Student Programs
ROP
Quality career training that works!

CONTRA COSTA COUNTY OFFICE of EDUCATION

Approved by California Department of Education
Accredited by Western Association of Schools and Colleges

Health Science and Medical Technologies Industry Sector

Medical Technologies

Curriculum

Approved by the Contra Costa County Board of Education June 18, 2014
California Model Career Technical Education Standards Included
Updated January 2016

www.cocoschools.org/rop

CONTRA COSTA COUNTY OFFICE OF EDUCATION

A
Publication
of the
Contra Costa County Office of Education
77 Santa Barbara Road
Pleasant Hill, CA 94523
(925) 942-3368

MISSION STATEMENT
ROP provides innovative Career Technical Education to students to prepare them for challenging careers, post-secondary education, and lifelong learning.

PROGRAM GOALS
The goal of the program is to develop students' academic and technical skills, preparing them for college, advanced training, employment, and opportunities for promotion.

COURSE TITLE: Medical Technologies (ROP)

CBEDS TITLE/NO. PREPARING TO WORK IN HEALTH CARE – 4227

JOB TITLE/ONET CODE:	43-4171.00	Medical Receptionist and Information Clerk
	29-2071.00	Medical Records and Health Information Tech
	31-2022.00	Physical Therapist Aide
	31-9092.00	Medical Assistant
	31-1014.00	Certified Nursing Assistant
	29-2041.00	Emergency Medical Services
	29-2052.00	Pharmacy Technician
	21-1022.00	Healthcare Social Worker
	29-2055.00	Surgical Technologist
	29-1141.00	Registered Nurse
	29-117100	Nurse Practitioner

INDUSTRY SECTOR: Health Science and Medical Technology
PATHWAY: Patient Care

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COURSE DESCRIPTION:

Medical Technologies (ROP) is designed to develop healthcare knowledge, including scientific concepts and theories, and provide in-depth study in the areas of anatomy and physiology, medical terminology, principles of infection control, human growth and development and client care. Students will explore social and ethical issues that impact the industry and develop workplace procedures and skills in medicine and health care. Students will learn basic vital signs, first aid, and CPR, and will have teaching and mentoring experience with medical professionals in and outside of the classroom. Students develop a personal career plan as it relates to career choice, requirements within the industry and rapidly changing opportunities in health careers. This course will prepare students interested in biology, anatomy and health care technology for the transition to post-secondary studies in Health Science

HOURS: Students receive up to 180 hours of classroom instruction.

PREREQUISITES: Biology and/or Life Sciences/ Algebra I

UC a-g: Approved as a University of California "g" elective

COURSE GOALS AND STUDENT OUTCOMES:

1. Students will use medical and technical terminology and their understanding of biology concepts, medicine and pathology in an active integrated manner. In-depth study of the anatomy and physiology is designed to build knowledgeable problem-solvers in the field of medicine.
2. Prepare for advanced post-secondary level education in biology, and/or medicine.
3. Demonstrate ability to solve problems and think critically by effectively completing challenging group and individual projects and assignments. The combination of science labs and academic research enables students to use complex, creative thinking skills to reach sound conclusions.
4. Develop and enhance data collection and computer skills while working on individual and group projects to practice and refine written, oral and multimedia communication skills.
5. Develop advanced communication, leadership and research skills, which will contribute to personal and post-secondary success.
6. Students will apply academic skills developed in the classroom to actual health facility participation.

COURSE OBJECTIVES: In *Medical Technologies (ROP)* students will do the following:

- Research and report on disease processes that include analysis of prevention and healthy lifestyles.
- Acquire knowledge of all major body systems
- Conduct scientific investigation and completion of lab reports
- Communicate and understand scientific information process by interacting with professionals and journal writing
- Understand how developments in science and technology affect society and the environment by investigation and term paper

Student Learning Objectives (SLOs) for ROP

1. Demonstrate effective skills in oral and written *communication.*
   - Speak clearly using professional and industry-specific terminology
   - Develop appropriate listening, speaking, and presentation skills
   - Use technology to enhance communication
   - Read and comprehend industry-related material
   - Write effectively in a variety of different formats
2. Demonstrate *job skills* and the behavior and work ethic valued by employers.
   - Use technology to enhance work performance
   - Acquire industry-specific competencies
   - Meet occupational safety standards
   - Demonstrate appropriate business ethics and etiquette
   - Identify short-term and long-range career goals
   - Demonstrate organizational skills such as goal setting and time management

3. Demonstrate the ability to be critical, complex, and creative *thinkers.*
   - Brainstorm and discuss ideas with others
   - Access resources and organize information
   - Process and apply knowledge to new situations
   - Demonstrate problem-solving, computational, and research skills
4. Work productively both as individuals and as *team members.*
   - Demonstrate initiative and resourcefulness
   - Brainstorm and collaborate with others
   - Demonstrate the ability to assume a leadership role
   - Give and receive constructive feedback

COURSE OUTLINE:
COURSE CONTENTS AND PERFORMANCE OBJECTIVES

1.0 Socio-Economics and History of the Health Care System

1.0 History of Health Care
The student will:
1.0.1 Recognize the trends in the changing health care industry
1.0.2 Explore and exhibit job market awareness
1.0.3 Learn the History of Health Care
1.0.4 Evaluate customer service needs and requirements
1.0.5 Learn Today's research: Tomorrow's Health Care
1.0.6 Lab: students will incorporate work from course workbook section affiliated with History of Health Care

1.1 Health Care Systems
The student will identify the similarities and differences in the following health care systems:
1.1.1 Private Health Care Facilities
1.1.2 Government Agencies
1.1.3 Voluntary or Nonprofit Agencies
1.1.4 Health Insurance Plans
1.1.5 The Organizational structures of the above.
1.1.6 Lab: students will research and present as groups on above topics

1.2 Roles and Responsibilities of the Consumer in Health Care
The Student will:
1.2.1 Compare and contrast medical insurance and health care programs
1.2.2 Recognize and define system access
1.2.3 Explore issues of personal responsibility
1.2.4 Research home health options
Key Assignments
a) Students will read Diversified Health Occupations, Define Key terms, and complete workbook assignment
b) Guest speaker: Local Hospital Outreach Personnel
c) Current events: Use newspaper articles, journal articles, and other resources to discuss the role of facilities as they relate to past and present health care issues. Examples include burn centers, disaster aid, AIDS, geriatric care, alternative forms of medicine, etc.
d) Students will complete an organizational structure of a Hospital (Transparency Masters #1 and #2, Diversified Health Occupations: Teacher's Resource Kit.)
e) Students will view available audiovisual resources, "A Day in the Life of Health Care Services", (Delmar Publishing Teacher's Resource kit)
f) PowerPoint Chapters 1 Simmers: History and Trends of HealthCare

g) Students will be assigned to groups of four and pick one of the following topics: Private Health Care Facilities, Government Agencies, Voluntary or Nonprofit Agencies and Health Insurance Plans. Students will research and create Prezi Presentations on Tech. Ed Dept. iPads to present to class followed by questions and discussions.
h) Students will use internet on iPads to contact websites for online hospital tours: example websites: http://www.kindredhospitalsfba.com/about-us/virtual-tour, http://www.edenmedicalcenter.org, or http:/www.cpmc.org/services/newbornconnections/classes/tours.html

2.0 Careers in Health Care

The student will compare educational requirements for and describe at least 10 different health career jobs in the following services:

2.0.1 Therapeutic Services
2.0.2 Dental
2.0.3 Emergency Medical
2.0.4 Medical
2.0.5 Mental/Social
2.0.6 Nursing
2.0.7 Nutrition
2.0.8 Veterinary
2.0.9 Vision
2.0.10 Other Therapeutic
2.0.11 Diagnostic
2.0.12 Health Informatics
2.0.13 Support
2.0.14 Biotechnology Research

Lab: Information from this unit will be addressed in Key Assignments under Second Semester Core Project

Key Assignments:

a) Students will pick three health care careers by exploring Simmers Text, online and library searches, website search of National Consortium of Health, Department of Labor and more. The assignment will be aligned with EL standards at 11^{th}-12^{th} grade level integrating Common Core new standards.
b) Students will include introductory, body and conclusion paragraphs and include choice of careers, licensure or certification required, schooling required including specific classes to take. They will include information on present and future job availability and possibility for advancement.
c) Students will use MLA or APA formatting and include a reference/bibliography page
d) Students will be provided a grading rubric used in grade level English classes
e) Submission will be electronic via Google Doc folder specific to ROP Health Science/Medical Technologies Class and points will be taken off for incorrect submissions.
f) Students will be granted editing by the instructor during two timed sessions.

3.0 Human Growth and Development

The student will:

3.0.1 Understand life stages
3.0.2 Understand Death and Dying
3.0.3 Incorporate concepts of Geriatric Care: myths on aging, physical changes of aging, psychosocial changes of aging, confusion and disorientation in the elderly and meeting the needs of the elderly
3.0.4 Lab: Group activity: Discussion of Piaget, Ericson and Maslow. Student will work with groups; discuss personal experiences according to particular life stages

Key Assignments

a) Students will read Diversified Health Occupations, Define Key terms, and complete workbook assignment
b) Students will fill out study guide outline for Chapter 8 Human Growth and Development
c) Study concepts of Developmental specialists Erikson and Maslow
d) Group study of Erikson's 8 Stages of Psychosocial Development incorporating personal experiences of individuals in class discussions.

4.0 Anatomy and Physiology

Students will participate in one of 14 group presentations that will incorporate one of the following 14 Body Systems:

4.0.1 Basic Structure of the human body:
- Cells and cell reproduction,
- Osmosis and diffusion
- Nucleic acids
- Proteins
- Lipids
- pH
- Cell organelles
- Tissues
- Organs and systems
- Lab: Computer Blood Cell analysis

4.0.2 Body planes, directions and cavities, abdominal regions

4.0.3 Integumentary system: structure and functions
- Epidermis, dermis and subcutaneous
- Hair and nails
- Glands: sweat and sebaceous
- Vascular component
- Sensory
- Thermal regulation
- Synthesis of vitamin D
- Lab: analyze and compare temperature of humans

4.0.4 Skeletal System
- Five functions of bones
- Two divisions
- Joints
- Function of red and yellow marrow
- Diseases and disorders
- Lab: Observe/identify and record parts of skeletal system

4.0.5 Muscular System

Types of muscles: cardiac, skeletal and visceral
- Articulation of ligament/muscle/bone
- Muscle function
- Diseases and disorders
- Lab: Range of Motion (ROM)
- Lab: Using life size skeletal model, identify muscle origins and insertions

4.0.6 Nervous System
- Anatomy of neurons
- Neurotransmitters and synaptic junctions
- Stimulus and response
- Senses: smell, taste, touch, sight and hearing

- Diseases and disorders
- Lab: Visual Acuity analysis using the Snellen Chart

4.0.7 Circulatory System
- Arteries, veins, capillaries
- Heart chambers, heart valves, pericardium, septum
- Components of blood; serum, plasma, cellular components
- Blood's path through the heart
- Heartbeat control and regulation
- Blood pressure: systolic and diastolic
- Pulse rates: normal and abnormal
- Disorders and diseases
- Lab: Blood pressure monitoring
- Lab: Student designed experiment involving heart rate, blood pressure and cardiovascular health

4.0.8 Lymphatic system
- Immune response (antigen vs. antibody)
- Diseases and disorders

4.0.9 Respiratory System

- Nasal cavity, larynx, trachea, bronchi, alveoli, pleura
- Inhalation and exhalation
- External respiration and cellular respiration
- Blood transport of gases
- Disorders and diseases
- Lab: Calculate and record respiratory rate at rest vs. exercise
- Lab: Model torso: assemble respiratory system

4.0.10 Digestive System
- Oral cavity, esophagus, stomach, small/large intestine, liver, pancreas
- Mechanical and chemical digestion
- Peristalsis
- Absorption: food and H20
- Elimination and reabsorption of H20
- Liver, gallbladder and bile, pancreatic enzymes
- Disorders and diseases

4.0.11 Urinary System
- Kidneys, ureters, urethra, bladder
- Nephron, filtration, pressure, diffusion, ion transport
- Homeostasis: pH and electrolyte balance
- Disorders and diseases

4.0.12 Endocrine system
- Glandular control of the body (endocrine vs. exocrine)
- Role of hormones in the body (cell receptors and feedback)
- Pituitary gland
- Pancreas
- Adrenal glands
- Thyroid and parathyroid

4.0.13 Reproductive system
- Gametogenesis and meiosis
- Zygote-fetus timeline
- Gametes: ovum and sperm

- Female anatomy
- Menstrual cycle to menopause
- Ovulatory cycle
- Female hormones: estrogens, FSH, LH, oxytocin, prolactin, HCG
- Male anatomy
- Male hormone: testosterone
- STD's and birth control methods

4.0.14 Special Senses
- Ocular: lacrimal glands, conjunctive, sclera cornea, retina, pupil, lens iris, aqueous and vitreous humor
- Auditory: pinna, auricle, auditory canal, tympanic membrane, tubes, cochlea, organ or corti, semicircular canals
- Taste: structures of the tongue
- Smell: nasal sense
- Feeling: skin and general senses
- Diseases and disorders
- Lab: workbook activity

Key Assignments:
a) Students will complete assigned Chapter 7 section (7:1 to 7:14) in groups of 2
b) Students will create a Presentation using Google Drive or Prezi. The presentation directives: 15 minutes in length, at least one picture every 2-3 slides. All components listed in course section for each body system must be present in the presentation. All key terms and concepts must be present in the presentation for each body system. Include objectives, health related careers ad definition of terms.
c) Include all of the worksheet information on slides.
d) Presenters will create a 10-point quiz to be given to the class after a discussion, question and answer period.
e) Presenters will include skeleton and life sized torso with labels.
f) Testing at the end will include life size label practicum testing with labels for identification of structures and iPads with displayed pictures of cells, tissues, structures that cannot be identified on models.

5.0 Safety in the Health Care Setting

5.0 General Safety
The Student Will:
5.0.1 Evaluate standard procedures and take appropriate steps to prevent injury or illness
5.0.2 Evaluate universal precautions and take appropriate steps to prevent injury or illness
5.0.3 Relate body mechanics to health and safety

5.1 Patient Safety
The student will:
5.1.6 Identify patient needs for safety
5.1.7 Identify and demonstrate proper use of ambulation devices; postural supports and side rails; and appropriate transportation devices

5.2 Disaster Planning and Fire Safety and OSHA
The student will:
5.2.6 Identify common causes of fire
5.2.7 Identify fire prevention strategies
5.2.8 Role-play triage procedures
5.2.9 Lab for section 5.0: Proper body mechanics, bed making, transferring patient from bed to chair, universal precautions in Infection control unit.
Key Assignments:
a) In collaboration with other members of the Tech-Ed department, a lesson plan was created to familiarize the students with safety features important in the school setting with

particular attention to each job specific setting: Health Science/Medical Technologies. Students will be tested through Google Docs online testing after a scavenger hunt of the school facility and exploration of all safety concepts in the healthcare setting paying particular attention to OSHA guidelines. Testing will include physical demonstration of using proper body mechanics for lifting objects and aiding patients, preventing accidents and injuries, observing fire safety, blood borne pathogens, ergonomics, fire extinguishers, MSDS sheets, occupational exposures to chemicals, and operating machinery in the health care setting.

6.0 Communication and Decision-Making

6.0 Communication Skills Relevant to the Industry - Integrated throughout course
The student will:
6.0.6 Demonstrate active listening skills
6.0.7 Demonstrate effective verbal and written communication skills
6.0.8 Recognize the implications of nonverbal communication
6.0.9 Interpret data
6.0.10 Define common medical terminology and abbreviations

6.1 Decision making
The student will demonstrate the ability to think critically, problem solve, and make decisions using a reasoned process by:
6.1.6 Utilizing problem-solving models
6.1.7 Analyzing and writing case studies
6.1.8 Demonstrating team collaboration and conflict resolution skills
6.1.9 Participating in health care related scenarios

6.2 Computation Skills Relevant to the Health Care Industry
The student will:
6.2.6 Convert to metrics
6.2.7 Demonstrate conceptual competency in fractions, percent, and ratio without the use of calculators
6.2.8 Use estimating skills
6.2.9 Apply mathematical problem-solving to health care situations
6.2.10 Lab: Medical Mathematics, Calculating a Budget, Calculating BMI, Calculating Fahrenheit to Celsius.
Key Assignments:

a) Multiple case studies are integrated throughout the course, which require critical thinking, ethical consideration and discussion of assessment, plan, implementation and evaluation of treatment of each individual case study. This is achieved through class discussions and journaling throughout the course.

7.0 Ethical and Legal Responsibilities

7.0 Workplace Qualities and Behaviors
The student will:
7.0.6 Assess personal qualities of health care providers
7.0.7 Describe skills and aptitudes required by health care workers
7.0.8 Recognize and define health care employee responsibilities
7.0.9 Demonstrate appropriate safety precautions
7.0.10 Demonstrate an understanding of workplace accountability, Professionalism and social relationships

7.1 Ethical Roles and Responsibilities
The student will:
7.1.6 Explain the issue of confidentiality and its relationship to health care workers

7.1.7 Apply health care industry policies and procedures and codes of practice to appropriate settings
7.1.8 Analyze personal values conflict dilemmas in health care

7.2 Legal Roles and Responsibilities
The student will:
7.2.6 Research and discuss negligence and malpractice
7.2.7 Understand and describe scope of practice and standards of the industry
7.2.8 Recognize the purpose of regulatory agencies and licensing boards
7.2.9 Describe the role of social welfare in health care
Key Assignments:

a) Assignment: Simmers Workbook Chapter 5: Ethical and Legal Responsibilities
b) Case study discussions
c) Journal questions
    - Why do health care careers have an ethical code?
    - Does a drug addict deserve the same care as the president?
    - Patient who is dying of cancer tells you he is saving sleeping pills to commit suicide: what should you do? Why?
    - "I hate this job" is a comment you hear in the staff conference room. What is wrong with this statement?

8.0 Basic Medical Procedures

The student will demonstrate understanding of and limited competency in basic Medical procedures:
8.0 Blood Pressure (BP)
8.1 Temperature: oral, rectal, axillary, tympanic
8.2 Vital signs: TPR
8.3 Emergency Procedures
8.4 Universal Precautions
8.5 Lab: Measure, record and analyze BP, temperature, pulse and respirations
8.6 Lab for Universal Precautions in Infection control unit
Key Assignments

a) Students prepare for and run a school-wide/community-wide Vital Signs clinic during a rally lunch period on campus. They dress in professional attire; wear lab coats, set up the gym with separate and private clinic site tables. Each table is manned with two students, two stethoscopes, two sphygmomanometers, disposable temperature probes for oral temperature taking, a timing device to take and record heart rate (pulse) and respirations and professional charts for each and every patient. All patients are guaranteed privacy and referral from a healthcare professional on campus (the School Nurse and Health Science instructor should the physical assessment prove need for referral.) All patients are given informatics regarding normal vital signs and are taught details by the students as they are encouraged to ask the students questions about their vital signs. Proper attention is paid to infection control.
b) Students learn sterile technique during Infection control unit: Putting on and removing sterile gloves and preparing instruments for autoclaving as well as creating and maintaining a sterile field for medical procedures.
c) Guest speakers give the students opportunities to watch and partake in various basic medical procedures for instance, a physical therapist or chiropractor may demonstrate proper taping technique for myofacial injuries and guide the student in proper application of the tape during class.

9.0 Health Career Planning

9.0 Personal Career Profile Analysis

The student will:
9.0.6 Relate personal interests an aptitudes to career choice
9.0.7 Develop a personal education career plan
9.0.8 Analyze education, training, and experience requirements based on personal career plan
9.0.9 Relate environmental factors and work related values to their own personal profile
Key Assignments
a) See sections 2.0, 11.0, 16.0 and 18.0

10.0 Health Maintenance

10.0 Fitness Fundamentals
The student will:
10.0.6 Assess family health histories
10.0.7 Develop plans for early prevention and immunization
10.0.8 Assess environmental risks and recommend proper environmental management for personal health
10.0.9 Develop plans for proper nutrition and diet
10.0.10 Make recommendations for proper stress management
10.1 Individual Health Plan
The student will:
10.1.6 Analyze personal hereditary and behavioral risks
10.1.7 Develop a personal preventative health care action program
Key Assignments
a) The student will incorporate daily/weekly/monthly healthy practices for health maintenance as shown by daily attendance (required 95% attendance rate for all ROP classes) positive class participation, notification of health in journaling and participation in group health oriented activities in and outside of the classroom. This will be addressed with weekly UCLA Mindfulness center self-guided meditation practices in the classroom, weekly walks on school track, daily lunchtime FDA recommended foods and portions.
b) Assignment: Assessing our family health history. Students will learn how to take a health history and record as in a real hospital/clinic setting.

11.0 Students will participate in a self-directed, off-campus experience

Integrated throughout course
11.0.1 Interview a health care professional and complete a research paper followed by a class presentation.
Key Assignments
a) This is a second semester core project that contains an 11-page directive. The student does an extensive research project regarding the career he/she may choose in the healthcare field. The student product consists of a portfolio which contains the following:
Resume ..... 10 points
Vocational/Mentor Interview Sheet and Evaluation ..... 30 points
Chapter 17 Simmers preparing for the World of Work Assignment ..... 10 points
Cover letter and Thank You letter templates ..... 10 points
Calculating a budget ..... 10 points
Three page paper containing all of the following ..... 30 points
- Title
- Health Career of choice
- Education/training involved
- Specific courses in high school and post-secondary school
- Where to go to get this education/training
- Cost of the education/training
- Length of education/training
- Certification/license degree

- Job prospects
- Where will you work?
- Opportunities for advancement
- Good aspects of the job
- Bad aspects of the job
- Rewards
- Do you still want to do this after researching it?
- References: List at least three references

b) The student will also complete an A/V presentation, with a picture in at least every 2-3 slides, which includes the following:
- Title
- Health career choice
- Education/training involved
- Certification/licensure/degree
- Job possibilities
- Where will you work?
- Opportunities for advancement
- Good aspects/rewards and bad aspects of job

c) The student should include an interview and report on it in the presentation including the following topics:
- Name and title of mentor, and the process of finding mentor
- Ask questions beyond which were in directives
- Professional meeting place and attire?
- Where mentor procured licensure/certification/degree
- Classes passed and taken
- Annual salary starting and now
- Pictures of worksite and more
- Your reflection, and references

12.0 American Red Cross or American Heart Association Adult/Pediatric First Aid/CPR/AED 2-Yr Certification

The student will complete:
12.0.1 2-year Certification completed during class time.

13.0 Medical Terminology

The student will:
13.0.1 Prepare for and compete in State Level CAL-HOSA (Health Occupations for Students in America) MEDICAL TERMINOLOGY competitions and more.
13.0.2 Identify basic medical abbreviations
13.0.3 Define prefixes, suffixes, word roots
13.0.4 Spell, pronounce and define medical terms correctly
Key Assignments

a) Throughout the course, students will be making flashcards of key terms for each chapter.
b) HOSA website for formal and informal online testing of medical terminology for students scheduled several times throughout the year.
c) Final competition online with CAL-HOSA with proctor scheduled for spring semester.

14.0 Nutrition and Diet

The student will understand and analyze the following concepts:
14.0.1 Food chemistry: fats, proteins, carbohydrates
14.0.2 Vitamins (fat and H20 Soluble)
14.0.3 Minerals
14.0.4 Food energy: calories
14.0.5 Metabolism: energy intake and output
14.0.6 Balanced diet

Lab: Analyze therapeutic diets record benefits to health related problems
Lab: ChooseMyPlate.gov SuperTracker apps

Key Assignments

a) The student will access the USDA site: www.mypyramid.gov and complete assignments on ChooseMyPlate.gov
b) This assignment is a self-analysis of food items and intake for a 5-school day period, recording food and beverage item intake and activity expended. These sites can be entered through USDAs ChooseMyPlate Food and Activity trackers. Students keep an electronic journal. Smart phone apps are a available on the site that students may also use. Students are encouraged to involve friends and family with this activity.
c) Students will read chapter in Simmers: Nutrition and Diets and learn about the following therapeutic diets: regular, liquid, soft, diabetic, calorie-controlled, low-cholesterol, fat-restricted, sodium-restricted, protein, bland, low-residue, and other diets. Workbook activities accompany this chapter.
d) Students will learn and be tested on daily intake of minerals and vitamins according to age, sex and eight.
e) Students will be given a case study during one class period. They will be instructed to read, analyze, and write a plan for the patient given the illness/disease diagnosis and treatment plan including diet. Grading rubric will include sentence structure, grammar, word usage, and flow of ideas.

15.0 Understanding the Principles of Infection Control

The student will understand, analyze and apply the following concepts:

15.0.1 Asepsis
15.0.2 Isolation
15.0.3 Hand washing technique
15.0.4 Bacteria, viruses, fungi, protozoa
15.0.5 Pathogenesis
15.0.6 Bioterrorism
15.0.7 Standard Precautions
15.0.8 Sterilizing with an autoclave; wrapping, loading and unwrapping
15.0.9 Using chemicals for disinfection
15.0.10 Sterile Technique
15.0.11 Using Sterile Gloving
15.0.12 Maintaining transmission based isolation garments

- Lab: Sterile Gloving
- Lab: Preparing instruments for autoclave
- Lab: Hand washing

Key Assignments

a) Students will take notes on PowerPoint chapter for Infection Control to prepare for test
b) Students will be graded on class participation and discussion for this chapter

16.0 Personal and Professional Qualities of the Health Care Worker

The student will learn and practice the following professional qualities:

16.0.1 Personal appearance: health, clothing, name badge, hygiene
16.0.2 Characteristics: empathy, honesty, patience, accountability and more
16.0.3 Communications: effective and proactive feedback, listening, cultural diversity awareness
16.0.4 Teamwork
16.0.5 Leadership: positive attitude, assist others, listen, respect, support, perform
16.0.6 Stress management: identify stressors, assess, plan, act, evaluate
16.0.7 Time management: goal setting, analyze, prioritize, habits, schedules, avoid distractions
Lab: attendance at HOSA local, state and national conventions

Key Assignments

See sections 11.0 and 20.0

17.0 Cultural Diversity

The student will understand and apply concepts of the following topics:
17.0.1 Culture, ethnicity and race
17.0.2 Bias, prejudice and stereotyping
17.0.3 Cultural Diversity: family organization, language, personal touch and space, eye contact, gestures, health beliefs, spirituality and religion

Lab: KPMG Educational series on Cultural Diversity; DVD, group discussions to formal questions.

Key Assignments

a) Students will examine cse studies of staged medical situations and examine the scenarios in groups with a given list of questions. DVD scenarios followed by formal discussion questions.
b) Workbook assignments for this chapter

18.0 Preparing for the World of Work and Post-Secondary Education

The student will:
18.0.1 Develop job-keeping skills
18.0.2 Write a cover letter, resume and prepare template for a thank you note
18.0.3 Complete sample or real job or internship application
18.0.4 Participate in a job / health career mentor interview
18.0.5 Address career planning
18.0.6 Develop a professional personal portfolio
18.0.7 Determine gross and net income
18.0.8 Calculate a personal budget

Labs: Preparing a budget for specific health care related jobs, interviewing mentors and presenting to class, filling out applications

Key Assignments

a) See section 10
b) Test

19.0 Special Health Care Skills

The student will explore a health career of choice and learn skills affiliated with one or more of the following professions:
19.0.1 Dentistry: dental assistant, dentist, office staff
19.0.2 Laboratory: assistant or lab worker skills
19.0.3 Medical: physician, nurse, medical office staff
19.0.4 Physical therapy
19.0.5 Business and accounting
19.0.6 Other career(s) of choice

20. Other Key Assignments

1. Weekly journaling with prompted subject appropriate questions. Students are asked to keep a journal in the classroom. They may take home to complete also. Students will be asked topic-affiliated questions. For instance, for the Nutrition and Diet unit, journaling questions may be:

a) Keep a weekly journal of your specific food and beverage intake
b) Go to USDA website: http://www.choosemyplate.com to Food-Tracker and Activity-Tracker sections to input your data for both apps.
c) Print out a copy of both food and activity trackers
d) Write a one-page commentary that analyzes the data from the outcome of your input. Answer the following questions:
    - What is your analysis of the data that resulted from your input of food and activity trackers?
    - Was it difficult or easy to write/record each item your ate or drank, its amount and when you ate/drank the item

- Was it difficult or easy to record your activity for the week?
- What would you change or keep the same about the food intake or activity you expended as recorded on your tracker?
- How did this activity involve your family or persons with whom you live?
- Will you incorporate this into your future health care or health care of others?

2. Guest Speakers: Bi-monthly guest speakers from multiple medical/health career professions will speak in the classroom. Students will fill out documents that will contain questions regarding the speaker's specific career, ask appropriate questions and fill out assignments by end of period. Speakers usually bring props or hands-on devices for the students to explore and students will be graded on participation.

21. <u>INSTRUCTIONAL METHODS</u> include, but are not limited to:

- Direct Instruction (lectures, multimedia presentations, demonstrations of concepts, principles and procedures, small and large group discussions, seminars, student interactive presentations)
- Daily reading, writing and workbook assignments and journaling
- Medical videos and other multimedia resources
- Research using library, internet, electronic media, professional journals, texts
- Assisted instruction from community partners through guest speakers and mentor projects
- Classroom laboratories which will include pre-reading and write up as well as post-lab write-up
- Team teaching with health professionals and partners
- Self-directed, cooperative and collaborative earning projects (project-based learning, problem-based learning, inquiry learning).
- Investigative research (library and internet) and analytic and expository writing
- Eventual practicum
- Field trips and other industry/community based learning and or service-learning experiences
- Out-of-class work for projects, research and report assignments, and demonstration and presentation preparation
- Student portfolios, Health Science notebooks, Journaling notebooks, reflective learning
- Student exhibitions

22. <u>HOMEWORK ASSIGNMENTS AND ASSESSMENTS:</u>

1. Weekly vocabulary list, textbook, reference materials, reading, and research homework assignments.
2. Tests and quizzes with short answer, and extended essay questions.
3. Oral, written and multimedia assignments such as compare and contrast, investigations and research evaluative or technical reports.
4. Individual & Group Research Projects
5. Lab proficiency exams
6. Each semester written final exam.
7. Long-term projects
8. Classroom lab work, practicum and reports
9. Rubric assessments of Health Science notebook, essays, and other written assignments
10. Rubric assessments of all presentations which include peer evaluations and instructor evaluations
11. Qualitative and quantitative assessments of project performances
12. Portfolio presentations of student work which demonstrates achievement of standards
13. Classroom participation, individual and team effort demonstrations of mastery and quality of work

Approximate percentage for each type of assessment:

1. 70% of the grade will be based on classroom instruction, including: tests, quizzes, assignments, special projects, homework, research papers and daily participation points.
2. 30% of the grade will be based on science lab work, notebook, and field lab project.

The following grading standard is utilized:

A = 90% - 100% consistent excellent performance, excellent work & outstanding participation
B = 80% - 89% above average performance, consistently good work & participation
C = 70%-79% average performance and work
D = 60%-69% below average performance, sketchy attendance, poor work, little participation
F = Below 60% failure to perform at an acceptable level, excessive absences/tardies, failure to complete minimum assignments

ROP CERTIFICATE REQUIREMENTS

To earn ROP certification for this course, the student must accomplish the following:

- Complete all of the student performance objectives
- Maintain a **95%** attendance rate
- Demonstrate a positive work attitude

ASSESSED JOB MARKET NEEDS

Title	Onet Code	National Wage	California Wage	Education
Certified Nursing Asst.	31-1014.00	$24,900	$28,200	High School
Nurse Practitioner	29-117100	$92,700	$109,600	Graduate Degree
Medical Asst.	31-9092.00	$29,600	$32,700	Associates Degree
Registered Nurse	29-1141.00	$66,200	$94,300	Associates/Vocational
Surgical Technologist	29-2055.00	$42,700	$56,300	Associates/Vocational
Pharmacy Technician	29-2052.00	$29,600	$38,000	Associates/Vocational
Medical Receptionist	43-4171.00	$26,400	$28,600	High School

TEXTS AND SUPPLEMENTAL INSTRUCTIONAL MATERIALS:

DIVERSIFIED HEALTH OCCUPATIONS, 7th Ed, Louise Simmers, M.Ed, RN, 2009, Delmar, NY, ISBN-13: 978-1418030216

WORKBOOK TO ACCOMPANY DIVISERFIED HEALTH OCCUPATIONS, 7th. Ed, Louise Simmers, M.Ed, RN, 2009, Delmar, NY, ISBN-10: 1418030228

TABOR'S CYCLOPEDIC MEDICAL DICTIONARY, 22nd Ed, Donald Venes, 2013, F.A.Davis, Philadelphia, PN, ISBN-10: 0803629788

MEDICAL TERMINOLOGY FOR HEALTH PROFESSIONS, Ed. 7, Ann Ehrlich and Carol L. Schroeder, 2012, Delmar, New York, ISBN-10: 1111543275

THE SPIRIT CATCHES YOU AND YOU FALL DOWN, Anne Fadiman, Farrar, Straus and Giroux, New York, 1997, ISBN-13: 978-0374525644 or ISBN-10-0374525641

THE IMMORTAL LIFE OF HENRIETTA LAKS, Rebecca Skloot, 2010, Random House, New York, ISBN-10: 1400052173

PHYSICAL EXAMINATION AND HEALTH ASSESSMENT, Carolyn Jarvis, 2008, Saunders Elsevier, Philadelphia, PN, ISBN-10: 1437701515

CA.Gov Healthcare Workforce Development Division
http://www.oshpd.ca.gov/HWDD/Internships.html

HOSA - Health Occupations for Students in America
www.hosa.org

CAL HOSA
www.cal-hosa.org

Health Careers Connection
http://www.healthcareers.org

AMERICAN HOSPITAL ASSOCIATION
www.aha.org

University of California at Davis Pre-Health Conference:
http://gallery.mailchimp.com/962892edbee793837a055fb99/files/fa55ac7a-e3bf-450e-83ff-82e6a54e1e13.pdf

National Consortium of Health Science and Technology Education:
http://www.healthscienceconsortium.org
Explore Health Careers
http://explorehealthcareers.org/en/home

The following anchor standards are incorporated throughout the curriculum:

1.0 Academics
Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the Health Science and Medical Technology academic alignment matrix for identification of standards.

2.0 Communications
Acquire and accurately use Health Science and Medical Technology sector terminology and protocols at the career and college readiness level for communicating effectively in oral, written, and multimedia formats. (Direct alignment with LS 9-10, 11-12.6)
2.3 Interpret verbal and nonverbal communications and respond appropriately.
2.4 Demonstrate elements of written and electronic communication such as accurate spelling, grammar, and format.
2.5 Communicate information and ideas effectively to multiple audiences using a variety of media and formats.
2.6 Advocate and practice safe, legal, and responsible use of digital media information and communications technologies.
2.7 Recognize major word parts of medical terminology including roots, prefixes and suffixes.
2.8 Understand and use correct medical terminology for common pathologies.

3.0 Career Planning and Management
Integrate multiple sources of career information from diverse formats to make informed career decisions, solve problems, and manage personal career plans. (Direct alignment with SLS 11-12.2)
3.1 Identify personal interests, aptitudes, information, and skills necessary for informed career decision making.

3.4 Research the scope of career opportunities available and the requirements for education, training, certification, and licensure.
3.5 Integrate changing employment trends, societal needs, and economic conditions into career planning.
3.6 Recognize the role and function of professional organizations, industry associations, and organized labor in a productive society.

3.9 Develop a career plan that reflects career interests, pathways, and postsecondary options.

4.0 Technology

Use existing and emerging technology to investigate, research, and produce products and services, including new information, as required in the Health Science and Medical Technology sector workplace environment. (Direct alignment with WS 11-12.6)
4.1 Use electronic reference materials to gather information and produce products and services.
4.3 Use information and communication technologies to synthesize, summarize, compare, and contrast information from multiple sources.
4.5 Research past, present, and projected technological advances as they impact a particular pathway.

5.0 Problem Solving and Critical Thinking

Conduct short, as well as more sustained, research to create alternative solutions to answer a question or solve a problem unique to the Health Science and Medical Technology sector using critical and creative thinking, logical reasoning, analysis, inquiry, and problem-solving techniques. (Direct alignment with WS 11-12.7)
5.1 Identify and ask significant questions that clarify various points of view to solve problems.
5.2 Solve predictable and unpredictable work-related problems using various types of reasoning (inductive, deductive) as appropriate.
5.4 Interpret information and draw conclusions, based on the best analysis, to make informed decisions.
5.6 Read, interpret, and extract information from documents.

6.0 Health and Safety

Demonstrate health and safety procedures, regulations, and personal health practices and determine the meaning of symbols, key terms, and domain-specific words and phrases as related to the Health Science and Medical Technology sector workplace environment. (Direct alignment with RSTS 9-10, 11-12.4)
6.3 Use health and safety practices for storing, cleaning, and maintaining tools, equipment, and supplies.
6.4 Practice personal safety when lifting, bending, or moving equipment and supplies.
6.5 Demonstrate how to prevent and respond to work-related accidents or injuries; this includes demonstrating an understanding of ergonomics.

7.0 Responsibility and Flexibility

Initiate, and participate in, a range of collaborations demonstrating behaviors that reflect personal and professional responsibility, flexibility, and respect in the Health Science and Medical Technology sector workplace environment and community settings. (Direct alignment with SLS 9-10, 11-12.1)
7.4 Practice time management and efficiency to fulfill responsibilities.
7.5 Apply high-quality techniques to product or presentation design and development.
7.7 Demonstrate the qualities and behaviors that constitute a positive and professional work demeanor, including appropriate attire for the profession.

8.0 Ethics and Legal Responsibilities

Practice professional, ethical, and legal behavior, responding thoughtfully to diverse perspectives and resolving contradictions when possible, consistent with applicable laws, regulations, and organizational norms. (Direct alignment with SLS 11-12.1d)
8.2 Identify local, district, state, and federal regulatory agencies, entities, laws, and regulations related to the Health Science and Medical Technology industry sector.

8.3 Demonstrate ethical and legal practices consistent with Health Science and Medical Technology sector workplace standards.
8.4 Explain the importance of personal integrity, confidentiality, and ethical behavior in the workplace.
8.7 Conform to rules and regulations regarding sharing of confidential information, as determined by Health Science and Medical Technology sector laws and practices.

9.0 Leadership and Teamwork
Work with peers to promote divergent and creative perspectives, effective leadership, group dynamics, team and individual decision making, benefits of workforce diversity, and conflict resolution as practiced in the Cal-HOSA career technical student organization. (Direct alignment with SLS 11-12.1b)
9.3 Understand the characteristics and benefits of teamwork, leadership, and citizenship in the school, community, and workplace setting.
9.4 Explain how professional associations and organizations and associated leadership development and competitive career development activities enhance academic preparation, promote career choices, and contribute to employment opportunities.
9.6 Respect individual and cultural differences and recognize the importance of diversity in the workplace.
9.7 Participate in interactive teamwork to solve real Health Science and Medical Technology sector issues and problems.

10.0 Technical Knowledge and Skills
Apply essential technical knowledge and skills common to all pathways in the Health Science and Medical Technology sector, following procedures when carrying out experiments or performing technical tasks. (Direct alignment with WS 11-12.6)
10.1 Interpret and explain terminology and practices specific to the Health Science and Medical Technology sector.
10.2 Comply with the rules, regulations, and expectations of all aspects of the Health Science and Medical Technology sector.
10.3 Construct projects and products specific to the Health Science and Medical Technology sector requirements and expectations.
10.4 Collaborate with industry experts for specific technical knowledge and skills.
10.5 Complete certification in emergency care as appropriate (cardiopulmonary resuscitation [CPR], automated external defibrillator [AED], first aid).

11.0 Demonstration and Application
Demonstrate and apply the knowledge and skills contained in the Health Science and Medical Technology anchor standards, pathway standards, and performance indicators in classroom, laboratory, and workplace settings and through the Cal-HOSA career technical student organization.
11.1 Utilize work-based/workplace learning experiences to demonstrate and expand upon knowledge and skills gained during classroom instruction and laboratory practices specific to the Health Science and Medical Technology sector program of study.
11.2 Demonstrate proficiency in a career technical pathway that leads to certification, licensure, and/or continued learning at the postsecondary level.
11.5 Create a portfolio, or similar collection of work, that offers evidence through assessment and evaluation of skills and knowledge competency as contained in the anchor standards, pathway standards, and performance indicators.

The following pathway standards are incorporated throughout the curriculum:

B. Patient Care Pathway
The standards for the Patient Care pathway apply to occupations or functions involved in the prevention, treatment, and management of illness and the preservation of mental and

physical well-being through the services offered by the medical and allied health professions. The standards specify the knowledge and skills needed by professional and technical personnel pursuing careers in this pathway.

B1.0 Recognize the integrated systems approach to health care delivery services: prevention, diagnosis, pathology, and treatment
B1.1 Know relationship and use of an integrated health care delivery system.
B1.2 Understand the range between prevention, diagnosis, pathology, and treatment procedures.
B1.3 Understand the significance of nontraditional approaches to health care in relationship to delivery systems.
B1.4 Illustrate the value of preventive and early intervention in relationship to health care practices.
B1.5 Describe the importance of reimbursement systems in relationship to the delivery of patient care.
B2.0 Understand the basic structure and function of the human body and relate normal function to common disorders.
B2.1 Know basic human body structure and function in relationship to specific care between prevention, diagnosis, pathology, and treatment.
B2.2 Describe basic stages of growth and development.
B2.3 Recognize common disease and disorders of the human body.
B2.4 Compare normal function of the human body to the diagnosis and treatment of disease and disorders.
B3.0 Know how to apply mathematical computations used in health care delivery system.
B3.1 Apply mathematical computations related to health care procedures (metric and household, conversions and measurements).
B3.2 Analyze diagrams, charts, graphs, and tables to interpret health care results.
B3.3 Record time using the 24-hour clock.

B5.0 Know the definition, spelling, pronunciation, and use of appropriate terminology in the health care setting.
B5.1 Use medical terminology in patient care appropriate to communicate information and observations.
B5.2 Accurately spell and define occupationally specific terms related to health care.
B5.3 Use roots, prefixes, and suffixes to communicate information.
B5.4 Use medical abbreviations to communicate information.
B5.5 Know the basic structure of medical terms.
B5.6 Demonstrate the correct pronunciation of medical terms.
B5.7 Practice word building medical terminology skills.

B8.0 Demonstrate the principles of body mechanics as they apply to the positioning, transferring, and transporting of patients.
B8.1 Explain the principles of body mechanics.
B8.3 Demonstrate appropriate transport and transfer methods to accommodate the health status of the patient.
B8.4 Evaluate equipment for possible hazards.
B8.5 Integrate proper body mechanics, ergonomics, safety equipment, and techniques to prevent personal injury to patients and clients.
B9.0 Implement wellness strategies for the prevention of injury and disease.
B9.1 Know and implement practices to prevent injury and protect health for self and others.
B9.2 Determine effective health and wellness routines for health care workers (i.e., stress management, hygiene, diet, rest, and drug use).
B9.3 Identify practices to prevent injuries and protect health, for self and others (i.e., seatbelts, helmets, and body mechanics).
B9.4 Know how to access available wellness services (i.e., screening, exams, and immunizations).

B12.0 Adhere to the roles and responsibilities, within the scope of practice, that contribute to the design and implementation of treatment planning.
B12.2 Describe the various roles and responsibilities of health care workers as team members in an integrated health care delivery system

B13.0 Research factors that define cultural differences between and among different ethnic, racial, and cultural groups and special populations.
B13.1 Utilize culturally appropriate community resources.
B13.2 Recognize complementary and alternative medicine as practiced within various cultures.