

**Course Objectives/Course Outline**  
**Spokane Community College**

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**Course Title: Pulmonary Volumes Diffusion and Instrumentation**

**Prefix and Course Number: RT 305**

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**Course Learning Outcomes:**

**By the end of this course, a student should be able to:**

- Accurately perform three forced vital capacity (FVC) maneuvers meeting all ATS criteria for acceptability and reproducibility
- Differentiate between the four methods used to determine FRC and RV
- Evaluate the limitations of the four methods used to determine FRC and RV
- Differentiate between the gas dilution tests to determine FRC and RV
- Describe how plethysmography is used to determine FRC and RV
- Describe the single breath oxygen test to determine gas distribution in the lungs
- Evaluate the limitations of the single breath oxygen test for distribution
- Describe the theory and value of the single breath diffusion test
- Compare and contrast the single breath diffusion test, steady state diffusion test and intra-breath diffusion test
- Describe the operation of the various gas analyzers used in pulmonary function testing
- Given a complete PFT, interpret the results of the study

**Course Outline:**

- I. Spirometry and ATS Standards
- II. Pre/Post bronchodilator assessment
- III. Pulmonary gas analyzers
- IV. Dilution techniques
  - A. Nitrogen washout
  - B. Helium dilution
- V. Plethysmography
- VI. Radiographic lung volume determination
- VII. Single breath diffusion test
- VIII. Single breath distribution test
- IX. PFT interpretation