TN Department of Education | College, Career and Technical Education

Behavioral and Community Health

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, Sloan.Hudson@tn.gov
Course Code(s):	6130
Prerequisite(s):	*Health Science (5998)*
Credit:	1
Grade Level:	10
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 course in the *Public Health* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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/article/mathematics-standards.
Available Student Industry Certifications:	None
Dual Credit or Dual Enrollment Opportunities:	There are no statewide dual credit/dual enrollment opportunities for this course. If interested in establishing a local opportunity, reach out to a local postsecondary institution.
Teacher Endorsement(s):	577, 720, 722
Required Teacher Certifications/Training:	None
Teacher Resources:	https://tn.gov/education/article/cte-cluster-health-science

Course Description

Behavioral and Community Health is an applied course for students interested in developing a rich understanding of the ways that communities experience and treat health-related issues. Upon completion of this course, students will be able to use research and data to understand the health and wellness of his/her community, state, region, and nation; differentiate between health and wellness; relate that knowledge to social epidemiology and determinants of health; draw key

connections between behavioral health issues and community health issues; and identify professionals who can provide care.

Program of Study Application

This is the second course in the *Public Health* program of study and builds knowledge and skills necessary for success in the capstone course, *Public Health Practicum*. For more information on the benefits and requirements of implementing this program in full, please visit the Health Science website at https://tn.gov/education/article/cte-cluster-health-science.

Course Standards

Overview of Healthcare History, Systems, and Legislation

1) Gather relevant information from multiple sources (in both print and digital formats) concerning the history of, and relationships between, community health, disease outbreaks and psychosocial disorders in order to understand how community health has formed the basis of the modern healthcare system. Research notable historical figures, time periods, and/or practices to develop a visual, oral, and/or written presentation that cites specific textual evidence to support analysis.

2) Differentiate between health, healthcare, and healthcare systems/organizations related to community and mental health, and explain their evolution in modern society. Use information from governmental agencies, such as the Center for Disease Control and Prevention (CDC), to identify health disparities (for example, rates of childhood obesity in different regions) in the United States population. Physically locate care-providing organizations and agencies that can be utilized to address identified disparities.

3) Define epidemiology and identify social and community health issues prevalent in a specific community. Research social determinants impacting a specific health issue, including but not limited to age, behavior, race/ethnicity, environment, geography, social status, income, and other factors that contribute to diseases and disorders. Summarize findings in a graphic illustration or informational artifact in order to participate in a discussion comparing and contrasting health of communities with different demographic data.

4) Research and summarize major state and federal legislation related to behavioral and community health using both primary sources (such as laws) and secondary sources (such as media reports). Construct an argumentative essay describing the effects of these laws on the provision of healthcare in Tennessee and the implications for at-risk populations. In the essay, compare and contrast findings presented in media about legislation, citing specific textual evidence to support a claim and assess extent to which reasoning and evidence may support or refute identified counterclaim(s).

5) Identify public health risks and emergencies that impact healthcare delivery. Create a flow-chart of how local, state, and federal governments coordinate to handle requests for assistance related to human resources, supplies/equipment, and medical countermeasures.

Careers

6) Research careers within the public health and mental health fields and document educational requirements as well as state and national guidelines governing practicing professionals (such as licensing, certifications, training, compliance). Identify potential training programs, schools, and examinations appropriate to obtain required credentials for a specific occupation.

7) Research and summarize the range of skills, competencies, and professional traits required for careers in the public health and mental health fields. Compare findings to current individual strengths and identify opportunities for personal development. Translate real-time and projected labor market data into narratives to identify local and national employment opportunities and determine areas of growth within public health and mental health fields.

Legal and Ethical Issues

8) Compare and contrast the specific laws and ethical issues that impact relationships among patients/clients and healthcare professionals (for example, patient confidentiality). Citing specific textual evidence to support reasoning, participate in a verbal or written debate as related to behavioral and community health by developing claim(s) and counterclaim(s).

9) Research the Americans with Disabilities Act of 1990 (ADA), the American Hospital Association's "Patient Bill of Rights," the Omnibus Budget Reconciliation Act of 1990 (OBRA), and the Patient Self-Determination Act of 1990 (PSDA). Explain to a patient/client or classmate the rights of a patient or client, depending on differences in age, mental status, and competency. Cite the above documents in clear, coherent language to describe the relationships among concepts of patient rights.

10) Summarize the Health Insurance Portability and Accountability Act (HIPAA) within the context of mental health and community health treatment, and relate key provisions of the act to patient rights. Develop a brochure or factsheet, which can be shared with minors, adults, and non-English speaking individuals that defines key words and phrases, illustrates key points, and cites specific textual evidence from the act.

11) Construct an argumentative essay contrasting patient/client rights with a community's right to know about dangerous mental health clients or persons with communicable diseases, citing evidence from legislation and news articles to support claim(s) and counterclaim(s).

12) Research sections of the Patient Protection and Affordable Care Act of 2010 (ADA) related to community health and preventive medicine, synthesizing a variety of professional, journalistic, and medical perspectives on the ramifications of the act for individuals and communities. Select one of the preventive guidelines listed in the prevention/wellness section of the law and develop a plan to implement it for a given community. For example, to increase access to fresh produce, a plan may include a gap analysis, list of stakeholders, budget, and timeline for activities using domain-specific language.

13) Research Crisis Standards of Care and the impact on healthcare delivery. Synthesize concepts from these standards to create an oral or written argument for temporarily adjusting standard healthcare delivery practices that favors the needs of the community over the needs of individuals.

Social Perception and Prevalence of Diseases and Disorders

14) Assess the costs associated with providing long-term care to patients/clients with mental or chronic conditions. Compare and contrast these costs against alternative treatment methods such as institutionalization or preventative care. Incorporate evidence from the Long-Term Care section of the Patient Protection and Affordable Care Act of 2010 (ADA), The Mental Health Parity and Addiction Equity Act of 2008, TennCare guidelines, and rates quoted by competing insurance companies.

15) Evaluate health data from a range of sources (such as the World Health Organization, Centers for Disease Control and Prevention) to determine the social perception and prevalence of chronic, mental, and environmental health diseases and disorders. Research should incorporate relevant health indicators, clinical trials, risk factors, and clinical perspectives using domain-specific language. Prepare a graphic illustration to summarize findings in clear, coherent language, citing specific textual evidence.

16) Identify at risk population groups that need customized messaging and healthcare delivery during emergencies due to disease specific needs, medical device needs, limited access to care/support, or language barriers. Develop an informative/explanatory text discussing ~~the~~ the needs of one specific group, citing local incidence information as compared to state, region, and national data. Include existing policies or plans that target the needs of the group, and healthcare interventions available.

17) Investigate stigmas surrounding mental health and illness, obesity, smoking, drug abuse, and other public health issues in the community. Develop a public service announcement (PSA) or presentation to build awareness and understanding of the disease/disorder, addressing common misconceptions, outlining signs and symptoms, and providing strategies for management or containment.

18)

Mental Health Issues

18) Distinguish among the different domains of psychology, including but not limited to biological, clinical, cognitive, developmental, educational, experimental, and industrial-organizational domains. Articulate in a verbal, written, or digital format the key features, methodologies, basic assumptions, applications, and strengths and weakness of each domain.

19) Differentiate the signs and symptoms of common psychobiological disorders, including anxiety disorders, depressive disorders, bipolar disorders, eating disorders, cognitive disorders, additive disorders, personality disorders, sleep disorders, and factitious and dissociative disorders. Investigate available treatments and scientific research regarding the management of different psychobiological disorders. Research at least one historical and one modern case study and discuss the implications for the health of communities citing specific textual evidence from the case studies.

20) Research trauma interventions for dealing with crisis and disaster, suicide, anger, aggression and violence, and physical, emotional, and sexual abuse. Identify major legislation that has been recently changed or developed in response to the prevalence of trauma in society and hypothesize outcomes of legislation. Test hypotheses using case studies.

Treatment and Therapeutic Communication

21) Examine the various treatment methodologies prescribed for mental and chronic health issues and explain why certain diseases and disorders call for different types of treatment, including but not limited to pharmacological regimens, changes in diet and exercise, counseling, and different types of therapy.

22) Research the mitigation of disease severity through implementation of different types of interventions including Medical Countermeasures (antibiotics, vaccines) and Non-Pharmaceutical Interventions (community mitigation steps). Develop a detailed treatment plan with goals and objectives, Medical Countermeasures, and Non-Pharmaceutical Interventions for one of the mental conditions and one of the health issues studied in this course. Cite specific textual evidence to defend elements of plan.)

23) Research and apply concepts of therapeutic communication in a mock scenario role-play surrounding a psychobiological or traumatic situation.

24) Research, identify, and define the steps involved in psychiatric therapeutic holds and the skills necessary to apply Crisis Prevention Intervention techniques when dealing with someone in a mental health crisis using accurate medical terminology. Role-play these skills in a classroom for patients/clients experiencing one of the diseases or disorders identified in the course.

25) Synthesize the knowledge acquired in this course to draw connections between mental illnesses/disorders with broader issues affecting the health of communities. In a sustained research project, examine how families and neighborhoods can change as the result of chronic or acute incidents of trauma, such as generational poverty or acts of terrorism, and discuss the implications for community structure, family dynamics, and financial stability when mental health issues are prevalent within a community. Develop, edit, and revise a detailed plan to alleviate the effects of one such issue on a community, incorporating written, oral, and digital components to support the presentation of the plan.

26)

26) Analyze emergency communication using resources such as the Centers for Disease Control's Crisis Emergency Risk Communication plan. Create a mock press release or script using recommendations for successful emergency communication related to a recent disaster or crisis.
27)

The following artifacts will reside in the student's portfolio:

a. Standard 3 Graphic illustration or informational artifact comparing and contrasting health of communities with different demographic data.
b. Standard 10 Argumentative essay over a community's right to know about dangerous persons
c. Standard 15 Graphic illustration to summarize social perception of chronic mental and environmental health diseases and disorders
d. Standard 25 Detailed plan to alleviate the effects of community issues

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.

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Cardiovascular Services

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, Sloan.Hudson@tn.gov
Course Code(s):	6131
Prerequisite(s):	*Diagnostic Medicine* (5994)
Credit:	1
Grade Level:	11-12
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 *Diagnostic Services* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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:	Certified EKG Technician (CET) after graduation with completion of appropriate Clinical Internship.
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

Cardiovascular Services is an applied course in the *Diagnostic Services* program of study intended to prepare students with an understanding of the roles and responsibilities of those seeking employment in the cardiovascular field of healthcare. Upon completion of this course, proficient students will have a thorough understanding of the anatomy and physiology of the heart and be knowledgeable about both invasive and non-invasive cardiovascular procedures. Students will incorporate communication, goal setting, and information collection skills to be successful in the

workplace. Students who complete a *Clinical Internship* in addition to this course will be eligible upon graduation to sit for the Certified EKG Technician (CET) Exam ; relevant standards are indicated below with (CET).

Program of Study Application

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

Course Standards

Career Planning

1) Research careers within cardiovascular and pulmonary sciences and explain in a graphic illustration or informational artifact** the educational/credentialing requirements, scope of practice, as well as state and national compliance guidelines required of cardiovascular health care professionals.

2) Analyze the range of skills, competencies, and professional traits (such as leadership, time management, and ethical responsibility) required for careers in cardiovascular or pulmonary sciences. Using real-time and projected labor market data, identify local and national employment opportunities and determine areas of growth. Complete a job application, resume, and cover letter for one of the jobs located in the search.

Legalities and Ethical Issues

3) Summarize the Health Insurance Portability and Accountability Act (HIPAA) and explain procedure and guidelines concerning receiving and verifying physician orders, identifying the patient/client, and obtaining patient's consent to perform procedures. Identify the procedures that require written permission and those that require only verbal consent. Role-play these procedures in a classroom and/or clinical setting. Explain, using domain-specific language and accurate definitions of legal concepts, how the content of these legal documents impacts patients' rights for all aspects of care.

4) Compare and contrast the costs of preventive medical procedures versus diagnostic medical procedures related to the cardiovascular and pulmonary system. Use information found in news media, professional journals, and trade magazines to help determine if preventive procedures would increase or decrease health care cost as it relates to heart health.

Anatomy and Physiology

5) Relate the gross and cellular structure and function of the cardiovascular and autonomic systems to the following areas.
    a. Electrophysiology of the heart, including definitions of waveforms
    b. Control mechanisms and cardiac cycle with normal values (CET)

c. Size, location, layers, chambers, valves, pressures, and blood flow of heart (CET)
d. Relationship of cardiac output to heart rate and stroke volume (CET)

6) Interpret the pathophysiology related to normal and abnormal heart sounds and breath sounds. Evaluate simulated heart sounds to identify normal heart sounds, normal lung sounds, murmurs, rubs, extra heart sounds, wheezes, or other abnormal breath sounds via a mannequin or digital substitute.

7) Choose a disease, disorder, or emergency situation related to the cardiac, circulatory, pulmonary, or autonomic systems drawn from news media, textbooks, professional journals, or trade magazines. Develop an oral or visual presentation interpreting the scope of the disease/disorder/emergency, basic pathophysiology, affected populations, pharmacological interventions, signs and symptoms, risk factors, existing practices that target the disease/disorder, and interventions available. (

8) Formulate a written and digital health education project to inform an adult and/or geriatric audience about the negative effects of complications such as electrolyte imbalance, obesity, hypertension, diabetes, or renal impairment on the heart, circulatory, and pulmonary systems.

Diagnostics and Procedures

9) Perform the following duties and tasks related to pre-procedural activity: (CET)
    a. Perform universal precautions (e.g., hand washing, Personal Protective Equipment)
    b. Transport the patient
    c. Prepare the patient (shaving, cleaning skin, etc., should be simulated on mannequin)
    d. Collect patient information
    e. Enter information into Electrocardiogram (ECG) machine
    f. Identify proper landmarks on mannequin
    g. Maintain patient safety throughout the pre-procedural process
    h. Vital sign assessment
    i. Pulse oximeter

10) Differentiate between bipolar, unipolar, and precordial leads. Relate their importance in performing an ECG test correctly. Include the concept of Einthoven's Triangle in the explanation.

11) Compare and contrast the single- and three-channel ECG machines. Demonstrate the ability to define the purpose of the equipment, and explain indications for use, expected outcomes, advantages, disadvantages, and limitations of each.

12) Summarize the history of the ECG machine including aspects of industry standardization and advances in technology. Use a timeline or other graphic to illustrate the major developments.

13) Understand principles of and successfully perform skills related to performing a resting ECG (12 lead, 15 lead, etc.), incorporating rubrics from textbooks or clinical standards of practice for the following: (CET)
    a. Gather supplies and equipment
    b. Educate patient on procedure expectations
    c. Apply electrodes and leads to patient
    d. Confirm equipment
    e. Perform standard ECG

14) Obtain ECG tracing strips and perform rhythm analysis, including the following: (CET)
    a. Analyze ECG tracing for presence of P, Q, R, S, and T waves, heart rate calculation, and axis determination and implications.
    b. Identify ECG tracings indicative of sinus, junctional, atrial, ventricular, atrioventricular, hypertrophy, chamber enlargement, and pacemaker rhythms. Include intraventricular conduction and myocardial perfusion tracings.
    c. Identify electrical interference and somatic tremor on an ECG tracing, as well as the steps to take to alleviate or prevent such artifacts.
    d. Correlate ECG finding (wavelengths, segments, intervals, etc.) with cardiac function.
    e. Correlate ECG morphology with anatomy and physiology.

15) Role-play explanation of the cardiovascular reflex test in a mock clinical setting. Discuss at minimum the following: overview or explanation of the test, the associated risks, patient expectations before, during, and after the test, and next steps for abnormal results.

16) Summarize in a written, oral, or digital presentation the scope of a typical electrocardiograph test. Draw evidence from textbooks, professional journals, and online healthcare sites (such as Cleveland Clinic, MedLine Plus, and Mayo Clinic) to produce an overview or explanation of the test, the associated risks, and patient expectations before, during, and after testing.

17) Construct a chart or a graph that differentiates between the various types of nuclear imaging and the radiographic cardiovascular and pulmonary test. Include within this graph or chart an overview or explanation of the test, the mechanics of the procedure, the associated risks, and patient expectations before, during and after testing. Obtain information from textbooks, professional journals, and online healthcare sites (such as Cleveland Clinic, MedLine Plus, and Mayo Clinic).

18) Research the types of invasive diagnostic procedures. Examples might include cardiac catheterization, carotid angiography, electrophysiological studies, intravascular ultrasound, or myocardial biopsy. Develop a patient education packet utilizing medical and non-medical terminology, including the following information: overview or explanation of the procedure, the associated risks, patient expectations before, during, and after the test, and next steps for abnormal results.

19) Differentiate between the various types of cardiovascular ultrasound procedures. Discuss what an ultrasound can identify that other procedures might not, in addition to the risk considerations, reliability of results, and proper interpretation of an ultrasound image. Role-

play teaching another classmate about the type of procedure that has been ordered by the physician.

Invasive Treatment Procedures

20) Research treatments involving cardiac, vascular, and thoracic surgery for cardiovascular and pulmonary diseases and/or disorders. Analyze in written, oral, or digital format the implications for each, identifying trends and/or advances in available treatments over the past fifty years.

21) Identify characteristics and/or signs and symptoms of patients experiencing cardiac and/or pulmonary complications in physician offices or emergency rooms. Create a plan of action for assessment, diagnosis, and treatment of the patient.

Health Statistics

22) The Centers for Disease Control (CDC) suggests that the number one leading cause of deaths in the United States is heart disease, according to 2012 data. Complete a short research project to identify on the local level the 1) incidence of heart disease and disorders, 2) number of associated deaths, 3) preventive measures currently being taken, and 4) available educational programs and initiatives. Document findings in an oral, digital, or visual presentation. Information can be found from organizations such as the CDC, state and county health department websites, and interviews with public health and emergency professionals.

23) Research the Healthy People Initiative sponsored by the U.S. Food and Drug Administration (FDA). Identify the goals and objectives, established baselines, and strategies to facilitate progress toward the initiative's goals. Then, develop a marketing campaign to inform a variety of audiences about the initiative. The campaign can include a public service announcement, community awareness project, health education project, and/or public health education project shared with local schools, leaders in the community, and the general public.

The following artifacts will reside in the student's portfolio:

a. Standard 8 Health education artifact for adult or geriatric audience
b. b. Standard 9 Skills checklist
c. c. Standard 13 Skills checklist
d. Standard 21 Plan of action for assessment, diagnosis, and treatment of patient experiencing cardiac or pulmonary complications

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.

Additional Standards Notes

**Informational artifacts include, but are not limited to, brochures, posters, fact sheets, narratives, essays, and presentations. Graphic illustrations include, but are not limited to, charts, rubrics, drawings, and models.

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Clinical Internship

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov
Course Code(s):	5993
Prerequisite(s):	Third level Health Science courses in the Diagnostic Services, Emergency Services, Therapeutic Services, or Exercise Physiology programs of study
Credit:	1-4
Grade Level:	11-12; *Students must be at least 16 years old to be enrolled in this course.*
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 final course in the *Therapeutic Services* program of study and can also be a choice for the final course in the Diagnostic Services, Emergency Services, or Exercise Physiology programs of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov
Coordinating Work-Based Learning:	Teachers who hold an active WBL certificate may offer placement for credit when the requirements of the state board's WBL Framework and the Department's WBL Policy Guide are met. For information, visit https://tn.gov/education/topic/work-based-learning.
Available Student Industry Certifications:	Refer to http://www.tn.gov/education/cte/HealthScience.shtml for more information.
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:	Teachers must attend WBL training and earn the WBL Certificate provided by the Tennessee Department of Education in addition to a 4 hour Clinical Internship training.
Teacher Resources:	https://tn.gov/education/article/cte-cluster-health-science

Course Description

Clinical Internship is a capstone course and work-based learning experience designed to provide students with real-world application of skills and knowledge obtained in a pre-requisite Health Science course. Upon completion of this course, proficient students will be able to pursue

certification in the pre-requisite course of *Cardiovascular Services, Exercise Physiology, Medical Therapeutics* or *Pharmacological Science* once they have graduated and reached 18 years of age. Prior to beginning work at a clinical site, students must be certified in Basic Life Support (BLS) Cardiopulmonary Resuscitation (CPR), and deemed competent in basic first aid, body mechanics, Standard Precaution guidelines, and confidentiality.

Note: Student to teacher ratio for this course is 15:1 in a clinical setting.

Work-Based Learning Framework

Clinical experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. The TDOE 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. Additionally, 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.

Program of Study Application

This is the final course in the , and *Therapeutic Services* programs of study (POS) and can also be a choice for the final course in the Diagnostic Services, Emergency Services, or Exercise Physiology 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.

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:

Course Standards

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

2) Accurately read, interpret, and demonstrate adherence to safety guidelines appropriate for the roles and responsibilities of an employee of a healthcare facility. Listen to safety instructions and be able to explain why certain rules apply. Demonstrate safety techniques and follow all applicable facility policies and procedures (such as Standard Precautions) related to the clinical placement. Based on placement, document completion of training topics on the appropriate work-based learning (WBL) and work site forms.

3) Observe and analyze organizational culture and practices. For example, analyze how to interact with supervisors, clients, and co-workers, and how to recognize and address health, safety, and sustainability issues. Seek information from supervisors and other employees about appropriate methods of pursuing employment in the industry, and determine what knowledge, skills, and educational credentials are required.

4) Apply learning experiences from clinical placement to review and update an education and career pathways plan based on the knowledge and feedback acquired. Proactively identify areas of strength and opportunities for professional growth, encourage and act on feedback from peers, supervisors, and customers, and seek and use resources and support to improve skills.

5) Identify and ask significant questions to solve student-identified challenges or areas of improvement in the workplace. Use inductive and deductive reasoning methods to recognize faulty reasoning, and to understand problems and alternative solutions.

6) Analyze patient quality assurance methods used by clinical sites. Solve problems using systems thinking, e.g., by understanding problems in terms of complex processes and environments. Identify key components and relationships that enable, influence, and produce outcomes.

7) Review the Health Insurance Portability and Accountability Act (HIPAA) concepts and investigate methods to assure confidentiality within the healthcare setting. Employ techniques to ensure the client/patient's rights are maintained.

8) Demonstrate integrity and ethical behavior when engaging in all worksite activities, including the use of tools and materials, documentation of hours, handling of money, billing of clients, sharing of information, and completion of all personnel-related forms. Identify an actual or potential work site ethical issue and construct an argumentative essay outlining how to the issue should be resolved, including claims and counterclaims with relevant data to support conclusions.

9) Articulate ideas effectively in written personal communications with supervisors, coworkers, and customers using appropriate medical terminology and revising as necessary. Verbally articulate ideas effectively in interpersonal communications with supervisors, coworkers, and customers. Develop and deliver messages effectively in oral presentations. Demonstrate effective listening skills, attending to the meaning and intention of communication, and accurately paraphrasing what has been heard. Communicate effectively with individuals of diverse backgrounds who may also speak languages other than English, using foreign language skills and facility resources as appropriate.

10) Work effectively as a member of a team and address conflict with sensitivity and respect for diverse points of view. Demonstrate understanding of one's own impact and build on different perspectives to strengthen joint efforts. Demonstrate leadership where appropriate to collaborate on workplace tasks. Effectively employ meeting management strategies, such as agenda setting, time keeping, and meeting facilitation strategies, and list action items to identify and schedule next steps.
11) Access information efficiently, using sources appropriate to task, purpose, and audience. Distinguish between credible and non-credible sources, including the difference between advertising and legitimate research. Evaluate information for usefulness, bias, and accuracy, and question information that may not originate from credible sources. Demonstrate the ability to organize and manage information effectively and efficiently. Demonstrate ethical and legal use of information, including adherence to all rules and regulations related to sharing of protected information.

12) Use appropriate technology in the classroom or clinical setting for information search and retrieval, synchronous and asynchronous communications, multimedia presentations, document production, quantitative and qualitative analysis, and information management. Use social networking and online collaboration tools such as shared documents and web conferencing to create, integrate, and manage information in group projects.

13) Access and manage online communication and information, such as electronic medical records, using multiple digital devices such as laptop computers, tablets, smart phones, etc. Demonstrate adherence to all rules and regulations related to the use of electronic tools and the Internet, including appropriate protection of passcodes and adherence to all security protocols.

14) Complete tasks as directed with supervision, knowing when to ask questions or request guidance. Exhibit resourcefulness and initiative in taking on new tasks and solving problems independently as appropriate to the workplace setting. Demonstrate how to learn and exhibit personal agency in identifying and achieving instrumental and ultimate learning objectives. Demonstrate curiosity to learn more about the tasks, workplace, and/or industry. Explore deeper content independently and request opportunities for professional development. Demonstrate self-efficacy and confidence in one's ability to succeed in specific situations.

15) Exhibit professionalism and respect when interacting with coworkers, supervisors, and customers. Demonstrate reliability and responsibility in attendance and in following through on assigned tasks, and provide timely communication with supervisor(s) when circumstances change. Understand and adhere to appropriate workplace non-discrimination standards on the basis of sex, race, color, age, national origin, religion, disability, marital status, sexual orientation, gender identity, pregnancy, veteran status, or any characteristic of a person or group unrelated to the workplace. Respect cultural differences and work effectively with people from diverse social and cultural backgrounds.

16) Exhibit flexibility by (a) adapting to varied roles, jobs responsibilities, schedules and contexts; (b) working effectively in a climate of ambiguity and changing priorities; and (c) dealing positively with praise, setbacks, and constructive criticism.

17) Manage time and projects effectively by (a) setting goals; (b) developing and using a system for prioritizing, planning and managing daily work; (c) persisting in the face of challenges; and (d) seeking assistance and adjusting plans to adapt to changing circumstances. Demonstrate attention to detail and accuracy appropriate to the task. Demonstrate accountability to supervisors, coworkers, and customers by delivering work to agreed-upon standards; accepting constructive criticism; completing designated projects on time; and exhibiting pride in workmanship.

18) Update the Health Science student portfolio that illustrates mastery of skills and knowledge outlined in the Health Science pre-requisite course standards and applied in the *Clinical Internship* experience. Compile artifacts and similar work products reflecting thoughtful assessment and evaluation of the progression against goals in the personal growth plan. Artifacts may include:
    - Career and professional development plan
    - Resume
    - Documentation of clinical hours at each site
    - List of responsibilities undertaken throughout the placement
    - Examples of materials developed and used throughout the placement
    - Periodic journal entries reflecting on tasks and activities
    - Supervisor evaluations and observations
    - Approved WBL forms
    - WBL coordinator evaluations and observations

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.
- TN WBL: Tennessee Work-Based Learning Standards

Department of Education | College, Career and Technical Education

Dental Science

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov
Course Code(s):	6134
Prerequisite(s):	Health Science (5998)
Credit:	1
Grade Level:	11-12
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 second or third course in the *Therapeutic Clinical Services* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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

Dental Science is an applied course in the *Therapeutic Clinical Services* program of study intended to prepare students with an understanding of the roles and responsibilities of the dental health care professional within the application of dental care. Upon completion of this course, proficient students will be able to differentiate the many careers in dentistry, assess, monitor, evaluate, and report on the dental health of patients/clients and relate this information to overall health, apply appropriate dental terminology, and perform clinical supportive skills. In addition, students will

continue to build a health science career portfolio that will follow them throughout their chosen program of study.

Program of Study Application

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

Implementation options are as follows:

- Option 1: Dental Services taught as a Level Two Course
- Option 2: Dental Services taught as a Level Three Course

Core standards are required for both options above.
Core standards: 1,2,3,4,5,6,7,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25

Additional standards:
Option 1: 8,9
Option 2: 10

Course Standards

Careers in Dental Science

1) Gather relevant information from textbooks and online searches concerning the history of dentistry, with emphasis on changes in care and prevention. Develop a visual, oral, and/or written presentation of the information that includes graphs, technology, and supporting evidence.

2) Research careers within the dental sciences and explain in a graphic illustration or informational artifact** the educational/credentialing requirements, as well as state and national compliance guidelines required of health care professionals. Include other branches of dentistry such as Orthodontics and Forensic Odontology.

3) Analyze the range of skills, competencies, and professional traits (such as leadership, time management, and ethical responsibility) required for careers in dental sciences. Using real-time and projected labor market data, identify local and national employment opportunities and determine areas of growth. Complete a job application, resume, and cover letter for one of the jobs located in the search.

Legalities and Ethical Issues

4) Choose an ethical issue affecting dental health professionals, such as leaving fluoride out of drinking water, the practice of dental tourism, or the affordability of dental care among vulnerable populations like the elderly. Craft arguments focused on the issue, including the

development of claim(s) and counterclaim(s) justified with data and evidence. Discuss how this issue will affect or has affected the dental community.

5) Examine the legal responsibilities of dental professionals when treating patients/clients with diseases or disorders related to infections transmitted sexually or through drug use, domestic violence, neglect, and child abuse. Construct an informational article intended to raise awareness among dental professionals. Incorporate the correct dental terminology. (

6) Compare and contrast the dental care and prevention customs and cultural beliefs of various populations. Examples might include soaking a cotton ball in turpentine for tooth pain relief or using bleach to whiten teeth. Develop an informative paper intended to reconcile such beliefs with advances in dental science.

7) Compare and contrast the average cost of private dental insurance plans versus government-issued plans. Analyze the cost for both pediatric and adult patients for treatments such as a routine dental visit, a visit that requires fillings, and a visit that requires tooth extraction. Role-play therapeutic communication utilizing correct dental terminology to explain the cost with a classmate and/or family member.

Anatomy and Physiology

8) Outline the gross and cellular structure and function of head and neck anatomy, including bones, muscles, sinuses, salivary glands, nerves, and blood vessels.

9) Choose a research topic related to embryonic development of the head, oral cavity, and teeth. Gather relevant information from print and digital medical and/or dental resources such as the American Journal of Dentistry. Complete a short research project, including editing work after peer-review, culminating in a scientific report that examines the environmental and genetic factors affecting embryonic development, using dental and medical terminology.

10) Choose a research topic related to embryonic development of the head, oral cavity, and teeth. Gather relevant information from print and digital medical and/or dental resources such as the American Journal of Dentistry. Complete a short research project, including editing work after peer-review, culminating in a scientific report that examines the environmental and genetic factors affecting embryonic development, differentiating between normal and abnormal findings using dental and medical terminology.

11) Formulate a written and digital health education project to inform an audience about the parts and functions of teeth. Include the effects of nutrition on tooth development and continuous good health and dental prevention care.

12) Determine the meaning of the universal dental numbering system's name; then, number the teeth located in the human dentition on a model or chart. Explain the difference in each of the numbering systems as presented in text by paraphrasing them in simpler yet accurate terms.

13) Choose a dental health disease or disorder. Examples might include dental caries in babies who drink juices from a bottle or oral cancer in smokeless tobacco users. Develop a professional report discussing the scope of the disease/disorder, affected and vulnerable populations, local incidence information as compared to state, region, and national data, existing practices that target the disease/disorder, and interventions available.

Microbiology, Infection Control, and Disease Prevention

14) Define the terms pathogenic and non-pathogenic microorganisms, and explain how each can cause a disease or disorder. Outline modes of transmission and prevention of the spread of these organisms.

15) Investigate oral manifestations related to pathogenic and non-pathogenic organisms. Develop an informational text to share with other health care professionals that outlines concepts of disinfection, OSHA standards, and use of Personal Protective Equipment (PPE) to prevent spreading of disease to dental staff.

16) Differentiate among toxic, corrosive, ignitable, and reactive hazardous wastes in dental facilities. Discuss the role of the Material Safety Data Sheets (MSDS) in identifying hazards associated with specific chemicals or chemical compounds by evaluating MSDS information. Develop a chart describing the characteristics of the most common chemicals and compounds found in the dental office.

Dental Examinations

17) Understand principles of and successfully perform skills related to Dental Assisting, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Operatory preparation for treatment and receiving of the patient
    b. Positioning of the patient and the clinician
    c. Radiographic process and patient/operator protection
    d. Oral prophylaxis

18) Identify basic dental office instrumentation and explain the purpose of each item. Role-play a scenario based in a dental office that uses at least five instruments accurately, including patient assessment, procedure for operatory preparation of the patient room, receiving and seating the patient, and providing at least one treatment.

19) Develop a patient health education plan including preventive measures, signs and symptoms of exacerbation of disease/disorder/injury, pharmacological needs, and support systems. Cite at least three medical or dental resources.

20) Summarize the signs and symptoms of impending or developing dental emergencies, citing environmental, medical, and hygienic factors that may contribute to the condition. Develop an office emergency policy and procedure that outlines the responsibilities and actions of each healthcare worker.

21) Complete training in American Heart Association or American Red Cross adult and child Cardiopulmonary Resuscitation (CRP). Students should be certified in either Heartsaver or BLS for Healthcare Provider CPR prior to clinical rotation. (

Dental Procedures and Specialties

22) Follow medical procedures precisely when performing patient/client skills in a classroom or clinical setting related to the role of the Dental Assistant, including:
    e. Complete health/dental history
    f. Perform vital signs
    g. Coronal polishing
    h. Fluoride treatment
    i. Preparation of restorative materials
    j. Preparing and alginate impression
    k. Cleaning and sterilizing equipment
    l. Patient and/or community education on oral health
    m. Document findings and procedure in a recognized format for a dental facility using correct dental terminology

23) Incorporate medical/dental language in the development of a detailed dental treatment plan for a case study or live patient, describing goals and objectives, medications, and/or alternative treatment and coping mechanisms, and incorporating applicable assessment information following interview/assessment of a patient or family member.

24) Research emerging dental technologies related to dental and oral health, including but not limited to procedures, equipment, and diagnostics tools. Synthesize information into a coherent understanding and develop a written or verbal presentation. Draw evidence from informational text to support research.

25) Research a dental specialty procedure (such as oral surgery, prosthetic dentistry, or gingivoplasty), then develop a written or verbal explanation of the procedure using correct dental terminology. Include at minimum the purpose of the procedure, average cost, documented benefits and potential side effects, and profile of the dental professional that performs the procedure.

The following will reside in the student's portfolio:

a. Standard 8 Research artifact
b. Standard 9 Health education project
c. Standard 19 CPR certificate
d. Standard 20 Skills check lists

Standards Alignment Notes

*References to other standards include:

- American Red Cross BLS CPR Guidelines. http://www.redcross.org/.
- American Heart Association BLS Guidelines. http://www.heart.org/HEARTORG/#.
- 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.

Additional Notes

**Informational artifacts include, but are not limited to, brochures, posters, fact sheets, narratives, essays, and presentations. Graphic illustrations include, but are not limited to, charts, graphs, rubrics, drawings, and images.

TN Department of Education | College, Career and Technical Education

Emergency Medical Services

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, Sloan.Hudson@tn.gov
Course Code(s):	5995
Prerequisite(s):	Health Science (5998), Medical Therapeutics (5999), and Anatomy & Physiology (3251 or 5991)
Credit:	1
Grade Level:	11-12
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 *Emergency Services* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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:	Emergency Medical Responder (EMR), if teacher is an authorized EMS Instructor at the EMR level for EMR 60 hours of instruction; if not authorized, then the program must have an authorized instructor to coordinate with the local office of EMS and provide required training.*
Dual Credit or Dual Enrollment Opportunities:	There are dual credit/dual enrollment opportunities available for this course. Reach out to a local postsecondary institution to establish an articulation agreement.
Teacher Endorsement(s):	577, 720, 751
Required Teacher Certifications/Training:	If teachers are teaching this course as First Responder certification, then they must have 8 hours of training provided by Department of Education.
Teacher Resources:	https://tn.gov/education/article/cte-cluster-health-science

*National Emergency Medical Services Educational Standards should be incorporated into instruction.

Course Description

Emergency Medical Services is a capstone course in the Emergency Medical Services program of study and is designed to prepare students to pursue careers in the fields of emergency medicine. Upon

completion of this course, proficient students will be able to: identify careers and features of the EMS system; define the importance of workforce safety and wellness; maintain legal and ethical guidelines; correlate anatomy and physiology concepts to the patient with a medical or traumatic injury; and perform EMS skills with a high level of proficiency. If taught with an EMT instructor, students will be given the opportunity to sit for the National Emergency Medical Responder certification. In addition, students will continue to add artifacts to a portfolio, which they will continue to build throughout the program of study.

Each standard presumes that the expected knowledge and behaviors are within the scope of practice for that EMS licensure level, as defined by the National EMS Scope of Practice Model. Each competency applies to patients of all ages, unless a specific age group is identified. The standards also presume there is a progression in practice from the Emergency Medical Responder level to the Paramedic level. The descriptors used to illustrate the increasing complexity of knowledge and behaviors through the progression of licensure levels originate, in part, from the National EMS Scope of Practice Model.

Note: If this course is taught for EMR certification, the program must be approved by the TN Department of Health, Office of Emergency Medical Services. ***Students enrolled in this course must be 17 years old before the course concludes.***

Program of Study Application

This is the capstone course in the *Emergency Services* program 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

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:

Course Standards

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

EMS Systems and Operations

2) Compare and contrast the types of Emergency Medical Services (EMS) systems and operations, including ground, water, and air services. For each type of service, discuss how the public accesses EMS systems, the advantages and disadvantages, special considerations, and safety issues. Discuss the roles played by the state departments of EMS and the National Highway Traffic Safety Administration.

3) Research the history of mapping, geographic information systems (GIS), global positioning systems (GPS), remote sensing, and other geospatial technologies. Examine how these technologies have evolved in the area of EMS, concentrating on their recent migration towards online platforms, and evaluate their influence on present-day society, citing specific textual evidence from news articles and scholarly journals.

4) Differentiate between the careers in various types of EMS. Research and document educational requirements as well as state and national guidelines governing practicing professionals (such as licensing, initial certifications, re-certifications, training, and compliance). Identify personal and physical characteristics required of an EMS professional in a career portfolio.

5) Using texts from EMS professional journals or websites, evaluate concepts of quality improvement to provide safe, high quality, and appropriate patient care and the impact of research on EMR care. Cite examples of research that have been incorporated into improving emergency care for patients and/or victims of accidents/injuries.

6) Outline the risks and responsibilities facing the emergency response team during ambulance operations. Address at minimum the following: apparatus and equipment readiness; pre-arrival considerations, especially for high-risk situations; scene safety of personnel and patient(s); traffic; 360 degree assessments; and how to leave a scene.

6) Research and summarize the concepts surrounding vehicle extrication, including safe vehicle extrication, tools used, and patient considerations. Include in the summary common guidelines related to the following: roles of EMS; safety of staff, patients, and situation; vehicle stabilization; unique hazards; additional resources needed; and extrication considerations.

Safety and Wellness

7) Develop a reference toolkit of physical, mental, and personal requirements for personnel in emergency and public safety services. Document what the “profile of proficiency” looks like for professionals in these fields—for example, what scores are needed on a physical, mental, or emotional fitness test, and what guidelines must be followed for personal disease/disorder control.

8) Investigate stress management procedures for professionals in the emergency response and public service sectors. Identify stressors and stress-inducing situations through

interviews with professionals in the field. Collaborate with a team to identify techniques and strategies for managing and alleviating stress. Communicate recommendations in the form of a toolkit, brochure, or fact sheet to support the use of these strategies, citing evidence drawn from the investigation.

9) Compare and contrast in a digital or written artifact the difference in Standard Precautions, personal protective clothing, and personal protective equipment (PPE) in EMS from other healthcare settings. Outline response steps if exposed to hazardous or bloodborne pathogens. Demonstrate donning and doffing of all PPE and the care of soiled equipment or vehicles.

10) Interpret scene management and safety standards and/or protocols by writing a scenario for each of the following situations: (a) traffic or highway incidents, (b) violent encounters, (c) crowds, (d) nature of illness or mechanisms of injury, (e) number of patients and/or victims, and (f) personnel injury prevention. Identify the appropriate responses from EMS professionals and any additional resources that would be involved.

11) Review National Incident Management System (NIMS) compliance courses from the *Emergency Preparedness* course, IS-700, IS-800, and ICS 100, in addition to completion of ICS 200 (Single Resources and Initial Action Incidents) and IS-5A (Introduction to Hazardous Materials). Role play scenarios that involve each of these situations and identify roles and responsibilities of the EMR and other team members.

EMS and Therapeutic Communications

12) Identify situations and locate agencies an Emergency Medical Responder (EMR) would call for additional assistance upon arrival at a scene. Practice scenarios that would require the transfer of care of the patient, incorporating pertinent information such as the patient's condition, history of what happened, care given, etc.

13) Review the concepts of effective therapeutic communication. Examine interview techniques used during therapeutic communication and identify potential hazards of interviewing.

Legal/Ethical Guidelines

14) Interpret the rules, guidelines, and legal ramifications related to incident documentation by EMS staff. Complete a pre-hospital care report utilizing appropriate medical terminology and the acronyms SAMPLE, DCAP-BTLS, and OPQRST

15) Summarize the Health Insurance Portability and Accountability Act (HIPAA). Explain characteristics of consent, confidentiality, advanced directives, living wills, durable power of attorney, and other legal directives governing medical treatment. Using domain-specific language and accurate definitions of legal concepts, explain how the content of these legal documents impacts patients' rights for all aspects of care.

16) Examine real-world situations that involve ethical dilemmas and the application of correct professional conduct as highlighted in recent news articles. Craft an argumentative essay

making a claim about the importance of ethics and professional standards for persons working in Emergency Medical Services occupations. Cite examples from case studies to argue for the relevance of professional codes of conduct within scope of practice and how important it is to follow those guidelines.

17) Research legal ramifications and responsibilities of the EMR associated with evidence preservation and mandatory reporting requirements within the EMS system. Identify the process for reporting specific situations to the appropriate authorities, such as child abuse and/or crimes.

Patient Assessment/Evaluation and Treatment

18) Accurately perform the components of patient assessment to identify and manage immediate life threatening illnesses and injuries within the scope of practice of the EMR for pediatric, adult, and geriatric patients, utilizing rubrics from textbooks, National HOSA guidelines, or clinical standards of practice. Include the following areas:
    a. Scene Size-up
    b. Primary Survey or Assessment
    c. History Taking
    d. Secondary Assessment
    e. Vital Signs
    f. Reassessment

19) Identify and perform skills to manage life threatening illnesses based on assessment findings of a pediatric, adult, and geriatric patient with medical emergencies identifying anatomical structures involved. Utilize rubrics from textbooks, National HOSA guidelines, or clinical standards of practice in the following areas:
    a. Altered mental status
    b. Seizures
    c. Stroke
    d. Gastrointestinal bleeding
    e. Anaphylaxis
    f. Infectious diseases
    g. Diabetes
    h. Psychological emergencies
    i. Chest pain
    j. Poisoning
    k. Respiratory distress/Asthma
    l. Vaginal bleeding
    m. Nosebleeds

20) Use assessment information to recognize shock, respiratory failure or arrest, and cardiac arrest based on assessment findings. Demonstrate the ability to manage the situation while awaiting additional emergency response.

21) Successfully perform American Red Cross or American Heart Association adult, child, and infant Basic Life Support (BLS) cardiopulmonary resuscitation (CPR) for Healthcare Providers or BLS for Prehospital Providers.

22) Research and evaluate National Trauma Triage Protocol. Identify and perform skills to manage life threatening injuries based on assessment findings of a patient with trauma emergencies, identifying anatomical structures involved. Utilize rubrics from textbooks, National HOSA guidelines, or clinical standards of practice in the following areas:
    a. Internal and external bleeding
    b. Chest trauma such as sucking chest wound and impaled objects in chest
    c. Abdominal trauma such eviscerations and impaled objects
    d. Orthopedic trauma such as fractures, dislocations, amputations
    e. Soft tissue trauma, burns, dressings, and bandages
    f. Head, facial, neck and spine trauma such as head injuries, scalp injuries, and injuries to spine
    g. Environmental emergencies such as submersion and exposure to heat and cold
    h. Multi-system trauma

23) Recognize and manage life threats based on simple assessment findings for a patient with special needs while awaiting additional emergency response. Utilize rubrics from textbooks, National HOSA guidelines, or clinical standards of practice for the following special patient populations and situations:
    a. Vaginal bleeding in pregnant patients
    b. Signs of labor and delivery
    c. Steps if EMR needs to deliver
    d. Initial care of neonates
    e. Care of mother after delivery
    f. Pediatric respiratory distress, seizures, and Sudden Infant Death Syndrome (SIDS)
    g. Geriatric care
    h. Child, elderly, and domestic partner abuse

24) Discuss developmental and psychological norms for all ages, including pediatric and geriatric patients relating normal vs abnormal psychological response to illness and injury.

Portfolio

Compile and continually update a portfolio of artifacts completed in this course. If pursuing EMR certification or dual enrollment/dual credit hours, document hours spent on activities such as job shadowing or classroom contact with an articulated institution. Upon completion of the course, prepare the portfolio in a professional style to present to appropriate EMS audiences.

The following artifacts will reside in the student's portfolio:

- Career Exploration portfolio
- Skills performance rubrics
- Documentation of job shadowing hours
- Classroom contact hours, if applicable

- Examples of written, oral, or digital presentations
- Short research project documents

Standards Alignment Notes

*References to other standards include:

- National Highway Traffic Safety Administration National Emergency Medical Services Education Standards for Emergency Medical Responders (EMR).
    - All standards are aligned to the National EMS Educational Standards and EMR Instructional Guidelines and approved by the Tennessee Department of Emergency Medical Services.
    - Key for alignment: P-Preparatory, AP-Anatomy and Physiology, MT-Medical terminology, PT-Pathophysiology, LD- Life Span Development, PH-Public Health, Pharm-Pharmacology, AW-Airway Management, Respirations and Artificial Ventilation, A-Assessment, M-Medicine, S-Shock and Resuscitation, T-Trauma, SP-Special Patient Populations, EM-EMS Operations
- 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.
- Federal Emergency Management Agency, National Incident Management Systems Emergency Management Institute curriculum

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Health Science Education

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov
Course Code(s):	5998
Prerequisite(s):	None
Credit:	1
Grade Level:	9
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 first course in all programs of study in the Health Science career cluster except Public Health.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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

Health Science Education is an introductory course designed to prepare students to pursue careers in the fields of biotechnology research, therapeutics, health informatics, diagnostics, and support services. Upon completion of this course, a proficient student will be able to identify careers in these fields, 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. This course will serve as a strong foundation for all of the Health Science programs of study.

Program of Study Application

This is the foundational course in all programs of study in the Health Science career cluster except Public Health. 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.

Course Standards

Career Planning

1) Synthesize information found in news media, professional journals, and trade magazines to create a report and/or presentation on the historical evolution of healthcare in the United States. Use a timeline or other graphic to illustrate major developments beginning with the first medical school through today.

2) Prepare a paper or electronic career profile for at least one occupation in each of the five health science career areas (biotechnology research, therapeutic services, support services, health informatics, and diagnostic services), to be included in the student's health science portfolio. Draw on print and online sources, such as government occupational profiles, and/or interviews with health care professionals to capture at minimum the following:
    a. Job description
    b. Roles and responsibilities
    c. Essential knowledge and skills needed for the career
    d. Programs or paths of study available to reach occupational goals, beginning with high school and proceeding through postsecondary
    e. Required personality traits for the career
    f. Licensure and credentialing requirements
    g. Non-educational job requirements such as physical fitness tests, minimum age, and psychological evaluations
    h. Photographs or digital prints of each career (refer to HOSA Medical Photography guidelines)

3) Drawing evidence from occupational profiles, industry journals, and textbooks, summarize the professional traits (such as leadership, ethical responsibility, and time management) required of healthcare professionals in the twenty-first century.

Healthcare Systems

4) Identify the types and defining features of healthcare systems in the United States. Compare and contrast these systems with those of other countries that have a high efficiency score in healthcare as rated by agencies such as the World Health Organization. Create a report and/or presentation on these comparisons.

5) Compare and contrast the average cost for a procedure such as childbirth, CT scan, and/or heart catheterization in the United States versus the average costs in Canada, Mexico, France, Japan, and/or other countries that have high efficiency scores in healthcare. Translate the information into a table, chart, graph, or other visual representation. Cite specific textual evidence to support the analysis.

6) Differentiate among the methods of payment for healthcare in the United States. Include private and state or federal insurance, health savings accounts, , Veteran's Health Administration, Military Health System/TRICARE, and long-term care.

7) Investigate current innovations in healthcare. Develop pro and con arguments based on information found in news media, professional journals, and trade magazines on how innovations have influenced the healthcare system. Support arguments with evidence presented in oral, visual, or written format.

Body Function and Structure

8) Outline basic concepts of normal structure and function of all body systems, and explain how homeostasis is maintained.

9) Describe how Maslow's Hierarchy of Needs can affect the physical, social, psychological, and behavioral status of a person. Use technology to produce a visual or digital chart or table to explain the information obtained from published or digital text.

10) Generate an informational brochure that explains to community members the biophysical, mental/cognitive, social, and emotional development of patients at various stages of the life cycle: infancy, toddler, school age, adolescence, and adulthood (young, middle, and older). Cite textual evidence to support explanations.

11) Distinguish between the medical definitions of health and wellness, identifying preventive measures and behaviors that promote each. Discuss contemporary controversies to wellness theories, such as but not limited to the debates surrounding electronic medical records, the use of performance-enhancing supplements for athletes, and alternative diets.

12) Develop a patient health education presentation surrounding one of the following wellness issues: optimal health, exercise and fitness, healthy eating and nutrition, sleep, stress or other mental health issues, drug/alcohol/tobacco use and abuse, body decoration, sexually transmitted infections, or cyber safety. Include signs and symptoms of the behavior and/or disease, major physical concerns associated with it, preventive measures, treatments, and support systems. Include at least three resources.

Infection Control/Medical Microbiology

13) Define chain of infection and provide strategies of how to break each part of the chain to prevent infection. Conduct a short research project on the effects of practices of sanitation and disinfection on health and wellness, examining the implications for public health. Synthesize findings in a written, oral, or digital presentation, citing evidence from the investigation.

14) Understand the principles of and successfully perform the following skills to prevent or curtail the spread of pathogenic and non-pathogenic organisms:
    a. Hand washing
    b. Gloving

Foundational Healthcare Skills

15) Review health topics surrounding complementary and alternative medicine such as acupuncture, biofeedback, and herbal treatments. Develop a public service announcement or academic poster presentation intended to inform consumers or health professionals about the specific topic. Include general information, purported benefits, uses in the United States, side effects and/or risks, relevant research, cost, and links to more information. Cite evidence from print and digital resources such as research journals, the National Institute of Health, the Mayo Clinic, and Medline Plus.

16) Understand principles of and successfully perform skills related to Emergency Medicine, incorporating rubrics from the American Heart Association or American Red Cross for the following:
    a. Basic First Aid care of bleeding and wounds
    b. Basic First Aid care for burns
    c. Basic First aid for bone and joint injuries

17) Understand principles of and successfully perform skills related to Dental Assisting, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Identifying teeth using the Federation Dentaire International Numbering System
    b. Demonstrate brushing and flossing techniques

18) Understand principles of and successfully perform skills related to Medical Laboratory Assisting, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Obtain a culture specimen and streak an agar plate (this may be simulated on paper)

19) Understand principles of and successfully perform skills related to Medical Assisting Skills, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Temperature, pulse, respiration and blood pressure assessment
    b. Screening for vision problems

20) Understand principles of and successfully perform skills related to Physical Therapy Skills, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Ambulation with crutches or cane
    b. Administering cold applications

21) Understand principles of and successfully perform skills related to Athletic Training, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Assessment of athlete with injured ankle or wrist
    b. Basic stretching exercises

22) Understand principles of and successfully perform skills related to Forensic Scientist, incorporating rubrics from textbooks or clinical standards of practice for the following:
    a. Extraction of basic DNA

The following artifacts will reside in the student's portfolio:

- Career Exploration portfolio
- Skills performance rubrics
- Documentation of job shadowing hours
- Examples of written, oral, or digital presentations
- Short research project documents
- Examples of public service announcement scripts, community awareness, health education portfolio

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.

Additional Notes

**Informational artifacts include but are not limited to brochures, posters, fact sheets, narratives, essays, and presentations. Graphic illustrations include but are not limited to charts, rubrics, drawings, and mode

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Nursing Education

Primary Career Cluster:	Nursing Education
Consultant:	Sloan Hudson, (615) 532-2839, Sloan.Hudson@tn.gov
Course Code(s):	6000
Prerequisite(s):	*Health Science (5998), Medical Therapeutics* (5999) and Anatomy & Physiology (3251 or 5991)
Credit:	1
Grade Level:	11-12
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 final course in *Nursing Services* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org Pamela Grega, (615) 532-6270, Pamela.Grega@tn.gov
Coordinating Work-Based Learning:	Students enrolled in this course who wish to pursue certification must spend a minimum of 40 hours in a clinical setting. Twenty-four of the 40 hours must be spent in a long-term care facility, and the remainder can take place in any setting that employs certified nursing assistants. Teachers must hold an active WBL Certificate provided by the Tennessee Department of Education. For more information, please visit https://tn.gov/education/topic/work-based-learning.
Available Student Industry Certifications:	Certified Nursing Assistant
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:	This course can only be taught by Registered Nurses. First time teachers must also attend an 8 hour training provided by the Department of Education.
Teacher Resources:	https://tn.gov/education/article/cte-cluster-health-science

Course Description

Nursing Education is a capstone course designed to prepare students to pursue careers in the field of nursing. Upon completion of this course, a proficient student will be able to implement communication and interpersonal skills, maintain residents' rights and independence, provide care

safely, prevent emergency situations, prevent infection through infection control, and perform the skills required of a nursing assistant. At the conclusion of this course, if students have logged 40 hours of classroom instruction and 20 hours of classroom clinical instruction, and if they have completed 40 hours of site-based clinical with at least 24 of those hours spent in a long-term care facility, then they are eligible to take the certification examination as a Certified Nursing Assistant (CNA).

Prior to beginning work at a clinical site, students must be certified in Basic Life Support (BLS) Cardiopulmonary Resuscitation (CPR), and deemed competent in basic first aid, body mechanics, Standard Precaution guidelines, and confidentiality.

Note: In order for students to qualify for the nursing assistant certification examination, the training program must be approved at least 30 days before the first day of class by the Tennessee Department of Health Nurse Aide Training program staff.

Work-Based Learning Framework

Clinical experiences must comply with the Work-Based Learning Framework guidelines established in SBE High School Policy 2.103. The TDOE 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. Additionally, 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.

Program of Study Application

This is the capstone course in the *Therapeutic Nursing Services* program of study. For more information on the benefits and requirements of implementing this program in full, please visit the Health Science website at https://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.

Course Standards

Professionalism, Residents' Rights, and Independence

1) Differentiate between the services and careers in a long-term care (LTC) setting. Document allowable length of stay, payment options, and regulation of LTC facilities in written, oral, and digital artifacts. Research and document educational requirements as well as state and national guidelines governing practicing professionals (such as licensing, certifications, training, and compliance) in a long-term care (LTC) setting.

2) Identify personal and professional characteristics of an employee in an LTC facility. Explain the characteristics in the context of the nursing assistant's role and relate them to common

professionalism expectations, including expectations surrounding attire, accountability including chain of command, scope of practice, resident care plan, nursing process, productivity and time management, performing duties as assigned, and demonstrating ethical behavior. 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

3) Obtain a copy of an LTC facility residents' right document. Analyze the document and discuss in a written, oral, or digital artifact** the importance of maintaining a healthy, safe, and respectful environment that includes families and friends. Address at minimum the following components: residents' environment and quality of life; obligation of staff to inform resident and their families of rights and services; right to participate in own care; right to independent choice; informed consent; right to privacy and confidentiality; maintaining care and security of residents' personal possessions; and avenues for dealing with disputes and/or grievances.

4) Interpret the Omnibus Reconciliation Act (OBRA) and explain the key concepts in an informational artifact that can be used when teaching new residents and/or their families. Key concepts can include, but are not limited to:
   a. Importance of an individualized plan of care for each resident
   b. Minimal requirements for nursing assistant training
   c. Long Term Care Minimum Data Sets (MDS) guidelines
   d. Roles of Ombudsmen
   e. Explanation of Long-Term Care Minimum Data Set
   f. Purpose and importance of Patient Self-Determination Act

5) Summarize the Health Insurance Portability and Accountability Act (HIPAA). Create a digital or written artifact that differentiates between the characteristics and rights of residents pertaining to advanced directives, living wills, durable power of attorney, and other legal directives governing medical treatment in a long-term care setting. Explain, using domain-specific language and accurate definitions of legal concepts, how the content of these legal documents influences residents' rights in a long-term care facility for all aspects of care.

6) Define the terms *abuse* and *neglect*, and differentiate among various types of abuse and neglect through an evaluation of scenarios. Document findings from the scenarios, including all suspicious findings and actual signs of abuse and/or neglect. Accurately summarize the findings, citing evidence from documentation.

7) Review LTC facility policy and procedures pertaining to use of physical and mental restraints of residents. Drawing on evidence from health journals and patient rights advocacy

organizations, develop an informational artifact discussing the types of restraints, reasons for their uses, restraint alternatives, any associated physical and psychological problems, and residents' rights associated with restraints. The artifact should be assembled in a print or digital format that could be shared with a resident, his/her family, and/or co-workers, citing specific textual evidence and incorporating evidenced-based practice.

Communication/Cultural Diversity

8) Examine the skills needed to effectively and respectfully communicate with an LTC resident. Discuss such facets as verbal and nonverbal communication, how to respond to residents' negative or changing behaviors, cultural diversity, residents with special needs or cognitive impairments, barriers to communication, and integration of assistant's interpersonal skills. Practice communication skills, professional and ethical behavior, and non-discrimination standards in a classroom clinical and LTC setting with classmates, families, geriatrics, and persons with special needs, obtaining objective and subjective patient information.

9) Research guidelines and formats pertaining to nursing assistant documentation in an LTC facility. Interpret domain-specific words and phrases that are used in documentation, especially in regards to legal requirements and correct medical terminology. Role-play giving and receiving a resident status report using the documented information.

Infection Control/Medical Microbiology

10) Review infection control guidelines, Standard Precaution guidelines, Transmission-Based precautions, Personal Protective Equipment use, and infection control of elderly in an LTC facility. Practice skills related to hand washing, donning and doffing a gown, masks, gloves and goggles, handling and cleaning spills, cleaning equipment, and handling laundry.

11) In a written or digital format, synthesize information from a range of sources, such as the Centers for Disease Control, into a coherent understanding of the signs/symptoms (s/sx), causative agents, and precautions and preventive measures for the following infectious diseases frequently encountered in an LTC:
    a. Tuberculosis
    b. Hepatitis
    c. Methicillin-resistant Staphylococcus aureus (MRSA)
    d. Vancomycin-Resistant enterococcus (VRE)
    e. Clostridium difficile or C. diff
    f. Nosocomial infections

Safety/Emergency Care

12) Develop a health education presentation, public service announcement, or brochure for healthcare professionals in an LTC facility aimed at identifying persons at greatest risk for accidents. Include at least the following: types of risk, how to identify risk, signs and symptoms of physical complications of risk, guidelines for preventing risk, and residents' rights. Include at least three resources.

13) Investigate the principles of proper body mechanics for the LTC staff members and for the residents. Document industry-specific guidelines for assisting the resident and/or family member to group and other activities safely. Apply the principles in a classroom clinical setting in order to prevent injury and utilize less energy.

14) Outline potential medical emergencies within an LTC facility, especially those related to fire, oxygen, choking, wandering or sundowner's syndrome, shock, Myocardial Infarction (MI), bleeding, burns, fainting, diabetes, Cardiovascular Accident (CVA), and natural disasters. Generate a plan and/or guidelines of care for each of the areas previously listed, incorporating facility policies, national standards, and any other resource necessary.

Basic Nursing Skills

15) Outline the normal structure and function of body systems related specifically to geriatric clientele, and summarize appropriate medical text(s) in order to list signs and symptoms of common diseases and disorders associated with each. Compile a paper or digital artifact describing abnormalities in geriatric patients and what should be reported to a nurse and/or physician for the following:
    a. Integumentary systems
    b. Nervous system with eye and ears
    c. Musculoskeletal systems
    d. Cardiovascular and respiratory systems
    e. Digestive and urinary systems
    f. Endocrine systems

16) Assess vital signs to determine oral temperature, radial and apical pulse, respirations, blood pressure, height, and weight. Calculate body mass index (BMI). Identify acceptable ranges for adult and geriatric patients, as well as the measurements that must be reported to the nurse, including possible causes. Document assessment finding on a classmate or resident's chart at least ten times during the semester.

17) In a role-play scenario, articulate nursing assistant standards for the care of a resident who is receiving oxygen therapy. Be able to discuss the reasons for oxygen therapy, types of therapy, types of devices, and safety precautions. Document the process using clear, concise writing skills and domain-specific medical terminology.

18) Conduct a short research project to evaluate the causes and management of physical pain in LTC and geriatric residents. Synthesize the information from multiple authoritative sources in a written, creative, or digital presentation (such as a science fair presentation or an art therapy presentation).

Personal Care Skills

19) Understand principles of and successfully perform skills related to personal care. Incorporate guidelines for residents' rights and utilize rubrics from textbooks, National HOSA guidelines, or other clinical standards of practice for the following:
    a. Principles of self-care versus full care
    b. Bathing/skin care/back rub
    c. Grooming/shaving/hair care/nail care
    d. Mouth care/denture care of conscious and comatose resident
    e. Dressing

f. Transfers, positioning, turning in bed
g. Bed making, occupied and unoccupied
h. Care for resident when death is imminent

20) Understand principles of and successfully perform skills related to toileting, intake and output, and bedpan or bedside commode use. Incorporate guidelines for residents' rights and utilize rubrics from textbooks, National HOSA guidelines, or other clinical standards of practice for the following:
    a. Urine characteristics, and abnormalities that should be reported to the charge nurse
    b. Common disorders of bladder and bowels
    c. Factors affecting elimination of urine or stool
    d. Types of urine specimens obtained
    e. Catheter care/emptying urinary bag
    f. Procedure for collecting urine and stool specimens
    g. Care guidelines for ostomy

21) Understand principles of and successfully perform skills related to proper feeding techniques to assist with eating and hydration. Incorporate guidelines of residents' rights and utilize rubrics from textbooks, National HOSA guidelines, or other clinical standards of practice for the following:
    a. Nutritional needs of the elderly
    b. Factors that influence food preference
    c. Special diets
    d. Thickened liquids
    e. Swallowing issues and dysphagia
    f. Heimlich per American Heart Association or American Red Cross standards

22) Understand principles of and successfully perform skills related to basic restorative care. Incorporate guidelines of residents' rights and utilize rubrics from textbooks, National HOSA guidelines, or other clinical standards of practice for the following:
    a. Promoting self-care
    b. Range of Motion (ROM) exercises and maintenance
    c. Ambulation with and without assistive devices
    d. Use of assistive devices in transferring, eating, and dressing
    e. Care and use of prosthetic/orthotic devices
    f. Role of physical therapy, occupational therapy, and speech therapy in LTC and assisted living facilities

Mental Health, Social Needs, and Care of the Cognitively Impaired

23) Investigate mental health diseases in the elderly and compare their challenges to those faced by middle adults in Erikson's psychosocial developmental stage. Use technology to produce a health education plan, public service announcement, or a public health presentation intended to inform the public about signs and symptoms, incidence, how the

disease/disorder affects the resident and/or family, how to modify staff behavior in response to residents' behavior, and possible treatments.

24) Drawing evidence from professional journals and other evidence-based medical websites, analyze the normal changes that occur in the aging of the elderly brain. Include in the analysis: (a) developmental task of aging, (b) methods to reduce the effects of cognitive impairment, (c) attitudes of staff caring for cognitively impaired residents, (d) communication with cognitively impaired residents, (e) methods to reduce effects of cognitive impairment, and (f) acceptable interventions associated with cognitive disorders and behaviors. Present the information in individual or group work using digital and written formats

25) Examine a range of ethical dilemmas encountered in an LTC facility. For example, compare and contrast the legal rights of residents to make their own personal choices with instances in which family involvement may be necessary in order to care and make decisions for patients who have cognitive disorders. Craft an original argument outlining the circumstances under which a certain behavior or medical decision would be ethically or legally justified, citing examples and medical evidence to support claims.

26) Describe therapies or strategies for addressing the unique needs of cognitively impaired residents and modifying behavior in a positive manner. Identify any resources or support groups available in the local community for resident and families. Reach out to those resources and/or groups to obtain information; then develop a written or digital teaching plan for residents and families.

Portfolio

27) Compile and continually update a portfolio of artifacts completed in this course. If pursuing Nursing Assistant certification or dual enrollment/dual credit hours, document hours spent on activities such as clinical placement or classroom contact with an articulated institution. Upon completion of the course, prepare the portfolio in a professional style to present to an appropriate nursing audience.

The following artifacts will reside in the student portfolio:

- Skills performance rubrics
- Documentation of long-term clinical hours
- Documentation of classroom clinical hours
- Examples of written, oral, or digital presentations
- Job applications
- Resumes
- Mock or actual job interviews

Standards Alignment Notes

*References to other standards include:

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- 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.
- Nurse Aide Training Program requirements for Tennessee
    - These are the minimum requirements that all programs must include in order for students to be eligible to take the competency evaluation to become a Certified Nursing Assistant.

Additional Notes

**Artifacts can include, but are not limited to, brochures, posters, fact sheets, narratives, essays, and presentations. Graphic illustrations can include, but are not limited to, charts, rubrics, drawings, and models.

TN Department of Education | College, Career and Technical Education

Rehabilitation Careers

Primary Career Cluster:	Health Science
Consultant:	Sloan Hudson, (615) 532-2839, sloan.hudson@tn.gov
Course Code(s):	5990
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 a second or third course choice in the *Exercise Physiology* program of study.
Aligned Student Organization(s):	HOSA: http://www.tennesseehosa.org 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, visithttps://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

Rehabilitation Careers is an applied course designed to prepare students to pursue careers in rehabilitation services. Upon completion of this course, a proficient student will be able to identify careers in rehabilitation services, recognize diseases, disorders or injuries related to rehabilitation services and correlate the related anatomy and physiology then develop a plan of treatment with appropriate modalities.

Approved April 10, 2015; Amended April 15, 2016

Implementation options are as follows:

- Option 1: Rehabilitation Careers taught as a Level Two course
- Option 2: Rehabilitation Careers taught as a Level Three course

Core standards are required for both options above.
Core Standards: 1,2,3,4,5,6,7,8,10,11,12,15,16,17,18,19,20,21,22,23,24,25,26

Additional standards:
Option 1: 9,13
Option 2: 14

Program of Study Application

This is the second or third course in the *Exercise Physiology* program 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.

Course Standards

Careers

1) Research careers within the Rehabilitation career pathway in Athletic Training, Physical Therapy, Occupational Therapy, Speech Therapy, Music Therapy, Pet Therapy, Exercise Therapy, Message Therapy, Chiropractic Medicine and Recreation Therapy. Explain in detail the educational/credentialing requirements, professional organizations, and continuing education unit requirements necessary for success in these fields, as well as state and national compliance guidelines required of Rehabilitation professionals.

2) Investigate and compare the range of skills, competencies, and professional traits required for careers in the Rehabilitation careers pathway. Using real-time and projected labor market data, identify local and national employment opportunities and determine areas of growth in rehabilitation careers.

3) Compare and contrast the specific laws and ethical issues that impact relationships among patients/clients and the healthcare professional, and debate these issues in an oral or written format. Include issues such as codes and standards of practice.

4) Summarize the Health Insurance Portability and Accountability Act (HIPAA) and other legal directives regarding medical treatment and analyze their impact on patient rights. Include confidential information shared concerning minor athletes and/or patients with someone other than parents.

Healthcare Systems

5) Calculate the costs of a range of health insurance plans, including deductibles, co-pays, PPO's and HMO's. For a selected disease/disorder/injury, predict the total cost (including but not limited to the diagnostics, procedures, and medications involved), allowable reimbursement, and actual reimbursement under each of these plans for the course of the treatment.

6) Investigate current issues and practices surrounding assessment and treatment of clients seeking rehabilitation services such as athletes, military personnel, or patients recovering from surgery or trauma. Demonstrate understanding and application of major legislation and policy affecting patient/client interaction by determining the central idea or conclusion of a text. Construct an argumentative essay explaining the identified issue, any legislation and outcomes. Include both claims and counterclaims equally.

7) Gather information on the history and development of physical therapy, occupational therapy, speech therapy, and athletic training, including but not limited to significant changes in the profession, major contributors to the field, and impactful practices that were developed. Document findings from print and digital professional journals, rehabilitation career related websites, and textbooks in an oral, visual, digital, or paper product with proper citations.

8) Evaluate factors that contribute to effective patient/client communication, demonstrating sensitivity to barriers, cultural differences, and special needs individuals. Apply effective practices within a lab/clinical setting.

Anatomy and Physiology

9) Outline the gross and cellular anatomy and physiology of the musculoskeletal, neurological, and cardiovascular systems. Review the gross anatomy of the other systems studied in previous courses.

10) Investigate the basic principles of kinesiology and relate in an informational paper, brochure, or presentation the connection to disease/disorder prevention. Address at minimum: movements of joints and bones, planes, directional terms, body motions, motions between joint articular surfaces, mechanisms of joints and biomechanical levers.

11) Compare and contrast physiological responses of patients of differing ages, current health status, and presence of acute and/or chronic diseases. For example, compare the response of a healthy elderly patient with a fractured femur to an overweight adolescent with the same fracture. Explain how one would differentiate treatment to meet varying conditions.

12) Describe the physiological and pathological processes of trauma, wound healing, and tissue repair, and evaluate their implications on the development, progression, and implementation of a therapeutic exercise regimen. For example, examine a post-operative cardiac patient undergoing cardiac rehabilitation.

13) Identify signs and symptoms as well as pathophysiology for the following injuries/diseases/disorders as they are connected to Rehabilitation Careers. Relate who the appropriate professional would be to provide the care:
    a. Acute inflammation related to an injury
    b. Shock
    c. Communicable diseases, such as pertussis or influenza
    d. Adverse reaction to environmental conditions, both heat and cold
    e. Open and closed wounds

f. Asthma
g. Neurological disorders such as stroke, dizziness, and/or vestibular disorders
h. Orthopedic conditions
i. Speech disorders and/or swallowing disorders
j. Work- or sports-related injuries
k. Ambulation or gait difficulties
l. Concussions
m. Soft Tissue Injuries

14) Identify signs and symptoms as well as normal anatomy and physiology versus pathophysiology for the following injuries/diseases/disorders as they are connected to Rehabilitation Careers. Relate who the appropriate professional would be to provide the care:
    a. Acute inflammation related to an injury
    b. Shock
    c. Communicable diseases, such as pertussis or influenza
    d. Adverse reaction to environmental conditions, both heat and cold
    e. Open and closed wounds
    f. Asthma
    g. Neurological disorders such as stroke, dizziness, and/or vestibular disorders
    h. Orthopedic conditions
    i. Speech disorders and/or swallowing disorders
    j. Work- or sports-related injuries
    k. Ambulation or gait difficulties
    l. Concussions
    m. Soft Tissue Injuries

Evaluation and Treatment

15) Describe evidence-based techniques and procedures for evaluating common medical conditions, disabilities, and injuries. Discuss at minimum the procedures surrounding inspection/observation, palpation, testing of flexibility, endurance, and strength, special evaluation techniques, and neurological testing. Role-play practicing these skills on a classmate and/or family member, or within in a lab/clinical setting.

16) Define the basic components of injury-specific rehabilitation goals, functional progress, and outcomes in a therapeutic exercise regime. Apply these concepts to a specific case; for example, outline standard goals for a patient who is aphasic.

17) List and define the goals, indications, contraindications, and various techniques of therapeutic exercise, including both general and specific exercise regimes relative to treatment of soft tissue, bony, neurological disorders/diseases, and post-surgical complications.

18) Describe the indications, contraindications, theory, and principles for the incorporation and application of therapeutic exercise equipment and techniques, including but not limited to: continuous passive motion machine, aquatic therapy, manual therapy, adaptive therapeutic techniques, and/or assistive devices and mobilization.

19) Describe common surgical techniques and relevant anatomical alterations that may affect the implementation of a therapeutic exercise regime.

20) Using appropriate medical language and terminology, interpret objective and subjective data obtained in standard 13 in developing an appropriate therapeutic treatment plan for a given injury, disease, or disorder, including determination of goals and objectives in order to return the patient to maximum level of performance based on level of functional outcomes.

Patient Interaction

21) Understand and successfully practice or evaluate the following treatment modalities with identification of appropriate equipment and inclusion of sanitation methods, universal precautions, and proper body mechanics.
    a. Passive and Active Range of Motion exercises
    b. Gait training with assistive devices
    c. Cryotherapy, elevation, and compression
    d. Hydrotherapy
    e. Heat therapy
    f. Electrostimulation (such as e-stim, TENS, or Ultrasound)
    g. Wound care with or without external hemorrhage
    h. Extrication and transport of athletes
    i. Normalization of body temperature in extreme heat or cold environments

22) Summarize in an informational paper, brochure, or digital presentation the specific symptoms and proper responses to life-threatening events such as shock, brain injury, and spinal cord injury in athletes.

23) Adhering to industry standards and using appropriate medical terminology, document the findings from evaluation, treatment plan, and progress in the therapeutic exercise regime related to a disease or disorder examined in standard 20 or 21.

Prevention of Injuries

24) Identify the basic concepts of wellness screening in connection to injury prevention. Complete an injury prevention assessment in a lab/clinical setting.

25) Explain and demonstrate the effectiveness of taping, wrapping, bracing, and use of other supportive/protective devices in preventing exacerbation of injury, disease, or disorder in a lab/clinical setting.

26) Develop a patient health education plan for a real or imagined person that describes recommended preventive measures, signs and symptoms of exacerbation of disease/disorder/injury, pharmacological needs, and support systems to ensure safe and speedy recovery. Incorporate and properly cite information from at least three authoritative sources such as textbooks, digital or print healthcare journals, or interviews with related healthcare professionals. Examples of possible topics include effective heat loss and heat illness prevention, work back injury prevention, reaching and maintaining optimal weight,

safe and effective physical activity, and use of pet, recreation, or music therapy in autistic children.

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.