

Wallingford Public Schools - HIGH SCHOOL COURSE OUTLINE

Course Title: Medical Careers: Fundamentals	Course Number: 6353
Department: Career and Technical Education	Grade(s): 10 - 12
Level(s): Academic	Credit: 1
<p>Course Description Students will explore topics including medical ethics, terminology, measurement of vital signs, structure and function of the human organism, infection control, and standard precautions. Students also explore all five health career pathways: Therapeutic Services, Diagnostic Services, Health Informatics, Support Services and Biotechnology Research and Development. Students will demonstrate their learning in patient care simulations in the lab, by analyzing a variety of ethical dilemmas and by working with models of human body systems.</p> <p>This course is strongly recommended for those students who are interested in exploring career opportunities in the allied health fields.</p> <p>Prerequisite: Biology</p>	
<p>Required Instructional Materials <i>Introduction To Health Science Technology</i>, Thomson – Delmar Learning, 2004.</p> <p><i>Student Workbook to Accompany Introduction To Health Science Technology</i>, Thomson – Delmar Learning, 2004.</p>	<p>Completion/Revision Date Approved by Board of Education on February 25, 2008</p>

Mission Statement of the Curriculum Management Team

The mission of the Career and Technical Education Curriculum Management Team is to ensure that students, as a result of their experiences in K-12, will demonstrate transferable skills, knowledge, and attributes for successful life management, employment, career development, post-secondary educational opportunities, and life long learning.

Enduring Understandings for the Course

- Organizations utilize a streamlined and fair way to conduct business.
- Past health care practices influence the delivery of health care provided to clients today.
- Cost of health care can be overwhelming without a health insurance plan.
- Health care workers should practice the culture and goals of an employer’s organization.
- Collaboration between members of the health care team, patients, and family members is good health care practice.
- Most health career job requirements identify registered certification or licensure.
- Health care providers should exhibit professional behaviors.
- All societies operate within a framework of ethical standards which societies choose and define.

<ul style="list-style-type: none"> • All clients in health care have basic rights.
<ul style="list-style-type: none"> • Cultural and ethnic beliefs of clients should be respected when providing holistic care.
<ul style="list-style-type: none"> • Post-secondary education provides the pathway for advancement in most allied health careers.
<ul style="list-style-type: none"> • Medical terminology is essential when describing anatomic structure and physiology. These terms are universally known.
<ul style="list-style-type: none"> • Knowledge of the major structures and their functions found in each of the major body systems is linked directly to health and quality of life.
<ul style="list-style-type: none"> • Microorganisms can adapt to their environment and change in order to survive.
<ul style="list-style-type: none"> • Understanding how disease spreads provides practices leading to prevention and control.
<ul style="list-style-type: none"> • Young children and the elderly have weaker immune systems and are more susceptible to infectious diseases.
<ul style="list-style-type: none"> • Caregivers are responsible for the patient's safety and their own well-being.
<ul style="list-style-type: none"> • Many myths and false beliefs exist regarding elderly individuals.
<ul style="list-style-type: none"> • Physical changes occur in all individuals as a normal part of the aging process.
<ul style="list-style-type: none"> • Good nutrition practices encourage a state of good health with optimal body function.
<ul style="list-style-type: none"> • Explain how the digestive system functions in nutrient absorption.
<ul style="list-style-type: none"> • Therapeutic diets are designed to improve specific health conditions.
<ul style="list-style-type: none"> • Classify foods in terms of the macromolecules of life. (proteins, carbohydrates, lipids, etc.)
<ul style="list-style-type: none"> • The ability to administer CPR and basic first aid applications are expected health care worker competencies.
<ul style="list-style-type: none"> • Competent employees develop the skills and attributes that make them productive.
<ul style="list-style-type: none"> • Health care workers should work carefully and thoughtfully when performing calculations since errors in math can have serious effects on patients.
<ul style="list-style-type: none"> • The rapid advances in health care and the explosion of information needed for health care personnel to provide quality patient care have made the use of a computer a necessity.

LEARNING STRAND

1.0 Introduction to Health Care Systems

ENDURING UNDERSTANDING(S)

- Organizations utilize a streamlined and fair way to conduct business.
- Past health care practices influence the delivery of health care provided to clients today.
- Cost of health care can be overwhelming without a health insurance plan.
- Health care workers should practice the culture and goals of an employer's organization.
- Collaboration between members of the health care team, patients, and family members is good health care practice.

ESSENTIAL QUESTION(S)

- How have past health care practices influenced current health care trends?
- How does one use the health care continuum?
- Why is it important for every health care worker to know the organizational structure for his or her place of employment?
- Why is health care insurance so critical in today's health care economy?
- Why are interpersonal communications skills critical in health-care delivery?

LEARNING OBJECTIVES The student will:

- 1.1 Compare and contrast early beliefs about the cause of disease and treatment to current beliefs.
- 1.2 Describe the characteristics of private health care facilities.
 - a. acute
 - b. long-term
 - c. assisted living
 - d. out-patient clinics
 - e. medical offices
 - f. emergency care services
 - g. counseling centers
 - h. rehabilitation centers
 - i. school health services
- 1.3 Explain the purposes of different organizational structures in health care facilities.
- 1.4 Compare the basic principles of several health insurance plans.
 - a. Health Maintenance Organizations (HMO)
 - b. Preferred Provider Organizations
 - c. Medicare and Medicaid
 - d. Workers' Compensation
- 1.5 Describe the relationship between effective communication and patient well-being.

INSTRUCTIONAL SUPPORT MATERIALS

- Learning laboratory setting and equipment
- Current readings and articles from newspapers and magazines
- www.kff.org
- www.nccam.nih.gov
- <http://healthweb.org/>
- www.healthcareersinstruct.com
- <http://www.articles911.com/communication>
- Handouts identifying careers in Allied Health
- Brochures representing services provided at various health care facilities

SUGGESTED INSTRUCTIONAL STRATEGIES

- Research articles and studies identifying health care trends
- Research health care systems in the area to identify services offered
- Develop a timeline for the history of health care showing twenty events that have impacted modern day care
- Research interpersonal communications skills, both verbal and non-verbal
- Develop graphic organizers to compare insurance plans

SUGGESTED ASSESSMENT METHODS

- Quizzes and tests
- Research projects on historical events in health care
- Presentations
- Rubric for written research projects

LEARNING STRAND

2.0 Exploration of Careers and Personal Qualities of Health Care Workers.

ENDURING UNDERSTANDING(S)

- Most health career job requirements identify registered certification or licensure.
- Health care providers should exhibit professional behaviors.
- All societies operate within a framework of ethical standards which societies choose and define.
- All clients in health care have basic rights.
- Cultural and ethnic beliefs of clients should be respected when providing holistic care.
- Post-secondary education provides the pathway for advancement in most allied health careers.

ESSENTIAL QUESTION(S)

- What are the differences between certification, registration, and licensure?
- What kind of person would you want taking care of you?
- What is the difference between ethics and legal standards in the health care profession?
- What is the “Patient’s Bill of Rights”?
- Why should different ethnic and cultural beliefs of clients be respected?
- Why is it essential to utilize study skills, to practice time management, and to apply test taking strategies for advancement in health care?

LEARNING OBJECTIVES – The student will:

- 2.1 Explore pathways allied health workers can utilize to meet the educational requirements for certification and/or licensure.
- 2.2 Explain the physical, emotional, and cognitive qualities of health care workers.
- 2.3 Identify how time management, problem-solving, and goal-setting contribute to success.
- 2.4 Explain the meaning of ethics and its importance in the practice of health care.
- 2.5 Investigate the six basic principles of ethics for health care personnel.
 - a. Perform only those procedures for which you have been trained and are in your legal scope of practice.
 - b. Use approved correct methods while performing any procedure.
 - c. Obtain proper authorization before performing any procedure.
 - d. Identify the patient and obtain the patient’s consent before performing any procedure.
 - e. Observe all safety precautions and keep all information confidential.
 - f. If an error occurs or a mistake is made, report it immediately to your supervisor.
- 2.6 Compare and contrast the diverse health

INSTRUCTIONAL SUPPORT MATERIALS

- Learning laboratory setting and equipment
- Current readings and articles from newspapers and magazines
- www.medcareers.com
- www.nursingspectrum.com
- www.hotnursejobs.com
- www.vocbios.com
- www.hosa.org
- Guest speakers representing various Allied Health disciplines and pathways
- Handouts and brochures related to various Allied Health career pathways
- “Careers in the Real World” video series
- “Exploring Health Occupations” video series
- Guest speakers representing various ethnic and cultural groups

SUGGESTED INSTRUCTIONAL STRATEGIES

- Role plays
- Lab experiences
- Research ethical dilemmas facing health career professionals today
- Investigate a selected health career and its educational requirements, program sites, and tuition costs
- Research projects and presentations on

<p>beliefs of different ethnic and cultural groups:</p> <ul style="list-style-type: none">a. Judaismb. Islam - Muslimsc. Jehovah's Witnessd. Latter Day Saints - Mormonse. Hinduismf. Roman Catholicsg. Diverse ethnic cultures	<p>investigating personal ethnic and cultural beliefs</p> <ul style="list-style-type: none">• Health Occupations Students of America (HOSA) student leadership organization club <p><u>SUGGESTED ASSESSMENT METHODS</u></p> <ul style="list-style-type: none">• Student presentations• Tests and quizzes• Peer review• Student self-evaluation• Simulations
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LEARNING STRAND

3.0 Medical Terminology.

ENDURING UNDERSTANDING(S)

- Medical terminology is essential when describing anatomic structure and physiology. These terms are universally known.
- Post-secondary education provides the pathway for advancement in most allied health careers.

ESSENTIAL QUESTION(S)

- Why do Allied Health personnel communicate using medical terminology?
- Why will it be valuable to develop study skills, to practice effective time management, and to apply test taking strategies for advancement in health care?

LEARNING OBJECTIVES – The student will:

- 3.1 Identify prefixes, suffixes, and word roots selected from a list of medical terminology.
- 3.2 Recognize the importance of being able to write, read, and communicate using medical terminology.
- 3.3 Define common abbreviations and interpret common symbols.

INSTRUCTIONAL SUPPORT MATERIALS

- Current readings and articles from newspapers and magazines
- Guest medical transcriptionist
- Guest physician assistant
- www.healthcareersinct.com

SUGGESTED INSTRUCTIONAL STRATEGIES

- Use television and magazines to identify medical terminology
- Create personal vocabulary and abbreviation word cards
- Handouts of medical terminology and abbreviations

SUGGESTED ASSESSMENT METHODS

- Quizzes and tests
- Performance task
- List ten abbreviations for acute and common disorders
- List ten abbreviations for diagnostic tests
- Deconstruct unknown medical terms to determine their meaning
- Construct terminology to describe patient care situations

LEARNING STRAND

4.0 The Human Body

ENDURING UNDERSTANDING(S)

- Medical terminology is essential when describing anatomic structure and physiology. These terms are universally known.
- Knowledge of the major structures and their functions found in each of the major body systems is linked directly to health and quality of life.
- Post-secondary education provides the pathway for advancement in most allied health careers.

ESSENTIAL QUESTION(S)

- Why do Allied Health personnel communicate using medical terminology?
- How does knowledge of body systems and functions impact health and wellness?
- Why is it essential to utilize study skills, to practice time management, and to apply test taking strategies for advancement in health care?

LEARNING OBJECTIVES – The student will:

- 4.1 Apply appropriate terminology to human body organs and systems.
- 4.2 Differentiate between anatomy, physiology, and pathophysiology.
- 4.3 Explain the major structures and their functions found in each of the of major body systems.
 - a. Integumentary system
 - b. Skeletal system
 - c. Muscular system
 - d. Nervous system
 - e. Circulatory system
 - f. Lymphatic system
 - g. Respiratory system
 - h. Digestive system
 - i. Urinary system
 - j. Endocrine system
 - k. Reproductive system
- 4.4 Apply terminology to describe body planes, anatomical positions, etc.
- 4.5 Identify the body membranes and cavities.
- 4.6 Categorize human diseases by cause, transmission, and symptom.
- 4.7 Explain transmission methods and prevention of disease.
- 4.8 Explain the symptoms, cause, prevention, and treatment of several common diseases.

INSTRUCTIONAL SUPPORT MATERIALS

- Schematic representation of human body systems (the “Thin Man” series from Laerdal Corporation
- www.innerbody.com
- www.doegenomes.org
- Field trip to Body World (a museum with human body cadavers donated to science)
- Learning lab setting and equipment
- “Body Systems” video series
- Journal publications and newspaper articles including the “health section” in the Wallingford Record Journal

SUGGESTED INSTRUCTIONAL STRATEGIES

- Students will create graphic organizers for the body systems
- Students will research common illnesses to identify causes, treatment, and preventive measures that could have been taken to avoid reoccurrence
- Students will compare basic to supplemental diagrams of human body systems
- Presentations of clinical nurse managers discussing the types of patient populations
- Students will utilize web quests to observe virtual dissections

SUGGESTED ASSESSMENT METHODS

- Rubric on graphic organizer presentations
- Tests and quizzes
- Oral presentations using a rubric

	<ul style="list-style-type: none">• Problem-solving, patient-based scenarios and performance tasks in laboratory and clinical settings• Students develop a “public health” brochure based on rubric criteria
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LEARNING STRAND

5.0 Special Considerations in Health Care

ENDURING UNDERSTANDING(S)

- Microorganisms can adapt to their environment and change in order to survive.
- Understanding how disease spreads provides practices leading to prevention and control.
- Young children and the elderly have weaker immune systems and are more susceptible to infectious diseases.
- Caregivers are responsible for the patient's safety and their own well-being.
- Many myths and false beliefs exist regarding elderly individuals.
- Physical changes occur in all individuals as a normal part of the aging process.

ESSENTIAL QUESTION(S)

- Why is it critical for health care workers to apply infection control practices in the workplace?
- What is meant by the term "chain of infection"?
- What are the body's natural defenses against infection?
- Who is responsible for safety in the health care workplace?
- What precautions must be taken when oxygen is being administered?
- What is the health care worker's role in an emergency?
- What are your thoughts about growing older?
- Will the fact that you are getting older limit what you can do for yourself?

LEARNING OBJECTIVES – The student will:

- 5.1 Explain the importance of infection control practices in maintaining the safety of health care workers, patients, and others.
- 5.2 Identify the elements in the chain of infection and list methods the health care worker can use to break that chain.
- 5.3 Identify normal body defenses against disease.
- 5.4 Demonstrate aseptic techniques necessary for disease prevention following OSHA guidelines and standard precautions.
- 5.5 Demonstrate the safe and appropriate use of equipment.
- 5.6 Apply the principles of body mechanics when handling patients:
 - a. proper lifting techniques
 - b. positioning
 - c. moving
- 5.7 Identify safety practices related to a fire emergency.
- 5.8 Describe the precautions necessary when oxygen is in use.
- 5.9 Differentiate between the myths and facts on aspects of aging.
- 5.10 Demonstrate several methods of care provided to an elderly person who is

INSTRUCTIONAL SUPPORT MATERIALS

- "The Immune System at Work" DVD
- www.cdc.gov
- www.osha.gov
- www.who.int
- www.nfpa.org
- <http://en.wikipedia.org/wiki/Gerontology>
- Handouts on articles related to infectious diseases
- Public Health brochures
- Chair and bed lifts
- Walkers; canes; crutches; wheelchairs; oxygen supplies

SUGGESTED INSTRUCTIONAL STRATEGIES

- Guest speaker on infection control standards
- Use personal protected equipment (PPE)
- Watch a medical program on TV to evaluate for improper aseptic techniques
- Create a diagram of the chain of infection with visuals to depict important elements.
- Research scientific contributions made by Louis Pasteur, Oliver Wendell Holmes, and Lord Joseph Lister
- Guest speaker from MidState Medical Center's Environmental Services to discuss

<p>experiencing physical changes of aging.</p>	<p>disaster preparedness</p> <ul style="list-style-type: none"> • Guest speaker from Wallingford Fire Department to discuss common fire hazards, prevention, use of fire extinguishers, and availability of training sessions • Field trip to the Wallingford Senior Center to interview elderly individuals on perspectives of aging • Group work: visual presentations related to normal physiological changes for each body system <p><u>SUGGESTED ASSESSMENT METHODS</u></p> <ul style="list-style-type: none"> • Project with rubric on making a home safe for patient use of oxygen • Tests and quizzes • Demonstrate safe patient transfer from bed to wheelchair • Perform a sterile dressing change procedure on a simulated patient • Journal writings and reflections on speaker presentations
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LEARNING STRAND

6.0 Fundamentals of Health Care

ENDURING UNDERSTANDING(S)

- Good nutrition practices encourage a state of good health with optimal body function.
- Explain how the digestive system functions in nutrient absorption.
- Classify foods in terms of the macromolecules of life. (proteins, carbohydrates, lipids, etc.)
- Analyze a modern diet and determine how this relates to various dietary standards.
- Therapeutic diets are designed to improve specific health conditions.
- Vital signs are assessed to evaluate a patient’s condition and determine action to be taken.
- Post-secondary education provides the pathway for advancement in most allied health careers.
- The ability to administer CPR and basic first aid applications are expected health care worker competencies.

ESSENTIAL QUESTION(S)

- What are the essential nutrients needed for good health?
- What happens in your body once food is ingested?
- Why is everyone who consumes food on a diet?
- What are the major indicators of body function?
- How do vital signs vary over the lifespan?
- Why should everyone know the basic principles of first aid?
- Why is it essential to utilize study skills, to practice time management, and to apply test taking strategies for advancement in health care?

LEARNING OBJECTIVES – The student will:

- 6.1 Identify the essential nutrients for health and wellness.
- 6.2 Differentiate between the processes of digestion, absorption, and metabolism.
- 6.3 Identify the purpose of therapeutic diets.
- 6.4 Demonstrate measurement of the following vital signs:
 - a. temperature
 - b. pulse
 - c. respirations
 - d. blood pressure
 - e. pain assessment
- 6.5 Identify normal range for each vital sign.
- 6.6 Organize graphic records of a patient’s vital signs.
- 6.7 Demonstrate “first aid” applications for a variety of injuries:
 - a. shock
 - b. bleeding and wounds
 - c. poisoning

INSTRUCTIONAL SUPPORT MATERIALS

- www.nutrition.gov
- www.mypyramid.gov
- www.HealthAtoZ.com
- www.RevololutionHealth.com
- Mosby’s Nutrition and Fluids video series
- “Fundamental Human Nutrition” video
- “Obesity in Youth: Tackling a Growing Problem” video
- Mathematical calculations (calories, fat percent, etc.)
- Oral digital thermometers
- Electronic oral thermometers
- Tympanic thermometers
- Watches with second hands
- Blood pressure cuffs and stethoscopes
- Alcohol prep pads
- Graphic charts and black pens
- “Measuring Vital Signs: Temperature, Pulse, Respirations, and Blood Pressure” video

<ul style="list-style-type: none"> d. heat and cold exposure e. bone, joint, and muscle injuries f. sudden illness (heart attack, stroke, fainting, diabetic reactions, allergic reactions) 	<ul style="list-style-type: none"> • “Pain: The Fifth Vital Sign” video • http://en.wikipedia.org/wiki/Vital_signs • www.healthsystem.virginia.edu/uvahahealth/adult_cardiac/vital.cfm • www.nhlbi.nih.gov • Gauze bandages, antiseptic spray, Neosporin ointment, adhesive tape, tourniquet, ice packs, warm compresses, heating pads, splints, crutches, walker, wheelchair, commercial sling, glucose tabs, ace wraps • www.RedCross.org • www.kidshealth.org/parent/firstaid_safe/ • www.americanheart.org • Delmar Learning “Medical Office Emergency Manual” <p><u>SUGGESTED INSTRUCTIONAL STRATEGIES</u></p> <ul style="list-style-type: none"> • Students will maintain a journal of dietary intake for a weekend to evaluate nutrition and caloric intake • Dietician presentation on menu selection and education • Foodservice director to identify common modifications required for selected diets • Teacher modeling of vital sign measurements • Video presentations • Repeated practice in the learning lab • Internet searches on vital signs • Students will locate multiple pulse points that can be felt on the body • Students will buddy up with ICE-T (special needs) students to practice first aid techniques • EMT guest speaker <p><u>SUGGESTED ASSESSMENT METHODS</u></p> <ul style="list-style-type: none"> • Performance tasks related to vital signs • Recording vital signs on a graph • Test and quizzes • Performance tasks related to first aid applications • Summarizations on current events articles related to unit content areas
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LEARNING STRAND

7.0 Working in Health Care

ENDURING UNDERSTANDING(S)

- Competent employees develop the skills and attributes that make them productive.
- Health care workers should work carefully and thoughtfully when performing calculations as errors can have serious effects on patients.
- The rapid advances in health care and the explosion of information needed for health care personnel to provide quality patient care have made the use of a computer a necessity.
- Post-secondary education provides the pathway for advancement in most allied health careers.

ESSENTIAL QUESTION(S)

- What qualities and attributes are needed to obtain employment in health care settings?
- Why do all employers utilize the established job search process to assess applicant knowledge, skills, and attributes?
- Why is the computer an essential tool in healthcare?
- Why are mathematical applications critical to safe healthcare practices?
- Why is the computer essential in almost every aspect of health care?
- Why is it essential to utilize study skills, to practice time management, and to apply test taking strategies for advancement in health care?

LEARNING OBJECTIVES – The student will:

- 7.1 Utilize correct grammar in verbal and written communications.
- 7.2 Identify the importance of punctuality and attendance to job performance evaluations.
- 7.3 Identify that dynamic advances in technology and medical science will demand that all personnel be lifelong learners.
- 7.4 Identify that teamwork is critical in all health care settings.
- 7.5 Recognize that accountability means taking responsibility for failure as well as for achievement.
- 7.6 Develop a resume containing the necessary information in standard business format.
- 7.7 Demonstrate the job interview process.
- 7.8 Demonstrate use of computer applications specific to health care.
- 7.9 Research selected topics using internet resources.
- 7.10 Perform basic mathematical computations integrated into learning tasks.
- 7.11 Perform household metric and apothecary unit measurements related to length, volume, and weight.
- 7.12 Perform conversions between

INSTRUCTIONAL SUPPORT MATERIALS

- Sample resumes related to specific health care positions
- Sample job postings
- Sample letters of application and follow-up thank you notes
- www.healthjobs.usa.com
- www.healthcaresource.com
- www.google.com
- www.vocbios.com
- www.yahoo.com
- Measuring cups, medicine droppers, thermometers (C & F), scales, yardsticks, volume measurements (teaspoon, tablespoon, cup, pint, etc.)
- Mathematical conversion charts

SUGGESTED INSTRUCTIONAL STRATEGIES

- Field trip to hospital diagnostic imaging departments
- Field trip to a hospital pharmacy
- Hospital Human Resource representative to discuss the job interview process
- Clinical nurse specialist in cardiology to discuss computer applications
- Measure and record fluid and nutritional intake
- Internet searches

<p>Fahrenheit and Celsius temperature scales.</p> <p>7.13 Identify time measurement through traditional and military applications.</p> <p>7.14 Describe ways that computers are used in the following applications:</p> <ul style="list-style-type: none">a. Information managementb. Diagnosticsc. Treatmentd. Patient monitoringe. Education and researchf. Communication	<ul style="list-style-type: none">• Repeated practice in the learning lab• Conduct an internet search for data on a research question (example: Does hypertension affect some cultures and or races more readily than others?) <p><u>SUGGESTED ASSESSMENT METHODS</u></p> <ul style="list-style-type: none">• Performance tasks• Graphing exercises• Test and quizzes• Career research projects and presentations
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