JEFFERSON COLLEGE
COURSE SYLLABUS

RCP100
Introduction to Respiratory Care
4 Credit Hours

Prepared by:
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Respiratory Therapy Program Director

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Elizabeth Check, Dean, Career and Technical Education
Mary Beth Ottinger, Division Chair
RCP100  Introduction to Respiratory Care

I.  CATALOGUE DESCRIPTION
   A.  Prerequisite: Admission to the program
   B.  Credit hour award – 4
   C.  Description – This course discusses the history of respiratory care and organizations relevant to the field as well as the ethical issues involved in patient care and treatment. The course will also introduce applied mathematics, chemistry, statistics, and health care physics. (S)

II.  EXPECTED LEARNING OUTCOMES/CORRESPONDING ASSESSMENT MEASURES

<table>
<thead>
<tr>
<th>Expected Learning Outcomes</th>
<th>Assessment Measures</th>
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<tbody>
<tr>
<td>Describe which organizations regulate various industries in respiratory care</td>
<td>Class activity</td>
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<td>Homework/article review</td>
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<td>Summative Exam</td>
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<tr>
<td>Demonstrate the correct method for calculating various equations for respiratory therapy</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Demonstrate the proper use of equations in respiratory physics</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Determine proper responses to various ethical situations</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<tr>
<td>Analyze statistical data as pertains to respiratory therapy</td>
<td>Class activity</td>
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<td>Homework/journal/article review</td>
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<tr>
<td>Summarize the history of respiratory care</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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<td>Recognize and determine proper mixtures of gases in the respiratory gas equations</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Demonstrate knowledge of chemical behavior of fluids and gases as it pertains to the cardiopulmonary system</td>
<td>Class activity</td>
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<td>Homework</td>
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<td>Summative Exam</td>
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III.  COURSE OUTLINE
   A.  Mathematics for respiratory care
      1.  Errors
      2.  Air:O2
      3.  I:E
      4.  Solute: solvent
      5.  Bohr equation
6. Vt
7. Dead space
8. Ventilation
9. Proportions
10. Humidity
11. Oxygen transport
12. Shunts
13. Dimensional analysis
14. Units of measure
15. Graphs
16. Variables
17. Lung volumes
18. Cardiac outputs
19. Pressure gradients
20. Alveolar air equations
21. Air entrainment
22. Fick equation
23. Compliance
24. Reciprocals
25. Elastance
26. Resistance
27. Conductance

B. Chemistry for respiratory care
   1. Atomic structure
   2. Kinetic theory of matter
   3. Pressure
   4. Diffusion rates
   5. Gas laws
   6. Molarity and normality
   7. Law of mass action
   8. Acid-base concepts
   9. Density
   10. Temperature
   11. Electrochemistry

C. Statistics for respiratory care
   1. Terminology
   2. Probability
   3. Normal distribution
   4. Sampling distribution
   5. Confidence intervals
   6. Sample size
   7. Testing of hypothesis
   8. Comparing means
   9. Inferences for proportions or percentages and two sample
   10. Correlation and regression

D. Physics for respiratory care
   1. Work
   2. Power
   3. Energy
   4. Fluid dynamics
5. Bernoulli principle
6. Helium oxygen
7. Venture
8. Choanda effect
9. Resistance
10. Fluid viscosity
11. Poiseuille’s law
12. Reynolds number
13. Hooke’s law
14. Law of LaPlace
15. Ventilation time constants
16. Starling’s law
17. Hydrostatic pressure
18. Osmosis
19. Capillary dynamics
20. Analyzers and wheatstone bridges

E. History of Respiratory Therapy
   1. Organizations
   2. Respiratory care field

F. Ethical issues for respiratory care
   1. Code of ethics
   2. Legal issues
   3. Viewpoints
   4. Dilemmas

IV. METHOD(S) OF INSTRUCTION:
   A. Lecture
   B. Readings from textbook
   C. Supplemental handouts
   D. Classroom activities
   E. Participation in active learning by computer programs, games, and internet based activities
   F. Peer interactive activities and discussions in classroom and online

V. REQUIRED TEXTBOOK:


Siberson, Raymond (1996) Practical Math for Respiratory Care: A Text and Workbook
St. Louis, MO, Mosby

VI. REQUIRED MATERIALS
   A. Course homepage available through jeffco.edu
   B. A computer with internet access (available through the Jefferson College Labs).
   C. Paper, notebooks, pens, pencils with erasers.

VII. SUPPLEMENTAL REFERENCES
   A. Class handouts
   B. Videos

VIII. METHOD OF EVALUATION (basis for determining course grade)
   A. Classroom activities 10%
   B. Homework 20%
   C. Summation examinations-comprehensive 60% - Final is worth at least 30% of total grade
   D. Attendance 10%
   E. Grading scale:
      A=92-100%
      B=86-91.9%
      C=80-85.9%
      D=70-79.9%
      F=0-69.9%

IX. ADA STATEMENT
Any student requiring special accommodations should inform the instructor and the Coordinator of Disability Support Services (Library; phone 636-797-3000, ext. 169).

X. ACADEMIC HONESTY STATEMENT
All students are responsible for complying with campus policies as stated in the Student Handbook. Any student who cheats or plagiarizes will be subject to dismissal from the respiratory program and will be referred to the college for disciplinary action. (see College website, http://www.jeffco.edu/jeffco/index.php?option=com_weblinks&catid=26&Itemid=84)