A. Academic Division: Health Sciences

B. Discipline: Respiratory Care

C. Course Number and Title: RESP 2410 Respiratory Care Equipment/Procedures IV

D. Course Coordinator: Tricia Winters, BBA, RRT, RCP
   Assistant Dean: Melinda Roepke, MSN, RN

Instructor Information:
- Name: Click here to enter text.
- Office Location: Click here to enter text.
- Office Hours: Click here to enter text.
- Phone Number: Click here to enter text.
- E-Mail Address: Click here to enter text.

E. Credit Hours: 3
   Lecture: 2 hours
   Laboratory: 3 hours

F. Prerequisites: RESP2310, RESP2390
   Co-requisite(s): RESP2450, RESP2470, RESP2490

G. Syllabus Effective Date: Fall, 2019

H. Textbook(s) Title:
   Manual of Pulmonary Function Testing
   - Author: Gregg L. Ruppel
   - Copyright Year: 2009
   - Edition: 
   - ISBN #: 9780323052122

   Egan’s Fundamentals of Respiratory Care
   - Authors: Kacmarek, Stoller, and Heuer
   - Copyright Year: 2012
   - Edition: 
   - ISBN #: 9780323082037

I. Workbook(s) and/or Lab Manual: None

J. Course Description: In this course, students will learn about advanced pulmonary function testing techniques and equipment, electrocardiograms, breathing exercises, pulmonary and cardiac exercise testing, bronchoscopy, polysomnography, indirect calorimetry, pulmonary rehabilitation, and home care.
K. College-Wide Learning Outcomes:

<table>
<thead>
<tr>
<th>College-Wide Learning Outcome</th>
<th>Assessments - - How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication – Written</td>
<td>Report Paper on Pulmonary Rehabilitation</td>
</tr>
<tr>
<td></td>
<td>Communication Written VALUE Rubric Week 12</td>
</tr>
<tr>
<td>Communication – Speech</td>
<td></td>
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<tr>
<td>Intercultural Knowledge and Competence</td>
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<tr>
<td>Critical Thinking</td>
<td></td>
</tr>
<tr>
<td>Information Literacy</td>
<td>Class presentations on Pulmonary Rehabilitation and Home Care, completed week 10 &amp; 12 Information – Literacy VALUE Rubric</td>
</tr>
<tr>
<td>Quantitative Literacy</td>
<td></td>
</tr>
</tbody>
</table>

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Assessments – How it is met &amp; When it is met</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Interpret the results of the following:</td>
<td>Procedure Check-offs weeks 2, 4, 6, &amp; 14</td>
</tr>
<tr>
<td>b. Pulmonary Testing: Six Minute Walk Test, Metabolic Assessment, Stress Testing, Adult Sleep Studies</td>
<td></td>
</tr>
<tr>
<td>2. Act as an Assistant to the Physician Performing Special Procedure including:</td>
<td>Examination Week 8</td>
</tr>
<tr>
<td>a. Pulmonary Testing: Bronchoscopy Assisting, Metabolic Assessment, Stress Testing, Holter Monitoring</td>
<td>lab check-off weeks 2, 4, 6, 8, 10, 12, 14, 16</td>
</tr>
<tr>
<td>b. Endotracheal Tube/Tracheostomy Care: Securing Artificial Airway, Tracheostomy Care, Cuff Management, Heat/Moisture Exchanger, Intubation, Extubation</td>
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<tr>
<td>c. Cardiology Testing: Holter monitoring, Cardiac Stress Testing</td>
<td></td>
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<tr>
<td>d.</td>
<td></td>
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<tr>
<td>3. Prescribe pulmonary rehabilitation and home care explain planned therapy and goals to patient in understandable terms to achieve optimal therapeutic outcome.</td>
<td>Project portfolio, Rubric week 14</td>
</tr>
<tr>
<td>Explain and assess patient and family need for disease management and smoking cessation.</td>
<td>Examination week 8</td>
</tr>
<tr>
<td>Summarize the Medicare laws pertaining to Home Care</td>
<td></td>
</tr>
<tr>
<td>Outcomes</td>
<td>Assessments – How it is met &amp; When it is met</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>4. Perform procedures including:</td>
<td>Laboratory Check-offs weeks 2, 4, 12</td>
</tr>
<tr>
<td>a. Cardiology Testing: Electrocardiography, Holter</td>
<td>Examination week 8</td>
</tr>
<tr>
<td>b. Endotracheal/Tracheostomy Care: Tracheostomy Care, Tracheal</td>
<td></td>
</tr>
<tr>
<td>Suctioning</td>
<td></td>
</tr>
<tr>
<td>c. Pulmonary Function Testing: Spirometry,</td>
<td></td>
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<tr>
<td>Methacholine Challenge, Nitrogen Washout/Helium</td>
<td></td>
</tr>
<tr>
<td>Dilution, Diffusion Study, Plethysmography,</td>
<td></td>
</tr>
<tr>
<td>Pulmonary Function Test Quality Assurance</td>
<td></td>
</tr>
</tbody>
</table>

M. Topical Timeline (Subject to Change):

1. Basic 12 lead EKG Techniques and recognition Lecture and lab performance
   a. ECG measurements
   b. ECG Electrodes/Leads
   c. ECG Instrumentation
   d. ECG Interpretation
   e. Rhythms
   f. ECG Arrhythmias
   g. Irregular rhythms
   h. Fast rhythms
   i. Paroxysmal tachycardia
   j. Flutter
   k. Fibrillation
   l. Early and late Beats
   m. Heart Blocks
   n. Miscellaneous Rhythms
   o. Axis Deviation
   p. Hypertrophy
   q. Myocardial Infarction:
      1) Anterior
      2) Posterior
      3) Lateral
      4) Inferior

2. Bronchoscopy:
   a. equipment
   b. indications, contraindication, risks, precautions
   c. Respiratory Therapists role: pre, during and post procedure
   d. Types of Bronchoscopy procedures:
      1) Bronchial alveolar lavage
      2) Endobronchial biopsy
      3) Transbronchial biopsy
      4) Transbronchial needle aspiration biopsy
      5) Cytology brush
      6) Cryotherapy
      7) Argon therapy
      8) Stent –placement
   e. View BAL videos

3. Polysomnography
   a. equipment
   b. indications, OSA verse CSA
   c. definitions and terms pertaining to the field
   d. interpreting the tracing
   e. treatment of OSA
4. Home Care
   a. AARC Clinical Practice Guideline
   b. Reimbursement
   c. Oxygen
   d. CPAP
   e. Mechanical ventilation
   f. Tracheostomy care
5. Pulmonary rehabilitation
   a. program design
   b. program implementation
   c. content and methods for teaching nutrition
   d. smoking cessation
   e. muscle training/breathing exercises
   f. control and relaxation
   g. sexuality
6. Cardiac and Pulmonary Stress Testing
   a. Indications, contraindications, hazards, precautions, risks
   b. Types of cardiac Stress tests:
      1) Bruce protocol
      2) Adenoscan
      3) MUGA
      4) Dobutamine
      5) Persantine
      6) Regadenoson (Lexiscan)
   c. Interpretation of Normal results
   d. Interpretation of abnormal results
   e. Pulmonary stress test
      1) indirect calorimetry monitoring
      2) CO₂ uptake
      3) O₂ Max
7. Pulmonary Functions:
   a. Lung Volumes and Capacities, TLC, VC, IRV, ERV, IC, FRC, Vt, RV
   b. Flowrate, PEFR, FEF 25-75, FEV1, FEV1/FVC
   c. Diffusion studies, DLCO single breath
   d. MVV, Before and After Broncho-dilation
   e. Bronchopulmonary provocation, methacholine challenge
   f. Interpretation of results
   g. GOLD Standard
   h. Tracings, Flow Volume Loop and spirogram tracing
   i. Calculating flows and volumes from spirogram tracings and flow volume loops

N. Course Assignments:
   1. Lecture, discussion
   2. Laboratory exercises
   3. Projects and presentations
   4. Demonstrations
   5. Field trips to hospital labs
   6. Worksheet assignments

O. Recommended Grading Scale:

<table>
<thead>
<tr>
<th>NUMERIC</th>
<th>GRADE</th>
<th>POINTS</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>93–100</td>
<td>A</td>
<td>4.00</td>
<td>Superior</td>
</tr>
<tr>
<td>90–92</td>
<td>A-</td>
<td>3.67</td>
<td>Superior</td>
</tr>
<tr>
<td>Grade</td>
<td>Letter</td>
<td>GPA</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
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</tr>
<tr>
<td>87–89</td>
<td>B+</td>
<td>3.33</td>
<td>Above Average</td>
</tr>
<tr>
<td>83–86</td>
<td>B</td>
<td>3.00</td>
<td>Above Average</td>
</tr>
<tr>
<td>80–82</td>
<td>B-</td>
<td>2.67</td>
<td>Above Average</td>
</tr>
<tr>
<td>77–79</td>
<td>C+</td>
<td>2.33</td>
<td>Average</td>
</tr>
<tr>
<td>73–76</td>
<td>C</td>
<td>2.00</td>
<td>Average</td>
</tr>
<tr>
<td>70–72</td>
<td>C-</td>
<td>1.67</td>
<td>Below Average</td>
</tr>
<tr>
<td>67–69</td>
<td>D+</td>
<td>1.33</td>
<td>Below Average</td>
</tr>
<tr>
<td>63–66</td>
<td>D</td>
<td>1.00</td>
<td>Below Average</td>
</tr>
<tr>
<td>60–62</td>
<td>D-</td>
<td>0.67</td>
<td>Poor</td>
</tr>
<tr>
<td>00-59</td>
<td>F</td>
<td>0.00</td>
<td>Failure</td>
</tr>
</tbody>
</table>

P. **Grading and Testing Guidelines:**

Click here to enter text.

Q. **Examination Policy:**

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R. **Class Attendance and Homework Make-Up Policy:**

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S. **Classroom Expectations:**

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T. **College Procedures/Policies:**

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf) located at https://sharept.ncstatecollege.edu/committees/1/curriculum/SiteAssets/SitePages/Home/SYLLABUS%20SUPPLEMENT.pdf

The information can also be found **Choose an item.**