RESP 112-COMMUNITY HEALTH AND INFECTION CONTROL

3 CREDITS

SYLLABUS

CATALOG DESCRIPTION

This course presents an introduction to community health that includes basic concepts in epidemiology in the community, the transmission of infectious diseases affecting public health, and biological agents and bio-terrorism. It also discusses microbiological concepts that apply to the health sciences with the care of patients and protection against infectious diseases. Included are sterilization, disinfection and aseptic techniques.

Prerequisites: Acceptance into the program

Co-Requisites: RESP 110, 114, 118, 236

Semester Offered: Fall Semester

Common Student Learning Outcomes

Upon successful completion of San Juan College programs and degrees, the student will demonstrate competency in…

BROAD AND SPECIALIZED LEARNING

Students will actively and independently acquire, apply, and adapt skills and knowledge with an awareness of global contexts.

CRITICAL THINKING

Students will think analytically and creatively to explore ideas, make connections, draw conclusions and solve problems.

CULTURAL AND CIVIC ENGAGEMENT

Students will act purposefully, reflectively, and ethically in diverse and complex environments.

EFFECTIVE COMMUNICATION

Students will exchange ideas and information with clarity in multiple contexts.

INFORMATION LITERACY

Students will be able to recognize when information is needed and have the ability to locate, evaluate, and use it effectively.

INTEGRATING TECHNOLOGIES

Students will demonstrate fluency in the application and use of technologies in multiple contexts.

Student work from this class may be randomly selected and used anonymously for assessment of course, program, and/or institutional learning outcomes. For more information, please refer to the Dean of the appropriate School.

Course Learning Outcomes

GENERAL LEARNING OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Describe epidemiology, public health and nosocomial infections.
2. Discuss how emerging infectious diseases present a threat to community health.
3. Identify potential biological agents for bioterrorism.

4. Describe infection, the modes of transmission, precautions and exposure control.
5. Describe the basic physiology and pathology of bacteria.
6. Discuss basic laboratory techniques of identifying and culturing bacteria.
7. Identify common diseases caused by gram positive and gram negative bacteria.
8. Describe the basic physiology and pathology of viruses.
9. Identify common diseases caused by viruses.
10. Discuss the scientific bases of sterilization and disinfection.
11. Describe the disinfection and sterilization of respiratory equipment.
12. Discuss the different aseptic techniques related to respiratory care.

SPECIFIC LEARNING OBJECTIVES

Upon successful completion of the course, the student will be able to:

1. Describe epidemiology, public health and nosocomial infections:
   A. Define epidemiology, public health and nosocomial infections.
   B. Differentiate between colonization and infection.
   C. Describe the 4 stages of acute disease.
   D. Differentiate between direct and indirect transmission of disease.
   E. Discuss the impact of nosocomial infections on health care.
   F. Contrast the concepts of epidemic and outbreak.
   G. Describe the 3 major link in the chain of infection.
   H. Discuss the importance of gram negative bacteria in nosocomial infections.
   I. Discuss at least 3 factors that make the hospital a special environment relative to the spread of infections.

2. Discuss how emerging infectious diseases present a threat to community health:
   A. Explain what is meant by emerging infectious disease.
   B. Identify 5 factors that influence the emergence or re-emergence of disease.
   C. Identify 5 emerging diseases and explain transmission, symptoms, precautions for caregivers, and treatment for each.
   D. Identify 5 pathogens that have the potential as biological weapons.
   E. Explain the role of respiratory therapists in responding to the threats of biological agents and/or bioterrorism.

3. Identify potential biological agents for bioterrorism:
   A. List 5 pathogens that have the potential use in bioterrorism.
   B. Explain how the threat of bioterrorism affects the agricultural industry.

4. Define infection, and describe the modes of transmission, precautions an exposure control:
   A. Define infection and list the 3 components that must be present for infection to occur.
   B. Identify the 4 transmission-based precautions.
   C. Demonstrate hand hygiene and the use of personal protective equipment.

5. Describe the basic physiology and pathology of bacteria:
   A. Explain the 2 basic relationships that human beings have with microorganisms.
   B. Compare and contrast the structures of prokaryotes, eukaryotes, and viruses.
   C. Describe the differences between the cell walls of gram-positive and gram-negative bacteria.
   D. Compare and contrast the oxygen requirements of obligate aerobes, microaerophiles, facultative anaerobes, and obligate anaerobes.
   E. Discuss the importance of sporulation.

F. Contrast the concepts of intoxication (neurotoxins) and infection.
G. Differentiate between pathogenicity and virulence.

6. Discuss basic laboratory techniques of identifying and culturing bacteria:
   A. Explain the use of aseptic technique in bacteriology.
   B. Discuss the principle of Gram staining.
   C. Describe Gram positive and Gram negative organisms on a smear.
   D. Describe procedure for collecting a throat swab and identifying group A Streptococcus.
   E. Discuss the differences in primary, selective, indicator and transport media.
   F. Describe how to inoculate different forms of media.
   G. Demonstrate the methods for inoculating an agar plate and streaking for isolated colonies.
   H. Explain the disk antibiotic susceptibility test.

7. Identify common diseases caused by Gram positive and Gram negative bacteria:
   A. Gram-positive cocci: *Staphylococcus, Streptococcus and Enterococcus*.
   B. Gram-negative diplococcic: *Neisseria meningitides and Neisseria gonorrhea*.
   C. Gram-positive sporeformers: *Bacillus and Clostridium*.
   D. Gram-negative enteric bacteria: *E. coli, Salmonella, Shigella, Proteus, Klebsiella, Serratia, Enterobacter, Pseudomonas*, etc.
   E. Gram-negative Coccobacili: *Hemophilus influenza, Bordetella pertusis, Brucella and Francisella tularensis*.
   F. Mycobacteria: *Mycobacterium tuberculosis*, etc.
   G. Spirochetes: *Treponema pallidum and Borrelia*.
   H. Mycoplasma: *Mycoplasma pneumonia*.
   I. Rickettsiae and Chlamydiae.
   J. Actinomyces, Nocardia and Legionella.

8. Describe the basic physiology and pathology of viruses:
   A. Describe the structure and specificity of viruses.
   B. Compare and contrast viral replication with bacterial replication.
   C. Explain the classification of viruses.
   D. Describe 3 types of vaccines.

9. Identify common diseases caused by viruses:
   A. Name the major DNA and RNA viruses and the diseases that they cause.

10. Discuss the scientific bases of sterilization and disinfection:
    A. Differentiate between asepsis, disinfection, sanitation and sterilization.
    B. Compare and contrast steam autoclaving and pasteurization.
    C. Discuss the advantages and disadvantages of using glutaraldehyde as a sterilizing-disinfecting agent.
    D. Describe the importance of surfactants in the control of microorganisms.
    E. List the precautions needed for the safe use of ethylene glycol oxide gas from both the patient's and therapist's points of view.
    F. Describe and indicate the effectiveness of physical agents used for decontamination to include:
        a. dry heat
        b. moist heat
        c. cold
        d. desiccation
        e. filtration
        f. ultraviolet
        g. radiation

G. Describe and indicate the effectiveness of chemical agents used for decontamination to include:
    a. protein denaturing agents
    b. organic solvents (alcohol's)
    c. oxidizing agents a (chlorine and iodine)
    d. alkylate agents (glutaraldehyde and ethylene oxide)
    e. surface active agents (quaternary ammonium salts)

11. Describe the disinfection and sterilization of respiratory equipment:
    A. Discuss sterilization and disinfection of respiratory equipment: humidifiers, nebulizers, portable gas-generating delivery systems (air compressors, flowmeters, cylinder carts), heating devices, spirometry devices, resuscitators, ventilators, bronchoscopes, etc.

12. Discuss the different aseptic techniques related to respiratory care:
    A. Discuss universal precautions, isolation precautions and procedures.
    B. Define the concept of sharps and their proper handling.
    C. Discuss the importance of hand-washing.

ASSESSMENT TECHNIQUES

1. Quizzes
2. Homework/Project
3. Mid-term Exam
4. Final Exam

ACCOMODATIONS STATEMENT

Students who need accommodations (i.e., notetaker, interpreter, special seating, etc.) need to provide accommodation notices to the instructor. Students can contact the Students with Disabilities on Campus (SDOC) Coordinator in the Counseling Center, located in the Administration Building, to make arrangements and provide documentation in accordance with the Americans with Disabilities Act of 1990.

ACADEMIC HONESTY RULES

San Juan College expects all students to adhere to the Academic Honesty Rules as posted on our website, http://www.sanjuancollege.edu/academichonesty. All Health Sciences Programs have a responsibility to ensure enrolled students and graduates are safe, ethical and competent practitioners. To ensure professionalism, students and faculty must uphold and abide by college and program accreditation specific policies.

SYLLABUS DEVELOPED AND/OR REVIEWED BY:

Dean of Health Sciences: _____ Date: _____

Director of Respiratory Therapy: _____ Date: _____

Clinical Coordinator of RT: _____ Date: _____