Department of Education | College, Career and Technical Education

# Diagnostic Medicine

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| **Primary Career Cluster:** | Health Science |
| **Consultant:** | Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov |
| **Course Code(s):** | 5994 |
| **Prerequisite(s):** | *Health Science Education* (5998), *Anatomy & Physiology* (3251 or 5991) |
| **Credit:** | 1 |
| **Grade Level:** | 10-11 |
| **Graduation Requirements:** | This course satisfies one of three credits required for an elective focus when taken in conjunction with other Health Science courses. |
| **Programs of Study and Sequence:** | This is the third course in the Diagnostic Services program of study. |
| **Aligned Student Organization(s):** | HOSA: http://www.tennesseehosa.org<br>Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov |
| **Coordinating Work-Based Learning:** | Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://tn.gov/education/topic/work-based-learning. |
| **Available Student Industry Certifications:** | None |
| **Dual Credit or Dual Enrollment Opportunities:** | There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement. |
| **Teacher Endorsement(s):** | 577, 720 |
| **Required Teacher Certifications/Training:** | None |
| **Teacher Resources:** | https://tn.gov/education/article/cte-cluster-health-science |

## Course Description

*Diagnostic Medicine* is a third level course designed to prepare students to pursue careers in the fields of radiology, medical laboratory, optometry, and other patient diagnostic procedures. Upon completion of this course, proficient students will be able to describe new and evolving diagnostic technologies, compare and contrast the features of healthcare systems, explain the legal and ethical ramifications of the healthcare setting, and begin to perform foundational healthcare skills. In addition, students will continue to add artifacts to a portfolio, which they will continue to build throughout the program of study.

Approved January 30, 2015; Amended April 15, 2016

## Program of Study Application

This is the third course in the *Diagnostic Services* programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at https://tn.gov/education/article/cte-cluster-health-science.

**Implementation options are as follows:**

- Option 1: Diagnostic Medicine taught as a Level Two course
- Option 2: Diagnostic Medicine taught as a Level Three course

**Core standards are required for both options above:**

Core standards: 1,2,3,4,5,6,7,8,9,10,11,14,15,16,19,20,23,24,25,26,27,28,29

**Additional standards:**

Option 1: 12,17,21

Option 2: 13,18,22

## Course Standards

### Career Planning and Professionalism

1) Revise the career information portfolio developed in the *Health Science Education* course and update with more in-depth information surrounding careers in diagnostic sciences. Identify specific roles and responsibilities for each career in this field. Investigate and compare the range of skills, competencies, and professional traits required for such careers. Compare findings to current individual strengths and identify opportunities for personal development.

2) Summarize the Health Insurance Portability and Accountability Act (HIPAA), in particular those aspects related to maintaining confidentiality, patient rights, patient safety, and other ethical/legal directives governing medical treatment. Using medical terminology and accurate definitions of legal concepts, explain how the content of these ethical/legal ramifications affects patients' rights for all aspects of care.

### Technology

3) Investigate and document the history of radiology, medical laboratories, and other related areas of diagnostic medicine. Explain how technology, including telemedicine, is influencing the future of each. Synthesize research from professional journals and other medical or technical literature (noting the authors and their purposes) to analyze the barriers to these technologies and predict how the industry might respond.

4) Synthesize information from professional journals and digital resources to investigate the use of robotics in healthcare other than in surgical procedures. Develop a proposal, sketch,

mock press release, or similar written artifact for a new technology or an improvement to a current technology that can be used in the field of diagnostics. Detail all the specifications of the new technology, including an explanation of how the technology will be used, the projected cost-saving measures, and the most applicable professions that would use the technology.

5) Evaluate data from research articles encompassing the reliability of home testing kits (i.e., pregnancy test) and portable diagnostic equipment (i.e., glucometers). Explain findings in an informational essay, citing at least three different peer-reviewed articles and including appropriate medical terminology.

**Safety**

6) Obtain medical laboratory manuals from at least three different resources or physical laboratory sites. Identify the elements of containment regarding general infection control, chemistry precautions, fire safety, chemical hazards, electrical safety, mechanical safety, general lab safety, accident exposure, and disaster preparedness. Develop a written or digital lab manual for a medical laboratory at school based on findings from the research.

7) Research the guidelines pertaining to radiation safety for staff, patients, and family who are receiving any radiological procedure. Develop an informational artifact, public service announcement, or health education presentation that instructs patients/clients on what patients should know about medical radiation safety.

8) Explore policies and procedures related to diagnostic equipment quality control monitoring and evaluation. Synthesize information into a digital or written presentation to instruct appropriate staff on the importance of implementing quality control processes according to policy.

**Infection Control/Medical Microbiology**

9) Demonstrate mastery of concepts and skills related to asepsis, Universal Precautions, sanitation, disinfection, and sterilization for patient/client care settings in adherence to standards and guidelines from the Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) in a lab/clinical setting.

10) Define the term normal flora and explain how its deviation can prevent or cause a disease or disorder. Outline specific preventive measures to align to acceptable standards of care in the healthcare field.

11) Assess the differences between healthcare-associated infections and non-healthcare-associated infections using examples drawn from mock patient documents or case studies. Support explanations with relevant surveillance statistics, preventive measures, and methodologies concerning outbreak detection, management, and education.

**Diagnostic Radiology**

12) Outline the bony anatomy and organ structures as they relate to radiology. Review directions, planes, and sections of the body in order to perform radiographic images. Summarize appropriate medical text(s) in order to list signs and symptoms and specific diagnostic studies used for common diseases and disorders associated with each.
13) Outline the bony anatomy and organ structures as they relate to radiology. Review directions, planes, and sections of the body in order to perform radiographic images. Summarize appropriate medical text(s) in order to list signs and symptoms and specific diagnostic studies used for common diseases and disorders associated with each body system.

14) Distinguish between the various types of diagnostic radiology, citing the uses, advantages, and disadvantages of each. Develop an explanation that would be used for beginning health science students, incorporating appropriate industry and medical terminology.

15) Distinguish between Direct Radiography and Computed Radiography, citing the benefits of each related to the effects of radiation dose and cost. Compare the benefits of image storage in Picture Archive and Communication Systems to xray film storage. Relate the benefits of electronic image storage to its application in Telemedicine.

16) Research the principles of radiographic physics and explain how the concepts are applied to produce high-quality radiographic images. Discuss the following in the explanation:
    a. Properties of X-rays
    b. Production of X-rays
    c. The X-ray tube and other parts of an X-ray machine
    d. Absorption, scatter, and transmission of X-rays

**Clinical Laboratory**

17) Outline the in-depth normal structure and function of blood and related components. Summarize appropriate medical text(s) in order to list signs and symptoms of common blood diseases and disorders associated with each. Define the following common laboratory procedures, both normal and abnormal, and provide the reasoning for why the test should be obtained:
    a. Complete Blood Count
    b. Complete Metabolic Panel
    c. Fasting Lipid Panel
    d. Hgb A1C

18) Analyze the relationship of blood components to common blood diseases and disorders listing signs and symptoms associated with each. Define the following common laboratory procedures, both normal and abnormal, and provide the reasoning for why the test should be obtained:
    a. Complete Blood Count
    b. Complete Metabolic Panel
    c. Fasting Lipid Panel
    d. Hgb A1C

19) Develop a graphic organizer or concept map to explain the functions of the various departments of a medical laboratory, such as microbiology, chemistry, hematology, blood banking, and urology. Include types of fluid samples and test that are performed in each area with a detail of the precautions involved when handling each.

20) Understand principles of and successfully perform skills of a phlebotomist, incorporating rubrics from National HOSA, textbooks, or clinical standards of practice.
    a. Distinguish sites and/or veins for blood draws in all populations using the required equipment and safety precautions.
    b. Perform collection procedures for microspecimens and venipuncture on a mannequin using appropriate collection containers and identifying factors affecting collection/test results.
    c. Provide guidelines for obtaining blood from neonates, pediatrics, and geriatrics.
    d. Perform skills of patient/specimen identification and transporting of specimens.

**Ophthalmological Procedures**

21) Outline the in-depth normal structure and function of the eye. Summarize appropriate medical text(s) in order to list signs and symptoms of common diseases and disorders associated with each.
22) Summarize appropriate medical text(s) in order to compare and contrast normal versus abnormal structure and function of the eye related to common eye diseases listing signs and symptoms, and diagnostic studies for each.

23) Understand principles of and successfully perform skills related to basic ophthalmic examination, incorporating rubrics from textbooks or clinical standards of practice. Measure pulse and blood pressure, and conduct a history and physical, especially concerning areas related to the eye.

24) Research the concepts surrounding measurement of visual acuity with associated equipment, and explain corrective measures for abnormalities (i.e., surgery, glasses, or contacts). Specify what measures should be used with each abnormality.

**Cardiologic Services**

25) Research the educational requirements, certification, and licensures for cardiovascular technologist, diagnostic vascular technologist, electrocardiogram technician, telemetry technician, cardiac sonographers, and other related cardiovascular careers. Compare and contrast the educational requirements of each.

26) Investigate cardiac diagnostic procedures both in-hospital and out-patient and identify the equipment required for these services.

27) Create an infographic to identify gross heart anatomy and physiology and related cardiac conduction and circulatory pathways.

28) Assess lead placements and correlate their relationship to the conduction system through the use of a diagram or model.

29) Analyze the P,Q,R,S,T complex and its correlation to the cardiac cycle. Chart a mock representation of these waves on an electrocardiogram.

30) Analyze rhythm strips and/or 12 lead EKGs and differentiate between critical and non-critical cardiac rhythms using student created algorithms.

31) Assess and analyze cardiac output and tissue perfusion using capillary refill and/or pulse oximeter by assessing multiple classmates and correctly charting on flow chart.

**Portfolio**

32) Update materials from coursework to add to the portfolio started in *Health Science Education*. Continually reflect on coursework experiences and revise and refine the career plan generated in the prior course.

**The following artifacts should be included in the student's portfolio:**

- Career exploration artifacts
- Skills performance rubrics
- Documentation of job shadowing hours
- Examples of written, oral, or digital presentations
- Short research project documents

## Standards Alignment Notes

*References to other standards include:

- P21: Partnership for 21st Century Skills Framework for 21st Century Learning
    - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.

- National Accrediting Agency  of Clinical Laboratory Sciences (NAACLS): Standards for Specific Approved Programs
    - Note:  Students must be a completer of a NAACLS approved program in order to sit for a national phlebotomy certification exam.

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# Emergency Medical Services Practicum

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| **Primary Career Cluster:** | **Health Science** |
| Consultant: | Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov |
| Course Code(s): | 5994 |
| Prerequisite(s): | Health Science Education (5998)**, Medical Therapeutics (5999),** Anatomy & Physiology (3251 or 5991), and Emergency Medical Services (5995) |
| Credit: | 1 |
| Grade Level: | 12 |
| Graduation Requirements: | This course satisfies one of three credits required for an elective focus when taken in conjunction with other Health Science courses. |
| Programs of Study and Sequence: | This is the fourth course in the Emergency Services program of study. |
| Aligned Student Organization(s): | HOSA: http://www.tennesseehosa.org<br>Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov |
| Coordinating Work-Based Learning: | Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://tn.gov/education/topic/work-based-learning. |
| Available Student Industry Certifications: | None |
| Dual Credit or Dual Enrollment Opportunities: | |
| Teacher Endorsement(s): | **577, 720** |
| Required Teacher Certifications/Training: | None |
| Teacher Resources: | https://tn.gov/education/article/cte-cluster-health-science |

## Work-Based Learning Framework

Internship standards outlined below may take the form of work-based learning (WBL) opportunities (such as internships, cooperative education, service learning, and job shadowing) or industry-driven project-based learning. These experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. As such, this course must be taught by a teacher with an active WBL Certificate issued by the Tennessee Department of Education and follow policies outlined in the Work-Based Learning Policy Guide available online at https://tn.gov/education/topic/work-based-learning .The Tennessee Department of Education provides a Personalized Learning Plan template to ensure compliance with the Work-Based Learning Framework, state and federal Child Labor Law, and Tennessee Department of Education policies, which must be used for students participating in WBL opportunities.

## Program of Study Application

This is the capstone course in *Emergency Medicine* program of study, providing an opportunity for an internship experience. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at http://tn.gov/education/article/cte-cluster-health-science.

## Course Requirements

This capstone course aligns with the requirements of the Work-Based Learning Framework (established in Tennessee State Board High School Policy), with the Tennessee Department of Education's Work-Based Learning Policy Guide, and with state and federal Child Labor Law. As such, the following components are course requirements:

1) A student will have a Personalized Learning Plan that identifies their long-term goals, demonstrates how the Work-Based Learning (WBL) experience aligns with their elective focus and/or high school plan of study, addresses how the student plans to meet and demonstrate the course standards, and addresses employability skill attainment in the following areas:
    a. Application of academic and technical knowledge and skills (embedded in course standards)
    b. Career knowledge and navigation skills
    c. 21st Century learning and innovation skills
    d. Personal and social skills

**Safety**

2. Identify safety hazards in the workplace and demonstrate practices for safe working. Accurately read, interpret, and demonstrate adherence to safety guidelines, including but not limited to guidelines pertaining to electrical safety, infection control, Occupational Safety and Health Administration (OSHA), chemical and back safety. Be able to distinguish between the guidelines and explain why certain guidelines apply. Recognize the need for and employ universal precautions to 100% accuracy.

**Postsecondary and Career Preparation**

3. Research the range of credentials one can earn within the Emergency Medical Service (EMS) system. Investigate both in-state and out-of-state postsecondary programs in a variety of EMS fields. Synthesize research conducted in previous Emergency Medical Services program of study courses to update the portfolio career plan to achieve post-high school goals.

4. Research and select an EMS system or company for a project in the EMS field. Cite specific textual evidence from the organization's literature, as well as independent news articles, to summarize:
   a. The mission and history of the organization
   b. Headquarters and organizational structure
   c. Services provided
   d. Credentials required for employment and how they are obtained and maintained
   e. Policies and procedures
   f. Reports, newsletters, and other documents published by the organization
   g. Website and contact information

5. Search for the resumes of EMS professionals retrieved from the websites of systems, companies, organizations, or professional networks. Discuss what is typically included in the resumes of these professionals, compare and contrast several examples, and create a personal resume modeled after elements identified in the search.

6. Simulate the experience of conducting a job search by researching local employment options. In preparation for a future career in EMS, complete an authentic job application form and compose a cover letter following guidelines specified in the vacancy announcement.

7. Participate in a mock interview. Prior to the interview, research tips on dress and grooming, most commonly asked interview questions, appropriate conduct during an interview, and recommended follow-up procedures. Highlight sample work compiled in the portfolio that illustrates mastery of specific skills attained in the program of study. Upon completion of the interview, write a thank you letter to the interviewer in a written or email format.

**Transferring Course Concepts to Practicum**

8. Apply skills and knowledge from previous courses in an authentic work-based learning internship, job shadow, or classroom-based project. Develop a plan to demonstrate skills outlined in previous courses.

9. Create and continually update a personal journal to document skills learned during the practicum and draw connections between the experience and previous course content by reflecting on:
   a. Tasks accomplished and activities implemented
   b. Positive and negative aspects of the experience
   c. How challenges were addressed
   d. Team participation in a learning environment
   e. Comparisons and contrasts between classroom and work environments
   f. Interactions with colleagues and supervisors
   g. Personal career development
   h. Personal satisfaction

**Portfolio**

10. Update materials from coursework to add to the portfolio started in *Health Science Education* to illustrate mastery of skills and knowledge outlined in the previous courses and applied in the practicum. The portfolio should reflect thoughtful assessment and evaluation of the progression of work involving the application of emergency medicine skills specific to EMS. The following documents will reside in the career portfolio:
    a. The career plan developed and revised in prior courses
    b. Resume
    c. List of responsibilities undertaken through the course
    d. Artifacts of project outcomes
    e. Periodic journal entries reflecting on tasks and activities
    f. Feedback from instructor and/or supervisor based on observations
    g. Transcripts or other evidence of certifications obtained throughout the program of study

**Communication of Project Results**

11. Upon completion of the practicum, develop a technology-enhanced presentation showcasing highlights, challenges, and lessons learned from the experience. The presentation should be delivered orally, but supported by relevant graphic illustrations, such as diagrams, drawings, videos, and photographs. Prepare the presentation in a format that could be presented to both a health care professional and non-health care

professional audience, as well as for a career and technical student organization (CTSO) competition.

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# Medical Therapeutics

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|---|---|
| **Primary Career Cluster:** | Health Science |
| **Consultant:** | Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov |
| **Course Code(s):** | 5999 |
| **Prerequisite(s):** | *Health Science Education* (5998), |
| **Credit:** | 1 |
| **Grade Level:** | 10-11 |
| **Graduation Requirements:** | This course satisfies one of three credits required for an elective focus when taken in conjunction with other Health Science courses. |
| **Programs of Study and Sequence:** | This is the second or third course in the Nursing Services and Therapeutic Services programs of study. |
| **Aligned Student Organization(s):** | HOSA: http://www.tennesseehosa.org<br>Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov |
| **Coordinating Work-Based Learning:** | Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://tn.gov/education/topic/work-based-learning. |
| **Available Student Industry Certifications:** | None |
| **Dual Credit or Dual Enrollment Opportunities:** | There are no known dual credit/dual enrollment opportunities for this course. If interested in developing, reach out to a local postsecondary institution to establish an articulation agreement. |
| **Teacher Endorsement(s):** | 577, 720 |
| **Required Teacher Certifications/Training:** | None |
| **Teacher Resources:** | https://tn.gov/education/article/cte-cluster-health-science |

## Course Description

Medical Therapeutics is an applied course designed to prepare students to pursue careers in therapeutic and nursing services. Upon completion of this course, a proficient student will be able to

identify careers in therapeutics services; assess, monitor, evaluate, and report patient/client health status; and identify the purpose and components of treatments. Program of Study Application This is the third course in the Nursing Services and Therapeutic l Services programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at https://tn.gov/education/article/ctecluster-health-science

## Program of Study Application

This is the second or third course in the *Therapeutic Nursing Services* and *Therapeutic Clinical Services* programs of study. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at https://tn.gov/education/article/cte-cluster-health-science.

**Implementation options are as follows:**

- Option 1: Medical Therapeutics taught as Level Two course
- Option 2: Medical Therapeutics taught as Level Three course

**Core standards are required for both options above:**

1,2,3,4,5,6,7,8,9,10,13,14,15,16

**Additional standards:**

Option 1: 11
Option 2: 12

## Course Standards

### Therapeutic Careers

1) Differentiate career pathways within the Therapeutics cluster. Using supporting evidence from multiple sources, such as local job postings, O*NET OnLine, and Tennessee Department of Labor and Workforce Development data, describe the scope of practice and the essential knowledge and skills required for these careers. Complete one or more career aptitude surveys, analyze the results, and relate in an essay how personal career aptitudes align with careers in therapeutics.

2) Analyze specific laws and ethical issues that impact professional practice such as confidentiality, informed consent, and patient self-determination. Citing specific textual evidence to support analysis, debate these issues in an oral or written format.

3) Differentiate between the common members of the patient care team summarizing the individual roles and the interrelatedness of the team members as it relates to quality patient care. Prepare an informative artifact to explain the concept of team-based care to a patient.

### Health Care Communication

4) Evaluate factors that contribute to effective communication and explain how these factors contribute to the development of quality patient care. Using role-play, demonstrate practices to effectively manage communication barriers, cultural differences and clients with special needs.

5) Differentiate between verbal and nonverbal communication when interacting with patients. Examine specific techniques for effective communication and evaluate how different cultures attach different meanings to communication techniques.

## Facility Guidelines for Practice

6) Compare the advantages and disadvantages of Electronic Health Records (EHR). Anticipate barriers and challenges associated with the large-scale move to EHR in healthcare institutions.

7) Explain in a written, oral, or digital format the differences in privacy of individually identifiable health information, protected health information (PHI), and security rule. Review case studies to identify violations, preventive measures, and penalties that might be levied for violations.

8) Relate the use of collected data by hospital information systems to the use of collected data in quality improvement initiatives. Determine how data related to sex, race and ethnicity is used to reduce disparities in different types of care such as cardiac care or cancer treatment.

9) Examine policies and procedures related to therapeutic equipment safety, quality control monitoring, and evaluation. Synthesize information into a digital or written presentation to instruct appropriate staff on the importance of safety practices and the implementation of quality control processes according to policy.

## Patient Assessment and Treatment

10) Demonstrate an understanding of basic medical terminology in order to monitor patient/client status through:
    a. History and Physical including but not limited to: family, environmental, social, and mental history
    b. Brief Head to Toe Assessment noting normal vs. abnormal findings
    c. Vital Signs Assessment (VS)
    d. Height/weight, BMI /Calculation
    e. Specimen Collection
11) Outline the gross normal structure and function of all body systems and summarize appropriate medical text(s) in order to relate signs and symptoms of common diseases and disorders associated with each.
    a. integumentary and lymphatic systems
    b. nervous and musculoskeletal systems

c. cardiovascular and respiratory systems
d. digestive and urinary systems
e. reproductive and endocrine systems

12. Relate a therapeutic procedure/treatment to a specific body system. Create a digital or written artifact explaining anatomy involved with the treatment, reason for treatment, health care professionals assisting or performing treatment and patient education, including precautions that should occur prior to the treatment or procedure.

## Fundamentals of Patient Care

13) Demonstrate concepts and skills of the following in a clinical/lab setting:
   a. Patient Positioning
   b. Transfers and Ambulation (including injury prevention and body mechanics)
   c. O2 Assessment and Administration (including fire safety)
   d. BLS (Basic Life Support)

## Fundamentals of Wellness and Disease Prevention

14) Demonstrate mastery of concepts and skills related to asepsis, Universal Precautions, sanitation, disinfection, and sterilization for patient/client care settings citing the rationale for each concept/skill using standards and guidelines from the Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) in a lab/clinical setting.

15) Correlate the function of normal flora with homeostasis and relate deviation to disease states. Evaluate specific measures to prevent deviation that are aligned with accepted standards of care.

16) Assess the differences between healthcare-associated infections and non-healthcare-associated
infections using examples drawn from mock patient documents or case studies. Support explanations with relevant surveillance statistics, preventive measures, and methodologies concerning outbreak detection, management, and education.

16) Develop a patient health education plan including health screenings, preventive measures, signs and symptoms of exacerbation of disease/disorder/injury, pharmacological needs, and support systems. Include citations from at least three medical texts.

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# Public Health Practicum

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|---|---|
| **Primary Career Cluster:** | Health Science |
| **Consultant:** | Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov |
| **Course Code(s):** | TBD |
| **Prerequisite(s):** | Health Science Education (5998), Behavioral and Community Health (6130), and Global Health and Epidemiology (6132) |
| **Credit:** | 1 |
| **Grade Level:** | 12 |
| **Graduation Requirements:** | This course satisfies one of three credits required for an elective focus when taken in conjunction with other Health Science courses. |
| **Programs of Study and Sequence:** | This is the capstone course in the Public Health program of study. |
| **Aligned Student Organization(s):** | HOSA: http://www.tennesseehosa.org<br>Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov |
| **Coordinating Work-Based Learning:** | Teachers are encouraged to use embedded WBL activities such as informational interviewing, job shadowing, and career mentoring. For information, visit https://tn.gov/education/topic/work-based-learning. |
| **Available Student Industry Certifications:** | None |
| **Dual Credit or Dual Enrollment Opportunities:** | |
| **Teacher Endorsement(s):** | |
| **Required Teacher Certifications/Training:** | None |
| **Teacher Resources:** | https://tn.gov/education/article/cte-cluster-health-science |

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## Work-Based Learning Framework

Internship standards outlined below may take the form of work-based learning (WBL) opportunities (such as internships, cooperative education, service learning, and job shadowing) or industry-driven project-based learning. These experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. As such, this course must be taught by a teacher with an active WBL Certificate issued by the Tennessee Department of Education and follow policies outlined in the Work-Based Learning Policy Guide available online at https://tn.gov/education/topic/work-based-learning .The Tennessee Department of Education provides a Personalized Learning Plan template to ensure compliance with the Work-Based Learning Framework, state and federal Child Labor Law, and Tennessee Department of Education policies, which must be used for students participating in WBL opportunities.

## Program of Study Application

This is the capstone course in *Public Health* program of study, providing an opportunity for an internship experience. For more information on the benefits and requirements of implementing these programs in full, please visit the Health Science website at http://tn.gov/education/article/cte-cluster-health-science.

## Course Requirements

This capstone course aligns with the requirements of the Work-Based Learning Framework (established in Tennessee State Board High School Policy), with the Tennessee Department of Education's Work-Based Learning Policy Guide, and with state and federal Child Labor Law. As such, the following components are course requirements:

1) A student will have a Personalized Learning Plan that identifies their long-term goals, demonstrates how the Work-Based Learning (WBL) experience aligns with their elective focus and/or high school plan of study, addresses how the student plans to meet and demonstrate the course standards, and addresses employability skill attainment in the following areas:
    a. Application of academic and technical knowledge and skills (embedded in course standards)
    b. Career knowledge and navigation skills
    c. 21st Century learning and innovation skills
    d. Personal and social skills

**Employment Research and Preparation**

2) Research and select an organization for a work-based learning project in a public health area of choice. Cite specific textual evidence from the organization's literature, as well as independent news articles to summarize:
    a. The mission and history of the organization
    b. Headquarters and organizational structure
    c. Products or services provided
    d. Credentials required for employment and how they are obtained and maintained
    e. Policies and procedures
    f. Reports, newsletters, and other documents published by the organization
    g. Website and contact information

3) Research and examine the roles public health organizations play in emergency response. Interview employees at a local public health organization to determine how their facility and employees are trained to respond in emergencies such as: disease outbreaks, natural disasters, and acts of terrorism. Create a visual product that would educate new employees at this organization on what emergency training/certifications must be completed, what their role would be in the above-mentioned emergencies, and how their organization coordinates with additional organizations during emergency response.

4) Search for the resumes of public health professionals retrieved from the websites of institutions, organizations, or professional networks. Discuss what is typically included in the resumes of public health professionals, compare and contrast several examples, and create a personal resume modeled after elements identified in the search.

5) Conduct a job search and simulate the experience by researching local employment options. In preparation for a future career in public health, complete an authentic job application form and compose a cover letter following guidelines specified in the vacancy announcement.

6) Participate in a mock interview. Prior to the interview, prepare a paper that includes the following: tips on dress and grooming, most commonly asked interview questions, appropriate conduct during an interview, and recommended follow-up procedures. Upon completion of the interview, write a thank you letter to the interviewer in a written or email format.

**Professionalism and Ethics**

7) Collaboratively, develop a professionalism rubric with performance indicators for each of the following professional attributes and use it to evaluate course assignments and personal work:
    a. Attendance/punctuality
    b. Professional dress and behavior
    c. Positive attitude
    d. Collaboration
    e. Honesty
    f. Respect
    g. Responsibility
    h. Appropriate technology use

8) Select and research a professional organization in a public health area of choice. Cite specific textual evidence from the organization and news articles to summarize:
    a. The mission of the organization
    b. Benefits of belonging to the organization
    c. Credentials provided and how they are obtained and maintained
    d. Journals, newsletters, and other documents and reports it publishes
    e. Educational opportunities provided
    f. Conferences held
    g. Membership costs, levels, student memberships
    h. Website, contact information

9) Collect Codes of Ethics from various public health related professional organizations such as: the American Public Health Association, the National Environmental Health Association, and the Society for Public Health Education to examine areas of commonality. Participate in a class discussion on the significance of including specific standards in these areas. Synthesize principles from the codes investigated to create a personal code of ethics.

**Transferring Course Concepts to Practicum**

10) Apply skills and knowledge from previous courses in an authentic work-based learning internship, job shadow, or classroom-based project. Create a plan to demonstrate skills outlined in previous courses.

11) Identify a problem faced by a local public health organization to define a project proposal. Incorporate organization interviews into the research, as well as public health concepts from the prior three courses. Prepare a written project proposal including the problem definition; justification for why the problem is important to solve; design statement; criteria; constraints; information obtained through research; and deliverables.

12) Create and continually update a personal journal to document skills learned during the practicum and draw connections between the experience and previous course content by reflecting on:
    a. Tasks accomplished and activities implemented
    b. Positive and negative aspects of the experience
    c. How challenges were addressed
    d. Team participation in a learning environment
    e. Comparisons and contrasts between classroom and work environments
    f. Interactions with colleagues and supervisors
    g. Personal career development
    h. Personal satisfaction

**Portfolio**

13) Create a portfolio, or similar collection of work, that illustrates mastery of skills and knowledge outlined in the previous courses and applied in the practicum. The portfolio should reflect thoughtful assessment and evaluation of the progression of work involving the application of steps of the scientific inquiry or the engineering design process (depending on the nature of the work-based learning project). The following documents will reside in the career portfolio:
    a. Personal code of ethics
    b. Career and professional development plan
    c. Resume or Curriculum Vitae
    d. List of responsibilities undertaken through the course
    e. Examples of visual materials developed and used during the course (such as graphics, drawings, models, presentation slides, videos, and demonstrations)
    f. Description of technology used, with examples if appropriate
    g. Periodic journal entries reflecting on tasks and activities
    h. Feedback from instructor and/or supervisor based on observations

**Communication of Project Results**

14) Upon completion of the practicum, develop a technology-enhanced presentation showcasing highlights, challenges, and lessons learned from the experience.

## Standards Alignment Notes

*References to other standards include:

- P21: Partnership for 21st Century Skills Framework for 21st Century Learning
    - Note: While not all standards are specifically aligned, teachers will find the framework helpful for setting expectations for student behavior in their classroom and practicing specific career readiness skills.