



Course Number and Title: RCT 243 Pulmonary Function Studies

Campus Location:

Georgetown, Wilmington

Effective Date:

2019-51

Prerequisite:

RCT 140

Co-Requisites:

none

Course Credits and Hours:

2.00 credits

1.00 lecture hours/week

3.00 lab hours/week

Course Description:

This course covers pulmonary function and exercise testing with an emphasis on interpretation and clinical application.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

None

Schedule Type:

Classroom Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Explain, administer, and interpret lung volume, flow procedures, and results. (CCC 1, 2; PGC 1, 2)
2. Describe, perform, and interpret diffusion procedures and results. (CCC 1, 2; PGC 1, 2)
3. Explain the induction of bronchial provocation, and interpret results. (CCC 1, 2; PGC 1)
4. Describe and interpret exercise testing procedures and results. (CCC 1, 2; PGC 1)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Explain, administer, and interpret lung volume, flow procedures, and results.
 1. Explain the indications for performing lung volume and flow measurements.
 2. Provide rationale for good testing regimen.
 3. Label a normal spirogram tracing, and define the different volumes and capacities.
 4. Identify, describe, and state limitations of the following equipment: water sealed and dry spirometers, Wright respirometer, plethysmograph, pneumotachometer, and Wright peak flow meter.
 5. Set up and perform spirometry on a volunteer.
 6. Describe, identify, and calculate the following spirometry parameters: forced vital capacity (FVC), forced expiratory volume at 1 second (FEV1), forced expiratory flow at 25% and 75% vital capacity (FEF 25-75), peak expiratory flow (PEF), forced expiratory flow at 50% vital capacity (FEF50), and maximum voluntary ventilation (MVV).
 7. Explain the purpose and use of before and after bronchodilator tests.
 8. Explain the function of a super syringe.
 9. Describe a closed and open circuit for determining functional residual capacity (FRC).
 10. Describe and identify the following lung volumes and capacities: inspiratory reserve volume (IRV), expiratory reserve volume (ERV), residual volume (RV), FRC, inspiratory capacity (IC), vital capacity (VC), and total lung capacity (TLC).
 11. Explain and interpret the operation and measurements performed by the body plethysmograph, including all lung volumes and pulmonary mechanics.
2. Describe, perform, and interpret diffusion procedures and results.
 1. Explain the indications for measuring diffusion testing.
 2. Describe two (2) methods used to determine carbon monoxide diffusing capacity, and give indications for diffusion capacity of carbon monoxide (DLCO).
 3. Interpret pulmonary function test results, and relate them to diffusion, gas distribution, restrictive, obstructive, or mixed ventilator defects.
 3. Explain the induction of bronchial provocation, and interpret results.
 1. Describe the indications for performing bronchial provocation.
 2. Describe and interpret tests involving bronchial provocation.
 4. Describe and interpret exercise testing procedures and results.
 1. State indications for exercise testing.
 2. Describe the types of exercise used for testing.
 3. Define the term *steady state* as it relates to exercise testing.
 4. Explain how intensity and duration of tests may be varied for patients.
 5. Outline and describe observations that can be made during the following exercise testing: heart rate, ventilation, oxygen (O₂) intake and carbon dioxide (CO₂) output, blood pressure, fractional expired CO₂ (F_ecO₂), blood gas, lactate production, right heart pressures, and electrocardiogram (ECG).

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Apply theoretical information that leads to an appropriate action in the application or delivery of respiratory care procedures.
2. Perform technical skills in the implementation of respiratory care procedures within a plan of care.
3. Practice behaviors that are consistent with professional and employer expectations/requirements of their employees.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.