

RESP-360: ADVANCED CLINICAL INTEGRATION AND DIAGNOSTIC REASONING

Effective Term

Fall 2026

CC Approval

03/06/2026

AS Approval

03/12/2026

BOT Approval

03/19/2026

SECTION A - Course Data Elements

Send Workflow to Initiator

No

CB04 Credit Status

Credit - Degree Applicable

Discipline

Minimum Qualifications

And/Or

Respiratory Technician (Any Degree and Professional Experience)

Subject Code

RESP - Respiratory Care

Course Number

360

Department

Respiratory Therapy

Division

Health Occupations (HEOC)

Full Course Title

Advanced Clinical Integration and Diagnostic Reasoning

Short Title

Advanced Clinical Integration

CB03 TOP Code

1210.00 - *Respiratory Care/Therapy

CIP Code

51.0908

CB08 Basic Skills Status

NBS - Not Basic Skills

CB09 SAM Code

B - Advanced Occupational

Rationale

New upper division course for the Respiratory Care Baccalaureate Program.

SECTION B - Course Description

Catalog Course Description

This course validates the advanced clinical competencies required for Baccalaureate-level respiratory care. It focuses on the transition from technical data collection to advanced diagnostic reasoning. Students will synthesize multi-system physical assessment data, complex laboratory findings, and diagnostic imaging to formulate differential diagnoses and comprehensive care plans for the critically ill cardiopulmonary patient.

SECTION C - Conditions on Enrollment

Open Entry/Open Exit

No

Repeatability

Not Repeatable

Grading Options

Letter Grade Only

Allow Audit

No

Requisites

Limitation on Enrollment

Enrollment is limited to students accepted into the Respiratory Care Baccalaureate Degree program.

SECTION D - Course Standards

Is this course variable unit?

No

Units

5.00

Lecture Hours

90

Outside of Class Hours

180

Total Contact Hours

90

Total Student Hours

270

Distance Education Approval

Is this course offered through Distance Education?

Yes

Online Delivery Methods

| DE Modalities | Permanent or Emergency Only? |
|-----------------|------------------------------|
| Entirely Online | Permanent |
| Hybrid | Permanent |

SECTION E - Course Content

Student Learning Outcomes

| Upon satisfactory completion of the course, students will be able to: | |
|---|--|
| 1. | Synthesize multi-system clinical data to develop comprehensive respiratory care plans for complex patient populations. |
| 2. | Evaluate diagnostic findings, including advanced hemodynamics and laboratory data, to differentiate between various cardiopulmonary pathologies. |
| 3. | Demonstrate professional proficiency in the application of evidence-based protocols as defined by NBRC standards. |

Course Objectives

| Upon satisfactory completion of the course, students will be able to: | |
|---|---|
| 1. | Analyze the physiological relationship between the cardiac and pulmonary systems under stress. |
| 2. | Interpret complex arterial blood gas results involving mixed acid-base disturbances. |
| 3. | Evaluate the clinical utility of advanced hemodynamic parameters (SVR, PVR, CO/CI). |
| 4. | Integrate radiologic findings with clinical presentation to refine differential diagnoses. |
| 5. | Formulate evidence-based pharmacological interventions for chronic respiratory diseases. |
| 6. | Assess the impact of co-morbidities on respiratory failure outcomes. |
| 7. | Correlate hemodynamic parameters (SVR, PVR, PCWP) with specific shock states and heart failure classifications. |
| 8. | Interpret complex chest imaging (CT, V/Q, MRI) to guide therapeutic interventions for pulmonary vascular disease. |
| 9. | Analyze the relationship between renal function, fluid electrolyte balance, and respiratory failure outcomes. |
| 10. | Evaluate the utility of bedside ultrasound (POCUS) in the assessment of pleural space and lung parenchyma. |

Course Content

1. Advanced Cardiopulmonary Physiology
 - a. Ventricular function and pulmonary circulation
 - b. Ventilation-perfusion (V/Q) mismatching and shunt calculations
2. Clinical Diagnostics and Imaging
 - a. Interpretation of CT, MRI, and V/Q scans
 - b. Bedside ultrasound and echocardiography basics for the RT
3. Advanced Hemodynamics
 - a. Pressure transducer systems and leveling
 - b. Analysis of Swan-Ganz catheter data
4. Complex Case Management
 - a. Multi-organ system failure
 - b. Sepsis and ARDS pathophysiology
5. Physical Assessment
 - a. Advanced chest percussion
 - b. Tactile fremitus
 - c. Specialized auscultation
6. Laboratory Medicine
 - a. Comprehensive metabolic panels
 - b. Cardiac biomarkers (Troponin, BNP)
 - c. Hematology (CBC with differential) in the context of respiratory failure
7. Radiology
 - a. Systematic approach to CXR (ABCDE method)
 - b. CT angiography for PE
 - c. V/Q scanning
8. Hemodynamics
 - a. CVP
 - b. PAP
 - c. PCWP
 - d. Thermodilution Cardiac Output

Methods of Instruction

Methods of Instruction

| Types | Examples of learning activities |
|------------|--|
| Lecture | Interactive digital whiteboard sessions using real-time hemodynamic waveforms where students must identify optimal "wedge" pressure placement and interpret data via chat and voice. |
| Group Work | Students work in teams of three to review blind patient charts. They must utilize bedside assessment data to construct a differential diagnosis and present their clinical rationale to the class using a whiteboard to map out the physiological links between organ systems. |

Online Adaptation

| Types | Examples of learning activities |
|------------|---|
| Discussion | Students engage with a weekly Unfolding Case Study via Canvas. The instructor provides data in stages (Initial Assessment, Lab Results, Imaging). Students must post their Next Clinical Step to a locked discussion forum before the next stage of data is revealed, followed by an instructor-led video debriefing the correct diagnostic path. |
| Critique | Using a video-commenting tool (like VoiceThread), students upload an image of a chest X-ray or a hemodynamic profile with their own voice-over analysis. They are then required to review and respond to two peers, identifying one diagnostic finding the peer missed or providing an alternative interpretation based on the data. |

Instructor-Initiated Online Contact Types

Announcements/Bulletin Boards
 Chat Rooms
 Discussion Boards
 E-mail Communication
 Telephone Conversations
 Video or Teleconferencing

Student-Initiated Online Contact Types

Discussions
 Group Work

Course design is accessible

Yes

Methods of Evaluation

Methods of Evaluation

| Types | Examples of classroom assessments |
|------------|---|
| Portfolios | Students curate a collection of three distinct case analyses throughout the semester. Each portfolio entry must include a summary of laboratory findings, an interpretation of diagnostic imaging, and an evidence-based care plan, graded against a rubric focused on clinical accuracy and synthesis. |
| Projects | A "Virtual Grand Rounds" project where students analyze a longitudinal patient chart (lab values, ABGs, imaging) and present a 5-minute video recording of their clinical recommendations. |

Assignments

Reading Assignments

Example 1. Analysis of NBRC Clinical Simulation Exam standards and peer-reviewed journals on diagnostic accuracy (approx. 1,000 pages).

Example 2. Critical analysis of 10 peer-reviewed articles on ARDSNet protocols.

Writing Assignments

Example 1. Synthesis of a 7-10 page "Patient Case Longitudinal Study" evaluating a complex ICU patient from admission to discharge.

Example 2. A weekly "Clinical Reflection Journal" (2 pages) linking theory to past clinical encounters.

Outside-of-Class Assignments

Example 1. Participation in a moderated online forum discussing "Diagnostic Pitfalls in the ICU."

Example 2. Development of a diagnostic "cheat sheet" for identifying 5 specific obstructive vs. restrictive pathologies.

SECTION F - Textbooks and Instructional Materials

Material Type

Textbook

Author

Des Jardins, T.

Title

Clinical Manifestations and Assessment of Respiratory Disease

Edition/Version

9th

Publisher

Mosby

Year

2024

ISBN #

9780323871501

SECTION G - Diversity, Equity and Inclusivity

How does your course and/or course outline of record reflect strategies for accommodating and engaging diverse student populations, advancing equitable outcomes, and fostering inclusion for all students?

The Respiratory Care program at Napa Valley College is committed to equitable student outcomes through the use of Universal Design for Learning (UDL). This course utilizes diverse case studies that highlight health disparities in respiratory disease among marginalized communities. By providing multi-modal instruction and various pathways for assessment, we ensure that students of all backgrounds and learning styles are positioned to succeed as future leaders in healthcare.

Course Codes (Admin Only)

CB10 Cooperative Work Experience Status

N - Is Not Part of a Cooperative Work Experience Education Program

CB11 Course Classification Status

Y - Credit Course

CB13 Special Class Status

N - The Course is Not an Approved Special Class

CB23 Funding Agency Category

Y - Not Applicable (Funding Not Used)

CB24 Program Course Status

Program Applicable

Allow Pass/No Pass

No

Only Pass/No Pass

No