Community Colleges of Spokane
Spokane Community College

PROGRAM PROPOSAL

BACHELOR OF APPLIED SCIENCE IN RESPIRATORY CARE

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COVER SHEET
NEW DEGREE PROGRAM PROPOSAL

Program Information

Institution Name: **Spokane Community College**

Degree Name: **Bachelor of Applied Science in Respiratory Care** CIP Code: **51.0812**

Name(s) of existing technical associate degree(s) that will serve as the foundation for this program:

Degree: **Associate in Applied Science in Respiratory Care** CIP Code: **51.0812** Year Began: **1965**

Proposed Start Implementation Date (i.e. Fall 2014): **Fall 2017**

Proposal Criteria: *Please respond to all eight (8) areas listed in proposal criteria FORM D.*
Page Limit: 30 pages

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Introduction

Spokane Community College (SCC) proposes to deliver a Bachelor of Applied Science in Respiratory Care (BASRC) and would begin to enroll students as of fall quarter 2017. SCC is proposing that the associate of applied science (AASRC) degree be eliminated and that a BASRC degree take its place. Future educational requirements for entry into the profession will require a baccalaureate or graduate degree. Both the American Association for Respiratory Care (AARC) and the Commission on Accreditation for Respiratory Care (CoARC) have issued position statements or changed standards to reflect the need for more education for those entering the profession. The BASRC curriculum builds on the rigorous curriculum of the current AASRC degree and will meet the current and future employment needs for respiratory care practitioners (RCPs) in Eastern Washington and the inland northwest.

The American Association for Respiratory Care (AARC) and the Commission on Accreditation for Respiratory Care (CoARC) are shifting toward requiring a baccalaureate degree as the entry-level education to meet the increasing scope and complexity of skills with emphasis on evidence-based medicine, respiratory disease management, and advanced patient assessment required of today's practitioners. At its July 2015 Board meeting, AARC set a goal that 80% of all current RCPs should have earned or be actively pursuing a bachelor's degree by 2020. [1] Furthermore, all new practitioners entering the profession must, at a minimum, hold a bachelor's degree.

In January 2016, CoARC released a statement acknowledging that respiratory therapists with baccalaureate and graduate education "are needed in larger number to serve as educators, researchers, managers, clinical specialists, and other roles throughout the healthcare delivery system." To support the shift to a baccalaureate degree as entry-level education, CoARC is in the process of revising its standard for Entry into Respiratory Care Professional Practice to state that graduates must be awarded a baccalaureate or graduate degree upon completion effective as of January 1, 2018.[2]

The BASRC program will prepare respiratory care graduates to create advanced treatment plans, provide critical care patient management, and demonstrate skills in communication, critical thinking, and leadership. Graduates will be equipped to work in a wide range of health-care settings such as acute care, sub-acute and long term care, home care and private practice settings. Upon completion of the program, graduates will be eligible to apply and sit for the National Board for Respiratory Care (NBRC) exams for registered respiratory therapist (RRT) and the specialty exams in pulmonary function, neonatal-pediatric, and adult critical care.

This program proposal will show how SCC's BASRC degree demonstrates baccalaureate level rigor; employs qualified faculty; assures that its selective admission policy is consistent with an open door institution; offers an appropriate student services plan; models a sustainable, quality program; seeks accreditation; opens pathways beyond the bachelor's degree and meets expert reviewer expectations.

[1] http://www.aarc.org/aarc-bod-sets-80-bachelor-degree-goal-by-2020/

[2] http://www.coarc.com/uploaded/files/CoARC%20Response%20to%20CoBGRTE%20White%20Paper%20on%20Accreditation%20-3%2012%2016.pdf

Criteria 1: Curriculum Demonstrates Level of Rigor

As the largest workforce training provider in the region, SCC plays a vital role in providing educational opportunities that meet the economic and workforce development needs of the region. Therefore, the College is committed to developing a robust and rigorous curriculum designed to provide a strong foundation in core knowledge and general education but also to deepen students' understanding of theories and practices of the field of Respiratory Care.

The SCC Respiratory Care program's primary focus is student success, and it strives to prepare graduates that meet the needs and demands of employers. As such, the program has two goals:

- To prepare graduates with demonstrated competence in the cognitive (knowledge), psychomotor (skills), and affective (behavioral) learning domains of respiratory care practice as performed by registered respiratory care practitioners (RCPs).
- To prepare leaders for the field of respiratory care who demonstrate acquisition of skills in one or more of the following: management, education, research, or advanced clinical practice.

Program Learning Outcomes

The program will prepare graduates to create advanced treatment plans, provide critical care patient management, and demonstrate skill in communication, critical thinking, and leadership. Upon completion of the program, successful graduates will be able to:

- Work independently and collaboratively demonstrating a respect for others and a sense of community responsibility.
- Demonstrate collaboration and effective communication among all health care team members in the delivery of respiratory care in all patient settings.
- Analyze information and research and apply it in the health care setting.
- Apply the principles of cultural awareness formulating appropriate modifications to health care plans to accommodate cultural differences.
- Design and implement appropriate treatment plans in all healthcare settings where respiratory care is delivered.
- Apply advanced respiratory care competencies in all health care settings.

Program Evaluation

The College's respiratory care faculty teams design, implement and refine their assessment models and tools. Assessment of program goals and student learning outcomes are performed quarterly and form the basis for ongoing program planning, evaluation and improvement. The National Board for Respiratory Care (NBRC) provides detailed content outlines of expected knowledge and psychomotor content for an advanced level graduate. These outlines and the annual performance results of graduates on the credentialing exams further helps the faculty to revise the program to meet industry needs.

The respiratory care advisory committee advises the program as to recommended curriculum improvements; helps keep the program abreast of changes in the field; assists in student recruitment and placement; and makes recommendations for other changes that will keep the program current. The advisory committee has reviewed the proposed BASRC curriculum and has given its approval as to the appropriateness and content of the curriculum. The program's Medical Director, Richard Lambert, MD, FACCP has reviewed the proposed BASRC curriculum and has ascertained that it meets current medical standards. External experts with experience in respiratory care education will assess the overall curriculum and the courses to ensure rigor, consistency and quality.

Furthermore, the BASRC program is required to complete a comprehensive self-study evaluation through CoARC to maintain programmatic accreditation. The CoARC self-study evaluation is divided into five sections that include program administration; resources; program goals, outcomes, and assessment; curriculum; and fair practice and record keeping. CoARC requires that the program has a systematic annual assessment process to evaluate achievement of program goals and expected student learning outcomes. The program must also track student progression and assess student outcomes on national board exams as well as survey employers, graduates and current students on an annual basis. Results from these annual assessments are summarized in a resource assessment matrix (RAM), which is submitted annually along with on-time graduation and attrition rates to CoARC for review along with an analysis and action plan in the form of the Report of Current Status (RCS).

Table 1. Program Assessment Plan

Method	Element Assessed	Time Frame
Effectiveness of Curriculum – continuously refine curriculum and program design to keep the program current		
Program Statistics	• Student retention • Course completion and success • Student progression	Quarterly
Expected Student Learning Outcomes	• Level of mastery of expected knowledge and competencies	Quarterly/ Annually
Course Evaluations	• Instructor evaluations	Quarterly
Current Student Survey	• Student Program Resource Surveys (required CoARC document)	Annually Quarterly
National Board Exams (CRT/RRT)	• NBRC Annual School Summary Report • TMC Performance • CSE Performance	Annually
Graduate follow-up and Industry Feedback – assess the program's effectiveness in preparing students for employment to refine curriculum and teaching methodologies.		
Graduate Survey	• Assessment of cognitive, psychomotor and affective skills as an entry level registered respiratory therapist	Annually
Employer Survey	• Assessment of cognitive, psychomotor and affective skills as an entry level registered respiratory therapist	Annually
Advisory Committee – provide ongoing support and review of program goals, curriculum and outcomes.		
BASRC Advisory Committee Meeting	• Relevance of curriculum to employer needs • Trends in field, technologies, practices and job markets	Twice per Year
Advisory Committee Survey	• Program Personnel Resource Survey (required CoARC	Annual

	document) completed by faculty and advisory committee	

Course Preparation for Students

The BASRC degree is designed as a cohort program, and students will attend full-time. Students are conditionally admitted to the BASRC program during the general education year. Successful admission to the core program (Year Two – Year Four) is contingent on students successfully completing 45 credits of general education with a 2.5 GPA or higher in all courses. The general education provides students with a strong foundation for the rigors of the upper level respiratory care core curriculum. Furthermore, these requirements have been designed to provide access to a wide range of students and to ensure that prospective students are adequately prepared for success once they enter the program.

Table 2. General Education Prerequisites

Fall Quarter	Winter Quarter	Spring Quarter
BIOL&160 General Biology (5 cr)	BIOL&241 Human A&P I (5 cr)	BIOL&242 Human A&P II (5 cr)
CHEM&121 Intro. to Chemistry (5 cr)	ENGL&235 Technical Writing (5 cr)	BIOL&260 Microbiology (5 cr)
ENGL&101 English Composition I (5 cr)	MATH&146 Statistics (5 cr)	CMST&227 Intercultural Comm. (5 cr)

General Education

The BASRC program recognizes the value that general education provides students, broadening a graduate's understanding and skills in a variety of academic disciplines that will contribute to their success as managers and organizational leaders. The general education requirements for the program meet the approved state guidelines for applied baccalaureate general education and include coursework in communication skills; quantitative/symbolic reasoning skills; humanities; social science; and natural science. Students enter the program with 45 credits of general education courses taken prior to enrolling. Once enrolled in the program, the students complete another 15 credits of general education.

Table 3. General Education Requirements

Subject Area	Credits	Course Required
Communication Skills	10	ENGL&101 English Composition (5 cr) ENGL&235 Technical Writing (5 cr)
Quantitative/Symbolic Reasoning Skills	5	MATH&146 Statistics (5 cr)
Humanities	10	PHIL&210 Ethics (5 cr) CMST&227 Intercultural Communications (5 cr)
Social Science	10	PSYCH&100 General Psychology (5 cr) PSYCH&200 Lifespan Psychology (5 cr)
Natural Science	25	BIOL&160 General Biology w/Lab (5 cr) BIOL&241 Human Anatomy & Physiology I (5 cr) BIOL&242 Human Anatomy & Physiology II (5 cr) BIOL&260 Microbiology (5 cr) CHEM&121 Introduction to Chemistry (5 cr)
Total General Education Credits: 60	60	

Program Core Curriculum

The core curriculum for the BASRC degree was developed in collaboration with the program's advisory committee and is based on National Board for Respiratory Care's new Therapist Multiple Choice (TMC) Detailed Content Outline (see Appendix A). Full course outlines for the BASRC core curriculum are included in Appendix B.

Table 4. BASRC Core Curriculum		
Sophomore Year		
Fall Quarter	**Winter Quarter**	**Spring Quarter**
RT 213 Electrophyiology (4 cr)	SURG 105 Blood-Borne/HIV (1 cr)	RT 261 Funds of RC III (4 cr)
RT 241 Funds of RC I (3 cr)	RT 251 Funds of RC II (3 cr)	RT 262 Funds if RC III Lab (2 cr)
RT 242 Funds of RC I Lab (2 cr)	RT 252 Funds of RC II Lab (2 cr)	RT 263 Resp Care Pharmacology I (4 cr)
RT 244 Cardiopulmonary Anatomy & Physiology (3 cr)	RT 254 Spirometry (2 cr)	RT 264 Computer Appl. In RC 1 (1 cr)
RT 248 Physical Science for RC (3 cr)	RT 255 Spirometry Lab (1 cr)	RT 266 RC Clinical I (1 cr)
Junior Year		
Fall Quarter	**Winter Quarter**	**Spring Quarter**
RT 301 Critical Care I (4 cr)	RT 302 Critical Care II (5 cr)	RT 303 Home Care/Rehab (2 cr)
RT 311 Critical Care I Lab (2 cr)	RT 312 Critical Care II Lab (2 cr)	RT 313 Home Care/Rehab Lab (1 cr)
RT 304 Cardiopulmonary Pathophysiology (3 cr)	RT 305 PVDI (2 cr)	RT 309 Adv. Pharmacology (3 cr)
RT 321 RT Clinical II (2 cr)	RT 315 PVDI Lab (1 cr)	RT 325 PFT Clinical I (1 cr)
	RT 308 BLS Instructor (2 cr)	RT 331 Critical Care Clinical I (5 cr)
	RT 322 RT Clinical III (2 cr)	
Senior Year		
Fall Quarter	**Winter Quarter**	**Spring Quarter**
RT 401 Pediatrics/Neonatal RC (3 cr)	RT 415 Disease Management (4 cr)	RT 406 Management in RC (2 cr)
RT 411 Pediatric/Neonatal RC Lab (2 cr)	RT 416 Disaster Management (2 cr)	RT 407 Patient Management & Problem Solving (3 cr)
RT 402 ACLS (2 cr)	RT 404 Research Presentation (2 cr)	RT 417 Patient Management & Problem Solving Lab (1 cr)
RT 412 ACLS Lab (1 cr)	RT 423 Adv. Pulm. DX Clinical (1 cr)	RT 409 Capstone (2 cr)
RT 403 Adv. Pulm DX (3 cr)	RT 424 Pediatric/Neonatal Clinical (3 cr)	RT 410 Funds of Education Course Design (2 cr)
RT 413 Adv. Pulm DX Lab (1 cr)	RT 425 Adv Critical Care Clinical (2 cr)	RT 433 Advanced Clinical (5 cr)
RT 421 Critical Care Clinical I (4 cr)		

Clinical Rotations

Because work experience is key to develop required competencies, students in the BASRC program will have the opportunity to complete several clinical rotations throughout the program, totaling 25 credits or 825 hours. Clinical rotations provide the students with exposure to a broad variety of practice settings including hospital, long-term care, home care and physician's office practice. The program has clinical affiliation agreements with five acute-care hospitals, two rehabilitation institutes, two long-term care

facilities, three home care agencies, and two physician office practice sites. Students are able to develop their skills under direct supervision which ultimately allows them to gain employment upon graduation.

BASRC Degree Quarterly Schedule

The BASRC degree requires students complete a total of 180 credits which is outlined below.

PREREQUISTES		
BIOL&160	General Biology w/Lab	5
CHEM&121	Intro to Chemistry	5
ENGL&101	English Composition I	5
BIOL&241	Human A & P 1	5
ENGL&235	Technical Writing	5
MATH&146	Statistics	5
BIOL&242	Human A & P 2	5
BIOL&260	Microbiology	5
CMST227	Intercultural Communication	5
	Credits	**45**

First Quarter		
Fall Term		
RT213	Electrophysiology	4
RT241	Fundamentals of Respiratory Care I	3
RT242	Fundamentals of Respiratory Care I Technical Skills Lab	2
RT244	Cardiopulmonary Anatomy & Physiology	3
RT248	Physical Science for Respiratory Care	3
	Credits	**15**

Second Quarter		
Winter Term		
PHIL&210	Ethics	5
RT251	Fundamentals of Respiratory Care II	3
RT252	Fundamentals of Respiratory Care II Technical Skills Lab	2
RT254	Fundamentals of Spirometry	2
RT255	Fundamentals of Spirometry Technical Skills Lab	1
RT256	Interpretation of Arterial Blood Gases	2
SURG105	Blood-borne Pathogens and HIV/AIDS	1
	Credits	**16**

Third Quarter

Spring Term

PSYCH&100	General Psychology	5
RT261	Fundamentals of Respiratory Care III	4
RT262	Fundamentals of Respiratory Care III Technical Skills Lab	2
RT263	Respiratory Care Pharmacology	4
RT264	Computer Applications in Respiratory Care	1
RT266	Respiratory Care Clinical I	1
	Credits	**17**

Fourth Quarter

Fall Term

PSYCH&200	Lifespan Psychology	5
RT301	Critical Care I	4
RT304	Pathophysiology	5
RT311	Critical Care I Technical Skills Lab	2
RT321	Respiratory Care Clinical II	2
	Credits	**18**

Fifth Quarter

Winter Term

RT302	Critical Care II	3
RT305	Pulmonary Volumes Diffusion and Instrumentation (PVDI)	2
RT308	Basic Life Support Instructor	2
RT312	Critical Care II Technical Skills Lab	2
RT315	PVDI Technical Skills Lab	1
RT322	RT Clinical III	2
	Credits	**12**

Sixth Quarter

Spring Term

RT303	Home Care & Rehabilitation	2
RT309	Advanced Pharmacology	3
RT313	Home Care & Rehabilitation Technical Skills Lab	1
RT325	PFT Clinical I	1
RT331	Critical Care Clinical I	5
	Credits	**12**

Seventh Quarter

Fall Term

RT401	Pediatrics/Neonatal RT	3
RT402	Advanced Cardiovascular Life Support	2
RT403	Advanced Pulmonary Diagnostics	3
RT411	Pediatrics/Neonatal Technical Skills Lab	2
RT412	Advanced Cardiovascular Life Support Lab	1
RT413	Advanced Pulmonary Diagnostics Technical Skills Lab	1
RT421	Critical Care Clinical II	4
	Credits	**16**

Eighth Quarter

Winter Term

RT404	Research Presentation	2
RT415	Disease Management	4
RT416	Disaster Management	2
RT423	Advanced Pulmonary Diagnostics Clinical	1
RT424	Pediatric/Neonatal Clinical	3
RT425	Advanced Critical Care Clinical	2
	Credits	**14**

Ninth Quarter

Spring Term

RT406	Management in Respiratory Care	2
RT407	Patient Management and Problem Solving	3
RT409	Research in Respiratory Capstone	2
RT410	Fundamentals of Education Course Design	2
RT417	Patient Management and Problem Solving Technical Skills Lab	1
RT433	Advanced Clinical	5
	Credits	**15**
	Total Credits for BASRC	**180**

The College has also begun planning for a bridge program that would allow existing respiratory care practitioners (RCPs) to upgrade their associate degree to a bachelor's degree to meet AARC's goal that 80% of all current RCPs should have earned or be actively pursuing a bachelor's degree by 2020.

Criteria 2: Qualified Faculty

The College projects an enrollment of 20 FTEs in the BASRC core program during the first year it is offered. By the third year, the College anticipates an enrollment of 60 FTEs in the core program. To support this student demand, the program will need to hire an additional full-time faculty in year three, bringing the total number of full-time faculty to four. All four faculty teaching in the BASRC program will be required to hold a minimum of a master's degree or higher, appropriate certifications, and meet state requirements for professional and technical faculty. One of the full-time faculty members, in addition to teaching a full course load, serves as the program director with additional stipend pay per the College's Master Contract. The program also has a full-time faculty members serving as clinical coordinator with a full-time load divided between teaching program core courses and clinical placement and oversight. The remaining two full-time faculty teach a full academic load consisting of lecture and lab oversight. Faculty teaching general education courses will teach these as part of their regular full-time academic load, so no additional faculty will be required in areas outside of the BASRC program.

Table 5. Faculty Profiles

Faculty Name	**Credentials**	**Status**	**Courses Taught**
Program Core Faculty			
Gary White	M.Ed.	FT, RC Program Director/Faculty	AA, BAS
Christian Striggow	M.Ed.	FT, RC Program Faculty	AA, BAS
Recruiting (spring 2016)	MS or M.Ed.	FT, RC Director of Clinical Edu./Faculty	AA, BAS
Recruiting (fall 2018)	MS or M.Ed.	FT, RC Program Faculty	AA, BAS
General Education Faculty			
Faculty Name	**Credentials**	**Status**	**Courses**
Linda Salisbury	MA	FT, Communication Studies	AA
Scott Orme	MFA	FT, English	AA
Denise Lambert-Keen	MA	FT, English	AA
Timothy Roe	MA	FT, English	AA
Geoffrey Bagwell	PhD	FT, Philosophy	AA
Paul Spurgeon	MA	FT, Psychology	AA
Erin Griffin	MS	FT, Biology	AA
Susan Butler	MS	FT, Biology	AA
Suzanne Bassett	PhD	FT, Biology	AA
John Briggs	MS	FT, Chemistry	AA

Criteria 3: Admissions Process

The BASRC program will accept 20 students into the program once each year, which is due to the limited number of clinical sites available in the local service region. The table below shows the projected enrollment in the BASRC core program. Students in the first year take general education courses outside of the core program and are therefore not included in the table.

Table 6. Projected BASRC Enrollment				
	Second-Year Students	Third-Year Students	Fourth-Year Students	Total Enrollment
Fall 2017	20			20
Fall 2018	20	20		40
Fall 2019	20	20	20	60
Fall 2020	20	20	20	60
Fall 2021	20	20	20	60

The program will use a competitive admissions process coordinated through the SCC Admission Office. In addition to completing the general admissions process for the College, applicants must also complete a program application to be considered for admission to the BASRC program. Program applications will be reviewed and scored by a curriculum advisor in the admission office according to a scoring rubric to ensure the admissions process remain objective. Scoring rubric is included in Appendix C. Applications will be scored using the following criteria:

Table 7. Competitive Admission Criteria and Scoring	
Criteria	**Weight**
Minimum cumulative GPA of 2.5 in each prerequisite course	50%
BASRC Interview Committee	25%
Work or volunteer experience	15%
Two letters of recommendation	10%

First and foremost, acceptance into the program is contingent upon satisfactory completion of prerequisite courses. All perquisite courses must be completed prior to fall entry into the BASRC program with a 2.5 GPA or higher. Pass/fail grades will not be accepted. The applicants' academic preparation provides students with a strong foundation for the rigors of the upper level respiratory care curriculum.

Applicants for the BASRC program will be notified of their eligibility for the program interview by the SCC admissions office by mail. The interviews will be conducted annually, prior to the fall term start of the program. Applicants must appear in person before the BASRC interview committee. The committee will be composed of members of the faculty and the program advisory committee. Applicants will be rated using a rubric to assess their understanding of the profession, ability to reason, interpersonal and professional skills. The interview will last approximately thirty minutes.

The program faculty and the advisory committee feel strongly that volunteer work in the acute care hospital setting should be one of the criteria for admission to the BAS program. Often, applicants are unaware of the respiratory care profession or the role respiratory care practitioners play in the health care setting. Through volunteer work in the acute care (hospital) setting, applicants will have the opportunity to become more aware of the profession and the important role it plays.

Applicants will be listed in ranked order based on their total score and the top 20 students will be admitted to the program. The remaining students on the list will be considered as alternates if any of the top 20 students decline their spot. Alternates will be notified in order of their ranking.

The program will assess the admission process each year and determine if changes need to be made, based on student progress and retention, diversity of student group, and other factors as they emerge.

Diverse student population

SCC embraces the value of diversity as a fundamental part of its mission. The College employs practices that supports the strategic goals of the Equity and Diversity Advisory Council, which include:

- Identify and remove practices and structures that discriminate, marginalize, or oppress certain groups of people
- Increase diversity among our student body and our employees
- Support diversity-based initiatives on campus and within the community

On-going retention and student success efforts are aimed at educating and serving special population students at SCC. This is done, in part, through Veteran Services, Disability Support Services and Multicultural Student Services. Numerous services, programs, and activities have been developed and implemented. Examples include, but are not limited to, collaboration with faculty; extensive networking with student clubs, including diversity and disability awareness activities; cultural celebrations; outreach to high schools; New Student Orientations; ethnic specific graduation celebrations; and service learning community projects.

To assure equity and inclusion in the BASRC admission process, Multicultural Student Services & Outreach will assist the program in its efforts to:

- Engage in targeted marketing efforts throughout the region to encourage persons from under-represented populations to apply to the program;
- Coordinate program diversity efforts with the institution's office of Multicultural Student Services;
- Regularly assess recruitment/retention efforts from under-represented populations, and continually strive to improve the program's appreciation and respect for diversity.

Multicultural Student Services and Outreach will help to focus recruitment towards underserved populations by sending materials on the BAS program to prospective and current students that are undecided or might otherwise qualify for the program. They will also conduct outreach efforts to high schools, connect with college counselors and community based organizations to place materials specific to the degree. Additionally, they can create new outreach materials specific to the program.

Specific groups will be targeted via Ventures Scholars, advertisement in STEM areas, specific STEM programs in schools, and The Black Lens newspaper. Outreach efforts may include mailings, telethons,

high school visits, and career fairs. Additionally, connections can be made with local groups including the National Association for the Advancement of Colored People, Hispanic Business Professional Association, and Tribal contacts. Diverse LISTSERVs will also be used for targeted advertising. Once targeted population strategies are defined, coding and reviewing will occur for assessment of targeted recruitment success.

Criteria 4: Student Services

Spokane Community College is one of two community colleges that serve the Spokane area and the eastern region of Washington State. Under the authority of the Community Colleges of Spokane (CCS), District 17, SCC helps CCS fulfill the district mission to develop human potential through quality, relevant and affordable learning opportunities that result in improved social and economic well-being for students and the state. This commitment to student achievement is evident in the services provided by student services. Each student at SCC receives support services that are high-quality, student-centered, and easily accessible. As SCC implements new applied baccalaureate degrees, the College will evaluate the increased workload of departments within Student Services. However, at this time, capacity to serve this new program exists with current staffing.

Access to Student Services

Students entering the BASRC program will receive the same high-quality services offered to SCC's current population. SCC has numerous services available, including online registration, tutoring, 24/7 access to librarians through "ask a librarian," extensive research databases suitable for baccalaureate-level research; KHAN academy links, degree audit, transcript request, and more.

To assist BASRC students, SCC offers access to admissions, registration, counseling and financial aid until 6:00 pm Monday and Tuesday, as well as multiple tours of the campus during any week throughout the academic year. Student success is also encouraged by involvement in student organizations, many of which are connected to health sciences fields. They include the X-Ray Club (Radiology), Nursing, Explorers (Dental), and CPR Club.

Admission and Student Advising

Student Success is a core value at SCC and ensuring students complete the educational process is a major responsibility of SCC faculty and staff. The College has reassigned an Allied Health curriculum advisor (0.5 FTE) to be the point person for the program. The Allied Health curriculum advisor will work closely with each BASRC student from pre-admission to graduation to ensure student success in the completion of the BAS degree. BASRC faculty will advise students enrolled in the program. Each student will have an individualized schedule and advising plan. BASRC faculty and the curriculum advisor are available to students in person, by phone or email to assist with educational planning and the application process.

BASRC faculty will work with students who need additional assistance to develop personalized student success strategies or work with the tutoring center to ensure students have adequate support to be successful. Regular audits of progress toward degree will be conducted for every student enrolled in the

program. Students can also use internet advising services and degree planning worksheets to access their information. The online degree-planning tool helps faculty advisors and students evaluate, monitor and track progress toward completion of a degree.

Credentials Evaluation
The Allied Health curriculum advisor has extensive experience evaluating transcripts from accredited institutions and will evaluate incoming students for compliance with admission requirements. Credentials Evaluators will review student records for all degree requirements when students near graduation.

Prior Learning Assessment
The Prior Learning Assessment coordinator works as a liaison between students and BASRC faculty. Students who have acquired significant amounts of college level learning based on job training and competencies learned on the job may choose to petition BASRC faculty for college credit. Program faculty will evaluate all transfer or prior learning requests for core courses.

Student Success Center
Offices within the Student Success Center (Workforce Transitions) assist students connect to careers and financial assistance. Equipped with a mini computer lab BASRC students are able to connect with multiple services within one shop. Staff provide career assessments and workshops to support students in reaching career goals while offering opportunities for job connections. Job fairs, Meet the Employers events, interview prep and resume building activities, guide students through various stages of securing a job utilizing individual skills and talents. The Passport to College Promise program provide wrap around services to former foster youth to support their academic success.

Workforce Education funding programs like Basic Food Employment and Training (BFET), Opportunity Grant, Worker Retraining and WorkFirst offer tuition assistance to eligible BASRC students. In addition to tuition assistance, students may qualify for assistance with books, required class materials and other educational expenses. Office staff provide individualized and group support as needed.

Computer Labs
The College provides access to a variety of specialized computer and learning labs. A list of Computer Labs and Instructional Labs including location and hours of operation is located on the college website.

Disability Support Services (DSS)
The DSS office provides assessment and accommodations for students with documented disabilities. Academic accommodations and adjustments for BASRC students are available based upon individually needs and may include interpreters, assistive learning devices and technology, note takers, readers, scribes, materials and textbooks in alternate format, large print or Braille materials, alternate testing, information and referral services, and assistance with accessing campus processes. Other academic adjustments may be determined on an individual basis.

Financial Aid

The financial aid office prepares and disburses federal, state, and institutional aid for all SCC students. BASRC students can monitor the status of their application online by accessing the Student Self Service Center located on the Financial Aid website https://ptprd.ctclink.us/psp/ptprd/?cmd=login

Job Placement

Providing help with career advancement and job placement will be priorities for BASRC program faculty and career center staff. The advisory committee, comprised of health care professionals, will help to identify jobs. The SCC Career Center has been successful in helping students find jobs by providing comprehensive career services including career planning and exploration, job search and placement assistance, career fairs, work-study, internships, and service learning opportunities.

Multicultural Services

SCC Multicultural Student Services provides BASRC students with assistance in accessing resources on and off campus to enhance their educational experience. Services include but are not limited to advocacy, mentoring, college navigation and personal awareness. The office creates a safe space to engage in culturally responsive practices and discussions that contribute to the overall preparedness of students' success in a global economy. Students are encouraged and challenged to experience education through multiple lenses as a way to learn empathy and increase knowledge. Office staff provide individualized and group support as needed to empower BASRC students of color to identify, pursue, and complete educational and personal objectives aligned with their career and life goals.

Library and Other Online Services

All students have access to a full slate of services and information via the College website. Through the *myBigfoot Student Portal*, students can access the bookstore, records and grades, transcripts, registration, advising, faculty communication, and library services. The library has extensive research databases that support the BASRC program and students. The library also has cooperative agreements with local baccalaureate institutions that allow students to access research materials not available at the SCC library. The "ask a librarian" online research assistance program allows students access to research and information literacy guidance 24/7. The library will purchase professional journal subscriptions to support the BASRC program. These journals include the American Journal of Respiratory and Critical Care Medicine; Chest; New England Journal of Medicine; and Pediatrics and Neonatology. Access to these electronic journals will allow students to perform research and review articles at remote locations away from campus.

Tutoring Center

The Tutoring Center is available from 7:30 am to 7:00 pm and assists students in successfully completing their college courses through one-on-one and group tutoring, workshops, classes and open labs in a variety of subjects including English, math, anatomy & physiology, biology, and chemistry. Students may also access enhanced services in the center including Cranium Café, eTutoring and the KHAN Academy. In addition, the center manager has worked closely with program faculty to align tutoring services with

course curriculum. The tutoring center currently employs students from local baccalaureate institutions who will be available to tutor upper-division students.

Veterans Services

The Veterans Services Office assists all eligible veterans, reservists, dependents, and VA chapter 31 students enrolled in the BASRC program. The office has created an environment in the Veteran One Stop that encourages interaction between Veterans and civilians to assist with students transitioning out of the Military. The College's Veteran Friendly Contact program provides a network of trained faculty and staff across campus as a resource to support the unique needs of Veterans. Students are invited to participate in the campus Vet club, events and programs. Center staff partner with local and regional resources to support students and maintain a positive relationship with the Washington State Department of Veteran Affairs (WDVA) and the Washington State Vet Corp. Relevant military credit is awarded once a student has earned 10 college level credits and has applied for assessment through the established prior learning assessment process.

Student Engagement and Co-Curricular Opportunities: SCC's size and nature as a comprehensive college creates opportunities for its over 40 student organizations, including several clubs representing Allied Health fields of study. Student organizations, along with other campus programs, are funded through Services and Activities fees. These funds enable students to travel to regional and national competitions and leadership conferences. Clubs include Nursing, Radiology, CPR (Surgical Tech), and EchoCardio. In addition to clubs and organizations, students have leadership and engagement opportunities through the College's student government and leadership societies. These organizations host educational programs, featured speakers, and social activities throughout the year that help students develop personally and professionally.

Criteria 5: Commitment to Build and Sustain a High Quality Program

The BASRC program will be funded with state allocation, tuition, and fees. Resources from the restructured associate program will be allocated to the BASRC program.

Table 8. Projected Program Expenses

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
BASRC Director/FT Faculty (1 FTE teaching load with stipend for BASRC director duties)	$72,800	$72,800	$72,800	$72,800	$72,800
BASRC Director Stipend (1 FTE)	$3,500	$3,500	$3,500	$3,500	$3,500
Clinical Ed. Director/FT Faculty (1 FTE)	$49,700	$49,700	$51,100	$51,100	$52,510
Full-time Faculty (1 FTE)	$49,700	$49,700	$51,100	$51,100	$52,510
Full-time Faculty (1 FTE hired in 3rd Year of program)	$0	$0	$49,700	$49,700	$51,100
Medical Director Stipend	$1,500	$1,500	$1,500	$1,500	$1,500
Curriculum Advisor (0.5 FTE, current	$24,850	$25,550	$25,550	$ 26,250	$26,250

staff with reassigned time)					
Benefits	$69,875	$70,120	$88,495	$88,740	$90,217
Goods & Services	$7,500	$5,000	$5,000	$5,000	$5,000
Travel & Professional Development	$5,000	$1,500	$1,500	$1,500	$1,500
Equipment	$150,450	$37,000	$7,000	$7,000	$7,000
Library Materials	$4,000	$4,400	$4,800	$5,200	$5,600
Marketing & Outreach	$2,100	$2,100	$1,000	$1,000	$1,000
Accreditation Fees	$6,900	$1,900	$1,900	$1,900	$1,900
Total Expenditures	$447,875	$324,770	$364,945	$366,290	$372,387

Table 9. Projected Program Revenues					
	FY 2018	**FY 2019**	**FY 2020**	**FY 2021**	**FY 2022**
SBCTC FTE Revenue ($4,005 per average FTE – existing allocation less operating support)	$80,100	$160,200	$240,300	$240,300	$240,300
Tuition (Core Program)					
200-Level Courses	-	$68,880	$68,880	$68,880	$68,880
300/400 Level Courses	-	-	$121,965	$245,732	$245,732
Total Tuition	-	$68,880	$190,845	$314,612	$314,612
Fees	$3,285	$7,830	$10,215	$18,270	$18,270
Total Revenues	$83,115	$236,910	$441,090	$573,182	$573,182
Total Expenditures	$447,875	$324,770	$364,945	$366,290	$372,387
Net	($364,760)	($87,860)	$76,145	$206,892	$200,795

Staffing

All full-time faculty are paid in accordance with the College's Master Contract. The budget also includes salary step increases consistent with Washington state law. There are no salary step increases for the BASRC program director who has reached the top of the salary schedule. With the increase enrollment, the program will hire a fourth full-time faculty member in the third year of the program to ensure effective instruction in the didactic, laboratory and clinical settings of the program. With the addition of the fourth full-time faculty, there is no need to hire a lab assistant.

The College has reassigned an Allied Health curriculum advisor (0.5 FTE) to be the point person for the program. The Allied Health curriculum advisor will work closely with each BASRC student from pre-admission to graduation to ensure student success in the completion of the BAS degree.

The medical director is a licensed physician who provides medical guidance to the program director and the clinical education director to ensure both didactic and supervised clinical instruction meet current practice guidelines. The medical director act as an liaison advocating the program among physicians, administrators, and allied health professionals; attends advisory committee meetings; and participate in curriculum design and program outcomes assessment.

Facilities and Equipment
The BASRC program will utilize current facilities to include classrooms and labs. New equipment needed to support the program includes an adult simulation mannequin to help prepare students for the clinical setting. These mannequins can be programed for various disease states, and behave realistically simulating patient conditions in a more controlled supervised setting. Once students have mastered the simulation environment, they are ready to care for patients in the acute care settings.

A specialized simulator that mimics pulmonary disorders is required to teach advanced ventilation concepts. Traditional test lungs are unable to breathe spontaneously like real patients. The IngMar Medical RespiSim simulator includes a programmable breathing simulator that mimics adult and pediatric patients. This simulator may be programmed with pathophysiological conditions (changes in resistance and compliance), mimicking patients with lung diseases. By interfacing contemporary ventilators with the RespiSim simulator, students can learn how the ventilators respond to these changing conditions before actually treating patients in the acute care setting.

With the addition of more students in the curriculum, additional mechanical ventilators will be needed. The budget proposal includes the purchase of another cross-platform ventilator that is capable of neonatal, pediatric or adult ventilation. A ventilator will be chosen that is currently used in the clinical sites where students rotate through in their clinical practicums.

Additional parts and maintenance monies are in the budget to support the simulators and other equipment in the program. Modern medical equipment uses consumable items that are single-patient use and must be replaced. In addition, students working with equipment are often less proficient when compared with seasoned practitioners, and items break. Monies must be available to keep the equipment running and the software platforms current with what students will see during their clinical rotations.

Library Resources
The library budget includes professional journal subscriptions to support the BASRC program. These journals include the American Journal of Respiratory and Critical Care Medicine; Chest; New England Journal of Medicine; and Pediatrics and Neonatology. Access to these electronic journals will allow students to perform research and review articles at remote locations away from campus.

Accreditation Fees
These include a one-time fee to the Northwest Commission on Colleges and Universities in FY2018 for evaluating a substantive change application to give SCC authority to offer baccalaureate level degrees. The budget also include an annual fee of $1,900 to the Commission on Accreditation for Respiratory Care (CoARC), which is required by all accredited respiratory care programs. CoARC does not require an additional fee for substantive change application.

College Commitment to the BASRC Program

Spokane Community College is committed to its support in building and sustaining the BASRC program as a response to the needs of the local region. The College understands this is necessary in order to maintain the program's viability and to meet emerging educational standards necessary to produce well-trained graduates in the field of respiratory care. SCC is fully aware of the time and money resources required to start a new BAS degree and has committed both as evidenced in the budget to ensure a successful launch.

Criteria 6: Program Specific Accreditation

The Northwest Commission on Colleges and Universities (NWCCU) reaffirmed the College's regional accreditation on January 31, 2014 as a result of its comprehensive Year Seven Mission Fulfillment and Sustainability Self-Evaluation. Upon approval of the BASRC by the State Board, the College will submit a substantive change application and proposal to the NWCCU to offer baccalaureate degrees.

SCC's Respiratory Care program maintains accreditation through the Commission on Accreditation for Respiratory Care (CoARC) and has maintained its accreditation status since it was founded in 1965. The Commission's last site visit occurred in 2010 and resulted in full accreditation without any reporting requirements. The next site visit is scheduled for March 2020. The College will submit a substantive change application to CoARC once approved by the State Board and the NWCCU.

Criteria 7: Pathway Options Beyond the Baccalaureate Degree

Graduates from the BASRC program will be prepared to pursue a master's degree in Respiratory Care as well as other possible graduate pathways such as health administration or public health. While BAS graduates can apply to any Master's degree program, SCC has had direct contact with University of Mary in North Dakota and Loma Linda University in California which both offers a Master's degree in Respiratory Therapy. SCC BASRC graduates would be fully eligible for admission to their programs.

Another potential option for students with a BAS in Respiratory Care would be students who are interested in health administration or public health. Weber State University offers a Master of Health Administration (MHA) program and Eastern Washington University offers a Master of Public Health (MPH) program. Per communication with Joyce Goff, program specialist in the department of health science and public health at Eastern, SCC BASRC graduates would be qualified to apply to their master's program in public health. SCC BASRC graduates would be competitive for these advanced degrees that would fulfill roles in administration, research, and education. Opportunities in public health are expanding and would include the following for students graduating from the program after having achieved their BAS: health educators, emergency management directors, administrative service managers, occupational health, safety professionals, environmental scientists and health specialists, community planners, health and safety engineers, and supervisors of fire and prevention services.

Furthermore, SCC BASRC graduates would qualify for most graduate degrees offered by Gonzaga University, especially the Master of Arts in Organizational Leadership, according to Lisa Blankenship, admissions specialist at the university.

Criteria 8: External Expert Evaluation

Spokane Community College received external reviews from two higher education subject matter experts in the field of Respiratory Care. The reviewers were:

Dr. Paul Eberle, PhD, RRT
Program Chair, Department of Respiratory Therapy, Dumke College of Health Professions
Weber State University
3875 Stadium Way, Dept 3904
Ogden UT, 84408-3904
peberle@weber.edu
(801) 626-6840

John E. Boatright, Ph.D. RRT
Program Director, Associate Professor, Respiratory Care Department
Henrietta Schmoll School of Health
St. Catherine University
2004 Randolph Avenue, Mail # 4052, Whitby 306
Saint Paul, Minnesota 55105
jeboatright@stkate.edu
(651) 690-7819

Their complete biographies and reviews are included in Appendix C. Both expert reviewers commended the college for its efforts to offer a bachelor's degree in respiratory care and believe the proposed curriculum meets the academic rigor of baccalaureate degrees. Both expert evaluators recommend approval of the BASRC proposal.

Notable comments and a recommendation from Dr. Eberle are outlined below:

- The proposed program meets the academic rigor for a baccalaureate degree as compared to others I am familiar and/or associated.
- As an external reviewer, I was impressed by the programs record of scholarship (particularly that there is over 40 cr. hrs. of upper division courses in the degree configuration) and sufficient rigor presented in the outlined proposal. The program is a model for others in the nation to follow in that it contributes substantially to the profession and to students engaged in professional preparation.
- Concepts learned in the respiratory care program by students studying in the proposed curriculum meet criteria for graduate study. Students that complete the learning outcomes in Respiratory Care and successfully credential at the RRT level are eligible for graduate work at 5

post-professional (professional development) Master's programs currently being taught in the United States.

- The program is encouraged to seek budgetary resources to keep pace with changing technology and equipment and laboratory needs that address student requirements for learning in respiratory care.

Notable comments from Mr. Boatright are outlined below:

- Based on my assessment of the program of study, the course objectives and evaluation regime, I can see that curriculum is designed to provide a strong foundation as well as advanced skills in the knowledge and skills needed for advanced RC practice as well as leadership in the stated advanced domains.
- I am particularly impressed that the BAS requires General Biology and Statistics as well as the typical Chemistry, A&P and Micro courses. The proposed BAS curriculum addresses medical ethics, and demonstrates a strong commitment to written, intercultural and verbal communications.
- I am impressed with the thought that has gone into the curriculum components, sequencing and assessment of the SCC BASRC. I recommend full approval.

Appendix A: NBRC Therapist Multiple Choice Detailed Content Outline

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
I. PATIENT DATA EVALUATION AND RECOMMENDATIONS	
A. Evaluate Data in the Patient Record	
1. Patient history e.g., • admission data • orders • medications • progress notes • DNR status / advance directives • social history	RT 241, RT 301, RT 303
2. Physical examination relative to the cardiopulmonary system	RT 241, RT 242
3. Drainage and access devices e.g., • chest tube • artificial airway	RT 261, RT 262, RT 301, RT 311, RT 331
4. Laboratory results e.g., • CBC • electrolytes • coagulation studies • culture and sensitivities • sputum Gram stain • cardiac enzymes	RT 241, RT 251
5. Blood gas analysis results	RT 254, RT 301
6. Pulmonary function testing results	RT 254, RT 215, RT 305, RT 315, RT 325
7. 6-minute walk test results	RT 325, RT 403, RT 413, RT 423
8. Cardiopulmonary stress testing results	RT 403, RT 413, RT 423
9. Imaging study results e.g., • chest radiograph • CT • ultrasonography • MRI • PET • ventilation / perfusion scan	RT 251, RT 212, RT 302, RT 312, RT 304
10. Maternal and perinatal / neonatal history e.g., • APGAR scores • gestational age • L / S ratio • social history	RT 401, RT 411, RT 424
11. Metabolic study results e.g., • O_2 consumption / CO_2 production • respiratory quotient • energy expenditure	RT 403, RT 413, RT 423
12. Sleep study results	RT 403, RT 423
13. Trends in monitoring results	
a. fluid balance	RT 256, RT 251, RT 301
b. vital signs	RT 241, RT 213
c. intracranial pressure	RT 301
d. weaning parameters	RT 301, RT 311
e. pulmonary compliance, airways resistance, work of breathing	RT 301, RT 311, RT 302, RT 312
f. noninvasive e.g., • pulse oximetry • capnography • transcutaneous O_2 / O_2	RT 251, RT 254
14. Trends in cardiac monitoring results	
a. ECG	RT 213, RT 402, RT 412

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
b. hemodynamic parameters	RT 213, RT 302, RT 312
c. cardiac catheterization	RT 302, RT 312
d. echocardiography	RT 302, RT 312
B. Gather Clinical Information	
1. Interviewing a patient to assess	
a. level of consciousness and orientation, emotional state, and ability to cooperate	RT 241, RT 303
b. level of pain	RT 241, RT 303
c. presence of dyspnea, sputum production, and exercise tolerance	RT 241, RT 303
d. smoking history	RT 241, RT 303
e. environmental exposures	RT201, RT 303, RT 304
f. activities of daily living	RT 241, RT 303
g. learning needs, e.g., • literacy • culture • preferred learning style	RT 410
2. Performing inspection to assess	
a. general appearance	RT 241
b. characteristics of the airway, e.g., • patency	RT 261, RT 262, RT 301, RT 311
c. cough, sputum amount and character	RT 241, RT 304, RT 415
d. status of a neonate, e.g., • Apgar score • gestational age	RT 401, RT 411, RT 424
3. Palpating to assess	
a. pulse, rhythm, force	RT 241
b. accessory muscle activity	RT 241
c. asymmetrical chest movements, tactile fremitus, crepitus, tenderness, secretions in the airway, and tracheal deviation	RT 241
4. Performing diagnostic chest percussion	RT 241
5. Auscultating to assess	
a. breath sounds	RT 241
b. heart sounds and rhythm	RT 241
c. blood pressure	RT 241, RT 213
6. Reviewing lateral neck radiographs	RT 241, RT 304
7. Reviewing a chest radiograph to assess	
a. quality of imaging e.g., • patient positioning •penetration	RT 241, RT 242, RT 401, RT 411

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
b. presence and position of tubes and catheters	RT 241, RT 242, RT 301, RT 311, RT 401, RT 411
c. presence of foreign bodies	RT 251, RT 252
d. heart size and position	RT 241, RT 242
e. presence of, or change in	
(i) cardiopulmonary abnormalities e.g., • pneumothorax • pleural effusion • consolidation • pulmonary edema	RT 251, RT 252, RT 301, RT 311, RT 304
(ii) hemidiaphragms, mediastinum, or trachea	RT 304
C. Perform Procedures to Gather Clinical Information	
1. 12-lead ECG	RT 213
2. Noninvasive monitoring, e.g., • pulse oximetry • capnography • transcutaneous	RT 254, RT 261, RT 262, RT 256, RT 301, RT 311, RT 401, RT 411
3. Peak flow	RT 242, RT 255, RT 325
4. Tidal volume, minute volume, and vital capacity	RT 242, RT 255, RT 325
5. Screening spirometry	RT 255, RT 325
6. Blood gas sample collection	RT 322, RT 321, RT 322, RT 325
7. Blood gas analysis / hemoximetry	RT 322, RT 331, RT 421, RT 425, RT 433
8. 6-minute walk test	RT 325, RT 423
9. Oxygen titration with exercise	RT 322, RT 423
10. Cardiopulmonary calculations, e.g., • $P(A\text{-}a)O_2$ • V_D / V_T # P / F • oxygenation index	RT 331, RT 421, RT 425
11. Hemodynamic monitoring	RT 331, RT 421, RT 425
12. Pulmonary compliance and airways resistance	RT 413, RT 421, RT 425
13. Maximum inspiratory and expiratory pressures	RT 413
14. Plateau pressure	RT 311, RT 312, RT 331, RT 421, RT 425
15. Auto-PEEP determination	RT 311, RT 312, RT 331, RT 421, RT 425
16. Spontaneous breathing trial	RT 311, RT 331, RT 421, RT 425
17. Apnea monitoring	RT 401, RT 411
18. Overnight pulse oximetry	RT 403, RT 413
19. CPAP / NPPV titration during sleep	RT 403, RT 413
20. Tracheal tube cuff pressure and / or volume	RT 262, RT 331, RT 421, RT 425
21. Sputum induction	RT 322, RT 331
22. Cardiopulmonary stress testing	RT 413, RT 425

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
23. Pulmonary function testing	RT 325, RT 425
D. Evaluate Procedure Results	
1. 12-lead ECG	RT 213, RT 402, RT 412
2. Noninvasive monitoring, e.g., • pulse oximetry • capnography • transcutaneous	RT 251, RT 261, RT 401
3. Peak flow	RT 241 RT 242, RT 254, RT 255
4. Tidal volume, minute volume, and vital capacity	RT 241, RT 242
5. Screening spirometry	RT 254, RT 255
6. Blood gas sample collection	RT 321, RT 322, RT 325, RT 331
7. 6-minute walk test	RT 325, RT 423
8. Oxygen titration with exercise	RT 322, RT 423
9. Cardiopulmonary calculations, e.g., • $P(A\text{-}a)O_2$ • V_D / V_T • P / F • oxygenation index	RT 244, RT 256, RT 301
10. Hemodynamic monitoring	RT 301, RT 302
11. Pulmonary compliance and airways resistance	RT 403, RT 413
12. Maximum inspiratory and expiratory pressures	RT 241, RT 242, RT 403, RT 413
13. Plateau pressure	RT 301, RT 311, RT 302, RT 312
14. Auto-PEEP determination	RT 301, RT 311, RT 302, RT 312
15. Spontaneous breathing trial	RT 301, RT 311, RT 302, RT 312
16. Apnea monitoring	RT 401, RT 411
17. Overnight pulse oximetry	RT 403, RT 413
18. CPAP / NPPV titration during sleep	RT 403, RT 413
19. Tracheal tube cuff pressure and / or volume	RT 261, RT 301
20. Sputum induction	RT 304, RT 415
21. Cardiopulmonary stress testing	RT 403
22. Pulmonary function testing	RT 254, RT 305, RT 403
E. Recommend Diagnostic Procedures	
1. Skin testing e.g., • TB • allergy	RT 304, RT 415
2. Blood tests e.g., • electrolytes • CBC	RT 304, RT 415
3. Imaging studies	RT 304, RT 415
4. Bronchoscopy	RT 304, RT 415, RT 425, RT 433

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
5. Bronchoalveolar lavage (BAL)	RT 304, RT 415, RT 425, RT 433
6. Sputum Gram stain, culture and sensitivities	RT 304, RT 415, RT 425, RT 433
7. Pulmonary function testing	RT 304, RT 423, RT 415
8. Noninvasive monitoring e.g., • pulse oximetry • capnography • transcutaneous	RT 251, RT 207, RT 301, RT 401
9. Blood gas analysis	RT 256, RT 305, RT 415
10. ECG	RT 213, RT 305, RT 415
11. Exhaled gas analysis e.g., • CO_2 • CO • NO (FENO)	RT 207, RT 305, RT 415
12. Hemodynamic monitoring	RT 302, RT 415
13. Sleep studies	RT 403, RT 415
14. Thoracentesis	RT 415
II. TROUBLESHOOTING AND QUALITY CONTROL OF EQUIPMENT AND INFECTION CONTROL	
A. Assemble and Troubleshoot Equipment	
1. Oxygen administration devices	RT 251, RT 252,
2. CPAP devices	RT 301, RT 322, RT 303, RT 313, RT 331
3. Humidifiers	RT 251, RT 252, RT 312
4. Nebulizers	RT 252, RT 252, RT 263
5. Metered-dose inhalers (MDI), spacers, and valved holding chambers	RT 252, RT 252, RT 263, RT 313
6. Dry powder inhalers	RT 252, RT 252, RT 263, RT 313
7. Resuscitation devices	RT 251, RT 252, RT 261, RT 262, RT 402, RT 412
8. Mechanical ventilators	RT 261, RT 262, RT 301, RT 313, RT 302, RT 313
9. Intubation equipment	RT 261, RT 262, RT 402, RT 412
10. Artificial airways	RT 261, RT 262, RT 301, RT 311, RT 402, RT 412
11. Suctioning equipment e.g., • regulator • canister • tubing • catheter	RT 261, RT 262, RT 301, RT 311, RT 402, RT 412
12. Gas delivery, metering, and clinical analyzing devices e.g., • concentrator • liquid system • flow meter • regulator • gas cylinder •blender • air compressor	RT 241, RT 242
13. Blood analyzer e.g., • hemoximetry • point-of-care • blood gas	RT 256, RT 305, RT 315

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
14. Patient breathing circuits	RT 251, RT 252, RT 301, RT 311, RT 302, RT 312
15. Incentive breathing devices	RT 261, RT 262
16. Airway clearance devices e.g., • high-frequency chest wall oscillation • vibratory PEP • intrapulmonary percussive ventilation • insufflation / exsufflation device	RT 261, RT 262
17. Heliox delivery device	RT 251, RT 252
18. Nitric oxide (NO) delivery device	RT 401, RT 411, RT 424
19. Spirometers - hand-held and screening	RT 254, RT 255
20. Pleural drainage devices	RT 261, RT 262
21. Noninvasive monitoring devices e.g., • pulse oximeter • capnometer • transcutaneous	RT 256, RT 305, RT 315, RT 325
22. Gas analyzers	RT 305, RT 315, RT 325
23. Bronchoscopes and light sources	RT 403, RT 413, RT 423
24. Hemodynamic monitoring devices	
a. pressure transducers	RT 302, RT 312
b. catheters e.g., • arterial • pulmonary artery	RT 302, RT 312
B. Ensure Infection Control	
1. Using high-level disinfection techniques	RT 241, RT 242
2. Selection of appropriate agent and technique for surface disinfection	RT 241, RT 242
3. Monitoring effectiveness of sterilization procedures	RT 241, RT 242
4. Proper handling of biohazardous materials	RT 241, RT 242
5. Adhere to infection control policies and procedures e.g., • Standard Precautions • isolation	RT 241, RT 242
C. Perform Quality Control Procedures	
1. Gas analyzers	RT 305, RT 315, RT 325
2. Blood gas analyzers and hemoximeters	RT 305, RT 315, RT 325
3. Point-of-care analyzers	RT 305, RT 315, RT 325
4. Pulmonary function equipment	RT 305, RT 315, RT 325
5. Mechanical ventilators	RT 310, RT 311, RT 302, RT 312
6. Gas metering devices e.g., • flowmeter	RT 251, RT 252
7. Noninvasive monitors e.g.,	RT 401, RT 411, RT 424

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
• transcutaneous	
III. INITIATION AND MODIFICATION OF INTERVENTIONS	
A. Maintain a Patient Airway Including the Care of Artificial Airways	
1. Proper positioning of a patient	RT 241, RT 242, RT 266
2. Recognition of a difficult airway	RT 261, RT 262, RT 402, RT 412
3. Establishing and managing a patient's airway	
a) nasopharyngeal airway	RT 261, RT 262, RT 402, RT 412
b) oropharyngeal airway	RT 261, RT 262, RT 402, RT 412
c) laryngeal mask airway	RT 261, RT 262, RT 402, RT 412
d) esophageal-tracheal tubes / supraglottic airways e.g., • Combitube® • King®	RT 261, RT 262, RT 402, RT 412
e) endotracheal tube	RT 261, RT 262, RT 402, RT 412
f) tracheostomy tube	RT 261, RT 262, RT 402, RT 412
g) laryngectomy tube	RT 261, RT 262, RT 402, RT 412
h) speaking valves	RT 261, RT 262, RT 402, RT 412, RT 303, RT 313
4. Performing tracheostomy care	RT 261, RT 262, RT 402, RT 412, RT 303, RT 313
5. Exchanging artificial airways	RT 261, RT 262, RT 402, RT 412, RT 303, RT 313
6. Maintaining adequate humidification	RT 261, RT 262, RT 402, RT 412, RT 303, RT 313
7. Initiating protocols to prevent ventilator associated pneumonia (VAP)	RT 301, RT 311, RT 302, RT 312
8. Performing extubation	RT 261, RT 262, RT 301, RT 312, RT 331
B. Perform Airway Clearance and Lung Expansion Techniques	
1. Postural drainage, percussion, or vibration	RT 261, RT 262
2. Suctioning e.g., • nasotracheal • oropharyngeal	RT 261, RT 262
3. Mechanical devices e.g., • high-frequency chest wall oscillation • vibratory PEP • intrapulmonary percussive ventilation • insufflation / exsufflation device	RT 261, RT 262
4. Assisted cough e.g., • huff • quad	RT 261, RT 262
5. Hyperinflation e.g.,	RT 261, RT 262

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
• incentive spirometry • IPPB	
6. Inspiratory muscle training techniques	RT 261, RT 262
C. Support Oxygenation and Ventilation	
1. Initiating and adjusting oxygen therapy e.g., • low-flow • high-flow	RT 241, RT 242
2. Minimizing hypoxemia e.g., • patient positioning • suctioning	RT 261, RT 262
3. Initiating and adjusting mask or nasal CPAP	RT 301, RT311, RT 302, RT 312
4. Initiating and adjusting mechanical ventilation settings	
a) continuous mechanical ventilation	RT 301, RT311, RT 302, RT 312
b) noninvasive ventilation	RT 301, RT311, RT 302, RT 312
c) high-frequency ventilation	RT 301, RT311, RT 302, RT 312
d) alarms	RT 301, RT311, RT 302, RT 312
5. Correcting patient-ventilator dyssynchrony	RT 301, RT311, RT 302, RT 312
6. Utilizing ventilator graphics e.g., • waveforms • scales	RT 301, RT311, RT 302, RT 312
7. Performing lung recruitment maneuvers	RT 302, RT 312, RT 331, RT 421, RT 425, RT 433
8. Liberating patient from mechanical ventilation (weaning)	RT 302, RT 312, RT 331, RT 421, RT 425, RT 433
D. Administer Medications and Specialty Gases	
1. Aerosolized preparations e.g., • MDI • SVN	RT 251, RT 252, RT 263
2. Dry powder preparations	RT 251, RT 252, RT 263
3. Endotracheal instillation	RT 251, RT 252, RT 263
4. Specialty gases e.g., • heliox • NO	RT 309, RT 302, RT 312, RT 401, RT 411, RT 424
E. Ensure Modifications are Made to the Respiratory Care Plan	
1. Treatment termination e.g., • life-threatening adverse event	RT 241, RT 242, RT 261, RT 262
2. Recommendations	
a. starting treatment based on patient response	RT 241, RT 263, RT, RT 251, RT 252, RT 261, RT 262
b. treatment of pneumothorax	RT 61, RT 262, RT 301, RT 312

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
c. adjustment of fluid balance	RT 301, RT 302
d. adjustment of electrolyte therapy	RT 251, RT 252, RT 256
e. insertion or change of artificial airway	RT 262, RT 301, RT 302
f. liberating from mechanical ventilation	RT 301, RT 302
g. extubation	RT 261, RT 301, RT 302
h. discontinuing treatment based on patient response	RT 321, RT 322, RT 301, RT 302
3. Recommendations for changes	
a. patient position	RT 241, RT 251, RT 261
b. oxygen therapy	RT 241, RT 251, RT 261
c. humidification	RT 241, RT 251, RT 261, RT 301
d. airway clearance	RT 261, RT 262
e. hyperinflation	RT 261, RT 262
f. mechanical ventilation parameters and settings	RT 301, RT 302
4. Recommendations for pharmacologic interventions	
a. pulmonary vasodilators e.g., • sildenafil • prostacyclin • inhaled NO	RT 301, RT 309
b. bronchodilators	RT 263
c. anti-inflammatory drugs	RT 263
d. mucolytics and proteolytics	RT 263
e. cardiovascular drugs	RT 309
f. antimicrobials	RT 263
g. sedatives and hypnotics	RT 309
h. analgesics	RT 309
i. neuromuscular blocking agents	RT 309
j. diuretics	RT 309
k. surfactants	RT 363, RT 309
1. vaccines	RT 304
m. changes to drug, dosage, or concentration	RT 263, RT 309
F. Utilize Evidence-Based Medicine Principles	
1. Determination of a patient's pathophysiological state	RT 304, RT 404
2. Recommendations for changes in a therapeutic plan when indicated	RT 241, RT 251, RT 261, RT 301, RT 302, RT 401
3. Application of evidence-based or clinical practice guidelines e.g.,	RT 301, RT 304, RT 415

NBRC Therapist Multiple Choice Detailed Content Outline Bachelor of Applied Science in Respiratory Care Spokane Community College	Course Number(s)
• ARDSNet • NAEPP	
G. Provide Respiratory Care Techniques in High-Risk Situations	
1. Emergency	
a. cardiopulmonary emergencies e.g., • cardiac arrest • tension pneumothorax • obstructed / lost airway	RT 261, RT 322, RT 331, RT 421, RT 425
b. disaster management	RT 416
c. medical emergency team (MET) / rapid response team	RT 322, RT 416
2. Patient transport	
a. land / air between hospitals	RT 301, RT 302
b. within a hospital	RT 301, RT 302, RT 401, RT 331, RT 421, RT 425, RT 433
H. Assist a Physician / Provider in Performing Procedures	
1. Intubation	RT 331, RT 421, RT 425, RT 433
2. Bronchoscopy	RT 423
3. Thoracentesis	RT 423, RT 425, RT 433
4. Tracheostomy	RT 423, RT 425, RT 433
5. Chest tube insertion	RT 423, RT 425, RT 433
6. Insertion of arterial or venous catheters	RT 423, RT 425, RT 433
7. Moderate (conscious) sedation	RT 423, RT 425, RT 433
8. Cardioversion	RT 423, RT 425, RT 433
9. Cardiopulmonary exercise testing	RT 423
10. Withdrawal of life support	RT 331, RT 421, RT 425, RT 433
1. Initiate and Conduct Patient and Family Education	
1. Safety and infection control	RT 241, RT 242
2. Home care and equipment	RT 303, RT 313, RT 425, RT 433
3. Smoking cessation	RT 303, RT 313
4. Pulmonary rehabilitation	RT 303, RT 313
5. Disease management	
a. asthma	RT 415
b. COPD	RT 415
c. sleep disorders	RT 425, RT 415

Appendix B: SCC BASRC Course Outlines

Course Objectives/Course Outline
Spokane Community College

Course Title: Electrophysiology
Prefix and Course Number: RT 213

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the three primary components of the cardiovascular field of practice
- Identify Major components of the cardiovascular system
- List cardiovascular functions and explain the physiology
- Obtain and measure anelectrocardiogram
- Identify basic cardiac arrhythmias
- Identify chamber enlargement, injury and infarction patterns

Course Outline:

I. The Cardiovascular Field of Practice
   A. Invasive
   B. Noninvasive
   C. Peripheral Vascular
II. Fields of Practice
III. Major Components
   A. Cardiac Chambers
   B. Valves
   C. Major Vessels
IV. Cardiovascular Functions
V. Electrophysiology of the Heart
VI. The Electrocardiogram
VII. Cardiac Arrhythmias
VIII. Electrocardiogram Patterns
   A. Camber Enlargement
   B. Injuries
   C. Infarction

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care I
Prefix and Course Number: RT 241

Course Learning Outcomes:
By the end of this course, a student should be able to:

Apply the following in a patient care situation (first in a series of three courses):

I. Introduction
   A. Respiratory care profession
   B. Professionalism and continuing education
   C. Legal and ethical issues in respiratory care practice
   D. Professional organizations
   E. Record keeping and electronic medical record systems
   F. Evidence based medicine
   G. Patient Safety
   H. Principles of Infection Control
   I. Blood borne pathogens/HIV
   J. Patient focused medical record review
   K. Patient assessment
   L. American Heart Association HCP Card

Course Outline:

I. Respiratory care profession
   A. Definition
   B. Evaluate the AARC position statements that apply to the practice of respiratory care
   C. Describe the areas that employ respiratory care practitioners
II. Professionalism and continuing education
   A. Define professionalism and discuss the AARC position statement on competency requirements
   B. Analyze the AARC position statement on ethics and professional conduct and its application in a patient care situation.
   C. Describe the continuing education requirements to maintain a credential as a registered respiratory therapist (RRT) and for Washington State licensure
III. Professional organizations
   A. Describe the roles and responsibilities of the following organizations
      1. American Association for Respiratory Care
      2. National Board for Respiratory Care
      3. Commission on Accreditation for Respiratory Care
      4. Washington State Department of Health
IV. Evidence based medicine
   D. Define evidence based medicine

E. Describe the different categories of evidence
F. Evaluate a journal article on the merits of its evidence
G. Illustrate how evidence medicine should be applied in clinical practice

V. Patient safety
A. Discuss the JCAHO patient safety goals
B. Demonstrate how to identify a patient using the two identifier system
C. Describe the principles of electrical safety and electrical shock
D. Describe how to minimize hazards in the patient care environment

VI. Principles of infection control
A. Demonstrate the techniques of hand hygiene
B. Describe category specific isolation procedures as defined by the CDC
C. Demonstrate the application of common methods of disinfection

VII. HIV/Blood borne pathogens
A. Demonstrate specific practices to prevent transmission of HIV/Blood borne pathogens in respiratory care
B. Discuss bronchoscopy and aerosol therapy techniques use in treatment of HIV positive patients

VIII. Patient focused chart review
A. Given a patient scenario, gather the important information to establish a treatment plan

IX. Patient assessment
A. Demonstrate patient assessment of the chest including:
1. Inspection
2. Palpation
3. Auscultation
4. Percussion

X. Complete the requirements of the American Heart Association for the Healthcare Provider and earn an AHA HCP card

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care I Technical Skills Lab
Prefix and Course Number: RT 242

Course Learning Outcomes:
By the end of this course, a student should be able to:

In a simulated laboratory setting apply:
- Appropriate patient record keeping
- Hand hygiene
- Isolation procedures
- Taking vital signs
- Auscultation of the chest
- Physical assessment of the chest
- Basic chest radiograph interpretation
- Bedside spirometry assessment
- Measurement of pulse oximetry

Course Outline:

I. Hand hygiene
   A. Soap and water
   B. Alcohol based products
   C. Hexachlorophene scrub products
II. Isolation procedures
   A. Contact
   B. Droplet
   C. Airborne
   D. Neutropenic
III. Vital signs
   A. Heart / Respiratory rate
   B. Blood pressure
   C. Pulse oximetry
IV. Physical assessment of the chest
   A. Inspection
   B. Auscultation
   C. Palpation
   D. Percussion
V. Chest radiograph interpretation
   A. Technical quality
   B. Orientation and views
   C. Identification of landmarks
   D. Abnormal patterns

VI. Bedside spirometry
    A. Peak expiratory flow
    B. Maximal inspiratory pressure (MIP)
    C. Forced vital capacity and FEV1
VII. Pulse oximetry monitoring
    A. Probe type and site
    B. Setting alarms
VIII. Patient record keeping
    A. Demonstrate use of electronic medical record
    B. Demonstrate use of a flow sheet

Course Objectives/Course Outline
Spokane Community College

Course Title: Cardiopulmonary Anatomy and Physiology
Prefix and Course Number: RT 244

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Identify the structures of the cardiopulmonary system
- Explain the physiology of ventilation
- Explain the physiology of gas diffusion from the atmosphere to the blood
- Describe the physiology of cardiopulmonary circulation
- Describe or define the hemodynamic measurements obtained using a pulmonary artery catheter
- Explain the physiology of ventilation/perfusion relationships
- Describe the control of ventilation
- Analyze how the cardiopulmonary system responds to the challenge of exercise

Course Outline:

I. Anatomy
   A. Upper and lower airways
   B. Sites of gas exchange
   C. Pulmonary vascular system
   D. Pulmonary lymphatic system
   E. Neural control of the lungs
   F. The lungs
   G. The mediastinum
   H. The pleura
   I. The thorax
   J. Muscles of ventilation
II. Ventilation
   A. Mechanics of ventilation
   B. Elastic and dynamic properties of the lungs
   C. Ventilatory patterns
   D. Pressure gradients
   E. Airway resistance, compliance and time constants
III. Diffusion of pulmonary gases
   A. Gas laws
   B. Partial pressures of gases in the pulmonary system
   C. Alveolar air equation
   D. Diffusion of oxygen and carbon dioxide
   E. Diffusion and perfusion limited gases
IV. Anatomy and physiology of the pulmonary circulation
   A. Comparison of pulmonary with system circulation
   B. Blood pressure

C. Distribution of pulmonary blood flow
D. West's zone system model of pulmonary blood flow

V. Oxygen and carbon dioxide transport
   A. Oxygen transport
      1. Oxyhemoglobin dissociation curve
      2. Oxygen transport calculations
      3. Hypoxia, hypoxemia and cyanosis
   B. Carbon dioxide transport
      1. Carbon dioxide dissociation curve
      2. Six mechanisms of carbon dioxide transport
      3. Role of the lungs and the renal system

VI. Acid-Base Balance
   A. Chemical buffer systems
   B. Henderson-Hasselbach equation
   C. Role of the respiratory system in acid-base balance
   D. Role of the renal system in acid-base balance
   E. Application of nomograms

VII. Ventilation / Perfusion relationships
   A. V/Q ratio
   B. West's zone system and V/Q ratio
   C. Effects of V/Q ratio on alveolar PAO2 and PACO2
   D. Effects of V/Q ratio on arterial PO2 and PCO2

VIII. Control of ventilation
   A. Central and peripheral chemoreceptors
   B. Factors that influence rate and depth of breathing

IX. Adaptation to exercise
   A. Ventilation adaptation
   B. Circulation adaptation
   C. Relationship between work, O2 consumption and CO2 production
   D. Anaerobic threshold and anaerobiosis
   E. Effect of training on the cardiovascular system
   F. Pulmonary rehabilitation

Course Objectives/Course Outline
Spokane Community College

Course Title: Physical Science for Respiratory Care
Prefix and Course Number: RT 248

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the structure and properties of matter
- State the gas laws and their application to respiratory care
- Describe the three laws of thermodynamics
- Apply the principles of fluid mechanics to problems solving in physiology and respiratory care
- Discuss the components in an electrical circuit
- Apply Ohm's law in the analysis of an electrical circuit
- Relate Ohm's law to fluid mechanics (flow, pressure and resistance)
- Explain the hazards associated with micro shock and macro shock in the clinical environment
- Describe how transducers work and their application in respiratory care
- Apply the principles learned in this class to physiological monitoring

Course Outline:

I. States of mater
   A. Characteristics of solids
   B. Characteristics of liquids
   C. Characteristics of gases
II. Gas laws
   A. Boyle's law
   B. Charles' law
   C. Henry's law
   D. Combined gas law
   E. Dalton's law
III. Thermodynamics
   A. Newton's first law
   B. Newton's second law
   C. Newton's third law
IV. Fluid mechanics
   A. Relationship of density, depth and pressure
   B. Viscosity of fluids
   C. Continuity equation
   D. Bernoulli's theorem
   E. Poiseulle's law
   F. Reynold's number, laminar and turbulent flow
   G. Moody diagram
V. Electrical theory

A. Components
    1. Battery
    2. Resistor
    3. Capacitor
B. Ohm's law

VI. Electrical safety
A. Macro shock
B. Micro shock
C. Current leakage
D. Electrical safety testing

VII. Transducers
A. Temperature monitoring
B. Pressure monitoring
C. Flow measurement

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care II
Prefix and Course Number: RT 251

Course Learning Outcomes:
By the end of this course, a student should be able to:

Apply the following in a patient care situation:

A. Introduction to respiratory disease states
B. Interpretation of clinical laboratory data
C. Introduction to nutritional assessment
D. Thoracic imaging
E. Respiratory mechanics measurement
F. Noninvasive monitoring: oxygen analyzers, pulse oximetry, capnography, transcutaneous monitoring)
G. Apnea monitoring and continuous oximetry / capnography
H. Medical gas supply systems
I. Medical gas therapy including oxygen and mixed-gas therapy
J. Selection of a medical gas delivery system for acute and home care
K. Humidity and aerosol therapy
L. Selection of an aerosol delivery device for acute and home care
M. Introduction to clinical simulation (COPD simulation - patient assessment)
N. Discuss the content of the AARC learning module “Guide to Aerosol Therapy”

Course Outline:

I. Respiratory disease states
   A. Obstructive diseases
   B. Restrictive diseases
   C. Circulatory diseases
II. Interpretation of clinical lab data
   A.CBC
   B.WBC
   C. Differential
   D. Basic metabolic panel
III. Nutritional assessment
   A. Metabolic measurements
   B. Caloric predictions
IV. Thoracic imaging
   A. Chest radiographs
   B. Computerized tomography of the chest
   C. Magnetic resonance imaging of the chest
V. Respiratory mechanics

A. MIP/MEP
B. Raw
C. Forced vital capacity

VI. Non-invasive monitoring
A. Pulse oximetry
B. Capnography
C. Apnea monitoring
D. Recording oximetry systems
E. Home sleep monitors

VII. Medical gas supply systems
A. Cylinders
B. Liquid systems
C. Piping systems
D. Pressure regulation devices
E. Flow regulation devices
F. Safety systems

VIII. Medical gas therapy
A. High flow systems
B. Low flow systems
C. Enclosures
D. Helium/oxygen therapy
E. Carbon dioxide/oxygen therapy
F. Nitric oxide delivery

IX. Humidity and aerosol therapy
A. Humidification systems
B. Aerosol delivery devices
C.AARC “Guide to Aerosol Therapy”

X. COPD patient simulation

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care II Technical Skills Lab
Prefix and Course Number: RT 252

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Perform respiratory mechanics measurement
- Demonstrate use of Noninvasive monitoring: oxygen analyzers, pulse oximetry, capnography, transcutaneous monitoring)
- Demonstrate Apnea monitoring and continuous oximetry / capnography
- Apply medical gas cylinders, reducing valves and regulators in a patient care setting
- Demonstrate the use of medical gas piping systems
- Apply flow regulating devices in a patient care setting
- Apply active and passive humidification devices in spontaneous breathing applications
- Demonstrate the use of aerosol delivery devices and teach a patient how to use them
- Apply aerosol delivery devices for medication delivery
- Evaluate a patient for use of pMDI and DPI delivery devices
- Design an instruction program for a patient on using pMDI and DPI delivery devices

Course Outline:

I. Perform respiratory mechanics measurement
   A. MIP/MEP
   B. SVC
   C. FVC
   D. PEF
II. Set up non-invasive monitoring
   A. Continuous pulse oximetry
   B. Recording oximetry
   C. Apnea monitoring
   D. Home sleep monitoring
III. Medical gas supply systems
   A. Demonstrate use of cylinders
   B. Demonstrate use of reducing valves and regulators
   C. Demonstrate the use of flow metering devices
   D. Demonstrate the use of air/oxygen blenders
   E. Demonstrate the use of enclosures
   F. Demonstrate helium/oxygen administration
IV. Humidification systems
   A. Demonstrate the use of passive humidification systems
   B. Demonstrate the use of heated active humidification systems
V. Aerosol delivery devices
   A. Demonstrate the use of large volume nebulizers

B. Demonstrate the use of small volume nebulizers
C. Demonstrate the use of ultrasonic nebulizers
D. Demonstrate the use of vibrating mesh nebulizers
E. Demonstrate the use of pMDIs and valved holding chambers
F. Demonstrate the use of DPIs

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Spirometry
Prefix and Course Number: RT 254

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the indications for spirometry
- Describe the equipment used for spirometry
- Describe how the equipment is calibrated
- Measure and calculate the component parts of a spirogram
- Describe forced spirometry and calculate:
    - Forced vital capacity (FVC)
    - Forced expired volume in the first second (FEV1)
    - Calculate the FVC/FEV1
    - Forced Expiratory Flow between 200 – 1200 mL (FEF200-1200)
    - Forced Expiratory Flow between 25 – 75% (FEF25-75%)
- From memory, state the ATS standards that apply to:
    - Non-forced spirometry
    - Forced spirometry
    - Maximum voluntary ventilation (MVV)
- Explain the significance of the MVV test and how it is measured
- Describe what normals are and how they are used
- Describe the indications for measuring flow-volume loops
- Identify and calculate the components of a flow-volume loop
- Given a flow-volume loop evaluate it for:
    - Artifact
    - Back extrapolation
    - Variable intrathoracic obstruction
    - Variable extrathoracic obstruction
    - Fixed obstruction
- Correctly interpret a flow-volume loop and volume-time curve for forced spirometry

Course Outline:

I. Indications for spirometry
    A. American thoracic society (ATS) indications
II. Spirometry equipment
    A. Primary flow measuring devices
    B. Primary volume measuring devices
    C. Calibration of spirometers (ATS standards)
III. Non-forced spirometry
    A. Static lung volumes
IV. Forced Spirometry

A. FVC
B. FEV1
C. FEV1/FVC
D. FEF200-1200
E. FEF25-75%

V. Maximal voluntary ventilation (MVV)

VI. Predicted normal equations
A. Development
B. Selection

VII. Flow-Volume loop
A. Anatomy
B. Characteristics in disease
C. Technical quality
1. Back extrapolation
2. Artifact
3. Patient effort
4. Tongue/denture obstruction
D. Airflow obstruction
1. Variable extra-thoracic
2. Variable intra-thoracic
3. Fixed

VIII. Spirometry interpretation

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Spirometry Technical Skills Lab
Prefix and Course Number: RT 255

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Assemble and calibrate a spirometer
- Perform a non-forced vital capacity and analyze all results
- Perform a forced vital capacity and analyze all results
- Perform maximum voluntary ventilation
- Perform flow-volume loops

Course Outline:

I. Spirometer preparation
    A. Assembly
    B. Cleaning
    C. Calibration
II. Non-forced spirometry
    A. Measure static lung volumes
III. Forced spirometry
    A. Measure forced vital capacity
    B. Calculate
        1. FVC
        2. FEV1
        3. FEV1 / FVC
        4. FEF200-1200
        5. FEF25-75%
IV. MVV
    A. Measure MVV
    B. Calculate MVV
V. Flow-Volume loop
    A. Perform F-V loop
    B. Achieve ATS acceptability standards
    C. Achieve ATS reproducibility standards

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care III
Prefix and Course Number: RT 261

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate how to manage an airway, apply hyperinflation and secretion mobilization protocols
- Apply airway maintenance techniques (positioning, simple airways, NT suctioning)
- Apply emergency airway management
- Perform artificial airway management techniques
- Perform hyperinflation therapy techniques
- Perform Intermittent Positive Pressure Ventilation (IPPB)
- Evaluate when to use Bi-Level Positive Airway Pressure
- Apply Intrapulmonary percussive ventilation (IPV)
- Evaluate when to use secretion mobilization techniques (PAP, PEP, Flutter, Acapella, Aerobika, HFCWO, CPT, PD)
- Introduction to clinical simulation (NIPPV simulation – patient assessment)

Course Outline:

I. Hyperinflation protocols
   A. Incentive spirometry
   B. PEP Therapy
   C. Vibratory PEP therapy
   D. HFCWO techniques
   E. Chest physiotherapy and postural drainage
II. Artificial airways
   A. Simple airways
   B. Endotracheal tubes
   C. Tracheostomy tubes
   D. Laryngectomy tubes
   E. Tracheostomy speaking valves
III. Airway management
   A. Positional maneuvers
   B. Use of simple airways
IV. Emergency airway management
   A. Bag/mask ventilation
   B. Intubation
V. Management of an artificial airway
   A. Humidification
   B. Secretion removal
   C.VAP protocols
VI. Intermittent Positive Pressure Breathing (IPPB)

A. Bird Mark 7
B. AARC clinical practice guidelines

VII. Intrapulmonary percussive ventilation (IPV)
A. Percussionaire IPV-1

VIII. Non-invasive mechanical ventilation
A. Bi-level positive airway pressure
B. Respironics Vision
C. Respironics V-60

IX. Non-invasive positive pressure ventilation simulation

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Respiratory Care II Technical Skills Lab
Prefix and Course Number: RT 262

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate how to manage an airway, apply hyperinflation and secretion mobilization protocols
- Perform airway maintenance (positioning, simple airways, NT suctioning)
- Perform emergency airway management
- Perform artificial airway management
- Perform hyperinflation therapy techniques
- Perform Intermittent Positive Pressure
- Perform Bi-Level Positive Airway Pressure and evaluate when its use is appropriate
- Apply Intrapulmonary percussive ventilation (IPV)
- Perform secretion mobilization techniques (PAP, PEP, Flutter, Acapella, Aerobika, HFCWO, CPT, PD)
- Perform drawing arterial blood gases
- Introduction to clinical simulation (NIPPV simulation – patient assessment)

Course Outline:

I. Demonstrate hyperinflation techniques
   A. Incentive spirometry
   B. PEP Therapy
   C. Vibratory PEP therapy
   D. HFCWO techniques
   E. Chest physiotherapy and postural drainage
II. Airway management
   A. Demonstrate positional maneuvers
   B. Demonstrate the use of simple airways
III. Emergency airway management
   A. Demonstrate bag/mask ventilation
   B. Demonstrate intubation
IV. Demonstrate how to manage an artificial airway
   A. Humidification
   B. Secretion removal
   C.VAP protocols
V. Demonstrate the use of the Bird Mark 7
VI. Demonstrate the use of the Percussionaire IPV-1
   A. Demonstrate the use of the Respironics Vision and Respironics V-60

Course Objectives/Course Outline
Spokane Community College

Course Title: Respiratory Care Pharmacology
Prefix and Course Number: RT 263

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Understand principles of pharmacology and the routes of drug delivery with emphasis on aerosol delivery of pulmonary medications
- Introduction to pharmacology
- Differentiate between the different principles of drug action
- Differentiate between the different ways of administrating aerosolized agents
- Calculate drug dosages
- Differentiate between the central and peripheral nervous systems
- Differentiate between the adrenergic bronchodilators
- Differentiate between the anticholinergic bronchodilators
- Discuss the use of Methyl Xanthienes
- Evaluate when mucous controlling drugs are appropriate
- Evaluate when aerosolized anti-infective agents are appropriate

Course Outline:

I. Introduction to pharmacology
   A. Definitions
   B. Naming drugs
   C. Sources of drug information
   D. FDA drug approval
   E. Pharmacologic applications in respiratory care
II. Principles of drug action
   A. Administration phase
   B. Pharmacokinetic phase
   C. Pharacodynamic phase
   D. Phramacogentics
III. Administration of aerosolized agents
   A. Physics of aerosols
   B. Aerosol generators
   C. Selecting an aerosol delivery device
   D. Clinical application of aerosol delivery
IV. Calculating drug doses
V. Central and peripheral nervous system
   A. Autonomic
   B. Parasympathetic
VI. Adrenergic bronchodilators
VII. Anticholinergic bronchodilators
VIII. Xanthines
IX. Mucus-controlling drugs

X. Surfactant agents
XI. Corticosteroids
XII. Nonsteroidal antiasthma agents
XIII. Aerosolized anti-infective agents

Course Objectives/Course Outline
Spokane Community College

Course Title: Computer Applications in Respiratory Care
Prefix and Course Number: RT 264

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Apply basic word processing skills using Microsoft Word
- Apply basic PowerPoint presentation, design and production
- Apply the basics of performing an internet search to answer a clinical question
- Design a search for locating journal articles from the Respiratory Care Journal database
- Become familiar with the PubMed database and create a user account
- Summarize an article from the April and May 2014 Respiratory Care Journals
- Discuss the information gathering and decision making skills used with the clinical simulation portion of the NBRC registry exams
- Completes a patient simulation of the instructors choice with a combined score of 65% or higher
- Revise and updates saved documents for future reference
- Completes and submits a resume
- Updates and maintains an internet resource list for the profession
- Access the AARC and RCSW websites and locates contact information for the current officers, job opportunities, clinical resources and political advocacy information
- Becomes familiar with medical charting utilizing electronic medical records during clinical rotations
- Create and maintain a professional e-mail account (outlook)

Course Outline:

I. Word processing
   A. MS Word and how to kill your mouse
II. PowerPoint
   A. PowerPoint design and development
III. Internet search
   A. Pubmed
   B. Cochrane database
   C. RC Journal
IV. Clinical simulation
   A. Information gathering
   B. Decision making
V. Computer resource web sites
   A. Professional organizations
   B. Department of health
VI. Use of the electronic medical record
   A. Orientation to hospital EMR

Course Objectives/Course Outline
Spokane Community College

Course Title: RT Clinical I
Prefix and Course Number: RT 266

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Apply appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Apply the electronic medical record (EMR) and phone/beeper system usage
- Apply aseptic technique and infection control
- Select appropriate equipment in a corresponding storage area for patient care
- Perform patient care including:
    - Receiving shift reports and giving back report
    - Noninvasive Assessment with Respiratory and Heart Rate, Auscultation, pulse oximetry, capnography and blood pressure
    - Oxygenation and Aerosol therapy
    - Medication delivery via small volume nebulizers, MDP or DPI
- Maintain daily logs of practice skills with perception of day activities/events and potential physician interactions
- Perform weekly self-evaluations with bi weekly self-assessment of areas of strength and area requiring improvement
- Complete SOAP (3 patients) and 1 Patient Care Plan of your choice
- Have a preceptor complete an evaluation tool

Course Outline:

I. Electronic medical record training on EPIC
    A. Sign on with user number and password
    B. Navigate the patient chart for orders and other information
    C. Demonstrate correct use of system on daily clinical rotations
II. Orientation to facility to include tour, equipment storage areas, and Respiratory Care Department with log in sheets, and timelines for notebook reviews
III. Participating in Shift Reports and time management with assigned patients
IV. Chart Review of patients and appropriate documentation after therapy
V. Tricks to writing a SOAP and a Care Plan
VI. Completion of performance skills, daily logs, physician interactions, preceptor evaluations and additional options leading to final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care I
Prefix and Course Number: RT 301

Course Learning Outcomes:
By the end of this course, a student should be able to:

Apply the following in a patient care situation (First of a two course sequence)

- Respiratory Failure and the Need for Ventilatory Support
- Basic Terms and Concepts of Mechanical Ventilation
- Mechanical Ventilators (How ventilators work, Breath delivery, Classification, Invasive vs. Non-invasive, Positive vs. Negative Pressure)
- Physiology of Ventilatory Support
- Selecting the Ventilator and Mode
- Initial Ventilator Settings, ARDSnet
- Basic Alarms, Humidification
- Assessment of the Mechanically Ventilated Patient, Basic Waveforms Analysis
- Weaning and Liberation from Mechanical Ventilation, SBT
- Extubation
- Terminal Weaning, Advanced Directives and POLST
- Arterial Catheters and Blood Gas Sampling
- Chest Drainage Systems
- Introduction to clinical simulation (Invasive Ventilation - patient assessment)

Course Outline:

I. Respiratory Failure and the Need for Ventilatory Support
   A. Recognizing the Patient in Respiratory Distress
   B. Physiological Measurements in Acute Respiratory Failure
   C. Bedside Measurements of Ventilatory Mechanics
   D. Failure of Ventilation and Increased Dead Space
   E. Failure of Oxygenation
   F. Overview of Criteria for Mechanical Ventilation

II. Basic Term and Concepts of Mechanical Ventilation
   A. Normal Mechanics of Spontaneous Ventilation
   B. Ventilation and Respiration
   C. Gas Flow and Pressure Gradients During Ventilation
   D. Units of Pressure
   E. Definition of Pressures and Gradients in the Lungs
   F. Lung Characteristics
   G. Compliance
   H. Resistance
   I. Time Constants
   J. Definition of Pressures in Positive Pressure Ventilation: baseline pressure, peak pressure, plateau pressure, pressure at end of exhalation

III. Mechanical Ventilators (How ventilators work, Breath delivery, Classification)
A. Internal Function
B. Power Source or Input Power
C. Control Systems and Circuits
D. Power Transmission and Conversion System
E. Basic Model of Ventilation in the Lung during Inspiration
F. Overview of Inspiratory Waveform Control
G. Phases of a Breath and Phase Variables
H. Types of Breaths

IV. Physiology of Ventilatory Support
A. Effects of mechanical ventilation on ventilation
B. Effects of mechanical ventilation on oxygenation
C. Effects of positive pressure on lung mechanics
D. Minimizing adverse pulmonary effects of positive pressure ventilation
E. Cardiovascular effects of positive pressure ventilation

V. Selecting the Ventilator and Mode
A. Full and Partial Ventilatory Support
B. Breath Delivery and Modes of Ventilation
C. Modes of Ventilation

VI. Initial Ventilator Settings
A. Initial settings during volume-controlled ventilation
B. Initial settings during pressure-controlled ventilation

VII. Basic Alarms and Providing Humidification
A. Initial alarm settings
B. Troubleshooting alarms
C.AARC clinical practice guideline “Humidification during invasive and non-invasive
mechanical ventilation”

VIII. Assessment of the Mechanically Ventilated Patient, Basic Waveform Analysis
A. Documentation of the patient-ventilator system
B. Monitoring airway pressures
C. Vital signs, blood pressure, and physical examination of the chest
D. Management of endotracheal tube and tracheostomy tube cuffs
E. Monitoring compliance and airway resistance
F. Relationship of flow, pressure, volume, and time
G. Scalars, curves, and loops
H. Using graphics to monitor pulmonary mechanics
I. Assessing patient-ventilator asynchrony
J. Advance applications

IX. Weaning and Liberation from Mechanical Ventilation
A. Weaning techniques
B. Evidence based weaning
C. Factors in weaning failure
D. Final recommendations on weaning

X. Extubation

XI. Terminal Weaning, Advanced Directives, POLST

XII. Arterial Catheters and Blood Gas Sampling Techniques
  A. Arterial catheter insertion techniques
  B. Arterial catheter maintenance and troubleshooting techniques
  C. Arterial catheter blood gas sampling techniques and equipment
XIII. Chest Drainage Systems
  A. Indications and Placement techniques
  B. Complications and monitoring
  C. Maintenance and troubleshooting techniques
  D. Removal of chest tube
XIV. Clinical simulation – care of a patient receiving invasive positive pressure ventilation

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care II
Prefix and Course Number: RT 302

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Apply disease Specific Mechanical Ventilation Strategies
- Evaluate strategies to Improve Ventilation and Oxygenation in the management of ARDS
- Describe Ventilator Induced Lung Injury and apply Lung Protective Ventilation Strategies
- Evaluate advanced Modes of Mechanical Ventilation
- Apply advanced Ventilator Graphic Assessment and troubleshoot mechanical ventilators
- Apply advanced troubleshooting and problem-solving
- Evaluate bedside Pulmonary Ultrasound principles
- Apply Intra-aortic balloon pump and other forms of left and right ventricular assist devices
- Evaluate Cardiac Catheterization and Echocardiography
- Demonstrate Inter and Intra-Hospital Transports
- Apply advanced Assessment of the Mechanically Ventilated Patient (Hemodynamics)
- Describe Introduction to Neonatal and Pediatric Mechanical Ventilation
- State the indications, contraindications, hazards and gas laws that pertain to Hyperbaric oxygen therapy and tour a local facility

Course Outline:

I. Mechanical Ventilation Strategies to improve Ventilation and Oxygenation
II. Acute Respiratory Distress Syndrome and advanced Ventilator Graphics utilizing the P/V loop and Flow/V loop
III. Lung Protective Ventilation Strategies – ECMO, iNO, PLV, HFV and surfactant replacement
IV. Advanced Modes of Mechanical Ventilation – APRV, Volume Targeting with PC and PS options, PAV, Prone position and mobilizing the ventilator patient and Tracheal Gas Insufflation
V. Thoracic Ultrasound principles and Echocardiography
VI. Cardiac Catheterization Indications and procedures that may result in IABP and other options such as a right or left ventricular assist device – Heartmate II
VII. Inter and Intra Hospital Transports, equipment, monitoring and patient safety
VIII. Advanced Hemodynamic Monitoring
IX. Introduction to Neonatal and Pediatric Mechanical Ventilation using pressure and volume targeting
X. Hyperbaric Oxygen indications and contraindication and Wound Therapy

Course Objectives/Course Outline
Spokane Community College

Course Title: Home Care & Rehabilitation
Prefix and Course Number: RT 303

Course Learning Outcomes:
By the end of this course, a student should be able to:

- State the economic impact of lung disease in United States and World Wide
- Define the meaning of the phrase "Continuum of Care" as it pertains to Respiratory Care Patients/Residents
- Identify the patient population that would benefit from alternate care or home care setting
- Evaluate the advantages and Limitations to providing for the following in the alternate care or home care setting:
    - Oxygen therapy
    - Airway care Management
    - Non-invasive modes of ventilation
    - Invasive ventilation
    - Travel
- Design a Pulmonary Rehabilitation program
- Design a Tobacco Cessation program, to include e-cigarettes
- Discuss reimbursement on a state and national level for Pulmonary Rehabilitation programs and Home Care, using Licensed Respiratory Practitioners
- Given a patient scenario, manage the case and state the therapeutic goals

Course Outline:

I. Principles of Pulmonary Rehab
    A. Candidates/Reimbursement
    B. Education
    C. Exercise/Training
    D. Equipment use

II. Continuum of Care for our patients and families – beyond the physician's office and hospital

III. Non Acute Care settings and Reimbursement
    A. Home Care
    B. Sub-acute/long term
    C. Hospice and palliative care

IV. Equipment used outside of Acute Care
    A. Oxygen Therapy – concentrators stationary and portability
    B. Airway Care and Management – artificial airways, suctioning and portability
    C. Non-invasive modes of ventilation – CPAP and BIPAP
    D. Invasive Ventilation – Trilogy, LTV 1200 and others for trach patients
    E. Travel – airline regulations and home care company policies

Course Objectives/Course Outline
Spokane Community College

Course Title: Cardiopulmonary Pathophysiology
Prefix and Course Number: RT 304

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the following for the obstructive diseases
    - Etiology
    - Pathophysiology
    - Clinical features
    - Treatment
- Describe the following for the restrictive diseases
    - Etiology
    - Pathophysiology
    - Clinical features
    - Treatment
- Describe the following for the circulatory diseases
    - Etiology
    - Pathophysiology
    - Clinical features
    - Treatment
- Given a case study of a pulmonary disease, make appropriate decisions in the treatment and or management of that patient
- Apply both protocols and clinical practice guidelines to the management of a case study problem
- Evaluate a chest radiograph for:
    - Pneumothorax
    - Consolidation
    - Pleural effusion
    - Pulmonary edema
    - Displacement of hemidiaphragms, mediastinum or trachea
- Evaluate when the following testing is appropriate:
    - Skin test – allergy
    - TB skin testing

Course Outline:

I. Obstructive diseases
    A. Bronchitis
    B. Emphysema
    C. Asthma
    D. Cystic fibrosis
    E. Bronchiectasis
II. Restrictive diseases

A. Interstitial diseases
B. Pleural diseases
C. Alveolar diseases
D. Neuromuscular diseases
E. Thoracic/skeletal diseases
F. Post-operative atelectasis

III. Circulatory diseases
A. Pulmonary emboli
B. Heart failure
C. Pulmonary hypertension
D. ARDS

IV. Infectious diseases
A. Bacterial pneumonia
B. Pneumonia in the immunocompromised patient
C. Tuberculosis
D. Fungal disease

V. Chest trauma

VI. Near drowning

VII. Smoke inhalation

VIII. Diagnostic evaluation
A.TB Skin testing
B. Allergy testing

Course Objectives/Course Outline
Spokane Community College

Course Title: Pulmonary Volumes Diffusion and Instrumentation
Prefix and Course Number: RT 305

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

Course Objectives/Course Outline
Spokane Community College

Course Title: Basic Life Support Instructor
Prefix and Course Number: RT 308

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate effective teaching techniques for adolescents and adults
- Effectively teach the following cognitive skills:
    - Recognition the signs and symptoms of cardiac arrest
    - Recognition of the signs and symptoms of an obstructed airway
    - Identification of the links in the Chain of Survival
    - Recognition of the signs and symptoms of stroke
- Effectively teach the following psychomotor skills for infant, children and adult victims:
    - Activating EMS
    - Opening the airway
    - Relief of airway obstruction
    - Performing chest compressions
    - Use of a bag/valve manual resuscitator
    - Use of a barrier device for mouth-to-mouth ventilation
    - Use of an automatic external defibrillator (AED)
    - Performance of 1 and 2 rescuer CPR

Course Outline:

I. Individual Completion of an AHA Core Instructor Class (online)
II. Course Overview, Purpose, Expectations, Introductions
III. The Science Behind the Changes
IV. Instructor Manual Review and Scenario-based Practice Exercises with AED
V. Scenario Peer Practice Sheets – Skill Demo
VI. HCP Course Sign up
VII. Getting Ready for Your First Class
VIII. BLS Instructor Exam
IX. Course Evaluations

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Pharmacology
Prefix and Course Number: RT 309

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Apply the following classes of medications:
    - Skeletal muscle Relaxants (Neuromuscular Blocking Agents)
    - Medications affecting the Central Nervous System
    - Diuretic Agents
    - Vasopressors, Inotropes, and Antiarrhythmic Agents
    - Medications affecting circulation: Antihypertensive, Antianginals, and Antithrombotic
- Describe the pharmacologic routes of drug administration
- State the indications and hazards of the medications administered critical care
- State the dosages and routes of administration for each medication
- Describe the mechanism of action for each medication
- Evaluate a case study in emergency and critical care medication
- Evaluate when the application of conscious sedation is appropriate
- Describe the application of pulmonary vasodilators including iNO and epoprostenol (Veletri)
- Evaluate situations in which Heliox mixtures may be needed
- Prepare and present a 10 minute case study related to clinical treatment of a patient in the adult ICU
- Prepare a written report on a specific drug and its application to the
- Treatment of a disease state

Course Outline:

I. Skeletal Muscle Relaxants
    A. Nondepolarizing agents
        1. Mechanism of action
        2. Pharmacokinetics
        3. Metabolism
    B. Depolarizing agents
        1. Mechanism of action
        2. Pharmacokinetics
        3. Metabolism
    C. Contraindications and adverse effects
    D. Clinical application
    E. Case study
II. Drugs Affecting the Central Nervous System
    A. Neurotransmitters
    B. Psychiatric medications
    C. Pain treatment/medications

D. Anesthesia
E. Central nervous system and respiratory stimulants
F. Case study

III. Diuretic Agents
A. Renal structure and function
B. Diuretic groups and medications
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
C. Adverse effects
D. Special situations
E. Case study

IV. Vasopressors, Inotropes, and Antiarrhythmic Agents
A. Overview of cardiovascular system
B. Agents used in the management of shock
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
C. Electrophysiology of the myocardium
D. Antiarrhythmic agents (class IA, IB, IC, II, III, IV)
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
E. Management and Pharmacotherapy of Advanced Cardiac Life Support
F. Case study

V. Drugs Affecting Circulation: Antihypertensive, Antianginals, Antithrombotic
A. Hypertension
B. Selected medications used in the treatment of hypertension
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
C. Angina and selected medications
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
D. Antithrombotic agents
1. Mechanism of action
2. Pharmacokinetics
3. Metabolism
4. Adverse effects
E. Case study

VI. Conscious sedation

A. Selected medications
B. Roles and responsibilities of the respiratory therapist

VII. Selected Pulmonary Vasodilators
A. Inhaled nitric oxide
B. Inhaled prostacyclins

VIII. Heliox therapy

IX. Case study development and student presentation

X. Written report

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care I Technical Skills Lab
Prefix and Course Number: RT 311

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate how to select an appropriate ventilator for management of an adult patient
- Demonstrate how to establish an airway and select appropriate ventilator settings
- Demonstrate how to perform appropriate ventilator monitoring including compliance, airway resistance and VD/VT determination
- Demonstrate how to modify ventilator settings based upon changes in patient pathology or laboratory results
- Demonstrate how to change a ventilator circuit on a patient receiving continuous mechanical ventilatory support and the use of a bag/valve resuscitator
- Demonstrate how to perform a spontaneous breathing trial
- Demonstrate how to establish appropriate alarm settings and ranges for a patient on mechanical ventilatory support
- Demonstrate how to interpret ventilator graphics
- Demonstrate the management of chest tube drainage systems
- Demonstrate how to obtain an arterial blood sample from an arterial line
- Demonstrate how to transport a patient within the hospital using a bag/valve resuscitator or transport ventilator

Course Outline:

I. Laboratory exercise and competency checkoff: Initial ventilator settings
II. Laboratory exercise and competency checkoff: Patient-ventilator system monitoring
III. Laboratory exercise and competency checkoff: Ventilator parameter change
IV. Laboratory exercise and competency checkoff: Ventilator circuit change
V. Laboratory exercise and competency checkoff: Weaning techniques and performance of a Spontaneous Breathing Trial
VI. Laboratory exercise and competency checkoff: Establish appropriate alarm settings and alarm troubleshooting
VII. Laboratory exercise and competency checkoff: Ventilator waveform interpretation and corrective action
VIII. Laboratory exercise and competency checkoff: Management of chest tube
IX. Laboratory exercise and competency checkoff: Arterial blood sampling from an indwelling arterial catheter
X. Laboratory exercise and competency checkoff: Intra hospital transport of a patient receiving mechanical ventilation

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care II Technical Skills Lab
Prefix and Course Number: RT 312

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Given a patient scenario with history, perform a thorough bedside assessment, review of lab information and incorporate features from previous labs to include:
    - Initial invasive and non-invasive treatments for Adult patients, Monitor and Parameter changes (ECMO, iNO, Liquid Ventilation, HFV).
    - Chest X-Ray interpretations
    - Non-invasive monitoring options
    - Lung Protective options for Dual Mode Ventilation (PRVC, VC+, VG, VS, APRV)
- Participate in a Pulmonary Ultrasound demonstration of lung pathology
- Demonstrate correct placement of an intra-aortic balloon pump

Course Outline:

I. Weekly demonstrations of lab skill and review of performance evaluation, for the following:
   A. Inhaled NO
   B. High Frequency Oscillatory Ventilation
   C. Dual Mode Ventilation – PRVC, VC+, VG, VS, APRV and PAV
   D. Neonatal and Pediatric initiation, monitoring and parameter changes
   E. Ventilator Circuit Changes
   F. Optional – IABP and HBO

II. Onsite tour of Hyperbaric Chamber and TCM monitoring with wound therapy

Course Objectives/Course Outline
Spokane Community College

Course Title: Home Care & Rehabilitation Technical Skills Lab
Prefix and Course Number: RT 313

Course Learning Outcomes:
By the end of this course, a student should be able to:

- On site observation/tour of National and Local Home Care and Alternate Care settings and patient/Resident population they serve
- Formulate the equipment preparation needed and required documentation to discharge a patient into the alternate or home care settings:
    - Care Giver/Family Education
    - Oxygen therapy
    - Airway Care Management
    - Non-invasive modes of ventilation
    - Invasive Ventilation
    - Over-all Plan of Care
    - Travel

Course Outline:

I. Orientation and tour of Home Care, Pulmonary Rehab and alternate Care Environments
II. Pulmonary Rehab Assessment Form
III. Non Invasive and Invasive Equipment to include Airway Care
IV. Oxygenation Equipment to include travel needs
V. Specific Documentation from Clinic Rotations
    A. Ventilator Flow Sheets
    B. Patient Assessments/ Plan of Care
    C. Equipment Purchase/Rental Agreements – Medicare/Medicaid/Third Party

Course Objectives/Course Outline
Spokane Community College

Course Title: PVDI Technical Skills Lab
Prefix and Course Number: RT 315

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate how to prepare and calibrate a pulmonary function laboratory
- Demonstrate how to perform a flow-volume loop
- Demonstrate how to perform nitrogen washout for FRC measurement
- Demonstrate how to perform body plethysmography
- Demonstrate how to perform a single-breath oxygen test for measuring distribution
- Demonstrate how to perform a single breath DLCO diffusion study

Course Outline:

I. Preparation and calibration
   A. Flow sensors
   B. Pressure transducers
   C. Plethysmograph leakage
II. Flow/Volume loop
   A. ATS acceptability standards
   B. ATS reproducibility standards
III. FRC by nitrogen washout
   A. ATS acceptability standards
   B. ATS reproducibility standards
IV. FRC by plethysmography
   A. ATS acceptability standards
   B. ATS reproducibility standards
V. Single breath diffusion
   A. ATS acceptability standards
   B. ATS reproducibility standards
VI. Fowler's distribution test

Course Objectives/Course Outline
Spokane Community College

Course Title: RT Clinical II
Prefix and Course Number: RT 321

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this second clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Demonstrate previous clinical skill, while displaying appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Select appropriate equipment in a corresponding storage area for patient care
- Perform patient care including:
    - Receiving and giving shift reports
    - Noninvasive Assessment with Respiratory and Heart Rate, Auscultation, pulse oximetry, capnography and blood pressure
    - Oxygenation and Humidity/Aerosol therapy
    - Medication delivery via small volume nebulizers, MDP or DPI
    - EZ-PAP or similar therapy
    - Incentive Spirometry
    - Electrocardiograms
    - Chest physiotherapy/ Oscillatory Vest
    - Nasotracheal Suctioning
    - Endotracheal Suctioning
    - Equipment Processing
    - Bag Mask Resuscitation
    - O2 Supply Systems
    - Physical assessment of the chest
- Maintain daily logs of practice skills with perception of day activities/events and physician interactions
- Perform weekly self-evaluations with bi weekly self-assessment of strengths and weaknesses
- Complete patient care plans on patients with the following conditions:
    - Pneumonia
    - Chest Trauma/Thoracic Surgery
    - Neuromuscular
    - Renal, Lung CA or COPD
- Complete physician interactions with student documentation/signed by physician
- Have a preceptor complete a comprehensive evaluation

Course Outline:

I. Electronic medical record additional training beyond EPIC

II. Orientation to facility to include tour, equipment storage and Respiratory Care Department with log in sheets, excused absenteeism forms and timelines for notebook reviews
III. Participating in Shift Reports and time management with assigned patients
IV. Chart Review of patients and appropriate documentation after therapy
V. Tricks to writing a Patient Care Plan on specific disease states
VI. Maintenance of previous completed skills and notebooks
VII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations and additional options leading to final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: RT Clinical III
Prefix and Course Number: RT 322

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this second clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Demonstrate previous clinical skills, while displaying appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Select appropriate equipment in a corresponding storage area for patient care
- Perform patient care to including floor, ED and Critical Care Areas:
    - Receiving and giving shift reports
    - Noninvasive Assessment with Respiratory and Heart Rate, Auscultation, pulse oximetry, capnography and blood pressure
    - Oxygenation and Humidity/Aerosol therapy
    - Medication delivery via small volume nebulizers, MDP or DPI
    - EZ-PAP or similar therapy
    - Incentive Spirometry
    - Electrocardiograms
    - Chest physiotherapy/ Oscillatory Vest
    - Equipment Processing
- Additionally an introduction to Critical Care including:
    - Airway Management/ Trach Care
    - Noninvasive Mechanical Ventilation
    - Invasive Mechanical Ventilation
- Complete daily logs of practice skills with perception of day activities/events and physician interactions
- Complete weekly self-evaluations with bi-weekly self-assessment of strengths and weaknesses
- Complete patient care plans on patients having the following:
    - Noninvasive Mechanical Ventilation with flowsheet
    - Invasive Mechanical Ventilation with flowsheet
    - Primary Cardiopulmonary Patient not of ventilator
    - Other – student choice
- Complete physician interactions with student documentation/signed by physician
- Have a preceptor complete comprehensive student evaluations

Course Outline:

I. Electronic medical record additional training beyond EPIC

II. Orientation to facility to include tour, equipment storage and Respiratory Care Department with log in sheets, excused absenteeism forms and timelines for notebook reviews
III. Participating in Shift Reports and Time Management with assigned patients and preceptors
IV. Chart Review of Patients and appropriate documentation after therapy
V. Tricks to wiring a Patient Care Plan on specific disease states
VI. Maintenance of previous completed skills and notebooks
VII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations and additional options leading to final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: PFT Clinical I
Prefix and Course Number: RT 325

Course Learning Outcomes:
By the end of this course, a student should be able to:

- The Student will observe at least SIX studies to include:
    - Spirometry
    - Spirometry with a Bronchodilator
    - Flow/Volume Loop (at least two of these)
    - Nitrogen Washout or Helium Dilution
    - Diffusion (DLCO)
    - Body Plethysmography
    - Blood Gases
        - Allen's test
    - Minimum of Two Blood Gas Draws
- The Student will assist or perform at least SIX studies to include:
    - Spirometry
    - Spirometry with a Bronchodilator
    - Flow/Volume Loop (at least two of these)
    - Nitrogen Washout or Helium Dilution
    - Diffusion (DLCO)
    - Body Plethysmography
    - Blood Gases
        - Allen's test
    - Minimum of Two Blood Gas Draws

Course Outline:

I. Electronic medical record training on EPIC
   A. Sign on with user number and password
   B. Navigate the patient chart for orders and other information
   C. Demonstrate correct use of system on daily clinical rotations
II. Orientation to facility to include tour, with log in sheets, and timelines for notebook reviews.
III. Participating in scheduling daily assignments
IV. Completion of all observation objectives
   A. Spriometry
   B. Pre/Post spirometry
   C. Lung volume determination
   D. Diffusion
   E. Drawing arterial blood gases
V. Completion of all performance objectives
   A. Spriometry
   B. Pre/Post spirometry

C. Lung volume determination
D. Diffusion
E. Drawing arterial blood gases

VI. Completion of, daily logs, physician interactions, preceptor evaluations and additional options leading to final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care Clinical I
Prefix and Course Number: RT 331

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this First Adult Critical Care clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Demonstrate previous clinical skills, while displaying appropriate cognitive, and affective behaviors
- Demonstrate appropriate work ethics including attendance per assigned clinical schedule
- Select of appropriate equipment in a corresponding storage area for patient care
- Perform techniques for improving oxygenation including; PEEP, FIO2, CPAP, BiPAP and EPAP
- Perform techniques for improving ventilation including; VT, f, VE, Pressure Support and elimination of Dead space ventilation (VD/VT)
- Perform adult ventilator monitoring including:
    - Static and dynamic compliance
    - Airway resistance
    - Inspiratory Pressures or Driving Pressures
    - Alarm settings to include apnea alarms
    - Waveform analysis
- Perform techniques for liberating an adult patient from mechanical ventilation to include:
    - SIMV
    - Pressure Support
    - Spontaneous Breathing Trials – CPAP and T-Piece
    - Non-invasive positive pressure ventilation
    - Waveform analysis
- Identify and participate in issues and dilemmas in the care of the critically ill patient concerning application of life support measures
- Correctly calculate the values obtained from a pulmonary artery catheter or central venous catheter
- Complete daily logs, weekly self-evaluations
- Participate in activities/events that include physician interaction
- Perform weekly self-evaluations with bi weekly self-assessment of strengths and weaknesses, ventilator patient care plans, physician interactions, and preceptor evaluations
- Function as an active member of the Health Care Team

Course Outline:

I. Orientation to facility to include tour of critical care environment, equipment storage areas, and Respiratory Care Department with log in sheets, excused absenteeism forms and timeline for notebook review
II. Continuation of Electronic medical record keeping
III. Participating in Shift Reports and time management with assigned patients
IV. Continued Chart Review for patients and appropriate documentation after therapy
V. Tricks to writing a Critical Care Adult Care Plans on specific patients with a ventilator flowsheet
VI. Maintenance of previous completed skills and notebooks
VII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations weekly and additional options leading to the final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Pediatrics/Neonatal RT
Prefix and Course Number: RT 401

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Evaluate the care of neonatal and/or pediatric patient from the delivery room through critical care
    - Identify the high risk mother and neonate
    - Organize the general care given to the patient population
    - Demonstrate how to provide a neutral thermal environment
    - Apply the stabilization and resuscitation standards from both the Neonatal Resuscitation Program and Pediatric Advanced Life Support
    - Evaluate Infant and Pediatric Chest X-Rays
    - Describe oxygenation, ventilation, airway management, noninvasive and invasive techniques to include assessment and monitoring in this population (HHFNC, CPAP,
    - Apply Bubble CPAP and HFOV) along with arterial blood, capillary and cord gases
- Design a research evidence based paper/poster presentation, on a specific topic or condition

Course Outline:

I. Caring for the Neonatal and Pediatric Patient
A. Fetal Lung Development and Gas exchange/circulation
B. Identification of the high risk mother and neonate
C. Physical Examination of the Neonate and Pediatric Patients
D. General Care principles from the delivery room to the mothers room
E. Providing a neutral thermal environment and prevention of heat loss through evaporation, radiation, conduction and convection
F. Neonatal and Pediatric Disorders, diagnosis, treatments and monitoring
G. Neonatal Resuscitation Program standards
1. Delivery room equipment/techniques
2. Bag-Mask ventilation with flow and self-inflating, T-piece, CPAP
3. Compressions
4. Medications
H. Pediatric Advanced Life Support standards
1. Equipment/techniques
2. Bag-Mask ventilation with flow and self-inflating, transport ventilators and other forms of positive pressure
3. Arrhythmia recognitions and response
4. Compressions
5. Medication
6. Case Scenarios

I. Chest X-rays and other special procedures
J. Respiratory Care Procedures
    1. Oxygen therapy to include HHFNC and O2 hoods additionally
    2. Blood Gas analysis and interpretation, heel, cord and umbilical/arterial lines
    3. Aerosols and Medication Administration
    4. Airway Clearance and hyperinflation Therapy
    5. Continuous Positive Airway Pressure with nasal, mouth and bubble
    6. Need for either Non-invasive Mechanical Ventilation or Invasive Mechanical Ventilation of both the neonate and pediatric patients
    7. Discharging a pediatric ventilator patient from the acute care facility

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Cardiovascular Life Support
Prefix and Course Number: RT 402

Course Learning Outcomes:
By the end of this course, a student should be able to:

Describe and apply the following in a patient care situation:

A. Electrocardiography interpretation
B. Cardiovascular pharmacology
C. Airway management
D. Electrical therapy/defibrillation
E. Roles of the team leader and team members
F. Elements of effective resuscitation team dynamics
G. Recognition and care of respiratory arrest
H. Recognition and treatment of bradycardia's
I. Recognition and treatment of tachycardia's
J. Recognition and treatment of pulseless electrical activity and asystole
K. Recognition and treatment of pulseless ventricular tachycardia and fibrillation
L. Recognition and treatment of acute coronary syndrome
M. Recognition and treatment of acute stroke
N. Post resuscitation care

Course Outline:

I. AHA course objectives and content for ACLS, instructor introduction
II. Electrocardiography interpretation
    A. Basic electrophysiology review
    B. Atrial rhythms
    C. Junctional rhythms
    D. Ventricular rhythms
    E.AV blocks
III. Electrical therapy/defibrillation
    A. Defibrillator operation
    B. Transcutaneous pacing
    C. Synchronized cardioversion
    D. Defibrillation
IV. Airway management
    A. Oxygen therapy equipment
    B. Airway management maneuvers
    C. Bag valve mask ventilation
    D. Airway suctioning
    E. Simple airway adjuncts (oropharyngeal airway/nasopharyngeal airway)
    F. Advanced airways and endotracheal intubation
        1. Technique

2. Confirmation of placement

G. Supraglotic airways (King tube, Combitube, LMA)

V. Cardiovascular pharmacology
- A. Medications used in pulseless V-Tach / V-Fib
- B. Medications used in stable/unstable tachycardia's
- C. Medications used in stable/unstable bradycardias
- D. Medications use in acute coronary syndrome
- E. Beta Blockers
- F. Thrombolytics
- G. Miscellaneous cardiac medications

VI. ACLS core cases
- A. Recognition and care of respiratory arrest
- B. Recognition and treatment of bradycardia's
- C. Recognition and treatment of tachycardia's
- D. Recognition and treatment of pulseless electrical activity and asystole
- E. Recognition and treatment of pulseless ventricular tachycardia and fibrillation
- F. Recognition and treatment of acute coronary syndrome
- G. Recognition and treatment of acute stroke

VII. Post resuscitation care

VIII. Team dynamics, team member roles and responsibilities

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Pulmonary Diagnostics
Prefix and Course Number: RT 403

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the purpose of cardiopulmonary exercise testing
- Describe the body's physiologic adaptation to exercise
- Describe the equipment used in cardiopulmonary exercise testing
- Given the results of a cardiopulmonary exercise test, evaluate if the limitation is cardiac, pulmonary, cardiopulmonary or deconditioning
- Apply the use of indirect calorimetry in the ICU and for weight management
- Differentiate between a PSG and home sleep study
- Describe the various pathologies that may be identified by performing a sleep study
- Describe the treatment of obstructive sleep apnea
- Describe the indications for maximal inspiratory/expiratory pressure measurements and how to perform them
- Evaluate when airway resistance measurement may be better than spirometry in the diagnosis of reactive airway disease
- List the indications for bronchial provocation challenge testing and the different methods that may be used
- Discuss the indications for bronchoscopy
- Differentiate between a flexible, videoscope, endobronchial ultrasound (EBUS) and Superdimension bronchoscopy
- Describe the indications for rigid bronchoscopy
- Discuss the hazards of bronchoscopy

Course Outline:

I. Cardiopulmonary Exercise (CPX) Testing
   A. Physiologic adaptation to exercise
   B. Exercise instrumentation
   C. Indications for CPX testing
   D. Hazards of CPX testing
   E. Interpretation of CPX testing results
II. Indirect calorimetry
   A. Theory of substrate utilization
   B. Equipment
   C. Test performance requirements
III. Sleep diagnostics
   A. Prevalence of sleep disorders in society
   B. Economic significance of sleep disorders
   C. Theory of sleep
   D. Polysomnographic sleep monitoring
   E. Pathologies leading to sleep disorders

F. Treatment of sleep disorders

IV. Respiratory mechanics measurements
- A. Indications
- B.MIP/MEP
- C. Reproducibility criteria

V. Airway resistance measurement
- A. Theory of sprirometry versus airway resistance
- B. Plethysmography theory
- C.ATS standards

VI. Bronchial provocation
- A. Methacholine challenge
- B. Histamine challenge
- C. Exercise challenge
- D. Eupneic ventilation challenge
- E. Cold air challenge

V. Bronchoscopy
- A. Indications
- B. Videobronchoscopy
- C. Extra-bronchial ultrasound (EBUS)
- D. CT superdimensional
- E. Hazards of bronchoscopy

Course Objectives/Course Outline
Spokane Community College

Course Title: Research in Respiratory Care
Prefix and Course Number: RT 404

Course Learning Outcomes:
By the end of this course, a student should be able to:

Apply the following:

A. Evaluate the importance of research to the profession of Respiratory Care
B. Apply ethics in research design and implementation
C. Obtain a certificate of completion for the National Institutes of Health online course "Protecting Human Subjects"
D. Explain the scientific method
E. Design a study problem with hypothesis based upon the scientific method
F. Apply various devices used in performing physical measurement in clinical research
G. Demonstrate the interface and integration of physical measurement devices in performing clinical research
H. Explain how to assure and document accuracy of results obtained through physical measurement devices
I. Explain the steps in developing a research study
J. Identify a research problem and explain its relevance to the practice of respiratory care
K. Discuss basic statistical concepts
L. Explain statistics for nominal measures and how to apply in clinical research data
M. Explain statistics for ordinal measures and how to apply in clinical research data
N. Explain statistics for continuous measures and how to apply in clinical research data
O. Identify the formats for reporting and sharing clinical research results
P. Explain the relevance of a literature search to research
Q. Discuss how literature resources are classified based upon their rigor
R. Conduct a literature search on Pub Med to include a minimum of 5 background articles
S. Write a literature review
T. Prepare a poster presentation on the research paper completed in previous competencies

Course Outline:

I. Introduction to research and its relevance to the practice of respiratory care
II. Ethics in research design and implementation
    A. Codes and regulations
    B. Respect for persons

C. Beneficence
D. Justice
E. Obtain a certificate of completion for the National Institutes of Health online course “Protecting Human Subjects”

III. The scientific method
A. Formulate a Problem Statement
B. Generate a Hypothesis
C. Define Rejection Criteria
D. Make a Prediction
E. Perform the Experiment
F. Test the Hypothesis

IV. Study development utilizing the scientific method
A. Develop the Study Idea
B. Search the Literature
C. Consult an Expert
D. Design the Experiment
E. Write the Protocol
F. Obtain Permission
G .Collect the Data
H. Analyze the Data
I. Publish the Findings

V. Discussion of devices utilized in performing physical measurement
A. Accuracy of results obtained through physical measurement devices

VI. Identification of a research problem and its relevance to the practice of respiratory care
A. Clinical problems identified during the students clinical rotation and discussed in class

VII. Review of basic statistical concepts
A. Statistics for nominal measures and application to clinical research data
B. Statistics for ordinal measures and application to clinical research data
C. Statistics for continuous measures and application to clinical research data

VIII. Formats for reporting and sharing clinical research results
A.RC Journal format and citations

IX. Introduction to literature search/review
A. Relevance to the research process
B. Conducting the literature review
C. Sources and databases for literature search
D. Organization of material
E. Components of the literature review (format)

X. Evidence based medicine classification of rigor
A.GRADE format

XI. Literature review assignment

XII. Poster presentation assignment

Course Objectives/Course Outline
Spokane Community College

Course Title: Management in Respiratory Care
Prefix and Course Number: RT 406

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Review preparation for entry into a career in healthcare management
- Understand how hospitals are organized and the impact of hospital structure on management responsibilities within the respiratory care department
- Identify leadership challenges in measurement of department performance
- Understand leadership roles and positions in respiratory care staffing systems and discuss the role the AARC Uniform Reporting Manual has on staffing matrices
- Discuss the challenging and dynamic environment of DRG, CPT Codes and reimbursements while addressing individual leadership team roles in accuracy and accountability in various billing systems
- Understand the leadership roles and identify processes in evaluation and acquisition of new products and equipment, as well as post acquisition management of equipment in the environment of care
- Understand the importance of solid management and leadership in recruitment and retention within a respiratory care department
- Recognize the challenges of enforcing compliance with performance standards, legal and ethical behavior and progressive counseling as a tool to modify behavior
- Attend RCSW State Conference
- Develop a professional goal plan of action
- Participate in a group staffing project

Course Outline:

I. Qualifications for management
II. Structure and function of healthcare organizations
III. Measurement of performance
IV. Third party reimbursement
    A.DRGs
    B.CPT coding
    C.ICDN 10 coding
V. Leadership styles
VI. Recruiting and retaining employees
VII. Progressive discipline techniques
VIII. RCSW meeting
IX. Professional goals and assessment
X. Staffing assignment

Course Objectives/Course Outline
Spokane Community College

Course Title: Patient Management and Problem Solving
Prefix and Course Number: RT 407

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Demonstrate proficiency on the NBRC Therapist Multiple-Choice (TMC) exam and the NBRC Clinical Simulation (CS) Exam content areas
- Identify individual strengths and areas needing improvement, through self-assessment exams
- Develop critical Thinking skills to analyze, prioritize and suggest an action based on the information gathering section and on the decision making section of a CS exam
- Demonstrate proficiency on the NBRC TMC and CS Exams by satisfactory completion of the Applied Measurements Professionals "secure" computer based exams
- Complete the Washington state licensure application, or another state, 30-45 days prior to graduation
- Demonstrate how to set up an Account for the TMC NBRC exam 30 days prior to graduation
- Describe how to obtain additional NBRC specialty exams offered and requirements for eligibility, as well as the Asthma Educator Certification (AE-C)
- Prepare an updated resume to reflect your new credentials of RRT, as well as workshops, degrees, AHA cards (ACLS/PALS/NRP) and additional credentials (NPS, RPFT, ACCS)

Course Outline:

I. Introduction to Patient Management and Problems Solving
   A.TMC exam – matrix and 2 cut scores
   B.CSE – matrix
   C. Other Exams, NPS, ACCS, CPFT and RPFT, Asthma Educator and Sleep specialist
   D. Grading procedure

II. Individual Strengths and Areas to Improve Strategies
   A. Weekly practice exams and review sessions
   B. Weekly Lecture Notes matching the NBRC matrix to course
      1. Patient Evaluation
      2. Airway Care
      3. Respiratory Support
      4. Pulmonary Diagnostic
      5. Mechanical Ventilation
      6. Emergency Care
      7. Special Procedures
      8. Medical Gas Therapy
      9. General Patient Care

III. Synopses of Diseases for CSE exam
IV. NBRC exam application process and how to set up an account
V. State Licensure application process for WA and other states
VI. Secure Unit Exams
A.TMC – 2 cut scores resulting in Unit I and Unit II
B.CSE – 2 parts added for scores resulting in Unit III

Course Objectives/Course Outline
Spokane Community College

Course Title: Research in Respiratory Capstone
Prefix and Course Number: RT 409

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Formulate a research question to be answered
- Conduct a literature search utilizing Pub Med and RC journal to include a minimum of 10 background articles related to the research question
- Analyze the data obtained in the literature search
- Develop a literature review suitable for publication
- Design a poster presentation (using the AARC Open Forum Poster style) of the literature review and presents the findings
- Work collaboratively with class members to sponsor a local RCSW chapter event to present the research findings

Course Outline:

I. Development of research question / clinical question identified in RT 417
II. Review of literature review format
    A.RC Journal format and citation
III. Literature search/review utilizing (independent work)
    A. PubMed database
    B. RC Journal
    C. American Journal of Respiratory and Critical care Medicine
    D. Chest Journal
    E. Collection of 10 articles (minimum) related to clinical question
IV. Analysis of the data obtained from the literature review (independent work with in-class support)
V. Literature review draft
VI. Literature review final
    A. Suitable for publication in RC Journal
VII. Introduction to AARC Open Forum Poster Presentation
VIII. Completion of poster in AARC Open Forum style
IX. Group activity: sponsor and hold a local RCSW chapter event to present the research findings (mini AARC Open Forum)

Course Objectives/Course Outline
Spokane Community College

Course Title: Fundamentals of Educational Course Design
Prefix and Course Number: RT 410

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe the unique characteristics of the adult learner
- Analyze the learning styles of your audience
- Differentiate between pedagogy and andragogy
- Describe three methods of performing a needs assessment prior to developing an educational program
- Demonstrate how to write measureable objectives
- Develop a syllabus for a topic of instruction
- Demonstrate the use of three methods of learner evaluation
- Develop an assessment tool to evaluate the effectiveness of an instructional program
- Discuss marketing techniques to promote healthcare educational programs
- Demonstrate educational competence by teaching a unit of instruction in the sophomore respiratory care laboratory

Course Outline:

I. The adult learning
    A. Need to know
    B. Andragogy versus pedagogy
II. Audience analysis
    A. Surveys
    B. Educational background
    C. Purpose of event
III. Needs assessment
    A. Dacum process
    B. Surveys
    C. Performance reviews
IV. Objectives
    A. Measurement of outcomes
    B. Writing performance based objectives
    C. Writing measureable objectives
V. Syllabus design
    A. Intro
    B. Learning outcomes
    C. Learning resources
    D. Units of instruction
    E. Measurement tools
VI. Assessment of learning
    A. Written evaluation
    B. Performance evaluation

C. Return demonstration

VII. Marketing

VIII. Teaching in the respiratory care curriculum

Course Objectives/Course Outline
Spokane Community College

Course Title: Pediatrics/Neonatal Technical Skills Lab
Prefix and Course Number: RT 411

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Perform Patient Physical assessment and Chart Review
- Evaluate Chest radiographs
- Apply Oxygenation, Aerosol therapy, Drug selection, Chest Physiotherapy, PEP/EzPEP techniques
- Perform Resuscitation (NRP and PALS)
- Perform Airway Management (Intubation, stabilization, suctioning)
- Evaluate when to use Noninvasive and Invasive monitoring techniques
- Analyze the results from UAC, cord gases and Capillary sticks
- Apply Noninvasive (NCPAP, Bubble CPAP) and Invasive (NAVA, Neopuff, Tidal Volume Targeting) forms of ventilation and oxygenation

Course Outline:

I. Performing a patient assessment and scoring with APGAR and Silverman Anderson
II. Chest X-rays for common diagnosis/conditions to include Respiratory Distress (RDS), Meconium Aspiration (MAS), Congenital heart and diaphragmatic Hernias, Pulmonary leaks/pneumothoracies, endotracheal tubes, umbilical lines and other conditions as they arise.
III. Neonatal Resuscitation procedure/equipment/Mega Code with NRP completion Card
IV. Pediatric yAdvanyced Life Support procedures/equipment/Mega Code with PALS Card
V. Respiratory Care Procedures
   A. Oxygenation Therapy Devices
   B. Blood Gas Results/interpretation/changes in patient plan of care
   C. Aerosols and Medication Devices and delivery
   D. Airway Clearance techniques with Suctioning, Chest Physiotherapy, oscillating vest and hyperinflation therapy in EzPAP
   E. Continuous Positive Airway Pressure with nasal, mouth and bubble CPAP devices
   F. Non-invasive mechanical ventilation or Invasive mechanical ventilation techniques, monitoring and assessment
   G.Pediatric ventilator management (transition to a home care ventilator)

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Cardiovascular Life Support Lab
Prefix and Course Number: RT 412

Course Learning Outcomes:
By the end of this course, a student should be able to:

Demonstrate the following using a high fidelity simulator:

A. Manage an airway of a patient who is apneic
B. Demonstrate the use of simple and complex artificial airways
C. Demonstrate previously learned BLS and AED skills
D. Recognize cardiac arrhythmias and correctly apply ACLS algorithms
E. Demonstrate competency by completion of a Mega-Code simulation
F. Demonstrate competency by completion of the ACLS written examination

Course Outline:

I. Oxygen therapy equipment station
II. Airway management and EtCO2 equipment station
III. Electrical therapy equipment station
IV. BLS and effective CPR skills station
V. Mega-code practice scenarios (ACLS core cases)
   A. Recognition and care of respiratory arrest
   B. Recognition and treatment of bradycardia's
   C. Recognition and treatment of tachycardia's
   D. Recognition and treatment of pulseless electrical activity and asystole
   E. Recognition and treatment of pulseless ventricular tachycardia and fibrillation
   F. Recognition and treatment of acute coronary syndrome
   G. Recognition and treatment of acute stroke
VI. Final written exam
VII. Final Mega-code simulation

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Pulmonary Diagnostics Technical Skills Lab
Prefix and Course Number: RT 413

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Perform a complete PFT including the following:
    - Calibration(s)
    - Three flow/volume loops that meet ATS criteria
    - DLCO
    - Plethysmography (VTG) determination
- Assist in performing a cardiopulmonary exercise test using the Vmax 229 system in the SCC laboratory
- Perform airway resistance measurement using the plethysmograph(s) in the SCC laboratory
- Perform simulated bronchial provocation challenge testing using the Vmax system in the SCC laboratory
- Perform bronchoscopy and bronchoscopy assisting using the mannequin simulator and the bronchoscopy equipment in the SCC laboratory.
- (Optional) Perform an early morning post-absorption indirect calorimetry study on one of your classmates

Course Outline:

I. Complete PFT
II. MIP/MEP determination
III. RAW determination
IV. Simulation of bronchial provocation
V. Bronchoscopy assisting lab
VI. CPX testing lab

Course Objectives/Course Outline
Spokane Community College

Course Title: Disease Management
Prefix and Course Number: RT 415

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Identify Prevalent Health Conditions among High Risk Patients
- Apply the Global Initiative for Chronic Obstructive Lung Disease (GOLD) standard in the management of COPD patients including:
    - Diagnosis
    - Classification of impairment
    - Therapeutic options for medications
    - Non-pharmacologic management
    - Use of pulmonary rehabilitation
    - Management of exacerbations
    - Management of hospital admissions
    - Discharge Planning
- Apply the national asthma education and prevention program for the management of asthma patients including:
    - Assessing the presence and severity of asthma
    - Control of environmental factors
    - Patient education including pathophysiology and pharmacology
    - Pharmacological management
    - Step-wise management of asthma
    - Management of special situations (i.e. pregnancy, exercised induced asthma, and surgeries)
    - Management of exacerbations
    - Management of hospital admissions
    - Discharge Planning
- Describe the use of the CardioSmart guidelines in the management of congestive heart failure (CHF) including:
    - Assessment and diagnosis
    - Use of ECG, echocardiography and ventriculography in the diagnosis of CHF
    - Medical management of CHF
    - Lifestyle changes in the management of CHF
    - Use of CPAP in the management of CHF and sleep apnea
    - Cardiac rehabilitation
- Describe the management of obstructive sleep apnea including:
    - Diagnosis via polysomnography and home monitoring
    - CPAP management
    - Dental devices
    - Surgical intervention
    - Sleep hygiene

Course Objectives/Course Outline
Spokane Community College

Course Title: Disaster Management
Prefix and Course Number: RT 416

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Describe mass causality and pandemic situations
- Describe the various federal, state and regional agencies involved in
- preparedness, protection and prevention
- Describe how to establish a pre-hospitalization triage system
- Describe how to manage various chemical and biological agents and CDC
- Categories of threat, such as:
    - Category A – Anthrax, Botulism, Plague, Smallpox, Ebola
    - Category B – Brucellosis, Clostridium perfringens, Salmonella, E. Coli, Ricin
    - Toxin
    - Category C – Emerging Biological "Weapons"
- Participate in Case-based studies of Ebola, anthrax, SARS, influenza, bird flu,
- tuberculosis, emergency room violence/unrest, evacuation and loss of services caused by natural disasters
- Demonstrate infection control principles in the setting of highly contagious
- special pathogens
- Participate in a group project to prepare for a local Disaster

Course Outline:

I. Introduction and history of disaster management
II. Discuss the federal, state, and regional agencies involved in preparedness, protection,
and prevention of natural and man-made disasters:
A.AARC: American Association for Respiratory Care
B.CDC: Centers for Disease Control & Prevention
C.FEMA: Federal Emergency Management Agency
D.AHCA: Agency for Health Care Administration
E. Washington National Guard Homeland Response Force
F. Washington State Department of Health
G. Respiratory Care Society of Washington
III. Pre-hospital triage and mechanical ventilator triage
A. Ethics of triage (AARC.org)
B. Strategic National Stockpile of mechanical ventilators (AARC.org)
C. Disaster ventilators and their capabilities (AARC.org)
1.SNS: the LP10 (Covidien)
2.LTV1200 (CareFusion)
3.Uni-vent Eagle 754 (Impact Instrumentation)
IV. Describe the management of patients exposed to various chemical and biological

agents identified by the CDC Categories of threat:
A. Category A – Anthrax, Botulism, Plague, Smallpox, Ebola
B. Category B – Brucellosis, Clostridium perfringens, Salmonella, E. Coli, Ricin Toxin
C. Category C – Emerging Biological “Weapons”

V. Infection control principles
A. Personal protective equipment (PPE)
B. Availability of PPE in the Spokane region
C. Donning and doffing PPE
D. Cleaning of spills and bodily fluids, disposal of infectious medical waste

VI. Disinfection and decontamination of durable medical equipment (ventilators)
VII. Case studies of highly infectious diseases and mass casualty disasters
VIII. Group project – local disaster preparedness plan
IX. Tour Sacred Heart Medical Center Special Pathogens Unit

Course Objectives/Course Outline
Spokane Community College

Course Title: Patient Management and Problem Solving Technical Skills Lab
Prefix and Course Number: RT 417

Course Learning Outcomes:
By the end of this course, a student should be able to:

- Participate in a Kettering Review Seminars workshop
- Lead one or more computer clinical simulations
- Complete weekly computer clinical simulations with group participation
- Demonstrate critical thinking skills to successfully complete both the information gathering and decision making sections of the Clinical Simulation (CS) Exam
- Participate in a variety of patient simulation situations, appropriately documenting treatment and outcomes on provided flowsheets

Course Outline:

I. Lab introduction to course
   A. Using the computer Lab
   B. Practice Exams and workbook homework
   C. Grading Procedure
II. Workbook Sections per Week
   A. Sections A thru I to match RT 407 Weekly Lecture Notes
III. Computer Clinical Simulations – minimum 25
   A. Student lead for one or more
      1. Information Gathering with Review
      2. Decision Making with Review
   B. Clinical Simulation flowsheet documentation

Course Objectives/Course Outline
Spokane Community College

Course Title: Critical Care Clinical II
Prefix and Course Number: RT 421

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this Second Adult Critical Care clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Demonstrate previously learned clinical skills, while displaying appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Select appropriate equipment in a corresponding storage area for patient care
- Apply Lung Protective measures to prevent Barotrauma, Volutrauma, Atelectrauma and Biotrauma
- Demonstrate how to Draw from the Arterial Line and/or Pulmonary Artery Mixed Venous port
- Perform techniques for improving oxygenation and ventilation with the addition of Mobility, Prone, APRV and PGVC and/or PSV
- Perform adult ventilator monitoring with the addition of:
    - Rapid Shallow Breathing Index
    - Pressure Volume Curve, Flow Volume Loop and Flow Time Curve for Auto PEEP
    - Mean Airway Pressure
    - Hemodynamics from PA catheter, Central Venous Catheter and/or SvO2 monitor
    - Chest Tube and drainage system integrity
- Transport a patient within the hospital using a bag/valve resuscitator or transport ventilator including to MRI
- Maintain daily logs, weekly self-evaluations, of practice skills with perception of day activities/events and physician interactions
- Complete weekly self-evaluations with bi weekly self-assessment of strengths and weaknesses, ventilator patient care plans, physician interactions, and preceptor evaluations
- Function as an active member of the Health Care Team

Course Outline:

I. Orientation to facility to include tour of critical care environment, equipment storage
areas, and Respiratory Care Department with log in sheets, excused absenteeism forms and timeline for notebook review
II. Continuation of Electronic medical record keeping required
III. Participating in Shift Reports and time management with assigned patients

IV. Continued Chart Review for patients and appropriate documentation after therapy
V. Attending physician rounds and other physician interactions opportunities
VI. Continued Critical Care Patient Care Plans on specific patients with a ventilator flowsheet and hemodynamic monitoring
VII. Maintenance of previous completed skills and notebooks.
VIII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations weekly and additional options leading to the final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Pulmonary Diagnostics Clinical
Prefix and Course Number: RT 423

Course Learning Outcomes:
By the end of this course, a student should be able to:

The student will observe/assist the technologist(s) with the following:

A. Cardiopulmonary Exercise Study (CPX, VO2)
B. Bronchoscopy
C. Mehtacholine Challenge
D. Arterial puncture (May be signed off in ICU)
E. Polysomnographic Sleep Study
F. Complete PFT (Pre/Post spirometry, DLCO, VTG)
G. Exercise oximetry (May be performed on the floors)
H. Flow sensor/plethysmograph calibration

Course Outline:

I. Electronic medical record training on EPIC
   A. Sign on with user number and password
   B. Navigate the patient chart for orders and other information
   C. Demonstrate correct use of system on daily clinical rotations
II. Orientation to facility to include tour, with log in sheets, and timelines for notebook reviews
III. Participating in scheduling daily assignments
IV. Completion of all observation objectives
   A. Complete PFT
   B. Bronchopulmonary challenge (Methacholine)
   C. Bronchoscopy
   D. Cardiopulmonary exercise study
   E. Polysomnographic sleep study
V. Completion of all performance objectives
A. Complete PFT
B. Bronchopulmonary challenge (Methacholine)
C. Bronchoscopy
D. Cardiopulmonary exercise study
E. Polysomnographic sleep study
VI. Completion of, daily logs, physician interactions, preceptor evaluations and additional options leading to final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Pediatric/Neonatal Clinical
Prefix and Course Number: RT 424

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this second clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Display appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Demonstrate steps in stabilizing and resuscitating the neonate and pediatric patients per NRP and PALS guidelines
- Select of appropriate equipment in a corresponding storage area for patient care
- Apply techniques for improving airway care by suctioning, mask/prongs/ETT, CPT and Chest X-Ray Review for tube placement and disease process
- Apply techniques for improving Oxygenation by HHFNC, Low and High Flow O2 systems, PEEP, FIO2, CPAP (nasal, mask and bubble), HFOV and paw, INO, Surfactant Replacement and ECMO
- Apply techniques to improve ventilation by EZPEP, targeted VT, f and/or Hertz, VE, Pressure Support and elimination of Dead space ventilation (VD/VT).
- Perform pediatric/neonatal ventilator monitoring including:
    - dynamic compliance
    - mean airway pressure
    - Oxygen Index with arterial blood results
    - Alarm settings to include apnea alarms
    - Waveform analysis
    - Equipment processing/circuit changes
    - Infection Control
- Demonstrate techniques for liberating patient from mechanical ventilation to include:
- Pressure Control A/C or SIMV
- Pressure Support
- Spontaneous Breathing Trials
- Non-invasive positive pressure ventilation
- Extubation
    - Transport patient within the hospital using a bag/valve resuscitator or transport ventilator.
    - Draw and Analyze arterial, cord and capillary blood samples and suggest a modification in patient's therapy.
    - Maintain daily logs, weekly self-evaluations, of practice skills with perception of day activities/events and physician interactions
    - Maintain weekly self-evaluations with bi-weekly self-assessment of strengths and weaknesses, ventilator patient care plans, physician interactions, and preceptor evaluations.

- Function as an active member of the Health Care Team

Course Outline:

I. Orientation to facility to include tour of Adult Critical Care Environment and Surgery, equipment storage areas, and Respiratory Care Department with log in sheets, excused absenteeism forms and timeline for notebook review
II. Continuation of Electronic medical record keeping requirements
III. Participating in Shift Reports and Time Management with assigned patient duties
IV. Continued Chart Review for patients and appropriate documentation after therapy or transport
V. Attending physician rounds and other physician interaction opportunities at bedside
VI. Neonatal and Pediatric Patient Care Plans on specific patients with a ventilator flowsheet and reporting on high risk deliveries
VII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations, weekly and additional options leading to the final grade

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Critical Care Clinical
Prefix and Course Number: RT 425

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this second clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Demonstrate previously learned clinical skills, while displaying appropriate cognitive behavior, affective behavior and work ethic traits to include attendance per assigned clinical schedule
- Select of appropriate equipment in a corresponding storage area for patient care.
- Provide lung protective measures to prevent barotrauma, volutrauma, atelectrauma and biotrauma
- Demonstrate how to draw from the Arterial Line and/or Pulmonary Artery Mixed Venous port
- Apply methods for improving oxygenation and ventilation with the addition of Mobility, Prone, APRV and PRVC, VC, VS, PAV and Permissive Hypercapnia technique.
- Perform adult ventilator monitoring with the addition of:
    - Rapid Shallow Breathing Index
    - Pressure Volume Curve, Flow Volume Loop and Flow Time Curve for Auto PEEP
    - Mean Airway Pressure
    - Hemodynamics from PA catheter, Central Venous Catheter and/or SvO2 monitor
    - Chest Tube and drainage system integrity
- Transport a patient within the hospital using a bag/valve resuscitator or transport ventilator including to MRI
- Complete with daily logs, weekly self-evaluations, of practice skills with perception of day activities/events and physician interactions
- Complete weekly self-evaluations with bi weekly self-assessment of strengths and weaknesses, ventilator patient care plans, physician interactions, and preceptor evaluations
- Function as an active member of the Health Care Team

Course Outline:

I. Orientation to facility to include tour of Adult Critical Care Environment and Surgery,
equipment storage areas, and Respiratory Care Department with log in sheets, excused absenteeism forms and timeline for notebook review
II. Continuation of Electronic medical record keeping requirements
III. Participating in Shift Reports and Time Management with assigned patient duties

IV. Continued Chart Review for patients and appropriate documentation after therapy or transport
V. Attending physician rounds and other physician interaction opportunities at bedside
VI. Continued Adult Critical Care Patient Care Plans on specific patients with a ventilator flowsheet and hemodynamic monitoring
VII. Maintenance of previous completed skills and notebooks
VIII. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations weekly and additional options leading to the final grade
IX. Identifying a patient for potential Written and Oral Case study for next term

Course Objectives/Course Outline
Spokane Community College

Course Title: Advanced Clinical
Prefix and Course Number: RT 433

Course Learning Outcomes:
By the end of this course, a student should be able to:

During this second clinical rotation, the student is expected to adhere to the student policies and grading timelines, while they observe, assist and apply, under direct supervision, all of the following:

- Display appropriate cognitive behavior, affective behavior and work ethic traits to
- include attendance per assigned clinical schedule
- Demonstrate steps in stabilizing and resuscitating the adult, neonate and pediatric
- patients per ACLS, NRP and PALS guidelines
- Select of appropriate equipment in a corresponding storage area for patient care
- Apply techniques for improving Airway Care within the acute, subacute and home care settings
- Apply techniques for improving Oxygenation within the acute, subacute and home care settings
- Apply methods for improving ventilation within the acute, subacute and home care settings
- Receive a transport patient within the hospital and assist with stabilization and treatment
- Mentor and serve as a role model for less advanced respiratory care students
- Staff a respiratory care department during a 2 day project
- Maintain daily logs, weekly self-evaluations, of practice skills with perception of day activities/events and physician interactions
- Maintain weekly self-evaluations with bi weekly self-assessment of strengths and weaknesses, ventilator patient care plans, physician interactions, and preceptor evaluations
- Function as an active member of the Health Care Team

Course Outline:

I. Orientation to facilities to include tours in the Acute Care, Sub Acute Care and Home Care environments, equipment storage areas, and Respiratory Care Department with log in sheets, excused absenteeism forms and timeline for notebook review
II. Continuation of Electronic medical records keeping and/or hand written requirements
III. Participating in Shift Reports, conferences and time management with assigned patients
IV. Continued Chart Review for patients and appropriate documentation after therapy and/or home care visit
V. Appling Educational/Leadership traits to the sophomore and Junior students and

other allied health and nursing students as available.

VI. Attending physician rounds and other physician interaction opportunities, along with Occupational, Speech, Physical Therapy, Pharmacy, and Discharge Planning

VII. Continued Patient Care Plans on specific patients with a ventilator flowsheet when appropriate, and specific documentation in the home care environment

VIII. Maintenance of previous completed skills and notebooks

IX. Completion of performance skills, daily logs, weekly self-evaluations, patient care plans, physician interactions, preceptor evaluations weekly and additional options leading to the final grade

Appendix C: Competitive Admission's Scoring Rubric

Spokane Community College
Bachelor of Applied Science in Respiratory Care
Competitive Scoring

1. Prerequisite Course GPA (***maximum points 18***)

Biol&160: General Biol.w/Lab					
Biol&241: Human A&P I					
Biol&242: Human A&P II					
Biol&260: Microbiology					
Chem&121: Intro to Chemistry					
Math&146: Statistics					
Engl&101: English Composition I					
Engl&253: Technical Writing					
CMST&227: Intercultural Comm.					
Total Student Points					
Total Possible Points			**9**	**18**	**18**

Note: Science courses must have been completed within the past five years.

2. Other Possible Points (***maximum 18 points***)

BASRC Interview Committee	9	
Work or volunteer experience in a acute care setting 1. Documentation of 500 hours worked within the last five years (5 pts) 2. Documentation of 250 hours worked within the last five years (3 pts)	3 or 5	
Two letters of recommendation	4	

3. Estimated Total Points

a. Prerequisite Course GPA Points _____
b. Other Possible Points _____

TOTAL STUDENT POINTS: _____

Ties will be resolved in the following manner:

1. First tie breaking decision will be made according to cumulative GPA in Biology 241, Biology 242, and Biology 260 course grades.
2. If ties still exist, cumulative GPA will be used
3. Further ties will be broken by lottery draw conducted by the Vice President of Instruction designee.

Appendix D: External Expert Reviews

Applied Baccalaureate External Review Rubric

Instructions for colleges submitting a BAS degree proposal:

1. As part of completing a program proposal, colleges must select two external experts to review the program.
2. Reviews should be completed by an independent, third-party person or team with subject/discipline expertise.
3. At least one, preferably two, of these external expert reviewers should come from a university level institution, i.e. departmental professor, academic dean or department head.
4. A second external expert reviewer may be a professional/practitioner who works for a private or public organization other than the university.
5. External Expert Reviewers should be instructed by colleges to address the criteria listed in this rubric.

Instructions for External Expert Reviewers:

1. External Expert Reviews provide critical feedback to colleges so that they may address potential concerns, issues or criticisms prior to final submission of a program proposal to the State Board of Community and Technical Colleges.
2. Reviewers should be independent, third-party persons or teams with subject/discipline expertise.
3. The goal of a review is to assess the credibility, design, relevance, rigor, and effectiveness of the proposed BAS program.
4. Reviewers should also validate the congruency and consistency of the program's curriculum with current research, academic thinking and industry standards.
5. Reviewers need not provide responses to every criteria listed in the Rubric. If reviewers feel that they cannot adequately address any one of the criteria, they may simply state that this is the case.
6. This form is designed to assist External Expert Reviewers to complete assessments of baccalaureate degree program proposals. External Expert Reviewers are not restricted to the use of this rubric template. Reviewers may choose, instead, to provide a college with a written narrative. In whatever format they choose, reviewers should address the criteria outline in the rubric.

Applied Baccalaureate External Review Rubric

College Name:	Spokane Community College	**BAS Degree Title:**	Bachelors of Applied Science in Respiratory Care
Reviewer Name/ Team Name:	Paul G. Eberle, PhD, RRT	**Institutional or Professional Affiliation:**	Weber State University
Professional License or Qualification, if any:		**Relationship to Program, if any:**	Peer institution
Please evaluate the following Specific Elements			
a) Concept and overview	Is the overall concept of the degree program relevant and appropriate to current employer demands as well as to accepted academic standards? Will the program lead to job placement?		
	Accepted academic standards were updated January 2016 in a position statement by our professional association (AARC) to transition toward baccalaureate preparation for respiratory therapists by 2020. Employers across the country have stated preference toward baccalaureate prepared practitioners because of the scope and responsibility of life-support professionals requiring skill in communication, deductive reasoning, management, health policy, and advanced curriculum with shrinking time (limit to 60 cr. hrs.) in an Associate (AS) degree curriculum. Advancing the degree for respiratory therapists to the baccalaureate level provides a foundation for these skills and also provides career opportunities for the RT that might not otherwise exist for professionals. In Utah, Intermountain Healthcare (28 hospitals and clinics along the Wasatch Front) requires RRT preparation and a baccalaureate degree 6 months after employment. Weber State's educational degree requirement changed in 2010 following a CoARC accreditation site-visit and by anticipating that baccalaureate degree preparation would benefit graduates and allow for graduate education within the field. Credentialing success followed with over 90% of graduates passing the higher RRT credential. Accepted practice and the time to develop skills needed for successful credentialing and professional development require a baccalaureate degree for practitioners in the future. Curriculum to include therapist driven protocols, best practice, and evidence based medicine will be forthcoming in graduate programs. A baccalaureate prepared graduate advances the idea of therapists guiding physician-extender roles in health care. Spokane Community is on the forefront of professional practice by proposing a change at this time. Graduates of the baccalaureate program will be preferred by employers, it meets national mandates and will allow graduates to pursue graduate opportunities thereby advancing well-qualified practitioners to the workforce.		
b) Degree Learning Outcomes	Do the degree learning outcomes demonstrate appropriate baccalaureate degree rigor?		
	A thorough review of the proposed learning outcomes and outlined curriculum for the program meet the general education and professional coursework objectives for respiratory care. They appear to be consistent with similar baccalaureate programs and serve as a model for others to follow. The proposed learning outcomes for the program help students prepare for employment in the field and will be perceived as favored graduates in the profession. Employers have shown preferences for baccalaureate graduates over an AS graduate in my area.		

Applied Baccalaureate External Review Rubric

c) Curriculum Alignment	Does the curriculum align with the program's Statement of Needs Document?
	The program's stated goals include, "Prepare respiratory therapists to meet the needs and demands of employers consistent with professional standards in cognitive, psychomotor and affective skills to be successful in the field of respiratory therapy." To that end, advancement to BAS is a meaningful objective because national guidelines and published research in the area have long mandated baccalaureate preparation (see Douce, 2006). The proposed curriculum meets academic rigor and seems comparable to other institutions offering the baccalaureate degree.
d) Academic Relevance and Rigor	Do the core and elective courses align with employer needs and demands? Are the upper level courses, in particular, relevant to industry? Do the upper level courses demonstrate standard academic rigor for baccalaureate degrees?
	The Associate (AS) degree graduate has faced limited time and fewer credit hour by limiting graduation requirements to 60 cr. hrs. The respiratory therapy curriculum has typically expanded required hours with an increased scope of practice and technical requirements for advanced life support, disease management, interpersonal communication, and clinical components to the curriculum as technology and medical record management shift requirements toward outcome driven measures. More recently, programs are required to advance conceptual courses in health administration, patient advocacy, education, medical ethics, and research in an expanding complexity that requires coursework relevant to the interpersonal performance of advanced practitioners, asthma educators, COPD consultants, wake/sleep, and post-anesthesia consultants. The increasing job requirements for respiratory therapists in employer mandated responsibilities demands baccalaureate preparation. The upper division coursework reflected in the proposal appear commensurate to the responsibilities (sustaining life in the assessment, diagnosis, and treatment or management of diseases or abnormalities of the cardiopulmonary system) of graduates in the program. The proposed program meets the academic rigor for a baccalaureate degree as compared to others I am familiar and/or associated.
e) General Education Requirements	Are the general educations requirements suitable for a baccalaureate level program? Do the general education courses meet breadth and depth requirements?
	Compared with institutional general education, SCC appears to offer the right mix of breadth with communications and psychology courses in the program. Respiratory therapy heavily favors science preparation and pre-requisite courses are outlined that addresses this concern. The program contains 25 hrs. of biology, chemistry, microbiology, and anatomy coursework to supplement what is already contained in the respiratory therapy curriculum. Research suggest that program applicant's academic success in respiratory therapy depends upon reliance of science heavy curricula. SCC appears to fulfill that requirement prior to acceptance into the program.
f) Preparation for Graduate Program Acceptance	Do the degree concept, learning outcomes and curriculum prepare graduates to enter and undertake suitable graduate degree programs?
	Concepts learned in the respiratory care program by students studying in the proposed curriculum meet criteria for graduate study. Students that complete the learning outcomes in Respiratory Care and successfully credential at the RRT

	level are eligible for graduate work at 5 post-professional (professional development) Master's programs currently being taught in the United States.
g) Faculty	Do program faculty qualifications appear adequate to teach and continuously improve the curriculum?
	Accepted guidelines from regionally accredited institutions require faculty hold one degree higher than that being taught in the program. SCC's faculty are all prepared at the Master's or Doctoral level. It is recognized that two program faculty will be recruited in the future with Master's required for the program.
h) Resources	Does the college demonstrate adequate resources to sustain and advance the program, including those necessary to support student and library services as well as facilities?
	Documents contained from within the proposal suggest adequate resources such as on-line registration, peer and course tutoring, 24/7 access to the library in "ask a librarian" program, an extensive internet research database, degree audit, and transcript resources available to students in the program.
i) Membership and Advisory Committee	Has the program received approval from an Advisory Committee? Has the program responded appropriately to it Advisory Committee's recommendations?
	The programs' success is largely dependent on the communication and involvement of its medical director and advisory committee input. Having received assurance for Dr. Richard Lambert, the schools medical director, that the program meets current practice standards, advisory committee members assist in curriculum improvements, recruitment, and particularly advocate the current shift in professional association (AARC) goals of 80% of graduates having earned or are working on a baccalaureate degree by 2020. The program's goals are perfectly aligned with national mandates and assures that graduates are prepared for the roles that practitioners are expected to possess at graduation. Additionally, our professional accrediting agency, CoARC requires that entry into practice requires a baccalaureate or graduate degree by July 1, 2018. I'm confident that the goals and objectives of SCC's proposal is consistent, meaningful, and expedient with professional educational requirements of the day and that the program adheres to advisory and community recommendations closely.
j) Overall assessment and recommendations	Please summarize your overall assessment of the program.
	A thorough review of the goals, curriculum, faculty, resources, and preparation required to achieve the objectives to advance the program to a baccalaureate level appear to be addressed strategically. They appear meritorious in that it meets national educational objectives, the curriculum is in line with accreditation goals and regional standards for educational programs. General education is consistent in both breadth and scope for a science-based program of study. The program

	has laid out a well-articulated plan to advance the curriculum using resources in place, with faculty, library, and on-line resources with sufficient record keeping software. The program is encouraged to seek budgetary resources to keep pace with changing technology and equipment and laboratory needs that address student requirements for learning in respiratory care. The program is to be commended for "Distinguished RRT Credentialing Success" in the preparation and training for well qualified professionals. As an external reviewer, I was impressed by the programs record of scholarship (particularly that there is over 40 cr. hrs. of upper division courses in the degree configuration) and sufficient rigor presented in the outlined proposal. The program is a model for others in the nation to follow in that it contributes substantially to the profession and to students engaged in professional preparation. Please do not hesitate to call if I may elaborate my position. I wish you continued success as you deliberate with the school's administration for a BAS in Respiratory Care at Spokane Community College.
Reviewer Bio or Resume The evaluator is a registered respiratory therapist (RRT) licensed to practice in the state of Utah. He has extensive professional experience in education, curriculum, and practice with over thirty years participating in all aspects of respiratory care i.e., critical care, pediatrics, neonatal, transport, long-term care, and case management. He is a tenured, full professor currently teaching at Weber State University since 1987, (tenured in 1999 and promoted to full professor in 2009) serving as its Chair since 2007. He completed a Master's degree (M.Ed) in curriculum and secondary education from Weber State University and a Doctoral degree (Ph.D) in Education, Culture and Society form the University of Utah. He has a published text "***Comprehensive Neonatal and Pediatric Respiratory Care***," and completed a chapter in four editions of "***Clinical Application of Mechanical Ventilation***," by David Chang. He was named as visiting faculty to Xian Medical University-Xian China, has consulted in curriculum design at the baccalaureate and Master's level, and encourages personal and professional development in respiratory care. Additionally, Dr. Eberle currently serves on the Board of Directors for the Utah Society for Respiratory Care (USRC) and also serves as a Director for the Coalition for Baccalaureate and Graduate Respiratory Therapy Education (CoBGRTE) advocating for the professional development and resources for baccalaureate and graduate preparation for practitioners of the future.	

Applied Baccalaureate External Review Rubric

Instructions for colleges submitting a BAS degree proposal:

6. As part of completing a program proposal, colleges must select two external experts to review the program.
7. Reviews should be completed by an independent, third-party person or team with subject/discipline expertise.
8. At least one, preferably two, of these external expert reviewers should come from a university level institution, i.e. departmental professor, academic dean or department head.
9. A second external expert reviewer may be a professional/practitioner who works for a private or public organization other than the university.
10. External Expert Reviewers should be instructed by colleges to address the criteria listed in this rubric.

Instructions for External Expert Reviewers:

7. External Expert Reviews provide critical feedback to colleges so that they may address potential concerns, issues or criticisms prior to final submission of a program proposal to the State Board of Community and Technical Colleges.
8. Reviewers should be independent, third-party persons or teams with subject/discipline expertise.
9. The goal of a review is to assess the credibility, design, relevance, rigor, and effectiveness of the proposed BAS program.
10. Reviewers should also validate the congruency and consistency of the program's curriculum with current research, academic thinking and industry standards.
11. Reviewers need not provide responses to every criteria listed in the Rubric. If reviewers feel that they cannot adequately address any one of the criteria, they may simply state that this is the case.
12. This form is designed to assist External Expert Reviewers to complete assessments of baccalaureate degree program proposals. External Expert Reviewers are not restricted to the use of this rubric template. Reviewers may choose, instead, to provide a college with a written narrative. In whatever format they choose, reviewers should address the criteria outline in the rubric.

Applied Baccalaureate External Review Rubric

College Name:	Spokane Community College (SCC)	**BAS Degree Title:**	Bachelor of Applied Science in Respiratory Care (BASRC)
Reviewer Name/ Team Name:	John E. Boatright, PhD, RRT	**Institutional or Professional Affiliation:**	St Catherine University, Respiratory Care Program Director
Professional License or Qualification, if any:	RC baccalaureate degree major, Program Director Associate Professor	**Relationship to Program, if any:**	None
Please evaluate the following Specific Elements			
a) Concept and overview	Is the overall concept of the degree program relevant and appropriate to current employer demands as well as to accepted academic standards? Will the program lead to job placement?		
	Comments: **1. Concept** is appropriate (in Minneapolis/St Paul – a comparable market to Spokane) to current employer demands, as evidenced by specifically stated preference of employers for our baccalaureate level grads over the competing associate degree level grads. **2.** Yes, based on **job placement** statistics (95% +) for our baccalaureate level graduates the SCC BASRC graduates will be sought after and employed. Local and national metropolitan hospital employment trends (in nursing) suggest that only baccalaureate degreed persons eligible for employment. In fact Twin Cities hospitals are mandating that associate level nursing graduates complete baccalaureate degrees within the next 3 years to continue employment. Many Twin Cities large hospital employers have also applied this condition to RC graduates.		
b) Degree Learning Outcomes	Do the degree learning outcomes demonstrate appropriate baccalaureate degree rigor?		
	Comment: Yes, The SCC BASRC degree learning outcomes are indexed to; national credentialing, state licensing, programmatic accreditation and advisory committee outcomes. Baccalaureate degree level rigor is demonstrated by advanced level (300, 400 level) courses requiring the acquisition of advanced skills and knowledge.		
c) Curriculum Alignment	Does the curriculum align with the program's Statement of Needs Document?		
	Comment: Yes, the program states that they will "provide a strong foundation in core knowledge and general education but also to deepen students' understanding of theories and practices of the field of Respiratory Care," as well as skills that prepare leaders in the RC subspecialty domains (management, education, research, or advanced clinical practice). Based on my		

	assessment of the program of study, the course objectives and evaluation regime, I can see that curriculum is designed to provide a strong foundation as well as advanced skills in the knowledge and skills needed for advanced RC practice as well as leadership in the stated advanced domains.
d) Academic Relevance and Rigor	Do the core and elective courses align with employer needs and demands? Are the upper level courses, in particular, relevant to industry? Do the upper level courses demonstrate standard academic rigor for baccalaureate degrees?
	Comment: The Program of Study includes outcomes relating to foundational skills in the 200, 300 level courses as well as advanced practice (400 level courses). The alignment of the curricular goals with employer expectations is assured by association of each RC task (as determined by the NBRC national task analysis processes), and by reference to the SCC-RC Advisory Committee. Further validation is provided through involvement with the program's physician medical directors.
e) General Education Requirements	Are the general educations requirements suitable for a baccalaureate level program? Do the general education courses meet breadth and depth requirements?
	Comment: Yes there are 60 credits of liberal arts and science (general education) required in the BASRC program of study. The minimum GPA requirement (2.5) and sequencing of the BAS courses is appropriate. I am particularly impressed that the BAS requires General Biology and Statistics as well as the typical Chemistry, A&P and Micro courses. The proposed BAS curriculum addresses medical ethics, and demonstrates a strong commitment to written, intercultural and verbal communications.
f) Preparation for Graduate Program Acceptance	Do the degree concept, learning outcomes and curriculum prepare graduates to enter and undertake suitable graduate degree programs?
	Comment: The SCC BASRC graduates will be eligible to apply to Masters' level and clinical doctorate programs. The proposal states that discussion of partnerships with Masters programs in RC have already occurred.
g) Faculty	Do program faculty qualifications appear adequate to teach and continuously improve the curriculum?
	Comment: Yes, the faculty credentials are exceptional.
h) Resources	Does the college demonstrate adequate resources to sustain and advance the program, including those necessary to support

	student and library services as well as facilities?
	Comment: SCC offers adequate student support resources for the BASRC. Library, computer, simulation, laboratory, student tutoring, counselling, advising and job placement services appear to be adequate to support the proposed baccalaureate program of study.
i) Membership and Advisory Committee	Has the program received approval from an Advisory Committee? Has the program responded appropriately to it Advisory Committee's recommendations?
	Comment: Yes, the programs Advisory Committee has approved the BASRC degree proposal (see page 4).
j) Overall assessment and recommendations	Please summarize your overall assessment of the program.
	Comment: I am impressed with the thought that has gone into the curriculum components, sequencing and assessment of the SCC BASRC. I recommend full approval.

Reviewer Bio or Resume

Evaluator, please insert a short bio here

John Boatright, Ph.D., RRT

Associate Professor (Tenured), Chair
St. Catherine University, Henrietta Schmoll School of Health
Respiratory Care Baccalaureate Major
2004 Randolph Avenue, Whitby Hall 306, Mail # 4052 St. Paul, MN 55105
Office 651.690.7819, Mobile 651.398.4155, Fax 651.690.6024
email: jeboatright@stkate.edu

Education

Associate of Science in Respiratory Therapy
Indiana University School of Medicine - January 1976

Bachelor of Science in Education
Indiana University School of Education - August 1977

Master of Arts in Philosophy
University of Minnesota, School of Philosophy
Biomedical Ethics Minor - December 1992

Doctor of Philosophy
Program in Instructional Systems and Technology
College of Education, Curriculum and Instruction
University of Minnesota - May 2008

Professional Credentials

Respiratory Therapist License, MN-RT
Number 1771
Minnesota Board of Medical Practice

Registered Respiratory Therapist, RRT
National Board for Respiratory Care
Number 4322 - February 1977
Re-credentialed - June, 1985

Work Experience

Program Chair 10/83 to present
Clinical Director 7/82- 10/83
Assistant Professor 1993-2005 **Associate Professor** 2005 to present
Respiratory Care Program
St. Catherine University
St. Paul, Minnesota

Project Leader 1/99 - 5/2000
CyberScholars CE Group
The College of St. Catherine

Lead Advanced Practitioner Surgical Intensive Care

1/80 - 7/82
University of Minnesota,
Hospital and Clinics
Minneapolis, Minnesota

Co-coordinator - Respiratory Care Services - 8/77-11/79
Alaska Area Native Health Service
United States Public Health Service
Bureau of Indian Affairs
Anchorage, Alaska

Related Professional Experience

Faculty Associate - Center for Ethics, Responsibility and Values, College of St. Catherine 1987 - 1995
Member - Faculty Study Group - "Applied Ethics", Bush Grant, 1993/94
Convener - Faculty Study Group - "Teaching Ethics", Bush Grant 1994/95, 1995/96
Member - Biomedical Ethics Committee, Riverside Medical Center 1990-1998
Member - Ethics Committee, Fairview Hospice/Homecare 1995-1998
Member - Ethics Committee, Fairview-University Medical Center 1997-1999
Member - American Association for Respiratory Care (AARC) since 1974
Member - Minnesota Society for Respiratory Care (MSRC) since 1980
Minnesota Society for Respiratory Care National Delegate - 1992 to 1996, MSRC President - 1986, MSRC Vice-president - 1984,
MSRC Board of Directors - 1982, 1983, 1990, 1991
Site Visitor - Committee On Accreditation of Respiratory Care Educational Programs
(formerly - Joint Review Committee for Respiratory Therapy Education) 1988 to present