and/or medical community guiding their scientific research. In lieu of a research project, this course may also be utilized as an internship for students to obtain WBL opportunities in the health care industry.

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

1. Demonstrate professional work habits.
2. Demonstrate the ability to organize, implement, and troubleshoot specific tasks.
3. Demonstrate the ability to work in teams and as an individual.
4. Define biotechnology and its role.
5. Describe careers in biotechnology.
6. Demonstrate competency in validating and using laboratory equipment.
7. Demonstrate competency in using computer office applications.
8. Apply statistical analysis to interpret data.
9. Demonstrate the ability to use the scientific method.
10. Demonstrate the concepts of recombinant technology.
11. Perform electrophoresis.
12. Explain and perform aseptic technique.
13. Demonstrate the knowledge of bioethics.
14. Demonstrate the knowledge of professional ethics.
15. Demonstrate general requirements for laboratory safety.
16. Identify and use personal protective equipment (PPE).
17. Demonstrate ability to implement safety protocols.
18. Document lab activities and findings according to guidelines.
19. Use laboratory glassware correctly and safely.
20. Use electrophoresis equipment correctly and safely.

Body Structures and Functions 170167

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

Recommended Grade Level: 10 – 12

Recommended Credit: 1

Students will:

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

Co-op* (Allied Health) 170503

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

* Co-op can only be taken after the first four credits are earned, OR along with another course in the pathway, OR if the student is enrolled in an approved pre-apprenticeship program.

Co-op* (Medical Assisting) 170581

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

* Co-op can only be taken after the first four credits are earned, OR along with another course in the pathway, OR if the student is enrolled in an approved pre-apprenticeship program.

Co-op* (Nursing) 170601

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

* Co-op can only be taken after the first four credits are earned, OR along with another course in the pathway, OR if the student is enrolled in an approved pre-apprenticeship program.

Co-op* (Patient Care Technician) 170505

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

* Co-op can only be taken after the first four credits are earned, OR along with another course in the pathway, OR if the student is enrolled in an approved pre-apprenticeship program.

Co-op* (Pharmacy Technician) 170561

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

* Co-op can only be taken after the first four credits are earned, OR along with another course in the pathway, OR if the student is enrolled in an approved pre-apprenticeship program.

Development of Care Giver Role 170611

This course provides an introduction to nursing and the nursing process as related to client activities of daily living across the life span, opportunity to develop and practice psychomotor skills related to health assessment, promotion, maintenance, and illness prevention.

Prerequisite: Current CPR (cardiopulmonary resuscitation) card for Health Care Provider and successful completion of the Kentucky Medicaid Nurse Aide Certification Exam.

Recommended Grade Level: 11 – 12

Recommended Credit: 1 – 2

Students will:

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

needs.

24. Plan a two-day meal for individuals through each stage of the life cycle.
25. Demonstrate the techniques in physical assessment including inspection auscultation, percussion, and palpation.
26. Perform vital signs.
27. Perform coughing and deep breathing exercises.
28. Auscultate the chest breath sounds.
29. Identify normal and abnormal breath sounds.
30. Obtain diet history of an individual.
31. List criteria used in assessing metabolic needs of diverse groups.
32. Feed individuals according to age and/or specific needs.
33. Weigh and measure individuals.
34. Perform blood glucose tests.
35. Assist with use of a bedpan and urinal.
36. Diaper an infant.
37. Collect urine specimens, routine and clean-catch.
38. Calculate and record I and O.
39. Apply urine collection devices, infants and external catheters.
40. Assess bowel sounds.
41. Identify methods of promoting safety across the life span.
42. Obtain various cultures from patients including throat, wound, stool, and urine.
43. Perform proper gloving to prevent the spread of infection.
44. Perform concurrent cleaning of patient's room.
45. Discuss in pre- and post-conference, various isolation technique precautions.
46. Demonstrate standard precautions.
47. Discuss, in small groups, community resources and support systems available to promote and maintain the psychosocial needs of the individual and ways of reaching self-actualization.
48. Demonstrate safe transporting of a patient in a wheelchair including up and down ramps and on and off elevators.

EKG Technician 170555

This course provides experience related to the student's educational objectives in the area of EKG (Electrocardiogram) technician. Upon successful completion of the course, students may be eligible to take the NHA EKG (Electrocardiogram) Technician Certification examination. It is best practice for students to participate in a work-based learning opportunity during this course. Students will be required to follow program and agency requirements for attendance and health screenings. These may include but are not limited to drug screens, TB (tuberculin) skin tests, and immunization certificates.

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

21. Adhere to HIPAA (Health Insurance Portability and Accountability Act) regulations regarding Protected Health Information (PHI).
22. Monitor patient condition during stress testing.
23. Respond to complications during stress testing.
24. Verify patient understanding of Holter monitor procedures.
25. Obtain patient vital signs (heart rate, respiration, temperature, blood pressure, pulse oximetry).
26. Identify the structures of the heart on an illustration and describe their function.
27. Trace the flow of blood through the pulmonary and systemic circulatory systems on an illustration.
28. Describe the electrophysiology of the heart and relate the events of the cardiac conduction to the electrocardiogram.
29. Outline the process of electrocardiography.
30. Explain the purpose of measuring the standard 12-lead electrocardiogram.
31. List standards of calibrating and providing general maintenance of an electrocardiograph.
32. Explain the method and rationale for measuring the EKG (Electrocardiogram)/ECG (Electrocardiogram) in the exercising patient including safety hazards.
33. Evaluate the electrocardiogram for cardiac rate, rhythm, and the presence or absence of ectopic beats.
34. Recognize PAC's, atrial fibrillation, atrial flutter, PVCs, ventricular tachycardia, and ventricular fibrillation.
35. Recognize and describe the actions of various common cardiovascular agents.
36. Discuss arrhythmias and identify how to interpret those of the sinoatrial mode, sinus tachycardia, sinus arrest, and sinus bradycardia.
37. Discuss first-degree and second-degree AV block and explain how they can be identified on the ECG (Electrocardiogram)/EKG (Electrocardiogram).
38. Explain the difference between right and left bundle branch blocks and briefly define how each can be identified on an ECG (Electrocardiogram)/EKG (Electrocardiogram).
39. Discuss the role of the ECG (Electrocardiogram)/EKG (Electrocardiogram) technician as it relates to patient care and recording of the ECG (Electrocardiogram).
40. Identify and describe the various types of equipment and supplies used in monitoring and recording electrocardiograms.
41. Perform basic lead placement on adult, pediatric, and neonatal patients.
42. Prepare and position the patient for testing.
43. Attach electrodes to the patient's chest, arms, and legs, connect electrodes to leads from the EKG (Electrocardiogram) machine, and operate the machine to obtain a reading.
44. Explain testing procedures to patients to obtain cooperation and reduce anxiety.
45. Monitor patients' blood pressure and heart rate using EKG (Electrocardiogram) equipment during diagnostic and therapeutic procedures to notify the physician if something appears wrong.
46. Monitor patient's comfort and safety during tests, alerting physicians to abnormalities or changes in patient responses.
47. Observe gauges, recorder, and video screens of data analysis system during imaging of the cardiovascular system.
48. Adjust equipment and controls according to physician's orders or established

protocol.

49. Check, test, and maintain cardiology equipment.
50. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
51. Use information technology applications as appropriate to health care specialties.
52. Integrate literacy and numeracy concepts and processes across all curricular units.
53. Demonstrate employability and social skills relevant to health careers.

Emergency Medical Technician (EMT) 461022

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

This pathway requires an agreement with the [Kentucky Board of Emergency Medical Services](#).

Recommended Grade Level: 9 – 12

Recommended Credit: 1

Students will:

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

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

Emergency Procedures 170141

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

Recommended Grade Level: 9 – 12

Recommended Credit: .5

Students will:

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

EMS Training 461023

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

This pathway requires an agreement with the [Kentucky Board of Emergency Medical Services](#).

Recommended Grade Level: 9 – 12

Recommended Credit: 1 – 6

Students will:

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

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

Health Science Microbiology/Infection Control 170640

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

Recommended Grade Level: 11 – 12

Recommended Credit: .5

Students will:

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

Human Body Systems 170702

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

Recommended Grade Level: 10 – 11

Recommended Credit: 1

Students will:

1. Demonstrate professional work habits.
2. Demonstrate the ability to organize, implement, and troubleshoot specific tasks.
3. Demonstrate the ability to work in teams and as an individual.
4. Define biotechnology and its role.
5. Demonstrate the knowledge of the history of biotechnology.
6. Describe careers in biotechnology.
7. Demonstrate competency in using computer office applications.
8. Demonstrate the ability to use the scientific method.
9. Perform Polymerase Chain Reaction (PCR).
10. Perform electrophoresis.
11. Explain and perform aseptic technique.
12. Demonstrate the knowledge of bioethics.
13. Demonstrate the knowledge of professional ethics.
14. Demonstrate general requirements for laboratory safety.
15. Identify and use personal protective equipment (PPE).
16. Demonstrate ability to implement safety protocols.
17. Document lab activities and findings according to guidelines.
18. Use laboratory glassware correctly and safely.
19. Use electrophoresis equipment correctly and safely.
20. Use centrifuges correctly and safely.
21. Use pH meters correctly and safely.
22. Use microscopes correctly and safely.

Internship: Allied Health 170550

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Biomedical Science 170708

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

Recommended Grade Level: 12

Recommended Credit: 1

Student's will:

1. Gain career awareness and the opportunity to test career major choices.
2. Name credentialing agencies for careers related to career major.
3. Identify the different specialties in the career major.
4. Review theory related to a career pathway.
5. Demonstrate knowledge of applicable laws, statutes, or regulations in the career area.
6. Research common diseases or problems associated with career major.
7. Receive work/internship experience related to the career major prior to graduation.
8. Integrate classroom studies with work experience.
9. Receive exposure to facilities and equipment unavailable in a classroom setting.
10. Increase employability potential after graduation.
11. Demonstrate performance skills related to the career major area.
12. Demonstrate professional etiquette and responsibilities.
13. Demonstrate effective communication skills.
14. Practice team building concepts.
15. Demonstrate effective use of time management skills.
16. Demonstrate proper use of the telephone, communication system, copier, and fax machine.
17. Recognize and provide environmental personal and patient safety.

Internship: Dental Assistant 170552

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1 – 2

Students will:

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

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

Internship: EKG 170549

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Medical Administrative Assistant 170922

Internship for CTE (Career and Technical Education) courses provides supervised worksite experience for high school students who have completed courses leading to a career pathway. Internship experiences consist of a combination of classroom instruction and field experiences. Students receiving pay for intern experience are those participating in an experience that is a semester or longer and have an established employee-employer relationship. A non-paid internship affects those students who participate on a short-term basis.

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 12

Recommended Credit: 1

Students will:

1. Demonstrate and practice safe work habits at all times.
2. Gain career awareness and the opportunity to test career choices.
3. Receive work experience related to career interests.
4. Integrate classroom studies with work experience.
5. Receive exposure to facilities and equipment unavailable in a classroom setting.
6. Increase employability potential.

Internship: Medical Assisting 170582

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Patient Care Technician 170504

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Pharmacy Technician 170562

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Phlebotomy Technician 170570

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Internship: Pre-Nursing 170603

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

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

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Introduction to Nursing and Health Care System 170610

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

Prerequisites: Current CPR (cardiopulmonary resuscitation) card for Health Care Provider and successful completion of the Kentucky Medicaid Nurse Aide Certification Exam.

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

Introduction to Public Health 170143

This course explores population health, health equity, and of course, the public health enterprise which requires a collaborative approach across numerous disciplines, fields, and industries. This course will help students learn to critically think about and explore what public health is really about, along with its key concepts, challenges, and solutions.

Recommended Grade Level: 9 – 12

Recommended Credit: 1

Student's will:

1. Address the history & philosophy of public health as well as its core values, concepts and functions across the globe and in society.
2. Recognize the contrast between clinical medicine versus public health.
3. Address the basic concepts, methods, tools of public health data collection, use, analysis, and why evidence-based approaches are an essential part of public health practice.
4. Address the socio-economic, behavioral, biological, environmental, and other factors that impact human health and contribute to health disparities.
5. Address the fundamental characteristics and organizational structures of the U.S. health system as well as the differences in systems in other countries.
6. Describe how to access and evaluate the quality of health information and data in mass media and the internet.
7. Explain the concepts of prevention, detection, and control of infectious and chronic conditions, health disparities, and global health.
8. Recognize ways to promote and protect the health of the vulnerable populations
9. Identify organizations of healthcare and public health systems available in your community.
10. Differentiate between the social and environmental indicators that affect public health.
11. Evaluate epidemiological methods and study design for tracking the disease/disorder.
12. Examine rates, risk factors, and health status indicators of diseases/disorders.
13. Contrast between morbidity and mortality.
14. Identify and define the difference between an outbreak and an epidemic and how they are traced.
15. Identify and research careers in public health.

Leadership Dynamics 170199

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

Recommended Grade Level: 9 – 12

Recommended Credit: .5 - 1

Students will:

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

Medicaid Nurse Aide 170631

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

Recommended Grade Level: 11 – 12

Recommended Credit: 1 – 2

Students will:

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

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

Medical Assisting Clinical Procedures 170580

Introduces clinical skills and techniques used in the physician's office for patient examination, diagnosis and treatment. Introduces concepts related to electronic health records (EHR). Presents principles and practical applications related to medical asepsis, infection control, vital signs, routine and specialty patient examinations, diagnostic testing, and treatments with an emphasis on OSHA regulations.

Recommended Grade Level: 12

Recommended Credit: 1

This course follows the NHA Clinical Medical Assistant test plan. [NHA Clinical Medical Assistant Test Plan](#)

Medical Interventions 170703

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

Recommended Grade Level: 10 – 12

Recommended Credit: 1

Students will:

1. Demonstrate professional work habits.
2. Demonstrate the ability to organize, implement, and troubleshoot specific tasks.
3. Demonstrate the ability to work in teams and as an individual
4. Define biotechnology and its role
5. Demonstrate knowledge of the history of biotechnology
6. Describe the life cycle of biotechnology product development
7. Identify the application of the biotechnology industry
8. Describe careers in biotechnology
9. Demonstrate competency in validating and using laboratory equipment
10. Demonstrate the competency in using computer office applications
11. Perform basic laboratory math skills
12. Apply statistical analysis to interpret data
13. Demonstrate the ability to use the scientific method
14. Properly prepare buffers and solutions
15. Demonstrate the concepts of recombinant technology
16. Demonstrate the principles of DNA isolation
17. Perform Polymerase Chain Reaction (PCR)
18. Perform electrophoresis
19. Perform separation techniques
20. Explain and perform aseptic technique
21. Demonstrate the concepts of microbial culture
22. Demonstrate the concept of laboratory automation
23. Demonstrate the knowledge of bioethics
24. Demonstrate the knowledge of professional ethics
25. Demonstrate general requirements for laboratory safety
26. Identify and use personal protective equipment (PPE)
27. Demonstrate ability to implement safety protocols
28. Document lab activities and findings according to guidelines
29. Use laboratory glassware correctly and safely
30. Use electrophoresis equipment correctly and safely
31. Use centrifuges correctly and safely

32. Use pH meters correctly and safely
33. Demonstrate knowledge of thermocyclers
34. Use microscopes correctly and safely

Medical Laboratory Aide (Phlebotomist) 170567

This course consists of a combination of classroom and hands-on experiences related to the student's education objectives in the area of Medical Laboratory Aide/Phlebotomist. Students may be eligible to take the National Healthcareers Association Phlebotomy Tech certification exam upon successfully completing the course. It is best practice for students to participate in a work-based learning experience during this course. Students will be required to follow program and agency requirements for attendance and health screening. These may include but are not limited to drug screens, TB (tuberculin) skin tests, and immunization certificates.

Students must complete a minimum of 30 successful unaided venipuncture collections and 10 successful unaided capillary collections in order to take the National Healthcareers Association certification exam.

Prerequisites: Principles of Health Science [170111](#) **AND** Medical Terminology [170131](#) **AND** Emergency Procedures [170141](#)

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

1. Collect, transport, handle, and process blood and urine specimens for analysis.
2. Adhere to all regulations and guidelines outlined by HIPAA (Health Insurance Portability and Accountability Act).
3. Gain career awareness and the opportunity to test career major choices.
4. Name credentialing agencies for careers related to career major.
5. Trace the organizational structure for the career major and affiliating agency.
6. Research the history and rationale of career major specialty.
7. Identify the different specialties in the career major.
8. Demonstrate knowledge of applicable laws, statutes, or regulations in career areas.
9. Research common diseases or problems associated with career major.
10. Receive work experience related to the Medical Laboratory Aide/Phlebotomist career prior to graduation.
11. Integrate classroom studies with work experience.
12. Receive exposure to facilities and equipment unavailable in a classroom setting.
13. Demonstrate performance skills related to the Medical Laboratory Aide/Phlebotomist career.
14. Demonstrate knowledge of first aid and CPR (cardiopulmonary resuscitation) as they relate to the area.
15. Demonstrate professional etiquette and responsibilities including effective communication skills.
16. Demonstrate effective use of time management and team building skills.
17. Demonstrate correct observation skills.
18. Perform procedures to prevent disease transmission utilizing OSHA (Occupational Safety and Health Administration), CDC (Centers for Disease Control and Prevention) regulations, and universal precautions.

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

Medical Math 170169

This course is designed for students who have completed courses containing all the required high school Kentucky Academic Standards (KAS) for Mathematics. If students have not completed courses containing all the required KAS for Mathematics, a Medical Math course should attend to standards students still need. This course is designed to focus, utilize and build on mathematical skills commonly used in all health occupations. Students will use applied techniques, problem-solving and critical thinking to perform mathematical operations such as computations, ratio and proportion, weights and measurements and conversions, beyond what was addressed in the student's foundational courses. A Medical Math course may include, but is not limited to, topics found in the (+) standards of the KAS for Mathematics. This course is strongly recommended for all Health Science majors. Successful completion of Algebra I is suggested prior to enrolling in this course. Leadership development will be provided through the HOSA student organization.

Recommended Grade Level: 9 – 12

Recommended Credit: .5 – 1

Students will:

1. Perform fundamental arithmetic operations on whole numbers, fractions, decimals, and percent for accuracy and speed.
2. Understand mathematical procedures and use them appropriately.
3. Accurately calculate oral and parenteral dosages.
4. Relate mathematics to activities in health science and discuss the importance of a thorough understanding of mathematics to a successful career in the health profession.
5. Perform conversions with accuracy interchanging apothecary, metric, and household systems.
6. Analyze and compare over-the-counter medications as to the number of doses and unit price.
7. Observe and record the ways measurement is used in a medical laboratory.
8. Describe and perform steps in dosage calculations of oral and parenteral medications.
9. Describe and perform steps in dosage calculations in pediatric dosage calculations.
10. Describe and perform concepts of IV therapy calculation.
11. Use various types of graphs to interpret and analyze information.
12. Organize information using classification rules and systems such as symbols, abbreviations, and Roman numerals.
13. Estimate values for operations involving decimals and cognitively compute the results.
14. Represent fractions as ratios in simplest form.
15. Represent numbers in scientific notation.
16. Demonstrate knowledge of measurement systems and conversion principles.
17. Perform addition, subtraction, multiplication, and division of signed numbers.
18. Relate words to algebraic expressions.

19. Set up and solve proportions.
20. Find the mean, median, and mode for a group of values.
21. Use the 24-hour clock (military time).
22. Utilize activities of HOSA-Future Health Professionals as an integral component of course content, skills application, and leadership development.
23. Use information technology applications as appropriate to health care specialties.
24. Integrate literacy and numeracy concepts and processes across all curricular units.
25. Demonstrate employability and social skills relevant to health careers.

Medical Office Procedures 170920

This course provides a working knowledge of the duties required in a medical office. It includes professional and career responsibilities, interpersonal communication, administrative responsibilities, and financial administration.

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

Medical Terminology 170131

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

Recommended Grade Level: 9 – 12

Recommended Credit: .5 – 1

Students will:

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

Pharmacological and Other Therapeutic Modalities 170614

This course provides an introduction to techniques used to administer commonly used drugs; dosage calculations; diagnostic studies and other related medical therapies; legal responsibilities.

Prerequisites: Current CPR (cardiopulmonary resuscitation) card for Health Care Provider and successful completion of Medicaid Nurse Aide Course

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

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

Pharmacy Technician 170558

This course may be completed as an independent study or classroom course during the student's senior year. The material covered will include orientation, federal law, medication review, aseptic techniques, calculations, and pharmacy operations. It is best practice for students to participate in a work-based learning experience at a pharmacy during this course. Upon successful completion of this internship, students may be eligible to take the Pharmacy Technician Certification examination in order to obtain national certification. Students will be required to follow program and agency requirements for attendance and health screenings. These may include but are not limited to drug screens, TB (tuberculin) skin tests, and immunization certificates.

Recommended Grade Level: 11 – 12

Recommended Credit: 1

Students will:

1. Understand, discuss, and define basic pharmacy terms and definitions.
2. Understand the Pharmacy Technician certification examination structure, time allowed for exam, and broad topic content.
3. Detail the requirements and process needed to maintain certification.
4. Understand federal laws that affect the pharmacy industry.
5. Discuss different laws and legislation that affect the pharmacy industry including when they were enacted and their importance.
6. Discuss the importance of the Controlled Substance Act of 1970.
7. Outline filing procedures, maintain records according to state and federal laws, and drug substitution requirements.
8. Illustrate how a Doctor's DEA (Drug Enforcement Administration) Number is determined and its purpose.
9. Discuss storage requirements for Schedule II drugs.
10. Define the four phases of investigational drugs.
11. Define pharmacology including the varied types of drugs, prescription types, medication dosage forms, and medical devices.
12. List drug interactions on the human body's major systems.
13. Review the different types of medication dosages (tablets, caplets, liquids, creams, emulsions).
14. Describe the different types of administration devices for certain medications and dosages.
15. Review drugs that affect the central nervous system, peripheral nervous system, cardiovascular system, and renal system to include drug interactions, mechanism of action, and manufacturer named drugs.
16. Review drugs classified as hormones including drug interactions, mechanism of action, and manufacturer named drugs.
17. Review drugs classified as anti-infectant drugs including drug interactions, mechanism of action, and manufacturer named drugs.
18. Review drugs classified as chemotherapy drugs including drug interactions, mechanism of action, and manufacturer named drugs.

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

Principles of Biomedical Science 170701

Student work involves the study of human medicine, research processes and an introduction to bioinformatics. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, hypercholesterolemia and infectious diseases. A theme throughout the course is to determine the factors that led to the death of a fictional person. After determining the factors responsible for the death, the students investigate lifestyle choices and medical treatments that might have prolonged the person's life. Key biological concepts including homeostasis, metabolism, inheritance of traits, feedback systems, and defense against disease are embedded in the curriculum. The course is designed to provide an overview of all the courses in the Biomedical Science program and to lay the scientific foundation necessary for student success in the subsequent courses.

Recommended Grade Level: 9 – 11

Recommended Credit: 1

Students will:

1. Demonstrate professional work habits.
2. Demonstrate the ability to organize, implement, and troubleshoot specific tasks.
3. Demonstrate the ability to work in teams and as an individual.
4. Define biotechnology and its role.
5. Demonstrate knowledge of the history of biotechnology.
6. Describe careers in biotechnology.
7. Demonstrate competency in using computer office applications.
8. Demonstrate the principles of DNA isolation.
9. Perform Polymerase Chain Reaction (PCR).
10. Perform electrophoresis.
11. Perform separation techniques.
12. Explain and perform aseptic technique.
13. Demonstrate the concepts of microbial culture.
14. Demonstrate the concept of mammalian cell culture.
15. Demonstrate the knowledge of bioethics.
16. Demonstrate the knowledge of professional ethics.
17. Demonstrate general requirements for laboratory safety.
18. Identify and use personal protective equipment (PPE).
19. Demonstrate ability to implement safety protocols.
20. Document lab activities and findings according to guidelines.
21. Use laboratory glassware correctly and safely.
22. Use electrophoresis equipment correctly and safely.
23. Use centrifuges correctly and safely.
24. Use microscopes correctly and safely.

Principles of Health Science 170111

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

Recommended Grade Level: 9 – 12

Recommended Credit: 1

Students will:

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

Principles of Veterinary Assisting 170801

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

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

Recommended Grade Level: 10 – 12

Recommended Credit: 1

Students will:

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

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

Special Topics in Allied Health 170591

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

Recommended Grade Level: 10 – 12

Recommended Credit: .5 – 1

Students will:

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

Veterinary Assisting Internship 170804

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

Recommended Grade Level: 12

Recommended Credit: 1

Students will:

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

Veterinary Assisting Skills 170802

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

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

Recommended Grade Level: 10 – 12

Recommended Credit: 1

Students will:

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

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