SCOPE AND SEQUENCE



Course Name: Medical Professions 2: Human Structure, Function, and Disease

Instructor: Stefanie E. Wilbur, MSN, RN

Career Cluster Healthcare & Human Services

<u>Sub-Clusters</u> Behavioral & Mental Health, Biotechnology Research & Development, Community & Social Services, Health Data & Administration, Personal Care Services, & Physical Health

HS Course Credits: 1.5 Science, 0.5 Math, 1 elective credits

Fast Forward Optional Credits: Anatomy & Physiology I: BIO-2011 - 4 Cr (Fall) &

Anatomy & Physiology II: BIO-2012 - 4 Cr (Spring)

<u>Tier 2 Credentials:</u> Emergency Medical Technician (EMT), Certified Clinical Medical Assistant (CCMA), Certified

Phlebotomy Technician (CPT)

Tier 1 Credentials: First Aid, CPR, Stop the Bleed, Mandated Reporter, Mandated Reporter Vulnerable Adult, HIPAA

CTSO/Enrichment: SkillsUSA

Recommended Preparation for Success in This Course: Positive attitude and willingness to learn; interest in careers

in the healthcare industry



Tagline: "Learn, Grow, Succeed - Advancing Tomorrow's Healthcare Professionals"

Student appeal: Come join our students and discover more about the exciting and ever changing world of health and biomedical sciences. You will work to evaluate current research. you will experience work based learning in a clinical area of your interest within our community, you will learn about the human body, wellness and disease, and you will earn upto 8 college credits within the program in Anatomy & Physiology I & II (important prerequisites and foundation for all health science careers). Come develop your interests and prepare for your exciting future!

Course Description: This second year program offers students the opportunities and educational offerings to best prepare them for the workforce or continued studies in college or other healthcare programs with two options. (1) Returning students currently licensed as an LNA or certified as an NREMR can participate in Coop Work Based Learning. This allows them more exposure to their role as an LNA or EMR working in the community. Students will rejoin the classroom environment to share and further explore their learning. This option can be customized to the individual needs and goals of the student and offers up to 200 hours of Work Based Learning. (2) Students who are interested in preparing for college and healthcare related professional programs will focus on Anatomy and Physiology, current trends in healthcare, population health, program/college search and application preparation. Through CCV Fast Forward, students can enroll in Anatomy & Physiology I: BIO-2011 in the fall and Anatomy & Physiology II: BIO-2012 in the spring earning a total of 8 credits from CCV. Course work and lab occurs at PAHCC in person with the program instructor acting as CCV faculty. Students in the second option should anticipate regular reading and writing assignments in these advanced college level science courses. College coursework can be applied towards CCV's Allied Health Preparation Certificate or transferred to other institutions. The AHP Certificate prepares students for degree programs at VTSU in Respiratory Therapy, Dental Hygiene, Nursing, Radiological Sciences, and Health Sciences through the CCV to VTSU Pathway. Students who participate in the second option will continue to participate in up to 60 hours of work based learning through Porter Medical Center and other Community partners in job shadow experiences. All second year students who have obtained their NREMR through a partnership with Middlebury Regional EMS, students can participate in the EMR to EMT bridge course at PAHCC. Upon successful completion of the bridge course they are eligible to take the National Registry EMT examination to be certified and later obtain their state of Vermont licensure (students must be 18 at time of examination). EMT Bridge has a clinical component with MREMS. CCMA and CPT certifications require students to be 18 within 6 months of testing. CPT has a clinical component at Porter Medical Center. All second year students have the opportunity to compete at local and national level competitions for SkillsUSA.

Proficiencies/Learning Targets:

- (MP 2 LT 1) CRITICAL THINKING: I can critically evaluate information, analyze multiple perspectives, and develop creative, evidence-based solutions to complex problems, demonstrating original thinking and logical reasoning.
- (MP 2 LT 2.1) EMT TECHNICAL SKILLS: I can demonstrate proficiency in EMT related skills and recognize workplace hazards, and uphold legal, ethical, and culturally competent practices to ensure quality care.
- (MP 2 LT 2.2) CCMA TECHNICAL SKILLS: I can demonstrate proficiency in Medical Assistant related skills and recognize workplace hazards, and uphold legal, ethical, and culturally competent practices to ensure quality care.
- (MP 2 LT 2.3) CPT TECHNICAL SKILLS: I can demonstrate proficiency in Phlebotomy related skills and recognize workplace hazards, and uphold legal, ethical, and culturally competent practices to ensure quality care.
- (MP 2 LT 2.4) LNA TECHNICAL SKILLS: I can demonstrate proficiency in Licensed Nursing Assistant care, related skills and recognize workplace hazards, and uphold legal, ethical, and culturally competent practices to ensure quality care.
- (MP 2 LT 2.5) EMR TECHNICAL SKILLS: I can demonstrate proficiency in Emergency Medical Responder related skills and recognize workplace hazards, and uphold legal, ethical, and culturally competent practices to ensure quality care.
- (MP 2 LT 3) BIO 2011: I can demonstrate a thorough understanding of the function and anatomy of human body systems, including cellular function, anatomical organization, and the interrelated structure and function of tissues, organs, and systems such as the integumentary, skeletal, muscular, and nervous systems and can analyze how these systems work together to maintain homeostasis.
- (MP 2 LT 4.1) EMT: I can assess the nature and severity of a patient's condition or injuries, administer appropriate emergency medical care based on their findings, and handle patients safely to minimize discomfort and prevent further injury, while performing my duties in accordance with the scope of the EMT.
- (MP 2 LT 4.2) CCMA: I can effectively perform the clinical and administrative duties of a medical assistant in an ambulatory care setting by developing professional traits, mastering ethical and communication standards, understanding medical terminology and procedures, supporting practice management and revenue cycle efficiency.
- (MP 2 LT 4.3) CPT: I can develop the knowledge, skills, and professional competencies required for safe and effective phlebotomy practice, including proficiency in blood collection techniques, understanding of relevant anatomy and physiology, adherence to infection control and legal standards, effective patient communication, and application of learned concepts in a clinical setting through hands-on training.

(MP1 LT 5) BIO 2012: I can demonstrate a thorough understanding of the function and anatomy of special senses, endocrine, cardiovascular, respiratory, digestive, urinary, and reproductive systems, as well as the components of blood and immunity and can analyze how these systems work together to maintain homeostasis.

(MP1 LT 6) WBL: I can explore healthcare careers aligned with my interests and talents through work-based learning (WBL) opportunities, applying practical knowledge and skills, while contributing to my college and career readiness and maintaining professional, legal, and ethical standards.

(MP1 LT 7): I can present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.

(CCSS.ELA-LITERACY.SL.11-12.4)

(MP1 LT 8): I can accurately perform medical math calculations and conversions, including dosage calculations, unit conversions (e.g., metric, household, and apothecary systems), and applying these skills to real-world health care situations. (CCSS.Math.Content.HSN.Q.A.1)

(MP1 LT 9): I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and effectively communicate their findings in a clear and accurate manner. (CCSS.Math.Content.HSS.IC.B.6)

Standards: Standards are aligned with Vermont's <u>Health Science</u> CTE Critical Proficiencies Anchor Standards (VT), which derive from and are aligned with the Common Career Technical Core Standards for the <u>Health Science Career Cluster</u> as well as with the <u>National Consortium for Health Science Education</u> (NCHSE).

Additional standards alignment includes:

PAHCC Habits of Work: Safety, Work Ethic, Reliability, People Skills

PAHCC <u>Transferable Skills</u>: Creative and practical problem solving; Inquiry; Informed and Integrated Thinking.

CCTC - Career Ready Practices

Option 1: LNA COOP Work Based Learning Track

| Unit and Essential Question(s) | Estimated # of Classes Periods (assumes 120-minute classes) | Learning Targets |
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| Unit 1: Employment Exploration & Preparation Which workplace, college, or professional program is the right fit for me? Which skills and attributes make me a competitive applicant? What do I need to do to prepare for the application process? What have you learned about yourself and the clinical setting of your work-based learning experience? How has this impacted your plans for the future? | 25 | Learning Targets: LT 1, LT 7, LT 9 I can assess and identify which college or professional program aligns with my career goals in the medical professions field. I can evaluate the skills and attributes that make me a competitive applicant for medical programs or healthcare careers. I can develop a plan to prepare for the application process, including required documentation, prerequisites, and personal goals. I can reflect on my work-based learning experience and identify key insights about myself and the clinical setting. I can analyze the skills I have gained during my work-based learning and assess how they relate to my career development. I can identify areas for growth based on feedback and experiences from my work-based learning and set goals for improvement. I can explore various career paths in the medical professions and understand the educational and professional requirements for each. I can demonstrate an understanding of the importance of professionalism, communication, and teamwork in the healthcare setting through my work-based learning experience. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and effectively communicate their findings in a clear and accurate manner. |

Unit 2: Work Based Learning: LNA or EMR

2.1: Licenced Nursing Assistant (LNA)

What skills, knowledge, and day-to-day responsibilities are required for success in various healthcare careers, and how do these roles contribute to quality patient care and overall healthcare delivery?

How can job shadowing experiences help healthcare professionals explore career interests, collaborate in patient care, and quide future education and career decisions?

What have you learned about yourself and the clinical setting of your work-based learning experience?

150

Learning Targets: LT 1, LT 2.4, LT 6, LT 7, LT 8, LT 9

- I can demonstrate the ability to perform patient care tasks, including assisting with activities of daily living, taking vital signs, and providing basic comfort measures under supervision.
- I can communicate clearly and professionally with patients, families, and healthcare team members to ensure accurate information exchange and compassionate care.
- I can recognize and implement proper safety procedures to prevent harm, manage patient mobility, and ensure comfort and dignity while assisting with patient care.
- I can accurately document patient observations, activities, and care interventions, and report significant changes in patient condition to the appropriate healthcare professionals.
- I can work collaboratively with other healthcare team members to deliver quality patient care, while maintaining a focus on patient well-being and safety.
- I can adhere to ethical principles, confidentiality, and legal guidelines in all aspects of patient care and professional conduct.
- I can demonstrate adaptability in responding to diverse patient needs and apply critical thinking skills to support decision-making in dynamic healthcare environments.
- I can engage in continuous learning and reflect on experiences to enhance professional growth and improve patient care delivery.
- I can accurately perform medical math calculations and conversions. including dosage calculations, unit conversions (e.g., metric, household, and apothecary systems), and applying these skills to real-world health care situations.
- I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and effectively communicate their findings in a clear and accurate manner.

| | | Learning Targets: LT 1, LT 2.5, LT 6, LT 7, LT 8, LT 9 |
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| 2.2 Emergency Medical Responder (EMR) | 150 | I can describe the roles of EMS in the health care system. |
| | | I can demonstrate the professional attributes expected of EMRs. |
| | | I can perform the roles and responsibilities of an EMR with regard to personal safety and wellness, as well as the safety of others. |
| | | I can perform the duties of an EMR with regard for medical-legal and ethical issues, including functioning under medical direction and within the scope of practice. |
| | | I can apply principles of anatomy, physiology, pathophysiology, life-span development, and therapeutic communications to the assessment and management of patients. |
| | | I can identify the need for and perform immediately life-saving interventions to manage a patient's airway, breathing, and circulation. |
| | | I can assess and manage patients of all ages with a variety of complaints, medical conditions and traumatic injuries. |
| | | I can apply principles of emergency medical services operations, considerations, multiple casualty incidents, gaining access to and extricating patients, hazardous materials incidents, and responding to situations involving weapons of mass destruction. |
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| Option 2: Program | / College Preparatory | Track |
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| Option 2. 1 Togram / Conlege 1 Teparatory Track | | |
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| Unit and Essential Question(s) | Estimated # of Classes Periods (assumes 120-minute classes) | Learning Targets |
| Unit 1: Employment Exploration & Preparation Which workplace, college, or professional program is the right fit for me? Which skills and attributes make me a competitive applicant? What do I need to do to prepare for the application process? What have you learned about yourself and the clinical setting of your work-based learning experience? How has this impacted your plans for the future? | 25 | Learning Targets: LT 1, LT 7, LT 9 I can assess and identify which college or professional program aligns with my career goals in the medical professions field. I can evaluate the skills and attributes that make me a competitive applicant for medical programs or healthcare careers. I can develop a plan to prepare for the application process, including required documentation, prerequisites, and personal goals. I can reflect on my work-based learning experience and identify key insights about myself and the clinical setting. I can analyze the skills I have gained during my work-based learning and assess how they relate to my career development. I can identify areas for growth based on feedback and experiences from my work-based learning and set goals for improvement. I can explore various career paths in the medical professions and understand the educational and professional requirements for each. I can demonstrate an understanding of the importance of professionalism, communication, and teamwork in the healthcare setting through my work-based learning experience. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and effectively communicate their findings in a clear and accurate manner. |

| | | Learning Targets: LT 1, LT 3, LT 7, LT 9 |
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| Unit 2: Anatomy & Physiology I | 60 | |
| (BIO-2011, CCV) 4 Credits | | I can describe cellular structure and communication as it relates to the |
| Fall Semester | | use of organic and inorganic molecules, enzymes, membrane transport mechanisms, cell reproduction, and protein synthesis. |
| How do the structures of cells, tissues, and organ systems relate to their functions in the human body? What role do electrochemical signals and muscle physiology play in maintaining body function and coordination? How can hands-on and simulated laboratory experiences deepen our understanding of anatomical and physiological concepts? | | I can demonstrate the use of anatomical terms for planes, directions, and locations as related to systems of the human body and describe the gross and microscopic anatomical organization of cells, tissues, organs, and organ systems. I can identify and describe the histological characteristics of connective, epithelial, nervous and muscle tissues and explain how the physiological roles of each ensure homeostasis. I can analyze the integumentary system for its role and structure in the human body. I can discuss the gross and microscopic anatomy of the skeletal system and identify the functions and role of joints and articulations. I can discuss the gross and microscopic anatomy of the muscular system and the physiology of muscular contraction. I can describe the pathway and mechanisms by which skeletal, muscular, and nervous systems interact. I can describe the structure and function of the peripheral and central nervous systems, including how electrical signals are generated and communicated throughout the human body. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and |
| | | effectively communicate their findings in a clear and accurate manner related to the systems of the body |
| Unit 3: Anatomy & Physiology II | 60 | Learning Targets: Learning Targets: LT 1, LT 5, LT 7, LT 9 |
| (BIO-2012, CCV) 4 Credits | | I can examine and explain the function of the special senses, including taste, hearing, equilibrium and sight. |
| Spring Semester | | I can describe the gross and microscopic anatomy of the major |
| How do the major body systems—such as the endocrine, cardiovascular, respiratory, | | endocrine glands and discuss their associated hormones, and the mechanisms involved in their regulation. |

| and digestive systems—work together to maintain homeostasis? What are the key structures and functions of the special senses and how do they contribute to overall body function and perception? How can laboratory experiences enhance our understanding of complex physiological processes across multiple organ systems? | | I can discuss the composition of blood and the role of each of its components and be able to explain the fundamentals of immunity. I can describe the gross and microscopic anatomy and the physiology of the regulation of the cardiovascular system. I can identify the gross and microscopic anatomical components of the respiratory system and be able to describe the physiology of the regulatory mechanisms of this system. I can describe the gross and microscopic anatomy of the digestive system and understand nutrient digestion and absorption of food components. I can understand and explain the gross and microscopic anatomical components of the urinary system, including its role in fluid and electrolyte balance. I can identify the gross and microscopic anatomical components of the reproductive system, reproductive hormones and their effects on reproductive function as well as on general body structure and metabolism. I can describe diseased states and how they impact different organ systems. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions, and effectively communicate their findings in a clear and accurate manner related to the systems of human body. |
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| Unit 3: Work Based Learning | 30 | Learning Targets: LT 1, LT 2, LT 6, LT 7, LT 9 |
| What skills, knowledge, and day-to-day responsibilities are required for success in various healthcare careers, and how do these roles contribute to quality patient care and overall healthcare delivery? | | I can observe various clinical settings, careers, and specific roles in healthcare through 90 minute job shadow rotations once-twice weekly throughout the year. |
| | | I can observe and describe the roles and responsibilities of healthcare professionals in my chosen clinical area. |
| How can job shadowing experiences help healthcare professionals explore career | | I can identify and explain key procedures, tools, and technologies commonly used in the clinical setting I am shadowing. |
| interests, collaborate in patient care, and | | I can demonstrate professional behavior, including proper dress, punctuality, respect, and confidentiality in a healthcare environment. |

| guide future education and career decisions? | I can communicate effectively and respectfully with patients, families, and healthcare team members during my job shadow experience. I can evaluate how my interests, strengths, and career goals align with the clinical role I observed. I can reflect on my workplace learning experiences by analyzing my growth, challenges, and achievements, while identifying areas for improvement and setting goals for my professional development. I can demonstrate math skills and recording standards associated with common measurements, conversions, and calculations in a healthcare setting. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions related to health statistics and healthcare trends. |
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| Unit 4.1: Emergency Medical Technician (EMT) Training (optional) How do EMTs assess the severity of a patient's condition and determine the appropriate emergency care needed in various medical and traumatic situations? In what ways do the roles and responsibilities of an EMT impact the effectiveness of emergency medical services and patient outcomes in the pre-hospital setting? How does an understanding of anatomy and physiology contribute to an EMT's ability to provide accurate assessment and appropriate interventions in medical emergencies? What are the key considerations when | Learning Targets: LT 1, 2.1, 4.1, 6, 7, 8, 9 I can recognize and evaluate the nature and seriousness of a patient's condition or injuries to determine the appropriate emergency medical care required. I can administer emergency medical care in accordance with the assessment findings, ensuring proper treatment for patients with various medical conditions and traumatic injuries. I can safely and effectively lift, move, position, and transport patients while minimizing discomfort and preventing further injury. I can demonstrate an understanding of the roles and responsibilities of an EMT within the emergency medical services (EMS) system, including legal and ethical considerations. I can apply knowledge of human anatomy and physiology to accurately assess and manage a wide range of medical and trauma emergencies in the pre-hospital setting. I can demonstrate proficiency in handling medical emergencies, including respiratory, cardiovascular, and neurological conditions, |
| What are the key considerations when transporting patients in emergency situations, | |

| and how do EMTs ensure patient safety and comfort during this process? | | I can effectively manage trauma patients, including those with bleeding, fractures, and soft tissue injuries, using proper techniques and equipment. I can safely perform all tasks and responsibilities of an EMT in the pre-hospital environment, ensuring patient safety, effective communication, and teamwork in emergency situations. I can demonstrate math skills and recording standards associated with common measurements, conversions, and calculations in a healthcare setting. I can evaluate and analyze reports based on data related to common health conditions, identify key trends, patterns, and conclusions related to health statistics and healthcare trends. |
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| Unit 4.2 Certified Clinical Medical Assistant Training (optional) What is the role and scope of practice of a medical assistant, and how do these responsibilities vary across different healthcare settings? How do communication and critical thinking skills contribute to effective, patient-centered care in medical assisting? How can medical assistants uphold legal, ethical, and professional standards while performing clinical and administrative duties? | 40 | Learning Targets: LT 1, 2.2, 4.2, 6, 7, 8, 9 I can understand the role, scope of practice, and setting of the medical assistant. I can develop a comprehensive understanding of the principles and practices of medical assisting. I can demonstrate effective communication skills with patients, families, and healthcare professionals. I can apply critical thinking skills to assess patient needs and respond appropriately to changes in their condition. I can demonstrate proficiency in basic Medical Assisting skills such as taking vital signs, performing basic laboratory procedures, and assisting with patient examinations. I can understand legal and ethical issues in healthcare and adhere to professional standards. |
| Unit 4.3 Certified Phlebotomy Technician (CPT) Training (optional) How can phlebotomists perform accurate and safe blood collection while ensuring patient comfort and reducing risk of complications? What knowledge of anatomy, physiology, and infection control is essential for effective and | 30 | Learning Targets: LT 1, 2.3, 4.3, 6, 7, 8, 9 I can develop proficiency in venipuncture and capillary puncture techniques, ensuring accurate and efficient blood specimen collection. I can understand the anatomy and physiology relevant to phlebotomy, including knowledge of vascular structures and the circulatory system. |

| compliant phlebotomy practice in diverse clinical environments? How do legal and ethical responsibilities, including Vermont-specific regulations, guide professional behavior and patient care in phlebotomy? | I can apply industry-standard infection control practices and safety protocols to minimize the risk of exposure to bloodborne pathogens and ensure a safe working environment. I can develop effective communication skills to interact with patients, explain procedures, and alleviate anxieties associated with blood collection. I can apply theoretical knowledge in a real-world clinical setting during practical training. Gain exposure to various healthcare settings, working with diverse patient populations. I can understand the legal and ethical aspects of phlebotomy practice, including patient confidentiality, informed consent, and adherence to relevant state regulations, with a particular focus on Vermont requirements. |
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