



Prepares Students for College and Careers

▲ Medical Core

COURSE CODES:

▲ROP 63001 ▲WUHSD 8042 ▲ERUSD 0000 ▲STATE (CALPADS) 7921

Course Leads to: Post-Secondary Education
Industry Sector: Health Science and Medical Technology
Career Pathway: Patient Care - 198 **Course Level:** Concentrator
Classroom Hours: 180
Work Based Learning: 180 (optional)

Approved Textbook/Curriculum: Kobelak, Sharon Simmers, Karen Simmers Nartker, and Louise Simmers. DHO, Health Science. 8th ed. N.p.: Cengage, n.d. Print.

POST-SECONDARY EDUCATION	INDUSTRY CERTIFICATIONS	EMPLOYMENT
Articulation with College No Dual Enrollment with College No UC Approved a-g elective credit No COLLEGE MAJORS Biology Optometry Chemistry Dentistry Nursing Sales-Medical Biochemistry Pharmacology Physical Therapy Physiotherapy Health Information	NONE NEXT STEPS ROP Nursing Assistant Pre-Cert ROP Dental Assistant ROP Sports Medicine ROP Emergency Medicine Anatomy and Physiology Bio Medical	Related Careers (O*NET) 29-2041.00 Emergency Medical Technicians and Paramedics 29-2071.00 Medical Records and Health Information Technicians 31-9092.00 Medical Assistants 29-2011.00 Medical and Clinical Laboratory Technologists 43-6013.00 Medical Secretaries 29-1141.00 Registered Nurses

Prerequisites:

Appropriate for all grade levels. This is the prerequisite course to all Medical Capstone classes.

Course Description:

Medical Core is designed to give students an overview into the health science and medical technologies industry and the various careers within the industry. Students will gain strong foundational knowledge in body systems, anatomy, physiology, medical math, and terminology. Other topics covered include infection control, nutrition, legal and ethical principles, and safety/first aid. This is a required introductory course that can lead to other medical pathway courses offered.

This course is a prerequisite for Emergency Medicine, Sports Medicine, Dental Assisting, and Nurse Assistant Pre-Certification.

Integrated throughout the course are standards for Career Ready Practice and Academic Content Standards which include: appropriate technical skills and academic knowledge; communication skills; career planning; applied technology; critical thinking and problem solving; personal health and financial literacy; citizenship, integrity, ethical leadership and effective management; work productively while integrating cultural and global competence; creativity and innovation; reliable research strategies, and environment, social and economic impacts of decisions.

COURSE OUTLINE

UNIT ONE

I. ORIENTATION

- A. Introduce course and facilities
- B. Discuss syllabus and major objectives
- C. Explain attendance, grading, classroom procedures, code of conduct
- D. Complete course safety requirements/test

II. CAREERS IN THE HEALTHCARE INDUSTRY

- A. Discuss career clusters, ladders, pathways
- B. Thoroughly investigate various occupations within the Health Science and Medical Technologies industry sector
- C. Discuss and research various healthcare occupations, including personal requirements, level of education and licensing requirements needed for employment
- D. Identify professional healthcare organizations
- E. Research salary and current labor market trends in various healthcare careers
- F. Identify essential personal characteristics of the healthcare worker (hair, jewelry, appearance, clothing, uniforms, shoes, nails, makeup)

III. PREPARING FOR COLLEGE AND CAREERS

- A. Review and Discuss California CTE Model Curriculum Standards for Career Ready Practice
- B. Create an Education Plan and a Career Plan aligned with personal goals
- C. Create a Resumé and practice a professional job interview
- D. Create a Career Portfolio
- E. Complete a handwritten/hand printed Job Application neatly, legibly and with no corrections or mistakes
- F. Evening of Excellence Essay

IV. HISTORY AND INTRODUCTION TO THE HEALTH CAREER FIELD

- A. History of health care – milestones and advancements
- B. Discuss important discoveries in healthcare and its impact on societies, cultures, and people
- C. Describe various health care facilities and services
- D. Explain the functions of medical specialty units
- E. Describe the “integrated systems approach” to healthcare delivery services (prevention, pathology, diagnosis, and treatment)
- F. Explore issues of global significance and discuss the impact on the healthcare industry
- G. Discuss cultural diversity in the healthcare industries and the importance of cultural sensitivity
- H. Discuss environmentally-sound practices and sustainability within the industry sector

V. MEDICAL TERMINOLOGY

- A. Identify, define, and correctly pronounce common word parts, including prefixes, suffixes, and word roots
- B. Determine meaning of terms based on word parts
- C. Demonstrate proper use of a medical dictionary
- D. Identify anatomical descriptors and fundamental human body structures
- E. Identify common medical abbreviations used in the health care environment
- F. Build and analyze medical terms using word parts
- G. Identify selected body systems structures and their related word parts.
- H. Use system word parts, prefixes, and suffixes to build and define words
- I. Define medical terms related to selected diseases
- J. Define selected diagnostic and surgical procedural terms for each body system
- K. Define other selected medical terms and related to color and medical specialties.
- L. Recognize selected abbreviations related to each body system.

VI. ANATOMY AND PHYSIOLOGY

- A. Describe the organization of the human body
- B. Understand the body planes, directions, and cavities

COURSE OUTLINE

C. Describe the common disorders and diseases of the various human body systems

VII. HUMAN BODY SYSTEMS

A. The musculoskeletal system

- a. Demonstrate knowledge of the basic structure and function of the human musculoskeletal system
- b. Describe the function of the skeletal system
- c. Locate and describe the various joints and types of movement of the body
- d. Define, locate, and explain of bone, cartilage, ligaments, and tendons
- e. Locate and describe the various bones on the human body
- f. Explain the anatomy and physiology of bone
- g. Correctly speak, spell, and write medical terms relating to clinical procedures associated with the musculoskeletal system

B. The integumentary system

- a. Demonstrate knowledge of the basic structure and function of the human integumentary system
- b. Describe the major structures and functions of the integumentary system
- c. List and describe the layers of skin
- d. Explain the healing process of skin
- e. Describe the structure and growth of hair and nails
- f. Explain how the body regulates temperature through the integumentary system
- g. Correctly speak, spell, and write medical terms related to clinical terms associated with the integumentary system
- h. Identify common pathological conditions as they affect the integumentary system

C. The respiratory system

- a. Demonstrate knowledge of the basic structure and function of the human respiratory system
- b. Identify and describe the components and basic function of the respiratory system
- c. Explain how the respiratory system warms and humidifies the air
- d. Describe the purpose and function of the mucociliary escalator
- e. Locate and describe the various skeletal structures related to the respiratory system
- f. Explain the process of gas exchange at the aveolar level
- g. Correctly speak, spell, and write medical terms relating to clinical procedures associated with the respiratory system
- h. Identify common pathologic conditions as they affect the respiratory system

D. The urinary system

- a. Demonstrate knowledge of the basic structure and function of the human urinary system
- b. Identify and describe the major structures and functions of the urinary system
- c. Identify, locate, and describe the organs of the urinary system and explain their function
- d. Describe the internal and external anatomy and physiology of the kidneys
- e. Discuss the importance of renal blood flow
- f. Describe the process of urine formation
- g. Trace the pathway of reabsorption or secretion of vital substances
- h. Explain the importance of hormones on proper kidney function
- i. Describe the anatomy and physiology of the bladder and urination
- j. Correctly speak, spell, and write medical terms relating to clinical procedures associated with the urinary system
- k. Identify common pathologic conditions as they affect the urinary system

E. The reproductive system

- a. Demonstrate knowledge of the basic structure and function of the human reproductive system
- b. List major structures and functions of the human reproductive systems
- c. Compare and contrast mitosis and meiosis
- d. Identify, locate, and describe the function of the male and female reproductive organs
- e. Discuss the phases of the menstrual cycle
- f. Explain the effects of hormonal control on the male and female reproductive systems

COURSE OUTLINE

- g. Describe the phases of labor and delivery
 - h. Identify common pathologic conditions and sexually transmitted diseases
 - i. Correctly speak, spell, and write medical terms relating to clinical procedures associated with the reproductive system
 - j. Discuss the common pathologic conditions in relation to the reproductive system
- F. The cardiovascular and lymphatic systems
- a. Demonstrate knowledge of the basic structure and function of the human cardiovascular and lymphatic system
 - b. Identify the components of the heart and describe the contractions of the heart and the conduction system
 - c. Explain coronary circulation
 - d. Compare and contrast arteries, vessels, and capillaries
 - e. Identify the major components of blood and trace the pathway of blood through the vessels to the heart
 - f. Identify, locate, and describe the major components of the lymphatic and immune system and their functions
 - g. Analyze, define, spell, and pronounce words related to clinical procedures with the cardiovascular and lymphatic systems
 - h. Identify and describe the functions of the blood cells responsible for protecting the body from invasion
 - i. Discuss how inflammatory responses and fevers relate to infection
 - j. Compare and contrast innate immunity to adaptive immunity
 - k. Describe the function of the lymphocytes and helper cells in the immune response
 - l. Discuss the common pathologic conditions in relation to the cardiovascular and lymphatic systems
- G. The digestive system
- a. Demonstrate knowledge of the basic structure and function of the human digestive system
 - b. Identify, locate, and describe the functions of the organs of the digestive system
 - c. Identify, locate, and describe the function of the accessory organs of the digestive system
 - d. Compare and contrast ingestion and digestion and between chemical and mechanical processing of food
 - e. Identify and describe the various enzymes and chemicals needed for digestion
 - f. Analyze, define, spell, and pronounce words related to clinical procedures associated with the digestive system
 - g. Discuss the structure of a tooth
 - h. Discuss the common pathologic conditions in relation to the digestive system
- H. The nervous system
- a. Demonstrate knowledge of structure and function of the human nervous system
 - b. Identify, locate, and describe the components and basic operation of the nervous system
 - c. Compare and contrast the central and peripheral nervous system
 - d. Explain the relationship between the sensory system and the nervous system
 - e. Identify, locate, and describe the internal and external structures of the brain and their corresponding functions
 - f. Explain the motor functions of the brain with related structures
 - g. Compare and contrast the parasympathetic and sympathetic branches of the autonomic system
 - h. Analyze, define, spell, and pronounce words related to clinical procedures associated with the nervous system
 - i. Discuss the common pathologic conditions in relation to the nervous system
- I. The endocrine system
- a. Demonstrate knowledge of the structure and functions of the endocrine system
 - b. Describe the functions of the endocrine glands

COURSE OUTLINE

- c. Discuss the purpose and effects of hormones within the body
 - d. Discuss the process of homeostatic control of the hormone levels
 - e. Describe and differentiate between the hormonal, humeral control, and neural control
 - f. Discuss the common pathologic conditions in relation to the endocrine system
 - g. Analyze, define, spell, and pronounce words related to clinical procedures associated with the endocrine system
- J. Special senses: eyes and ears
- a. Demonstrate the knowledge of the basic structures and functions of the special senses – sight and sound
 - b. Compare and contrast general and special senses
 - c. Identify and describe the internal and external anatomy and functions of the eye
 - d. Identify and describe the internal and external anatomy and functions of the ear
 - e. Discuss the process involved with the senses of taste, touch, and smell
 - f. Compare and contrast the types of pain and the pain response
 - g. Discuss the common pathologic conditions in relation to the special senses
 - h. Analyze, define, spell, and pronounce words related to clinical procedures associated with the special senses

UNIT TWO

VIII. LEGAL, ETHICAL, AND ENVIRONMENTAL PRINCIPLES FOR THE HEALTHCARE INDUSTRY

- A. Identify individual codes of ethics in various health careers
- B. Identify basic legal and ethical terminology
- C. Identify and understand the Patient's Bill of Rights
- D. Discuss the importance of being sustainable and environmentally conscious in this industry sector
- E. Understand corporate citizenship and the importance of building a workplace that protects the health and welfare of the employees, the community, and the environment
- F. Demonstrate written documentation that serves as legal record of care given to the patient
- G. Discuss current ethical concerns in the medical field
- H. Identify different types of abuse and the healthcare worker's mandated reporting obligations
- I. Discuss ethical practices including respect for others, malpractice and liability and patient confidentiality (HIPAA)

X. MEDICAL MATH

- A. Accurately perform basic calculations on whole numbers, decimals, fractions, percentages, and ratios
- B. Demonstrate accuracy when converting between pounds/ kilograms and between feet/ inches
- C. Understand the difference between Fahrenheit and Celsius temperature scales
- D. Use household, metric, and apothecary unit to express measurements such as length, volume, and weight
- E. Accurately compute Body Mass Index (BMI) and calories
- F. Accurately calculate drug dosages including tablets, liquids, and injections
- G. Accurately convert traditional time to military time

XIII. VITAL SIGNS

- A. Demonstrate the correct procedure for measuring and recording a patient's temperature
- B. Demonstrate the correct procedure for measuring and recording a patient's pulse
- C. Demonstrate the correct procedure for measuring and recording a patient's respiration rate
- D. Demonstrate the correct procedure for measuring and recording a patient's pain level
- E. Discuss the proper procedure for manually and electronically measuring a patient's blood pressure
- F. Demonstrate the correct procedure for cleaning, disinfecting, and storing vital sign equipment
- G. Discuss factors that influence the patient's vital signs including the normal and abnormal values of each vital sign

UNIT THREE

XIV. PERSONAL WELLNESS AND OCCUPATIONAL SAFETY

- A. Demonstrate proper emergency procedures to be followed in the workplace

COURSE OUTLINE

- B. Understand that developing goals and attending to personal wellness and growth are instrumental to present and future personal and professional success
- C. Discuss ways to report a safety hazard or injury to a supervisor
- D. Describe three levels of medical asepsis
- E. Recognize the effects of substance abuse in the workplace
- F. Explain the importance of CAL OSHA
- G. Define and discuss proper ergonomics and body mechanics in relationship to working conditions
- H. Demonstrate an understanding of proper internet use and security issues. Identify and discuss cyber ethics, cyber safety, and cyber security
- I. Practice preventative mental and physical health measures including diet, nutrition, exercise, risk avoidance (alcohol, drugs, tobacco)
- J. Describe the methods of Universal Precautions/standards that prevent the spread of microorganisms
- K. Demonstrate proper hand washing
- L. Complete course safety requirements/test

XV. NUTRITION

- A. Identify common nutrients and food sources
- B. Discuss the Recommended Daily Allowance (RDA) of nutrients
- C. Accurately compute caloric needs and Body Mass Index (BMI) for student as well as various patients
- D. Identify common dietary and vitamin deficiencies
- E. Identify different types of diets – low sodium, diabetic, etc.
- F. Identify proper intake of foods and nutrients through www.choosemyplate.gov

UNIT FOUR

XIX. HUMAN GROWTH AND DEVELOPMENT

- A. Understand social, emotional, mental and physical growth and development
- B. Theories of Human Development
- C. Prenatal care and Development
- D. Development of Infants, Toddlers, Preschoolers, and School-aged children
- E. Care and Protection of children
- F. Development of young, middle aged, and elderly aged adults
 - 1. Immunizations
 - 2. Common diseases
 - 3. Fitness

XX. DEATH AND DYING

- A. Describe and understand the stages of the grieving process defined by Kubler-Ross
- B. Discuss the rights of the dying patient
- C. Identify the purpose and scope of hospice care

ESSENTIAL STANDARDS AND KEY ASSIGNMENTS

INDUSTRY SECTOR: Health, Science & Medical Technology

ESSENTIAL PATHWAY STANDARD – A2.0

Understand the basic structure and function of the human body and relate normal function to common disorders.

KEY ASSIGNMENT

Group skeleton project by systems: skeletal, muscular, gastrointestinal, cardiovascular, veins/arteries, urinary, nervous.

ESSENTIAL PATHWAY STANDARD – A5.0

Know the definition, spelling, pronunciation, and use of appropriate terminology in the health care setting.

KEY ASSIGNMENT

Lessons 1-14, Dean Vaughn Medical Terminology terms (25terms/lesson) Medical terms by systems - worksheet

ESSENTIAL PATHWAY STANDARD – A6.0

Communicate procedures and goals to patients using various communication strategies to respond to questions and concerns.

KEY ASSIGNMENT

Disease/disorder project. Includes-research, outline, first draft, presentation.

ESSENTIAL PATHWAY STANDARD – A9.0

Implement wellness strategies for the prevention of injury and disease.

KEY ASSIGNMENT

Body Mass Index & personal caloric intake-determine self & two other people. BMI & Status.

ESSENTIAL PATHWAY STANDARD – A10.0

Comply with protocols and preventative health practices necessary to maintain a safe and healthy environment for patients, health care workers, coworkers, and self within the health care setting.

KEY ASSIGNMENT

Universal precautions, proper handwashing technique

ESSENTIAL PATHWAY STANDARD – A12.0

Adhere to the roles and responsibilities, within the scope of practice, that contribute to the design and implementation of treatment planning.

KEY ASSIGNMENT

Properly setup triage area, list functions/responsibility each area.

ESSENTIAL PATHWAY STANDARD – A13.0

Research factors that define cultural differences between and among different ethnic, racial, and cultural groups and special populations.

KEY ASSIGNMENT

Research current event – alternative medicine in another culture

STANDARDS FOR CAREER READY PRACTICE

1. **Apply appropriate technical skills and academic knowledge.** Career-ready individuals readily access and use the knowledge and skills acquired through experience and education. They make connections between abstract concepts with real-world applications and recognize the value of academic preparation for solving problems, communicating with others, calculating measures, and performing other work-related practices.

2. **Communicate clearly, effectively, and with reason.** Career-ready individuals communicate thoughts, ideas, and action plans with clarity, using written, verbal, electronic, and/or visual methods. They are skilled at interacting with others: they are active listeners who speak clearly and with purpose, and they are comfortable with terminology that is common to workplace environments. Career-ready individuals consider the audience for their communication and prepare accordingly to ensure the desired outcome.

3. **Develop an education and career plan aligned with personal goals.** Career-ready individuals take personal ownership of their educational and career goals and manage their individual plan to attain these goals. They recognize the value of each step in the educational and experiential process, and they understand that nearly all career paths require ongoing education and experience to adapt to practices, procedures, and expectations of an ever-changing work environment. They seek counselors, mentors, and other experts to assist in the planning and execution of education and career plans.

4. **Apply technology to enhance productivity.** Career-ready individuals find and maximize the productive value of existing and new technology to accomplish workplace tasks and solve workplace problems. They are flexible and adaptive in acquiring and using new technology. They understand the inherent risks—personal and organizational—of technology applications, and they take actions to prevent or mitigate these risks.

5. **Utilize critical thinking to make sense of problems and persevere in solving them.** Career-ready individuals recognize problems in the workplace, understand the nature of the problems, and devise effective plans to solve the problems. They thoughtfully investigate the root cause of a problem prior to introducing solutions. They carefully consider options to solve a problem and, once agreed upon, follow through to ensure the problem is resolved.

6. **Practice personal health and understand financial literacy.** Career-ready individuals understand the relationship between personal health and workplace performance. They contribute to their personal well-being through a healthy diet, regular exercise, and mental health activities. Career-ready individuals also understand that financial literacy leads to a secure future that enables career success.

7. **Act as a responsible citizen in the workplace and the community.** Career-ready individuals understand the obligations and responsibilities of being a member of a community and demonstrate this understanding every day through their interactions with others. They are aware of the impacts of their decisions on others and the environment around them, and they think about the short-term and long-term consequences of their actions. They are reliable and consistent in going beyond minimum expectations and in participating in activities that serve the greater good.

8. **Model integrity, ethical leadership, and effective management.** Career-ready individuals consistently act in ways that align with personal and community-held ideals and principles. They employ ethical behaviors and actions that positively influence others. They have a clear understanding of integrity and act on this understanding in every decision. They use a variety of means to positively impact the direction and actions of a team or organization, and they recognize the short-term and long-term effects that management's actions and attitudes can have on productivity, morale, and organizational culture.

9. **Work productively in teams while integrating cultural and global competence.** Career-ready individuals contribute positively to every team, as both team leaders and team members. To avoid barriers to productive and positive interaction, they apply an awareness of cultural differences. They interact effectively and sensitively with all members of the team and find ways to increase the engagement and contribution of other members.

10. **Demonstrate creativity and innovation.** Career-ready individuals recommend ideas that solve problems in new and different ways and contribute to the improvement of the organization. They consider unconventional ideas and suggestions by others as solutions to issues, tasks, or problems. They discern which ideas and suggestions may have the greatest value. They seek new methods, practices, and ideas from a variety of sources and apply those ideas to their own workplace practices.

11. **Employ valid and reliable research strategies.** Career-ready individuals employ research practices to plan and carry out investigations, create solutions, and keep abreast of the most current findings related to workplace environments and practices. They use a reliable research process to search for new information and confirm the validity of sources when considering the use and adoption of external information or practices.

12. **Understand the environmental, social, and economic impacts of decisions.** Career-ready individuals understand the interrelated nature of their actions and regularly make decisions that positively impact other people, organizations, the workplace, and the environment. They are aware of and utilize new technologies, understandings, procedures, and materials and adhere to regulations affecting the nature of their work. They are cognizant of impacts on the social condition, environment, workplace, and profitability of the organization.

CTE ANCHOR STANDARDS—Common Core English Language Arts Alignment

1: Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the industry sector alignment matrix for identification of standards. Note: alignment listed within each sector Anchor Standard

2: Communications Language Standard

Acquire and accurately use general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the (career and college) readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. LS 9-10, 11-12.6 Anchor Standard

3: Career Planning and Management Speaking and Listening Standard

Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SLS 11-12.2 Anchor Standard

4: Technology Writing Standard

Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information. WS 11-12.6 Anchor Standard

5: Problem Solving and Critical Thinking Writing Standard

Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow or broaden the inquiry when appropriate, and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. WS 11-12.7 Anchor Standard

6: Health and Safety Reading Standards for Science and Technical Subjects

Determine the meaning of symbols, key words, and other domain-specific words and phrases as they are used in a specific scientific or technical context. RSTS 9-10 11-12.4 Anchor Standard

7: Responsibility and Flexibility Speaking and Listening Standard

Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. SLS 9-10 11-12.1 Anchor Standard

8: Ethics and Legal Responsibilities Speaking and Listening Standard

Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the work. SLS 11-12.1d Anchor Standard

9: Leadership and Teamwork Speaking and Listening Standard

Work with peers to promote civil, democratic discussions and decision making; set clear goals and deadlines; and establish individual roles as needed. SLS 11-12.1b Anchor Standard

10: Technical Knowledge and Skills Writing Standard

Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. WS 11-12.6 Anchor Standard

11: Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the industry-sector anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings, and the career technical student organization.