Green River College and Grays Harbor College Joint Applied Baccalaureate Degree Program

Bachelor of Applied Science in Forest Resource Management

Forest Resource Management: Sampling and Assessment

Forest Resource Management: Operations

Program Proposal

February 2015

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NEW DEGREE PROGRAM PROPOSAL

Program Information

Program Name: Bachelor of Applied Science in Forest Resource Management

Institution's Names: Green River College and Grays Harbor College

Degree: BAS: Forest Resource Management

Tracks offered by Green River College: **SAMPLING AND ASSESSMENT**

Tracks offered by Grays Harbor College: **OPERATIONS**

Level: Bachelor Type: Applied Science CIP Code:03.0101

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Applied Joint Bachelors Degree Program Proposal

Introduction

Green River College and Grays Harbor College are excited about the prospect of offering a joint Bachelor of Applied Science (BAS) degree in Forest Resource Management (FRM). This BAS degree is designed to prepare students for employment in a variety of natural resource professions including Foresters, Natural Resource Planners and Specialists, Project Coordinators, Environmental Technicians, Biological and Scientific Technicians, Conservation Scientists, Wildland Fire Supervisors, Forest Practices Inspectors and Harvest and Production Operators.

The joint BAS Forest Resource Management (BAS FRM) program is envisioned to bring together the strengths and resources of two colleges, with a flexible shared core, resulting in the generation of two uniquely, yet complimentary, focused degrees at both institutions. Green River College is beginning the initial class offering (2015-2016). Grays Harbor College prefers to begin offering their first upper division core courses in (2015-2016), yet this is dependent on baccalaureate accreditation, which is in process. GHC anticipates beginning the first cohort next year (2016-2017).

The joint degree will consist of two Forest Resource Management degrees offered at both institutions. Each school will offer a different degree track or specialty. Green River College will offer a Forest Resource Management: Sampling and Appraisal degree and Grays Harbor College will offer a degree in Forest Resource Management: Operations. There will be a high level of collaboration and cooperation as set out in a memorandum of understanding (see Appendix C) including acceptance of each other's credits (see Course Preparation Needed by Students Transferring With a Technical Associates Degree section), jointly taught courses, joint field experiences (see Joint Program: Degree Awarding Logistics section), and joint assessment of the degrees (See Program Evaluation and Criteria and Process section).

The BAS-FRM joint degrees will help meet the current and anticipated future demand for skilled natural resource workers in our region with bachelors degrees. With the current workforce within the forestry sector aging, more than 40% of forestry professionals will be at retirement age within the next 10 years [i]. According to current Economic Modeling Specialist International data, there are 855 related open positions in the forest resource management field, which is projected to grow to 881in the next ten years within the geographic area that would be served locally by Grays Harbor College and Green River College, and more positions across the State of Washington. Demand for this degree is fully demonstrated and explained in and Green River College and Grays Harbor College's joint statement of need.

In this new degree program proposal, Green River College and Grays Harbor College will describe and explain:

- The curriculum for the BAS-FRM degree, including program learning outcomes, program evaluation criteria and process, course preparation needed by students transferring logistics, general education components, and course work needed at junior and senior levels in the BAS at both institutions. Details on degrees and curricula as well as the specialized tracks to be offered are included in this section.
- The logistics of the proposed degree as it will be shared between Green River College and Grays Harbor College.

- Green River and Grays Harbor's plan to provide highly credentialed full-time and adjunct faculty for the BAS-FRM degree program.
- The admission process for the program, which is consistent with an open-door institution. Entry requirements for the BAS-FRM degrees have been designed to provide access to many and to ensure that prospective applicants are prepared for success once they enter the program.
- The myriad of Green River and Grays Harbor's student-focused support services that will help students in the BAS-FRM degree program achieve success.
- A comprehensive, realistic financial plan for the first five years of the BAS-FRM degree program for both Green River College and Grays Harbor College. Both Colleges are committed to providing funding for this new program until it becomes fully self-supporting, which is conservatively anticipated by year three.
- Planned specialized program accreditation for the BAS-FRM degree program.
- Extensive, ongoing collaboration with institutions in the area that confer graduate degrees to articulate clear and efficient pathways for BAS graduates who wish to continue their education onto a masters degree program.
- A summary of the two external expert evaluations of the program. Both experts were favorably impressed with the joint BAS-FRM degree and expressed their support of the program's curricula.

Criterion 1: Curriculum Demonstrates Baccalaureate Level Rigor

Green River College and Grays Harbor College have carefully designed the Bachelor of Applied Science (BAS) degree in Forest Resource Management (FRM) curriculum to include baccalaureate-level academic rigor as well as the high-level technical knowledge and skills demanded by employers. This program has a strong emphasis on applied learning and experiences distinguishing it from a Bachelors of Science degree offered by other institutions.

Joint Program: Degree Awarding Logistics

The jointly proposed BAS-FRM is a unique degree path proposal for Community and Technical Colleges in Washington State. As designed, the core courses for the Forest Resource Management degree will be the same between GRC and GHC, while each school will teach a concentration (specialization track) resulting in two separate tracks: Forest Resource Management: Operations specialty courses will be offered by Grays Harbor College; and Forest Resource Management: Sampling and Assessment specialty course will be offered by Green River College. Students will be able to get both specialties if they desire with their diploma awarded by their home institution.

The common core classes were developed jointly by GRC and GHC to best suit industry needs ensuring that BAS students at either institution have a strong core set of skills based in applied field application. This degree will consist of 90 credits from the AAS degrees at GHC or GRC, 45 additional general education credits that meet State education requirements, 31 shared Natural Resource core credits of the BAS degree offered at both Green River College and Grays Harbor College with individual forestry tracks at each school containing 18-20 credits each for a total of 180-183 credits (Table 2; Table 3). By sharing a common core, industry and public employers are ensured a common skillset when hiring students from both institutions. Building on the common core (31 credits), 20 credits taught separately by each institution will focus the student into a career path in either Forestry Operations or Forest Sampling and Assessment.

By having two cooperative and complementary degrees available GRC and GHC degrees in Forest Resource Management are highly responsive to the industry needs within different and diverse sectors within the field of Forestry while reducing redundancies in programs within the State of Washington, and enabling students to get two degree specialties if they so choose. This model also creates the potential that other AAS natural resource degree granting institutions could be added as a separate track in the future, reducing potential future redundancies in programs while still serving place-based students.

Green River College and Grays Harbor College are dedicated to innovative teaching to facilitate the joint degree process. Teaching methods such as on-line courses, remotely televised courses, travelling instructors, separate lecture and joint lab courses involving students from both institutions, campus visits, and 2-week to 1-month long intensive field courses will ensure that students location bound to one campus location can get the credits and courses they need.

The joint degree ensures Green River College and Grays Harbor College will maintain a high degree of collaboration and cooperation to best serve our students and the industry needs. Both schools will offer both specialties in their catalog while specialty courses will be held on separate campuses. For example, a GRC student interested in specializing in Forestry Operations would enroll in the Forest Operations courses through GRC yet would take courses from GHC instructors. That student's degree would be from GRC. GRC would then pay GHC by the head count for the specialty courses offered to the GRC student (see Appendix C). Each degree specialty will be highly collaborative between the institutions; however, both degrees would operate so that the success of one school is independent of the other school's success, ensuring BAS-FRM degree longevity in the State of Washington.

Program Learning Outcomes

The Bachelor of Applied Science in Forest Resource Management is designed to prepare students for employment in a variety of natural resource management positions, such as Foresters, Natural Resource Project Coordinators, Conservation Scientists, Wildland Fire Supervisors, Surveyors, Forest Practices Inspectors and Harvest and Production Operators. Successful graduates of the BAS-FRM will be able to:

- Successfully determine contemporary field skills applicable to a wide range of natural resource jobs in forestry.
- Identify problems and utilize critical thinking to solve these problems on the ground.
- Develop stable, robust, secure, and efficient field skills and practices that adhere to strict Federal and State legislation regarding natural resource harvest and use.
- Communicate with project stakeholders, both with technical and non-technical backgrounds verbally and in written format.
- Evaluate potential land use actions including timber harvest, forest roads, and public use.
- Engage in professional development activities to stay updated with current technology and tools including GIS analysis.
- Measure, record and statistically analyze field data.
- Write technical reports that synthesize, analyze and interpret findings.
- Execute related technical duties such as estimating work effort, and assessing technical risk.
- Lead contract administration and overseeing personnel.
- Develop land action plans such restoration and harvest plans through individual and team work.

Outcomes for program specializations

Sampling and Assessment specialization learning outcomes

- Collect, utilize and synthesize quality data from field exercises and local agencies to develop data collection efficiencies and data integrity.
- Conduct data gathering procedures in a wide variety of sampling environments
- Filter, sort and analyze data and interpret outcomes and apply findings to management objective
- Interpret management objectives, assess importance, develop management plan and carryout management objectives on the landscape

Operations specialization learning outcomes

- Evaluate harvest and transportation environment and determine most prudent harvesting method.
- Create a harvest plan using contemporary ground based and skyline methods to meet economic and legal requirements.
- Appraise transportation needs and related issues of forest operations.
- Understand when to utilize engineers to outline construction requirements of the transportation system.
- Compose and evaluate the economic justification of various forest operations.

Program Evaluation Criteria and Process

The applied baccalaureate degree is designed to provide students with higher-order thinking skills and advanced technical knowledge necessary for the job market[i]. Program evaluation is a continuous process at both Green River College and Grays Harbor College, beginning during the initial exploration and development of a degree. Numerous resources have been used to evaluate both the need for the BAS-FRM degree in Forest Resource Management and appropriate program curriculum, including Natural Resources Advisory Committee input, student surveys, two separate employer surveys, discussions between Natural Resources faculty and forestry managers in local-area industry, and meetings of natural resources faculty with area natural resources educators at post-secondary institutions. Additionally two facilitated DACUMs (Development of Curriculum) processes were conducted with over two dozen industry and public leaders in the field. External experts with experience in natural resources, forestry and higher education have also assessed the BAS-FRM degree program curriculum to ensure rigor, consistency, and quality. Green River College and Grays Harbor College will continue to gather input from forestry and natural resource experts in industry and higher education throughout the curriculum development and implementation phases to ensure rigor of the content, appropriate learning methodologies, and technical currency.

Industry will continually participate in recommendation and review of the BAS-FRM degree program curriculum and program elements through the respective Natural Resources Advisory Committees at Green River College and Grays Harbor College. Existing Advisory Committees, have been instrumental in the success of the schools' Natural Resource AAS degrees, and have expanded their scope to include the BAS-FRM degree program. Committee members are employers that represent forestry and natural resource business owners, industry managers and a local government agency (like DNR). Educators from both colleges participate in these committee meetings. An additional advisory committee member(s) who

hold a minimum of a 4-year degree and has close ties with industry seeking 4-year graduates, will be added to the existing committees

Because this is a new degree and a unique collaboration between two institutions of higher learning, a higher level of assessment is important. Therefore each institution will conduct a program evaluation after their first full year of the BAS program and after their third full year of offering the BAS program. Both assessments will follow the existing Program Assessment and Improvement review guidelines already established at both colleges. In addition to these reviews, annual meetings to assess the program will happen during year meetings between GRC and GHC (see Appendix C: MOU)

Many aspects of program evaluation are already integrated into the intuitional effectiveness process at both colleges through the Program Assessment and Improvement review, which is conducted every five years. This review process entails a thorough assessment of every part of the program including descriptive statistics of the programs, curriculums, program support and learning outcomes. Additional data we will be gathering in order to evaluate the effectiveness of the course offerings for the BAS-FRM degrees includes:

- Faculty review and tenure reviews to ensure quality instruction
- Standard and upper level supplemental student evaluations of courses to assess
    - Effectiveness of pre-requisites, or need of further pre-requisites to ensure student success
    - Curriculum changes needed to more effectively teach students materials and skills
- Internal program curriculum, course offerings and learning outcome review
    - Annual assessments of course offerings and program adoptions to better fit students' needs in school and maintain a high level of diversity within the program
    - Learning outcome assessments, including campus-wide learning outcomes, program-level learning outcomes and course-level learning outcomes
- Labor market survey of employers of recent graduates and interns
    - To assess any potential redundancies or gaps in course offerings or course content
    - To maintain up-to-date course content directly relevant to employers in the field so students are job ready at graduation
- Targeted labor market survey of potential future employers in forestry and natural resources
    - To assess gaps in the current curriculum and what material or skills will be added
    - To create relevant, hands-on capstone projects
- Program support assessment will occur for the following areas to assess the efficiencies and upkeep of department infrastructure and logistics to meet educational demands:
    - Instructional resources
    - Facilities
    - Equipment and vehicles
    - Budget
    - Miscellaneous support services
- Advisory committee recommendations will inform program faculty and administration regarding current industry needs to maintain a work-relevant program that focuses on hands-on application
- General overall assessment of the program

Green River College and Grays Harbor College will routinely collect, analyze and share data and feedback from students, program faculty, and the institution to evaluate the effectiveness of the BAS-FRM degree program and inform necessary changes, through joint institutional assessments. Table 1 outlines various assessment tools that will be used for joint program assessment and adaptation.

Table 1: Program Assessment Tools

Assessment Tool	Used to Assess
Student course evaluations	• Satisfaction with balance of knowledge, skills, theory, and practice in the course • Student preparedness upon entering individual courses
Supplemental student survey	• Effectiveness of the program in meeting students' expectations
BAS-FRM degree program faculty survey	• Preparedness of students upon entering the program • Preparedness of students upon entering individual courses • Effectiveness of institutional and program resources and support • Preparedness to teach the curriculum • Appropriateness of pre-requisites and co-requisites of courses
Institution program statistics	• Student enrollment trends • Student progression • Student completion • Employment statistics of internships and/or capstone courses
Post-graduation student survey	• Effect of program completion on career obtainment and success • Effectiveness of the program in meeting job expectations • Effect of the program on wage and career progression • Employment statistics of alumni
Post-graduation and internship employer survey	• Effectiveness of the program in meeting employers' expectations • Observed increased skills and performance • Perceived strengths and weaknesses of the program

Course Preparation Needed by Students Transferring With a Technical Associates Degree

The Bachelor of Applied Science in Forest Resource Management through both Green River College and Grays Harbor College is designed to provide a pathway for students who have earned an AAS in Natural Resources or forestry related technical Associates degree. Students with such a degree will typically be able to complete the BAS in Forest Resource Management in two years of full-time study. Students entering from other institutions may have additional coursework to complete in order to begin the program and will be assessed on a course by course basis for equivalency.

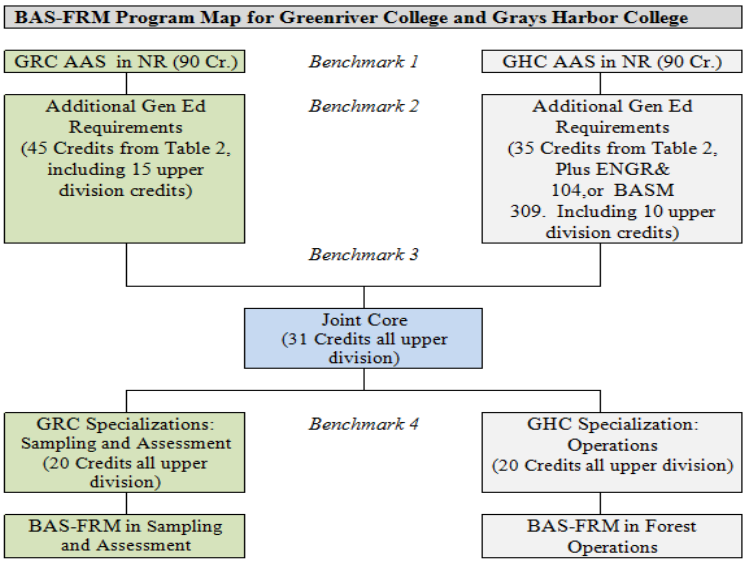
The Green River College and Grays Harbor College joint degrees are based on a shared acceptance of each other's AAS in Natural Resources, a common core, with differing specializations at each college. The graduation requirement for the BAS-FRM is made of the completion of four benchmarks that cumulatively contain over 60 hours of 300/400 level course work (Figure 1):

1. The completion of an AAS in Natural Resources (from either school), with the possibility of expansion to other related programs through articulation agreements. The AAS will make up between 90 and 105 credits of the BAS-FRM.
2. The completion of the 60 credit General Education (GE) requirement as laid out by the State of Washington. GE credits can be made up of lower division or upper division BAS courses.
3. The completion of the BAS Degree Core Credits (31 upper division BAS-FRM credits)

4. The completion of a BAS Forest Resource Management specialization (17 (GRC) to 20 (GHC) upper division BAS Specialized credits) for a total of 93 to 96 credits (Table 3).

The completion of these benchmarks will satisfy the 181-183 credits of the BAS in Forest Resource Management at either Grays Harbor College (specialization: Operations -186 credits) or Green River College (specialization: Sampling and Assessment -183 credits).

Figure 1: Summary of Benchmarks one through four.



Benchmark 1: Completion of AAS degree in Natural Resources or related field

Entry requirements into both Forest Resource Management tracks will require an AAS in Natural Resources or an equivalent field. A memorandum of understanding between GRC and GHC allows students to easily move between institutions without changing their resident college (See Appendix C for MOU). The AAS degree in natural resources - forestry will be accepted at 100 percent transfer credits between GRC and GHC allowing students to enter into the best degree path for their career goals and thus creating more options to specialize in the career field of the students' choice. Students from other institutions with equivalent or related degrees may need additional coursework to lay the necessary knowledge and skills foundation to succeed in the BAS-FRM degree. Therefore, they will be assessed on a course by course basis for equivalency.

The entry requirements for the BAS-FRM degree program are designed to accommodate as many qualified students as possible from multiple institutions, while ensuring that students are prepared for success at the baccalaureate level.

Students may enter the program if they have earned a:

- Natural Resources related associates degree (90 quarter credits, minimum, from a regionally accredited institution), or an AAS in an equivalent field
- Cumulative grade point average of 2.0 or higher from college level courses, and
- Minimum grade of 2.5 in all Natural Resources related courses

Students may request provisional acceptance into the program if they will complete the entrance requirements within one quarter. Students that are within two courses of completion of their AAS degree in natural resources or forestry will be assessed on a case-by-case basis for provisional acceptance.

Benchmark 2: General Education Components

General education is an important component of all applied baccalaureate degrees, providing students with a breadth of knowledge and understanding in communication skills, quantitative and symbolic reasoning skills, humanities, social sciences, and natural sciences. The 60 general education credits requirements mandated by the state are detailed for both colleges in Table 2. Of the required general education credits, there are 15 credits of 300/400 level coursework. For breakdown of the complete 4-year plan see Appendix F.

Table 2: General Education Requirements

	GREEN RIVER COLLEGE Forest Resource Management: Sampling and Assessment			**GRAYS HARBOR COLLEGE** Forest Resource Management: Operations		
Area of Study	**Course**	**Cr**	**Typical Completion**	**Course**	**Cr**	**Typical Completion**
Communi-cations (10 cr)	ENGL& 101 English Composition I	5	Associate	ENGL& 101 English Composition I	5	Associate
	ENGL 335 Advanced Technical Writing	5	BAS	ENGL& 235 Technical Writing	5	Associate
Quantitative/ Symbolic Reasoning Skills (5 cr)	MATH 356 Statistics for Lab and Field Sciences	5	BAS	MATH& 146 Introduction to Statistics	5	Associate
Humanities (10 cr)	CMST& 230 Small Group Communication	5	BAS	SPCH 101	5	Associate
	CMST& 220 Public Speaking	5	Associate	ENG. 304: Advanced Business Writing	5	BAS
Social Sciences (10 cr)	PHIL 115 Critical Thinking or BUS 202 Introduction to Project Management	5	BAS	ECON 100 Introduction to Economics	5	BAS
	ANTH 302 Native American Approaches to the Environment	5	BAS	BASF 301 Resource Economics	5	BAS
Natural Sciences (10 cr)	BIO 110 Northwest Ecology (Lab science)	5	BAS	CHEM& 121 Intro to Chemistry Or CHEM& 161 General Chemistry w/lab	5	Associate
	GEOL& 101 Introduction to Physical Geology (Lab science)	5	BAS	BIOL& 211 Biological Science I: Majors Cellular, or BIOL 160	5	BAS/ Associate
Remaining General Education Courses (15 cr)	ENGL 128 Research Writing:	5	Associate	BIOL& 212 Biological Science II: Majors Animal	5	BAS
	PHIL 243 Environmental Ethics	5	BAS	BIOL& 213 Biological Science III: Majors Plant	5	BAS
	GEOL 208 Geology of the Pacific Northwest	5	BAS	GEOL& 101 Introduction to Physical Geology (Lab science)	5	Associate/ BAS*
	Total Credits of General Education	**60**			**60**	

*Shaded classes are general educations classes contained within the BAS FRM; cr stands for credits.15 upper division general education credits are required.****If not completed in the associates, will be completed in the BAS. GHC and GRC would fully accept the each other's general education credits listed above.***

Benchmark 3: Joint Core Needed at Junior and Senior Levels in the BAS-FRM

Of the upper level courses, 31 credits will form the core natural resources classes shared between Green River College and Grays Harbor College (Table 3).

Benchmark 4: Track Specific Coursework Needed at Junior and Senior Levels in the BAS-FRM

Seventeen to twenty credits of unique and focused upper level majors courses are required, depending on specialty track, at each institution allowing for student specialization in either an Operations or Sampling and Assessment track (detailed in Table 3).

Table 3: Coursework Needed at Junior and Senior Levels

	GREEN RIVER COLLEGE BAS degree in Forest Resource Management: Sampling and Assessment		**GRAYS HARBOR COLLEGE** BAS degree in Forest Resource Management: Operations	
Area of Study	**Course**	**Cr**	**Course**	**Cr**
General Education Requirements (45 credits)	See Table 2 above for General Education as outlined for each institution. *(includes 15 credits of 300/400 level course work)*	45	See Table 2 above for General Education as outlined for each institution (35 from Table 2 plus ENGR& 104,or BASM 309) *(includes up to 15, 300/400 level credits)*	45
Core Requirements at both GRC and GHC for both tracks of study *(31 credits of 300/400 level course work)*	NATRS 493/NR 493Advanced Silviculture	4	NATRS 493/NR 493Advanced Silviculture	4
	NATRS 417.1 GIS Applications of Forest Resource Management of Silviculture	1	NATRS 417.1 GIS Applications of Forest Resource Management of Silviculture	1
	NATRS 385/NR 385 Forest Protection and Disease Management	5	NATRS 385/NR 385 Forest Protection and Disease Management	5
	NATRS 400/NR 400 Forest Practices Law and Policy	5	NATRS 400/NR 400 Forest Practices Law and Policy	5
	NATRS 399/NR 399 Natural Resources Seminar	1	NATRS 399/NR 399 Natural Resources Seminar	1
	NATRS 390/NR 390 Environmental Decision Making & Conflict Resolution	5	NATRS 390/NR 390 Environmental Decision Making & Conflict Resolution	5
	NATRS 494 Capstone in Natural Resources	5	NR 494 Capstone in Natural Resources	5
	NATRS 471 Restoration	5	NATRS 471 Restoration	5
Specialized Tracks *(17-20 credits of 300/400 level course work)*	NATRS 300 Forest Ecology	6	BASF 301 Resource Economics	5
	NATRS 386 BioInvasions: Approaches to Invasive Species Management	4	BASF 402 Advanced Harvest Systems: Ground based	5
	NATRS 361 Wildlife Ecology	5	BASF 403 Transportation System Design	*5*
	NATRS 417.2, 417.3 GIS applications of Forest Resource Management	2	BASF 401 Advanced Harvest Systems: Cable and Aerial Based	5
	Total Credits at Junior and Senior Level	**93**	**Total Credits at Junior and Senior Level**	**96**

These core courses will provide BAS-FRM degree program students with advanced natural science theory, application knowledge and skills that build on their education and experiences they acquired through associates level Natural Resource courses. Both programs provide students with over 60 upper division credits (300-400 level), with GRC at 66, and GHC at 61.

Sample Student Schedule for Sampling and Assessment and Operations Tracks

A student attending full-time, with 15 to 16 credits per quarter, will be able to complete the BAS in Forest Resource Management in six to eight quarters (two years). A sample full-time student schedule is shown in Table 4. Students can also attend part time, taking required courses at less than full-time credit load. These students can take 10 -11 credits per quarter for three years. For breakdown of the complete 4-year plan see Appendix F.

Table 4: Sample Student Schedule for Both GHC and GRC Colleges

Year	Fall Quarter	Winter Quarter	Spring Quarter
GREEN RIVER COLLEGE			
Junior	BIO 110 Northwest Ecology (5)	ENGL 335 Advanced Technical Writing (5)	GEOL& 101 Introduction to Physical Geography (5)
	PHIL 115 Critical thinking (5) or BUS 202 Intro to Project Management (5)	CMST& 230 Small group Communication (5)	NATRS 386 BioInvasions (4)
	NATRS 390 Environmental Decision Making and Conflict Resolution (5)	NATRS 385 Forest Protection and Disease Management (5)	NATRS 300 Forest Ecology (6)
			NATRS 417.1 GIS Applications (1)
Total	**15 Credit Hours**	**15 Credit Hours**	**16 Credit Hours**
Senior	MATH 356 Statistics for Field and Lab Sciences (5)	PHIL 243 Environmental Ethics (5)	NATRS 494 Capstone in Natural Resources (5)
	NATRS 493 Advanced Silviculture (4)	NATRS 400 Forest Practices Law and Policy (5)	GEOL 208 Geology of the Pacific Northwest (5)
	NATRS 471 Restoration (5)	NATRS 361 Wildlife Ecology (5)	ANTH 302 Native Environment Approaches (5)
	NATRS 399 Natural Resources Sem.(1)	NATRS 417.3 GIS Applications (1)	
	NATRS 417.2 GIS Applications (1)		
Total	**16 Credit Hours**	**16 Credit Hours**	**15 Credit Hours**
GRAYS HARBOR COLLEGE			
Junior	NATRS 390 Environmental Decision Making and Conflict Resolution (5)	NATRS 385 Forest Protection and Disease Management (5)	BASM 309 - Project Management - Time, Goals and Budget Management (5)
	MATH 146 Intro to Stats (5) or MATH& 141 Precalc I, [for those who completed MATH 146 in AAS]	BIOL& 212 Biological Science II: Majors Animal (5)	BIOL& 213 Biological Science III: Majors Animal (5)
	ENGR 104 Intro.to Engr. & Design (5)	ECON 100 Introduction to Econ. (5)	BASF 403 Transportation System Design (5)
Total	**15 Credit Hours**	**15 Credit Hours**	**15 Credit Hours**
Senior	NATRS 493 Advanced Silviculture (4)	NATRS 400 Forest Practices Law and Policy (5)	NATRS 494 Capstone in Natural Resources (5)
	NATRS 399 Natural Resources Seminar (1)	BASF 301 Resource Economics (5)	ENG. 304: Advanced Business Writing (5)
	NATRS 417.1 GIS Applications (1)		
	NATRS 471 Restoration (5)	BASF 401 Advanced Harvest Systems: Cable and Aerial Based (5)	BASF 402 Advanced Harvest Systems: Ground Based (5)
	GEOL& 101 Intro to Physical Geology (5) or ENVS& 100 Survey of Env Sci (5) [completed GEOL&101 in AAS]		
Total	**16 Credit Hours**	**15 Credit Hours**	**15 Credit Hours**

GRC predicts a high enough enrollment to offer classes quarterly, allowing part-time students to develop (with the help of their advisor) a three or four year plan, which will work for their schedule. GHC, on the other hand, intends to offer a cohort model allowing new students to enter each fall. Due to the frequency of classes offered at GHC part-time students will need to develop (with the help of their advisor) a three or four year plan well in advance to ensure proper sequencing. The program director and/or program manager will work with each student in the BAS in Forest Resource Management program to develop an academic plan, ensuring that students are able to efficiently meet their degree goals. See Criterion 4: Appropriate Services Plan below for clarification on these positions.

Criterion 2: Qualified Faculty and Logistics

Faculty in both colleges will teach associate and baccalaureate level Forest Management core courses. This allows the program to fully utilize the expertise of individual faculty members, better preparing students for employment opportunities for courses across the core curriculum. Additionally by allowing qualified instructors to teach at both the 2-year and 4-year levels the Colleges can be more efficient and hire fewer instructors creating a more economical program in the long run. Finally, the ability of the 2-year to adapt to the 4-year program and maintain flexibility is much higher with shared instructors. Instructors outside of the natural resource programs who will be teaching junior- and senior-level general education courses in the BAS degree in Forest Resource Management program will teach these courses as part of their normal load.

The natural resources faculty member assigned to the program at Green River College during year one will be the program director, and will be assigned one-third to instruction and two-thirds to program administration duties. Any subsequent faculty members will be assigned 100 percent to instruction. Starting in year three, administrative duties may be shared among two faculty members at Green River College.

Grays Harbor College currently has a 2/3 time faculty teaching the Natural Resources program, and 1/3 time school forest management. The core of the program being picked up by GRC, GHC is left with teaching the additional 20 credits over two years. GHC anticipates hiring and adjunct faculty member to teach the specialization classes. In the first year of operation, the current GHC faculty member will teach this program as overload. Based on the needs of the programs at both colleges, GHC faculty could teach two of the core classes which would include NATRS 493 Advanced Silviculture and NATRS 400 Forest Practices Law and Policy (based on the model outlined in the MOU; See appendix C).

To support this degree program on both campuses, GRC anticipates hiring one full-time equivalent faculty within the first two years. GHC will hire a second part-time faculty to teach the baccalaureate level courses, as well as additional associates level courses. Faculty will teach at both the two and four year levels allowing faculty to teach to their expertise and to keep program costs lower (reduced need for hires)

At Grays Harbor College, the existing Assistant Dean for Transfer and Baccalaureate program will act as Program Director. The bulk of the advising and outreach activities will be picked up by the program director (further described in the student services section). The Natural Resources faculty will be in touch with current students, and potential students for the BAS FRM, and will be a key to student outreach.

Faculty Credentials

College faculty teaching in the BAS degree in Forest Resource Management program will be required to hold a minimum of a masters degree. Exceptions may be made for highly technical forestry courses. In these instances, a combination of baccalaureate degree, industry experience, and industry certifications may be considered adequate; this is due to the fact that a masters degree is not typically attained by professional foresters.

For Green River, to teach the BAS for one year, it takes 1.33 FTEF for all program related courses which will be shared among four faculty members, including one new hire.

For Grays Harbor, to teach the BAS for (two classes a year), it takes 0.22 FTE for all GHC Operations program related courses which currently fall to a single faculty member. At times, GHC may teach additional BAS-FRM Core classes, and GHC could hire an additional adjunct.

Table 5 shows the faculty profiles, of full-time faculty who will teach in the BAS degree in Forest Resource Management degree program as well as the institution where they teach. Currently no adjuncts are planned to instruct for the BAS-FRM degree.

Table 5: GRC and GHC Faculty Member Profiles

Faculty Name	Education Credentials	Full-time or Adjunct	Upper-Division Course(s)
Technical faculty			
Todd Bates	Masters of Forestry (MF) UC Berkley; BS Forest Management UC Berkley; 18 years industry experience; 24 years SAF affiliation	Half-time Natural Resources Faculty, Grays Harbor College Faculty and Forest Manager	BAS degree in Forest Resource Management core requirements courses, as well as Operations specialty courses
Rob Sjogren	BS Environmental Sciences The Evergreen State College and 26 years industry experience; 34 years SAF affiliation	Full-time Natural Resources Faculty, Green River College	BAS degree in Forest Resource Management core requirements courses as well as Sampling and Assessment specialty courses
Monica Paulson Priebe	PhD Environmental Science, Indiana University, MPA Public Affairs, MSES Environmental Science, Indiana University; BA Biology and BA Environmental Studies Gustavus Adolphus College; 5 years field experience	Full-time Natural Resources Faculty, Green River College	BAS degree in Forest Resource Management core requirements courses as well as Sampling and Assessment specialty courses
Sabah Jabbouri	PhD in Forest Hydrology University of Washington; MS Utah State University and BA Forestry Mosul University; 15 years SAF affiliation	Full-time Natural Resources Faculty, Green River College	BAS degree in Forest Resource Management core requirements courses as well as Sampling and Assessment and Operations specialty courses
Doug Jones	MBA, Portland State University; BA, Sonoma State University; Vocational Certificate	Full-time Business Faculty, Grays Harbor College	BASM 309 - Project Management – Time, Goals and Budget Management
Darby Cavin	Ed. D, Seattle Pacific University, Seattle, WA; Master of Letters, University of St. Andrews, Fife, Scotland; BA, Whitworth University, Spokane, WA	Full-time Humanities Faculty, Grays Harbor College	ENG 304 - Advanced Business Writing

Continued on the following page

Table 5: GRC and GHC Faculty Member Profiles Continued

General Education Faculty			
Marianne Jacobs	PhD Anthropology University of Washington; RN St. Joseph Hospital School of Nursing; BA Anthropology University of Washington	Full-Time Anthropology Instructor at Green River College	Native American approaches to Natural Resources
Kris Kissel	PhD Mathematics University of Washington; BS and MS in Mathematics from University of Pittsburgh,	Full-time Math Faculty, Green River College	Statistics
Amanda Schaefer	MA in English	Full-time English Faculty, Green River College	Technical Writing
Mark Zerr	JD, University of Washington, School of Law; MBA, University of Washington, Foster School of Business; BBA (Marketing)	Full-time Business Faculty, Grays Harbor College	Economics
Monica Baze	Ph.D. University of Reno Nevada; B.S. Washington State University	Full-time Biology Faculty, Grays Harbor College	Biology
Kenji Seta	MS, Troy State; BS, United State Air Force Academy	Math Faculty and Learning Center Director, Grays Harbor College	Math
John Hillier	M.S., Ph.D. Cornell University; B.S. Harvey Mudd College	Full-time Physics Sciences Faculty, Grays Harbor College	Geology

Professional/Technical Certification

All faculty and administrators who are responsible for the core requirements technical courses in the BAS in Forest Resource Management degree program meet the certification requirements for professional and technical instructors and administrators as stated in the Washington Administrative Code, WAC 131-16-091.

Criterion 3: Admissions Process Consistent With an Open-Door Institution

Admission to Grays Harbor College and Green River College's Bachelor of Applied Science (BAS) degree in Forest Resource Management program will be consistent with an open door institution.

Selection and Admission Process for GRC and GHC

Since there are inherent safety issues within the field of forest management is recommended those who enter the BAS, who have not completed an AAS in natural resources, take the The Pack Test at the Moderate Level (See Appendix B) to gain an understanding of the physicality of the educational path prior to be admitted into the program. The test is not part of the entry criteria; it is for informational purposes only. The entry requirements for the BAS-FRM are detailed in Table 6.

Table 6: Entry Requirements

Entry Requirements	Points	Notes
AAS in natural resources related field that includes at least 20 credits of general education courses, which must include ENGL& 101 or higher and a Math& 107, or a five-credit math class numbered higher than 107.	2.0 points for NATRS AA degree	90 credits from a regionally accredited institution
Cumulative GPA of 2.0 in college level courses	1.0-4.0 range	
Minimum grade of 2.5 in all natural resources courses or equivalent degree courses*	--	
Personal Statement	4.0	
Interview (GRC only**)	4.0	
Wildland Firefighters Pack Test completion	Not weighted	Recommended completion

*Students with equivalent or related AA degree may need additional coursework to lay the knowledge foundation needed to be successful in the BAS Forest Resource Management. These cases will be assessed on a course by course basis analysis of their transcripts for equivalency. **GRC expects more applicants and therefore has added an additional entry requirement.

Entry requirements for the BAS-FRM program have been designed to provide access to many students and to ensure that prospective applicants are prepared for success once they enter the program. While Fall quarter enrollment is encouraged, rolling admissions into the program at GRC will occur during every quarter as openings become available in the program. The proposed joint BAS-FRM degree proposed by Green River College and Grays Harbor College is unique in making education accessible to many students as this model has potential for growth with other community colleges. The program manager and program directors will make selection decisions for enrollment. If the number of qualified applicants exceeds the number of openings for GRC, applicants will be ranked by meeting the programs priority application date, a personal statement, an interview, and their college level GPA.

To ensure that graduates from nearby community colleges are given an opportunity to complete the proposed BAS degree, Grays Harbor College and Green River College will utilize a three-part approach. First, we will work with surrounding schools to articulate their natural resources, and related degrees to the proposed BAS degrees. We already have active articulation between GRC Natural Resources and Spokane Community College. Second, we will communicate with students and talk to students who are nearing graduation, and by holding an open house providing information about the BAS Forest Resource Management degree during Spring Quarter 2015 at Green River College. Third, we will perform outreach to working professionals who could benefit by completing a 4-year degree by visiting their places of employment and offering prior learning from experience avenues. We project ongoing outreach as the program progresses. Additionally we will build on our current partnership with the Agriculture Center of Excellence in Walla Walla, WA.

Efforts to Assure Service Facilitating Our Diverse Population

One of the key elements of diversity this BAS-FRM program serves is place-bound students from multiple socio-economic statuses. Without the collaboration of both schools, Grays Harbor College would not be able to support a Forest related BAS program and their place-bound students would go unserved.

This unique collaboration better serves a larger population with unique geographies and economic needs that would typically be underserved at many of the other institutions of higher learning with forestry related BS programs. Green River College's efforts to reach diverse student populations are detailed below.

Serving GRC's Diverse Populations

One of Green River College's institutional goals is: "Members of our diverse communities will have reasonable access to affordable educational programs and services that meet their needs"[ii]. Equity is a core value that is integral to every program offered at Green River College, including its existing associate's level Natural Resource programs and its future BAS degree in Forest Resource Management program. We encourage, foster respect for, and respond equitably to diverse perspectives and needs.

The BAS in Forest Resource Management fits within the Career and Technical Education core theme at Green River. Within this core theme, equity is a core objective. The BAS-FRM degree will be measured by indicators of proportional representation of diverse students in terms of access to the program and success in the program. Additional indicators will be the BAS-FRM program's climate toward diverse students and responsiveness to diverse communities.

The BAS-FRM program manager will partner with the Green River Diversity and Equity Council, the Office of Recruitment and Outreach, and the Marketing and Communications office to develop an early outreach plan and marketing plan to diverse populations at local high schools and industries. We currently are working with the Muckleshoot Tribal School's Forestry program and would like to market this program to native youth and professionals working on tribal forestlands. We are currently building relationships with the Muckleshoot Tribal Schools to provide students access to early college experiences and dual credit/dual enrollment programs. Additionally we have collaboration and open communications with the Quinault Tribe, the Washington Forest Protection Association, Puget Sound Skills Center and dozens of regional employers representing private industry as well as State, and non-governmental institutions that hire Forestry and Natural Resource graduates. Participation by representatives of these aforementioned groups include but are not limited to: participation in the Development of the 4-year Curriculum, Participation in the Natural Resources Advisory Committee for Green River College, participation in the formation of the New Degree Program Proposal Form D and participation as guest speakers and/or internship advisors for current two year Natural Resource Students.

Serving GHC's Diverse Populations

Both colleges serve diverse, yet not necessarily similar, populations. Grays Harbor College has a population of 27% students of color, split evenly between genders. In addition it has 83% first generation students~~,~~ and has the highest number of students in the two lowest quintiles of income in the state. The college, at present, has a large number of underrepresented students. Efforts to assure the program serves diverse groups will be facilitated through the ongoing development of relationships between underrepresented populations. This starts with the Natural Resources Advising Board which includes tribal representation, in addition to business and agency representation. GHC has a number of organizations, which work directly with underrepresented populations and has formed strong associates. It is for this reason our recruitment process will be heavy involved in these programs, in order to continue nurture ongoing relationships with underrepresented populations. The GHC Program Director will meet

with the offices on campus serving special populations, including cultural based clubs and organizations, TRiO student support services, Veterans Services, and disability services.

It is anticipated that several students in Green River College BAS-FRM will have earned their AAS in Natural Resources at either Green River College or Grays Harbor College. Nonetheless GRC and GHC faculty and administrators have been meeting with—and will continue to reach out to—diverse populations within similar programs at other technical and community colleges in the area, including Spokane Community College, to ensure a path for their graduates toward an applied baccalaureate degree. The demographics of these colleges are different from Green River and Grays Harbor and will enhance overall diversity within the BAS in Forest Resource Management.

Green River College and Grays Harbor College Natural Resources faculty, working with their Natural Resources Advisory Committees and the BAS program manager (GRC) and program director (GHC), will also promote the BAS degree in Forest Resource Management to local businesses to reach currently employed forestry and natural resource workers who need to upgrade their education and skills. Delivery modes and course schedules will take into account the needs of both place-bound and employed students.

Criterion 4: Appropriate Student Services Plan

Green River College and Grays Harbor College are committed to providing a variety of student-focused support services that will help students in the Bachelor of Applied Science (BAS) degree in Forest Resource Management program achieve success. The Program Manager and Program Directors from both schools will be the go-to individuals for students wanting any help. At Green River, the Program Manager will meet twice annually at a minimum, more frequently as needed, with professionals working in the various student services positions on campus. Programs Directors (managers) from both schools will form working committees with the student services departments (including admissions) to ensure BAS student at both institutions have continuity of service throughout the calendar year. The committee will meet regularly, to plan ahead for student services. These meetings will serve to address changing needs of the proposed BAS program over time. They will also address ways to streamline student services and ways to maintain student focused services. This collaboration will ensure a high level of collaboration among the department's Program Manager, Program Directors (see below) and student services, as well as ensure continuation of services when faculty are off campus.

Green River College's BAS Program Manager: Starting in the second year of the program, the BAS-FRM Program Manager will be a part-time administrative position. It is anticipated that the BAS-FRM Program Manager will work extensively with students providing a first-line contact for needed student services. By having a "go-to" person for students, student retention will be increased. The BAS-FRM Program Manager will sponsor career forums and job fairs specifically for the Forest Resource Management BAS students who are nearing graduation. This role will work with students directly as well as act as a liaison to additional campus services. This manager will also aid in future recruitment for the program.

Green River College's BAS Program Director: This role is one of the duties held by a faculty member during release time from instruction. The primary role of the Program Director at GRC is to work with the students to ensure success in the BAS-FRM program and subsequent employment though advising as well as manage curriculum development, changes and educational logistics.

Grays Harbors College's BAS Program Director: This role is one of the duties held by the Assistant Dean of Transfer and Baccalaureate Programs. Grays Harbor College has found that making a strong connection with students early on in their academic process has made a real improvement in retention and success. For those students who find "their person" on campus, retention and progression has significantly increased. It is because of this the College has chosen to use an "embedded services" model for the BAS-FRM students. The BAS-FRM program is focused on working adults who do not generally spend a lot of time one campus, the Program Director (PD) will be their "go-to" person for help.

The Program Director for Grays Harbor College has been identified for this position. He has earned a MA from Pacific Oaks College Northwest, with a specialization in Educational Leadership. This staff member has His experience include a number of years working as an advisor at a baccalaureate institution within Washington State, as well as 10 years of experience as the Director of GHC's TRiO Student Support Services Program. The faculty and program director will work directly with students to ensure their success in the program and in their pathway to employment.

One of the key roles of the PD is to provide direct services to students, such as entry advising, assistance completing financial aid paperwork, and as a referral to other services on campus. This role will be loosely based on the TRiO model at GHC. It is anticipated this person will spend about 20% of their time in administration and outreach, and 30% of their time on providing direct student services to the BAS-FRM students (PD is a half time position focused on two BAS programs.) This role will work with students directly as well as act as a liaison to additional campus services.

Academic Advising Services (GRC and GHC)
New and continuing BAS-FRM program students will receive one-on-one comprehensive academic advising services from the BAS-FRM faculty/ Program Director and, as appropriate, from the BAS-FRM Program Manager. Students entering the program will work with the Program Director to build a degree plan for their junior and senior year and ensure that they have all of the resources they need to successfully begin their studies as a junior level student. The Program Director (GRC and GHC) and Program Manager (GRC only) also serve as an efficient go-to person to help BAS-FRM students navigate and access student services that are available on campus. Helping to support BAS-FRM student success, especially those students who are new to Green River or Grays Harbor or that transfer between institutions, is an essential role of both the Program Directors and the Program Manager.

Another aspect of academic advising and support involves monitoring student progress and helping students who may be struggling with a particular topic or course. An early warning system called PASS: Progress and Alerts for Student Success is available to all faculty members at Green River. Grays Harbor College has a similar program available to its faculty as well. Instructors can log into the program and alert the student and their advisor if the student is struggling in a course. Upon receiving the alert, the student's advisor (either the program director or program manager) can work with both the student and the instructor to identify the issue and develop a plan to help the student get back on track and succeed.

The plan may include:

- Providing tutoring resources to the student (included in Table 9: Green River College Projected Program Expenses)
- Facilitating a peer learning group between the student and other students in the program
- Negotiating a performance improvement plan between the student and the instructor, and/or
- Introducing the student to support services on campus (see Student Services Plan)

The Program Directors and Program Manager will continuously work to help students bridge academic instruction and student services to ensure a positive, safe, and supportive learning environment for the students in the BAS-FRM program.

Student Services Plan (GRC and GHC)
Green River College and Grays Harbor College both place the highest priority on the needs and success of all of their students. The colleges are committed to providing students with open access to comprehensive programs and services in a nurturing environment, empowering students to take initiative and responsibility for their educational and professional development.

Students in the BAS degree in Forest Resource Management program will be supported by the same high-quality student services that all Green River College and Grays Harbor College students receive. The GRC BAS-FRM Program Manager and the Program Director will provide many student services. In addition, it is anticipated that the following services will be those most frequently used by Green River College students in the BAS degree program:

Bookstore: The Paper Tree bookstore and The GHC Book Store offer students one-stop convenience for textbook and general school supplies needs. Students may purchase textbooks online as well as on campus.

Career and Advising Center: Both colleges have Career and Advising Centers offering comprehensive career and education planning resources for current and prospective students, alumni, and community members. The BAS-FRM Program Manager and the BAS Program Director will provide most of the advising and educational planning services for Forest Resource Management BAS students. The BAS Program staff will work collaboratively with the Career and Advising Center in order to promote student success and completion.

Child Care Center: Both colleges have childcare centers enabling parents to pursue their educations and careers by providing a safe, nurturing environment for their children. Fees are based on a sliding scale depending on the age of the child, gross monthly or annual income, and family size. JOBS, Employment Child Care, and Transitional Child Care funding sources are welcome.

Counseling and Health Services (CHS): Both colleges have services that seek to promote physical and psychological health of students and the campus community to support student success. These centers provide short-term mental health counseling and self-care and wellness education to both Green River College and Grays Harbor students. Workshops and consultation services are offered for staff, faculty, and student organizations. Services are free and confidential.

Disability Support Services (DSS): Services are available at both campuses to assist students with physical, learning, sensory, cognitive and/or psychological disabilities on both campuses by identifying and coordinating reasonable accommodations for equal access to academic programs and activities.

Diversity, Equity & Inclusion: The Office of Diversity, Equity and Inclusion (ODEI) at GRC ensures respect for all civil and human rights, works diligently to promote intellectual discourse across the disciplines, minority leadership skills and social justice among students, staff, faculty and our surrounding communities. In order to ensure equity ODEI provides bi-lingual and multicultural services in diverse languages and religious faiths to support students, staff, faculty and members of the community including translation, peer mentoring, financial literacy training, academic and personal advising, and quarterly support workshops. ODEI provides the service area with the most innovative, engaging and intellectual diversity conferences in the Pacific Northwest.

Grays Harbor College's Multicultural Center offers an environment that is focuses on the dignity of all people. The Center offers workshop, programs, and discussions to provide individuals with greater information about the diversity within the world. It offers a safe and respectful place for student to gather, and explore equity and inclusion.

Enrollment Services: Enrollment Services provides a variety of support to prospective students, current students, and the campus. It interprets and applies both Colleges' policies and procedures for admissions, registration, records and graduation. The BAS-FRM Program Manager and Directors will work in partnership with these offices to ensure policies and procedures are adhered to as student's progress through their program.

Financial Aid: Please see the *Financial Aid Services* section on the next page.

Library and Open Computer Labs:
The Holman Library serves the students, faculty, and staff of Green River College by providing the resources and services necessary to ensure access to information and development of information literacy skills. The library houses approximately 59,000 items. It has a collection of more than 25,000 eBooks. The library provides online access to approximately 15,000 periodicals through subscription databases. The library also subscribes to 200 periodicals in print format. Students have access to more than 150 networked computers in the Information Commons open computer lab of the Holman Library.

Green River College's open computing labs - Students also have access to more than 100 networked computer workstations in an open computer lab in the College's Technology Center.

Grays Harbor College's Spellman Library provides multiple services for students, faculty and staff. Our library staff fosters an environment in which students acquire the information literacy skills and computer competencies that support independent inquiry and lifelong learning. The library team developments and maintains collections in support of college curriculum, information literacy instruction, reference service, circulation services, course reserves, inter-library loan, instructional equipment, student technology support, college archives, and copyright guidance. Library instruction and collection development is conducted by professional librarians, each with a specific liaison area in the college's academic and technical programs. Support of the BAS-FRM program will fall to the librarian who has developed the

resources to support the BAS Forest Resources Management Program. This position will be budgeted a 0.1 FTE increase to provide additional services in the evening to BAS-FRM students.

The library's collections consist of both print and online resources. The monograph collection alone includes over 70,000 titles, half of which are in e-book collections. The library collections budget to support the BAS FRM degree includes initial funding to augment the current monograph collection and purchase additional online databases. The growth of the collection will be focused on Forest Operations. The library currently subscribes to several major full-text periodical databases with access to thousands of titles.

GHC Computing Labs: there are a number of open computing labs with extended hours for students, including weekends. The labs are staffed and provide up to date software applications.

Online Services: Both colleges offer online services enable students to apply for admissions, plan their schedules, register and pay for classes, run a Degree Audit to view graduation requirements for their program and courses needed to complete the program, and view their unofficial transcript. Students can also access their student e-mail account, eLearning content and resources, and library services.

Student Life: Both colleges recognize that lifelong connections are formed both inside and outside the classroom. We program activities and events that will provide opportunities to connect to students' community.

We host events on and off campus in environments that foster personal and professional relationship building, provide occasion to enrich students' cultural experience, cultivate community connections, and support a healthy school-life balance. We encourage involvement by offering a wide variety of experiences. Events include: volunteering, lectures that will challenge students' current perspectives and ideas in a safe and educational setting, leadership opportunities, and students' favorite- FUN!

We are here to be students' resource for involvement as they grow into a well-educated and active global citizen.

TRiO Student Support Services – Both colleges receive services from this Federal program. Students who are first-generation college, low-income, or have a documented disability may receive academic and personal support. TRiO services include tutoring, study skills, and advocacy. Mentoring will be available evenings. Currently, the Department of Education is developing policies related to community colleges offering baccalaureate degree. Additional information will be provided during the next grant cycle.

Tutoring and Academic Resources: The students at each college have access to free tutoring services and academic resources. GRC has four primary tutoring centers are available on campus, including the Tutoring and Resource Center, the Writing Center, the Public Speaking Center, and the Math Learning Center. Additionally a tutor center was just added in the GRC Natural Resource Library, bringing academic help close to the students. At GHC, it is the Learning Center, offering a well-supported academic assistance program with tutoring services available for mathematics, English, and accounting. Additionally, there is online tutoring is available 24 hours a day, seven days a week through our participation with online partners (contact information is on the web.) BAS-FRM students will be able to receive academic support through the Learning Center with some specific times set for BAS participants.

Since the BAS-FRM program with require higher order academic work, the BAS program will fund additional Learning Center support specifically to meet the needs of BAS students.

Veterans Services: The Veterans Service is available at each college. GRC office assists veterans in activating and maintaining their educational benefits. Green River College actively reaches out to veterans through its Veterans Coordinating Council, which engages in marketing and outreach to veterans about resources available on campus, honors veterans with symbolic events, and seeks to help veterans with the transition from college to career or workforce. At GHC, Veteran's Services provided through our financial aid office, and a campus VetsCorp worker. The BAS Forest Resource Management degree will be eligible for VA-approved student funds. The Veterans service team will schedule appointments when possible that will work for BAS-FRM student, as well as participate in our workshop series.

Financial Aid Services
The Financial Aid office prepares and disburses Federal, State, and institutional aid for all Green River College students at both colleges. To streamline the disbursement process, each college is Green River College working with HigherOne, provides students with Choice Cards. These cards allow students to choose how to receive their financial aid disbursement.

Financial Aid Portal, students from both colleges are able to access their financial aid information via the online portal.

The financial aid process for the BAS-FRM student is somewhat different from that of the other students on campus. It is for this reason that the BAS program will fund additional hours for the financial aid director and assistant director to award these students, and explain their options. The financial aid staff will schedule appointments when possible that will work for BAS-FRM student.

Foundation support
Both Green River College and Grays Harbor Colleges recognize that paying for college is a challenge for most students. Financial aid is available in three forms: gift aid–grants and scholarships; employment–jobs on or off campus; and loans–low interest with deferred repayment. Yet, additional aid truly makes a difference to students.

The Green River College Foundation offered more than 213 scholarships to students at Green River College, in 2013-2014. Once the proposed BAS-FRM degree is approved, the Green River College Foundation will reach out to local companies to create BAS-FRM program-specific scholarships. Additional funding from Clean Water Act enforcement monies in amounts between $95,000 and $200,000 may become available for 4-year Natural Resources students through the Foundation.

The Grays Harbor College Foundations offered more than 286 scholarships to Grays Harbor students and has two scholarships specifically designated for the forestry field.

The G.I. Bill, veteran's assistance and other military education benefits can all be applied to the cost of attendance at either institution.

Green River College offers students a tuition payment plan, called STEP, which enables students to pay their tuition and fees in three manageable payments. STEP is also an option for students who are waiting

for their Financial Aid file to be reviewed. GHC offers a similar process called the emergency student loan program, which offers a stepped payment system.

Criterion 5: Commitment to Build and Sustain a High-Quality Program

Green River College and Grays Harbor College are committed to developing and sustaining the Bachelor of Applied Science degree in Forest Resource Management program.

Financial Plan

Green River College and Grays Harbor College propose the following comprehensive financial plans for their BAS degree in Forest Resource Management program. The key to the MOU (Appendix C) is that each college pays $70 per credit taken by students at the other college.

Funds Used to Support the Program

The BAS degree in Forest Resource Management program follow a self-supported model of funding for Green River College and state supported for Grays Harbor College. The programs are separate, and operate under a memorandum of understanding (see Appendix C).

GRC Program Projections

Projected full-time enrollments and revenue in the BAS-FRM degree program for the first five years are shown in Table 7. Any part-time enrollments would be in addition to these enrollment numbers.

Table 7: Green River College Projected Enrollments

	Year 1 2015-16	Year 2 2016-17	Year 3 2017-18	Year 4 2018-19	Year 5 2019-20
FTEs	12	28	36	36	36

Projected enrollment has been used to compute the projected program revenue as shown in Table . The tuition to be charged to students is set forth in the Washington State Community College FY2012-13 Tuition Schedule for Upper Division Courses in Applied Baccalaureate Degree Programs [iv]. It is assumed that students will attend three quarters per year.

Table 8: Green River College Projected Program Revenue: Assumes a 3% annual average tuition increase years 2-5.

	Year 1 2014-15	Year 2 2015-16	Year 3 2016-17	Year 4 2017-18	Year 5 2018-19
Applied Baccalaureate Operating Fees	75,496	181,442	240,281	247,488	254,913
Estimated revenue from GHC*	4,340	8,680	8,680	8,680	8,680
Estimated course fees GHC	400	800	800	800	800
Estimated course fees GRC	1,200	2,800	3,600	3,600	3,600
Total Green River College BAS-FRM Revenue	81,436	193,722	253,361	260,568	267,993

** From GHC Table 12.*

Projected Program Expenses

Green River College is committed to making this program succeed. Green River College anticipates program expenses for the first five years of the BAS degree in Forest Resource Management program as detailed in Table 9.

For fall quarter of year one (program start), one full-time faculty member will be the Forest Resource Management BAS Program Director, and will be assigned 2/3 to instruction and 1/3 to program administration duties. The program director duties may be shared between two instructors starting year 2.

Green River plans to spend approximately $20,000.00 each year in motor pool acquisition savings, and maintenance. This fund will serve as a savings account that is built with the intention that a new vehicle will need to be purchased about every six years and therefore this fund is to prevent future loans if possible. Additionally GRC will put 3% of tuition revenue into an internal Self-Insurance Fund that will accumulate until it reaches $20,000 at which point excess funds will go to student support. This fund is to be used to ensure continuance of quality education in the face of logistics problems that arise with the degree being offered at two institutions and unforeseen events that may happen out in the field, such as lodging costs for the field course in the face of natural disasters or dangerous weather conditions. The access to teaching forests where harvest is possible allows for the hands-on learning experiences that are critical to the education we plan to provide our 4-year students. Revenue from student led harvests will go back into the program to offset student costs or further forest acquisition for future forest harvest courses. This land will be owned and managed by the program and would, through sustainable forest management practices, including harvest, allow the Forest Resource Management Program to become self-sufficient. To handle the revenue as detailed here, Green River proposes to follow a self-support funding model.

For two years $3,000 is budgeted to cover the overhead contributions for Financial Aid and other services. After which, proportional overhead funds will come out of program revenue and will not exceed 15% of net revenue. These contributions will be added to the overall BAS overhead support funding at GRC (jointly funded by all BAS degrees to cover BAS student services).

Table 9: Green River College Projected Program Expenses: The projected expenditures assume a 3% average salary increase per year in years 2-5.

	Year 1 2014-15	Year 2 2015-16	Year 3 2016-17	Year 4 2017-18	Year 5 2018-19
Full-time Faculty Salaries (0.33 FTEF Year 1; 1 FTEF starting year 2)	19,602	62,772	64,655	66,595	68,593
Part-time Faculty Salaries (0.33 FTEF)	11,616	11,964	12,323	12,693	13,074
BAS Program Manager Salary (0.5 FTES)	-	36,050	37,132	38,246	39,393
Benefits	16,213	43,995	44,500	45,787	47,111
Curriculum Development Stipends	8,000	8,000	4,000	4,000	4,000
Internal Self-Insurance Fund (3% of tuition)	2,265	5,443	7,208	7,425	7,647
Stipends for travel and per diem including joint monthly collaboration meetings	7,000	7,350	7,700	8,000	8,500
Equipment and Tools	9,000	5,000	5,000	5,000	5,000
Accreditation Fee	2,500	0	0	0	0
NW Commission Expediting Fee	1,000	0	0	0	0
Software, computer, equipment and tool maintenance and upgrades	1,500	1,500	1,500	1,500	1,500
Motor pool Maintenance and replacement	20,000	20,000	20,000	20,000	20,000
Goods and Services	5,000	5,000	5,000	5,000	5,000
Library	5,000	2,500	2,500	2,500	2,500
Professional Development/Conferences/Travel	2,500	2,500	2,500	2,500	2,500
Program Promotion	7,000	7,000	10,000	10,000	10,000
Proportional Overhead Contribution*	3,000	3,000	0	0	0
Tutoring	5,150	5,305	5,464	5,628	5,797
Total Estimated Program Expenses	**126,346**	**227,379**	**229,482**	**234,874**	**240,615**

*Overhead contribution (addition to our support for library services and tutoring) for Financial Aid and other services will be proportional to student head count, never to exceed 15% of gross revenue.

Table 10: Estimated Net Program Excess (Deficiency) for Green River College

	Year 1 2014-15	Year 2 2015-16	Year 3 2016-17	Year 4 2017-18	Year 5 2018-19
Estimated Total Program Revenue	81,436	193,722	253,361	260,568	267,993
Estimated total program expenses	**126,346**	**227,379**	**229,482**	**234,874**	**240,615**
Estimated net program excess (deficiency)	(44,910)	(33,657)	**23,879**	**25,694**	**27,378**

*By the end of year five, $76,951 will be paid off of the $78,567 deficit with projected repayment of the remaining $1,616 complete during the first half of year six. This is a conservative estimate with repayment likely sooner.

GHC Program Projections

Project Related Finances for Grays Harbor College

The GHC degree will be based on a state funded model. The following calculations are based on a conservative estimate of new students entering the program a year (there is potential for more). GHC students could start every year in a two-year cohort, with curriculum alternating from year one to year two. After the start-up year, this would yield eight students attending per course, from two cohorts of four (or more).

Due to the small size of the cohort, and the strong likelihood there will be additional students, the budget is based on 100% retention.

Table 11: Projected Full-time Enrollments for Grays Harbor College. Any part-time enrollments would be in addition to these enrollment numbers.

	Year 1 2015-16	Year 2 2016-17	Year 3 2017-18	Year 4 2018-19	Year 5 2019-20
FTEs	4	8	8	8	8

Projected Program Revenue

The two colleges have developed a memo of understanding (Appendix C) whereby each institution can reimbursed their partner institution for students attending classes offered through the other institution. Each college's students will register and complete classes through their institution, while their student may receive classes from the other school. There will be a $70 a credit reimbursement for each credit each student takes, taught through the other institution. GHC students will receive instruction from GRC faculty for core classes, which include 10 credits first year GHC students, and 21 credits for second year students (average of 15.5 credits*).

The program-funding model goes as follows.

- GHC would offer 10 credits of the Forest Operations specialization each year (for a total of 20 credits in the specialization over two years).
- GHC students would take 31 credits of BAS-FRM core classes taught by Green River via remote over a two-year period. The breakdown of the core is 10 credits one year and 21 credits the next year.
- GHC students take an addition 45 required support and general education credits through GHC to complete their degree. The 96 credits of the BAS-FRM is made up of 31 Core credits, 20 Specialization credits, and 45 required support and general education credits.

GHC students would earn 70 of their BAS-FRM credits through courses taught by GHC faculty on campus. The additional 31 core credits would be taught by Green River faculty via remote means at GHC (Appendix C). GRC would offer the 31 core credits of the program core over a two-year period, and GHC would pay GRC $70 per credit per student for these core classes. For classes taught by GHC faculty to GRC students, GRC would pay GHC $70 a credit for those classes as well.

Table 12: Grays Harbor College Net Revenue from Program: Funds from GRC to GHC are not figured in this budget, since that is not planned during start-up.

	Year 1	Year 2	Year 3	Year 4	Year 5
Total tuition generated from GHC students	**25,196**	**50,392**	**50,392**	**50,392**	**50,392**
Total credits earned from GHC students	180	360	360	360	360
Credits earned through GHC	128	256	256	256	256
GHC credits generated in 15.5* credits of GRC classes each year.	62	104	104	104	104
Our payment to GRC for GHC students in their classes at $70 per credit.	4,340	8,680	8,680	8,680	8,680
Net GHC tuition revenue generated	**20,856**	**41,712**	**41,712**	**41,712**	**41,712**

Tuition here is based on 14-15 SBCTC. The tuition rate is 7,512 a year. Starting with a quarterly rate of $2,504 minus ($124 building fee plus $137 S&A fee) = $2,243 x 3 quarters $6,729 minus $202 (3% ctcLink) and minus 3.5% retained for underprivileged students ($228) resulting in a net tuition of **$6299** as a year net tuition rate. If there is 1 additional student per year, Net Tuition Revenue would increase by $5,424 a year. Break down: tuition less fees is $6,299, less what would be paid to Green River for instruction of core classes ($875), leaves a Net Tuition Revenue increase of $5,424. Total credits from GHC students multiplies number of students by 45 credits (e.g. year 1- 4 students x 45 credits = 180, year 2- 8 students x 45 credits = 360); GHC credits generated in 15.5 average credits of GRC classes each year (e.g. year two is 8 students x 15.5)

Projected Program Expenses

Fall quarter of year one (program start), one part-time faculty member will become the Forest Resource Management faculty and as well as a BAS Program Director. It is anticipated, that in the second year of the program, the part-time faculty position will be made a full-time tenured position. It is anticipated that the addition of a baccalaureate program(s) at GHC will have a substantial impact on the college's credit evaluator. GHC currently has two BAS (Forestry and Management) in development, and understands these will have an impact on the time and effort, yet may not warrant a new staff member. The student services office has agreed to cross train another evaluator in the area. Instruction and Student Services will revisit the credit evaluation challenge in the second year of the program. Green River College, having established BAS degrees, has collaboration across the degrees to fund additional help as needed which will come out of the proportional contribution budget line item.

Program administration has been designated as a direct cost to the GHC program. A portion of the indirect costs are diminished through the use of current resources. For example, capital costs are not affected since the program will use classroom space during off hours. HR costs are covered since the program will use current staff. Yet, there still remains minimal amount of indirect costs for additional administration, institutional personnel and security costs that need to be attributed to the program. Additionally, the BAS-FRM program does generate some increased overhead in the added costs for lighting, heating, and cleaning the classrooms in the evening for this program. Since the direct costs, as well as a portion of the indirect costs, have already been accounted for in the budget, the remaining indirect and overhead costs have been portioned out to two percent.

Table 13: Projected Program Expenses

	Year 1 2015-16	Year 2 2016-17	Year 3 2017-18	Year 4 2018-19	Year 5 2019-20
Faculty (Adjunct)	15,848	15,848	15,848	15,848	15,848
Director 0.1 & benefits	4,823	4,823	4,823	4,823	4,823
Library materials	2,000	400	400	400	400
Learning Center Support	1,000	1,000	1,000	1,000	1,000
Travel for collaboration	900	600	600	600	600
Goods and Services	900	600	600	600	600
Indirect Costs/Overhead (2%)	504	1,008	1,008	1,008	1,008
Total Cost	**25,975**	**24,279**	**24,279**	**24,279**	**24,279**

In its current configuration, the program will become fully self-supporting in its second year (after paying for additional instruction provided by GRC).

Table 14: Estimated Net Program Excess (Deficiency) for GHC

	Year 1 2015-16	Year 2 2016-17	Year 3 2017-18	Year 4 2018-19	Year 5 2019-20
Estimated Total Program Income	20,856	41,712	41,712	41,712	41,712
Estimated Total Program Expenses	25,975	24,279	24,279	24,279	24,279
Estimated Net Program Excess (deficiency)	**(5,119)**	**17,433**	**17,433**	**17,433**	**17,433**

Sustaining the Joint BAS-FRM Over Time

Green River College and Grays Harbor College are committed to providing funding for the new BAS degree in Forest Resource Management program until it becomes fully self-supporting, which is anticipated to occur during the third year for GRC, as shown in Table 10 and in year two for Grays Harbor College in Table 14.

Facilities, Equipment, and Technology

Green River College and Grays Harbor College both have the facilities, equipment and technology to accommodate a BAS in Forest Resource Management.

Green River College Facilities Equipment and Technology

Green River College has developed a Facilities Master Plan to improve its facilities and services to students and the surrounding communities. Over the past 10 years, Green River College has constructed three new buildings and completely renovated a fourth building on its main Auburn campus: the new buildings include Technology Center, the Marv Nelson Science Learning Center, and most recently, Salish Hall, while Cedar Hall has been renovated to meet teaching needs. In the renovated Cedar Hall, there are classrooms devoted to Natural Resource classes including a computer lab, a wet lab and a Natural Resources Library as well as a storage and shop building dedicated to the Natural Resources program.

Green River College maintains a high level of modern equipment and technology to deliver its existing associates level Natural Resource programs and the proposed BAS in Forest Resource Management. For example, the College recently purchased state-of-the art, industry standard data loggers and data entry software as well as GPS units. Additionally the Natural Resources Department owns and maintains a 20 passenger bus, forest management tools and is located on over 200+ acres of DNR forest which creates an

accessible, hands-on learning environment. Green River has a long standing working relationship with DNR, and a mutually agreeable memo of understanding. During the spring of 2015 an outdoor classroom is being completed by the Natural Resource Department to further facilitate outdoor and applied learning.

Green River College has four land management areas in which students apply training in a real-world forest environment for applied learning, critical thinking and hands-on management. Currently all courses for the 2-year degree and every course taught for the proposed 4-year degree will utilize these forests. The forests include the 280 acre main campus forest (DNR and GRC owned forest parcels adjacent to the Natural Resources classrooms), the Pat Cummings forest a 90 acre Natural Resources owned forest east of Enumclaw, three acres of wetlands northwest of Enumclaw and 40 acres managed by agreement (MOU) in Eastern Washington dry forest.

Green River College and the Washington DNR have had a long term working relationship and collaboration for more than 10 years. The GRC Natural Resources Program is charged with the land and forest management for the DNR. This includes: trail maintenance, hazard tree identification and removal, signage, brush abatement, replanting and education of the public. Nestled within this DNR land are 90 acres owned by GRC. On this land Natural Resources Department students have created and maintain a Christmas tree farm for harvest, wildlife plots, and Oregon white oak research plots in addition to the land management activities of the surrounding areas.

The Natural Resources Program also own 90 acres at the Pat Cummings Forest where students participate in active forest harvest, brush abatement, replanting, thinning, pole harvest, multi-age regeneration, brush pile burning, timber harvest layout, riparian management zone marking among other applied tasks. An additional 2 acres of wetlands are owned by the Program allowing for intensive invasive species removal, brush abatement, waterway restoration and riparian management activities.

Finally Natural Resource students at GRC have access to 40 acres of eastside dry forest which students currently use and will utilize a part of the proposed 4-year degree, to learn and apply fire abatement methods, dry forest insect and pest management, road layout, design and road maintenance where flash flooding can create situations rarely seen in western Washington.

The proximity of the forests to the classrooms (including adjacent to) and having the responsibility of land management falling on the Natural Resources Department results in GRC Natural Resources students developing hands on management skills throughout their entire time at GRC. The utilization of the forests occurs and will occur in the proposed 4-year degree in the following ways: application of skills and tools taught in class, illustrating classroom theories in real time in the forest, additional practice and study time making plots, collecting data, measuring trees utilizing multiple methodologies, calculating basal area, data gathering on the 10 year *Phellinus* root rot research plots (collaboration with DNR), replicated tree growth plots for multiple species, wildlife plots, biomass plots, practicing road layouts, tree plantings, pacing, navigation and aerial photo interpretation, trail maintenance, unstable slope identification for Washington Forest Practices, marking wetland and riparian management boundaries according to Washington Forest Practice guidelines, GPS practice, forest underbrush thinning, tree pruning, plant identification, and creating of student plans for forest management, utilization of statistics to determine plot numbers for adequate sampling.

Green River College plans to use its existing facilities, equipment, and technology for the BAS degree in Forest Resource Management program. The college will also purchase new equipment, such as a second passenger bus, to support the program's upper-division field and lab classes. It will also purchase additional tablet data loggers and GPS units. Costs for these equipment purchases have been included in the projected program expenses in the "Equipment" line of Table 9. Other anticipated resources that have also been included in the projected program expenses include library subscriptions to journals and software licenses and upgrades.

Grays Harbor Facilities Equipment and Technology

GHC will be completing the new Schermer Science Building in May of 2015, and this will be the home of the GHC BAS-FRM program. In additional to the new sciences building, GHC has a satellite campus at the Satsop Industrial Park operated by the Port of Grays Harbor. Satsop has a large (1,200 acre) forested area managed by GHC's natural resources faculty, which is also designated as an instructional site. BAS-FRM students will have already gained a great deal of experience and related instruction within the 1,200 acres Satsop facility through their associates level natural resources program. The BAS-FRM students will take this level of practical experience and training to the next level through continued instruction at the Satsop facility. The Schermer Science Building will be full of new science equipment and instructional resources. The building will also contain state of the art ITV system to help facilitate the shared core of the BAS-FRM.

Criterion 6: Program Specific Accreditation

Green River College is currently accredited as a four year institution and will go through the additional application process for the new degree as required by the Northwest Commission. Grays Harbor is in the process of becoming accredited as a four year institution through the Northwest Commission.

Green River has accreditation from the Society of American Foresters (SAF) for the 2 year AAS Degree. Both Grays Harbor College and Green River College plan to seek specialized program accreditation for the Bachelor of Applied Science (BAS) degree in Forest Resource Management program during the first year of operation with the industry accreditation organization, Society of American Foresters.

While the AAS degree at Green River is accredited by SAF, only 47 bachelors level programs in the United States are accredited by SAF. All of these programs are traditional Bachelor of Science degree programs—none are Bachelor of Applied Science degree programs. In addition, all but one of the 47 programs are housed at large universities, with the exception of Paul Smith College of Arts and Sciences in New York that also offers and Associate's degree. Currently there is no SAF accreditation of a BAS program.

Criterion 7: Pathway Options Beyond the Baccalaureate Degree

Green River College and Grays Harbor College are committed to identifying and developing pathway options for students that extend beyond earning their Bachelor of Applied Science degree in Forest Resource Management.

The Bachelor of Applied Science in in Forest Resource Management is designed to give students options beyond a bachelors degree, but it is not the intention of either GHC or GRC to market it to students as a pathway to a masters degree. The program will be marketed as an applied science degree which prepares students for a variety of jobs in the field of natural resources.

Articulation to Graduate Degree Programs

Green River College and Grays Harbor College faculty members are working with institutions that confer graduate degrees to articulate clear and efficient pathways for BAS graduates, with either specialization, who wish to continue their education onto a masters degree program. We have been in conversation with Gail Wooten, Assistant Director of the Masters of Environmental Studies at The Evergreen State College. The Evergreen College would accept our BAS in Forest Resource Management directly for admission into their Masters of Environmental Studies. Rose Kawczynski, Admin Services Manager at Western Washington University, Huxley College of the Environment, Masters in Environmental Science, Marine and Estuarine Science is on board with collaboration for BAS-FRM students to articulate into their graduate program. Additionally we have started conversations regarding collaboration with Robert Goodrich at University of Idaho, Dr. Jerry Franklin at University of Washington and proposed collaboration with Washington State University for pathways into their masters programs. The BAS program has been in contact with five graduate schools, overall with very positive results. The BAS-FRM students have a number of solid graduate school options available to them. This has been confirmed with the proposed Program Directors at GRC and GHC. Both schools have plans to build upon current articulation agreements with these schools when the BAS is approved.

Criterion 8: External Expert Evaluation of Programs

Our reviewers support the collaboration between GRC and GHC in what one calls a "much needed educational undertaking." Our reviewers with expertise in both industry and education have assessed our curriculum. Reviewer one commented on the lack of the upper level course curriculum in containing critical elements of applied forestry such as forest engineering, measurements, economics. However upon further clarification, the reviewer did not review the 2-year curriculum submitted. All of these concepts are taught at the two year level and students coming into the four year program will have successfully completed a Road and Trail course, a Forest Measurements course and multiple courses in forest operations. Additionally, our two year program course in Introduction to Natural Resources covers the history of forestry in great detail leading from initial forest management by Native Americans through the industrial revolution and into ecological forest harvesting methods and the newest science articles. Aspects of this will be incorporated into GIS, land use change and native approaches to natural resource management as well as the forestry operations courses offered by Grays Harbor College. We agree that there is benefit in students having an understanding of engineering to build on the skills already taught in our two year coursework for their junior and senior levels and therefore have added an operations option engineering course to our recommended general education course by listing a course in AutoCAD as an option.

Additional comments made by a reviewer requested that fewer general education credits be offered and instead more natural resource focused classes be offered. However due to State of Washington regulations of Bachelors of Applied Science degrees we are meeting the minimum of general education credits necessary to produce a well-rounded student. The proposed degree meets minimum State requirements while meeting the degree credit requirements allotted. However the critique that the relationship between NATRS 300, 385 and 386 was unclear prompted the expansion of the proposed course descriptions to outline in more detail the course objectives for each course. While these courses will be complimentary, the focus of each will be different allowing students to go into detail on hands-on management in each of these arenas allowing them to be job ready on their first day in the natural resource field.

The final concern regarding the lack of mention of field studies and summer internships was a critical foci of feedback that we addressed by adding this language into all the core classes and expanding on the details of field studies that will be jointly pursued by GRC and GHC.

Reviewer 2, Kevon Francis Ph.D., provided insightful feedback on the BAS-FRM. In reviewing the proposal, Dr. Francis consulted with Dylan Fischer Ph.D. and Richard Bigley Ph.D., who both have a forest ecology and management background.

Dr. Francis mentioned a number of strengths on the program and agreed with the local need of this type of program. Dr. Francis stated that the BAS-FRM was an "exciting and timely proposal." He went on to say "this program would meet an important educational pathway for students interested in forestry careers that currently—and surprisingly—does not exist in western Washington." Dr. Francis also identified two areas of suggested improvement to the curriculum, as well as outlined a few additional considerations.

The curriculum suggestions included adding statistics as a requirement in the GHC program (it was an option). He also suggested each program flesh out the elements of practical experience the BAS-FRM students would gain.

Statistics is now a requirement in the GHC program with the applications component moved into BASF 401 Advanced Harvest Systems. One of the strongest elements of the BAS-FRM program is the practical experiences its graduates will enter the workforce with. In addition to classroom time, there are a number of the classes with lab components utilizing the Satsop instructional facility. Text has been added to the proposal to elaborate on the level of practical experience BAS-FRM student will participant in.

Two additional concerns outlined by Dr. Francis related to faculty sustainability and the stability of the relationships with landholders. It is this intention of GHC to hire adjunct faculty to provide instruction for the program; and to utilize current faculty overload as an additional (yet not primary) resource. Finally, continued access to forests used by each program uses are based on long-term relationships with property holders (Green River with the DNR and the Grays Harbor Post – DBA Satsop). Clarification of the land use arrangements and how they will be used for instruction were added to this document based on this feedback. Both colleges have signed memos of understanding outlining with their local landholders.

Both reviewers provided helpful feedback, which has been utilized to fine tune the Joint BAS-FRM program.

Appendix A: 3rd and 4th Year Proposed Course Descriptions

GRC General Education Credits

CMST& 220 Public Speaking
A course in public speaking that helps students develop confidence and competence in addressing diverse audiences in community and professional settings. Students compose and deliver speeches, as well as evaluate others' presentations. Emphasizes choice and organization of material, sound reasoning, audience analysis, and delivery. Prerequisite: Eligible for ENGL 100 or instructor's permission.

CMST& 230 Small Group Communication
Includes analysis of leadership and discussion in small group contexts with a goal of developing communication behaviors that promote a more effective, efficient, and satisfying interaction in groups and leadership contexts. Addresses the functional problems of leadership, organization in groups, developing involvement strategies within groups, problem solving, consensus building, and conflict management. Prerequisite: Eligible for ENGL 100 or instructor's permission.

ENGL 128 Research Writing: Science/Engineering/Business
A composition course with readings designed to teach research-based writing in the sciences, engineering and business. Continues to develop the basic reading and writing skills taught in ENGL& 101, but emphasizes the development of academic research and writing skills. Students engage in critical thinking which includes the analysis, interpretation, evaluation, documentation, and synthesis of multiple sources and evidence. Prerequisite: A grade of 2.0 or higher in ENGL& 101.

ENGL 335 Advanced Technical Writing
Prepares students to communicate effectively in a professional environment. Students become familiar with the processes, forms, and styles of technical writing as they create various documents, including instructions, proposals, and discipline-specific and/or client-based research projects. Emphasizes the purpose and audience, as well as clarity, concision, and document design. Prerequisite: Admission into a bachelors degree program, ENGL 101 and instructor's permission.

GEOL 208 Geology of the Pacific Northwest
Covers the geological history of Washington, Oregon, and Idaho. Emphasizes the use of geologic principles in interpreting evidence found in landscapes and rocks. Includes field trips. Prerequisite: GEOL& 101 or equivalent and eligible for ENGL& 101. Satisfies a lab or natural science requirement for AA degree.

GEOL& 101 Introductions to Physical Geology
Survey of the physical systems that give the Earth its form. Emphasizes the dynamic nature of interior and exterior processes and their relevance to humans. Laboratory class with field trips. Prerequisite: Eligible for ENGL& 101. Satisfies a lab or natural science requirement for AA degree.

PHIL 115 Critical Thinking
Introduces students to informal non-symbolic logic and critical thinking. Sample topics include language analysis, inductive reasoning, statistical analysis, causal reasoning, arguments from analogy and fallacious patterns of reasoning. Students examine arguments in real-life situations, such as in conversations, television presentations, political speeches, editorials, and other writings on various topics. Prerequisite: Eligible for ENGL 100 or instructor's permission. Satisfies a humanities/fine arts/English requirement for AA degree.

BUS 202 Introductions to Project Management
Examines how to manage projects by planning, prioritizing, scheduling, budgeting, and monitoring the project. Emphasizes common tolls and methods used by project managers to complete projects on time and on budget.

BIO 110 Northwest Ecology
Presents the diversity, characteristics, and interactions of terrestrial, freshwater, and marine organisms, especially as they relate to community and ecosystem sustainability of the Pacific Northwest. Satisfies a lab or natural science requirement for AA degree.

PHIL 243 Environmental Ethics
Introduces students to the moral relations between human beings and their natural environment. Topics include animal rights, population and consumption, pollution, climate change, economics and the environment, and sustainability. Prerequisite: Eligible for ENGL 100 or instructor's permission. Satisfies a humanities/fine arts/English requirement for AA degree.

MATH 356 Statistics for Field and Lab Sciences
This course walks through the study of descriptive and inferential statistics; boxplots, histograms and scatterplots; introduction to design of experiments; measures of central tendency; frequency distributions; probability distributions; sampling and sampling distributions; hypothesis testing; t-tests, Chi Squared Analysis, tests for equal variance, non-parametric tests and testing more than two populations. Prerequisite: Either NATRS 180 or MATH& 106 and MATH& 141 or instructor's permission.

ANTH 302 Native American Approaches to the Environment
This course will examine the historical and current relationships of Native American cultures to natural resources and the environment, including the economic, social and spiritual relationships, Traditional Ecological Knowledge (TEK) and resource issues on tribal lands.

GHC General Education Credits

BIOL& 211 Biological Science I: Molecular and Cell Biology
The first course in a three-quarter sequence for students intending to take advanced courses in the biological sciences or to enroll in pre-professional health programs. The course covers the structures and functions of biomolecules and cells, cell division, molecular genetics and gene expression, biotechnology, and the genetics of development. 4 lecture hours; 3 lab hours. Satisfies science or lab requirement area "A" distribution or specified elective for the AA degree.

BIOL& 212 Biological Science II –Evolution and Animal Anatomy and Physiology
The second course in a three-quarter sequence for students intending to take advanced courses in the biological sciences or to enroll in pre-professional health programs. The course covers the principles of biological evolution, and highlights the resulting biodiversity of bacteria, archeabacteria, protists and animals. Emphasis is placed on the biological diversity of animals, general principles of animal anatomy and physiology, growth and development, system relationships, with an underlying theme of evolution. 4 lecture hours; 3 lab hours. Satisfies science or lab requirement area "A" distribution or specified elective for the AA degree. Offered winter quarter.

CHEM& 121 Introduction to Chemistry with Lab
A survey of general chemical principles, including elements and compounds, atomic structure and periodic properties, chemical reactions, energy, equilibrium and kinetics, solutions, acids and bases, and nuclear chemistry. This course is intended for allied health and natural resources majors, as well as those students pursuing an AA degree. It also serves as the prerequisite for CHEM& 161 for students who have not completed one year of high school chemistry. Prerequisites: A grade of "C-" or better in MATH 095 or placement in MATH 098.

CHEM& 161 General Chemistry with Lab I
For science, engineering and other majors who plan to take a year or more of chemistry courses. Principles of general chemistry including atomic structure and periodic properties, stoichiometry, chemical reactions, thermochemistry, and electronic structure. Laboratory work emphasizes the quantitative nature of these principles. Prerequisites: One year of high school chemistry or CHEM& 121 and concurrent enrollment in MATH& 141 or placement in MATH& 142.

EARTH 102 Earth Science
This course provides an introduction to the Earth and the processes that shape our planet. A major theme of the course is how different aspects of the Earth system interact with each other. Selected topics in four basic areas: astronomy, oceanography, meteorology, and geology, and their relation and interaction with the Earth system will be explored. Recommended Preparation: ENGL 095 or placement in ENGL& 101. Prerequisite: MATH 095, place 98.

ECON 100 Introduction to Economics
This course is designed to introduce economics and the economic approach to the problems created by scarcity. Specifically, the course will be "economics for non-majors: fundamental concepts of economic analysis with application to contemporary problems." The student should learn what a market system is and how it has come to be the predominate economic system. Prerequisites: MATH 060; READ 080 or instructor's permission.

ENGL& 101 English Composition I
ENGL& 101 emphasizes the basic rhetorical principles and development of expository and argumentative prose. This course includes instruction in the research methods necessary for evidence-backed writing and emphasizes the preparation of researched essays. Skills gained in this course should help students improve their performance of such tasks as writing for a variety of purposes and audiences, as well as writing informative and persuasive essays and research-backed reports, projects and papers. Prerequisite: Appropriate English placement test score or a grade of "C-" or better in ENGL 095.

ENGL& 235 Technical Writing
This course emphasizes techniques of technical writing and the preparation of informal and formal technical reports commonly found in vocational, technical, and business environments. Recommended Preparation: Competency in basic computer operation or concurrent enrollment in CIS 100. Prerequisite: A grade of "C-" or better in ENGL& 101.

ENGR& 104 Introduction to Engineering
Course Description: ENGR& 104 is an introduction to the engineering profession and design process. Topics include: disciplines and opportunities in engineering, engineering fundamentals (e.g. basic dimensional analysis), creativity in problem solving, building group skills, investigation of professionalism, ethical issues, and the historical impact of engineering on human societies. Course activities include writing assignments, individual and team design projects, oral presentations, and a portfolio project. This course qualifies as one five-credit Social Science distribution requirement. 5 lecture hours.

GEOL& 101 Introduction to Physical Geology.
A study of the Earth, its materials, the development of landforms and the geologic processes involved. Common rocks, minerals, and geologic maps are studied in the laboratory. In the fall, a field trip to Mt. St. Helens to study volcanic processes is planned. Recommended Preparation: ENGL 095 or placement in ENGL& 101. Prerequisite: MATH 095 or placement in MATH 098.

MATH& 107 Math in Society
This course covers a variety of topics including the use of percents in relative change and difference, index numbers and the CPI, financial models and money management, statistical reasoning, measures of central tendency and variation, the normal distribution and exponential growth and decay. The material is presented at a level accessible to students who have successfully completed a course in intermediate algebra or the equivalent. It is taught at approximately the same level as college algebra and finite mathematics, but the material is intended to be more practical for the liberal arts student. Prerequisite: MATH 098 or appropriate placement score.

MATH& 141 Precalculus I
MATH& 141 is the first course in the standard precalculus sequence. This course and MATH& 142 are designed for students intending to take calculus and/ or physical science courses. Content includes: the definition of a function; linear functions; graphs of functions; inverse functions; quadratic functions; exponential functions; logarithmic functions; and triangle trigonometry. Applications are drawn from the natural and social sciences, and engineering. Prerequisite: A grade of "C+" or better in MATH 098 or appropriate placement score.

MATH& 146 Introduction to Statistics
MATH& 146 is a standard introductory course in basic statistics. Content includes: the graphical display of data; the numerical summary of data; the normal distributions of data; the basics of surveys and experiments; basic probability theory; the central limit theorem; sampling distributions; confidence intervals; hypothesis tests; the t-distribution; correlation; and linear regression. Applications are drawn from business, social and natural sciences, and current events. Prerequisite: A grade of "C" or better in MATH 098 or appropriate placement score.

SOC& 101 Introduction to Sociology
An introduction to the principles, concepts, theories and methods of the sociological perspective. Emphasis is placed upon relating sociological ideas to national, community, and individual levels. Recommended Preparation: ENGL 095 or placement in ENGL& 101.

SPCH 101 Fundamentals of Speech
Principles of effective oral communication including delivery, organization, content, and stress management. A functional approach to effective speaking with practical application in informative, impromptu, and persuasive speeches.

BASM 309 Project Management – Time, Goals and Budget Management
Students will develop the basic tools, knowledge and skills necessary for successful project management. All phases of the project management process, including: initiating, planning, executing, controlling and closing will be assessed. Areas of leadership, communication and budgeting in relation to project management will also be critiqued. Prerequisite(s): ENG& 101: Expository and Argumentative Writing, Math& 107 or higher

ENG 304 Advanced Business Writing
Technical writing necessitates that students develop foundational knowledge in the area of quantitative research writing: procedures, vocabulary, and concepts. The concepts and procedures serve as important tools utilized for problem solving, and the vocabulary of research is essential for effective communication and critical evaluation of research findings. Prerequisite(s): ENG& 101: Expository and Argumentative Writing

Joint BAS Forest Resource Management Core Courses GRC and GHC

NATRS 385 Forest Protection and Disease Management
As a core class Forest Resource Management this course. Teaches students about the various biotic and abiotic disturbance agents that affect forest ecosystems through classroom and field studies. Students will recognize and identify important forest insects and diseases of North America, especially the Pacific Northwest, as well as differentiate their effects on forest ecology. Students will learn to appraise predisposing factors that increase susceptibility of forests as well as propose effective management strategies to reduce impacts. This course will taught along with Grays Harbor College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisite: ENGL 128 instructor's permission.

NATRS 390 Environmental Decision Making and Conflict Resolution
This course introduces students to conflict theory as applied in complex natural resource disputes including forest harvest in the Pacific Northwest. Through this course, students will demonstrate skill development in planning culturally appropriate and inclusive public participation processes, meeting facilitation, and conflict mediation including comparison of options for nonviolent conflict management. This course will be taught along with Grays Harbor College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisite: English 128 and instructor's permission.

NATRS 399 Natural Resources Seminar
This course showcases timely speeches by professionals in natural resource management. Students will be guided through a review of current topics in forestry, fire, watershed, or soils. Presentations by guest speakers, professionals in the field, will complement students' development of writing and oral presentation skills. This course will taught along with Grays Harbor College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisites: Eng 101 and instructor's permission.

NATRS 400 Forest Practices Law and Policy
This course is a core Forest Resource Management Course. Students will examine and analyze natural resource policy including environmental impact statements, environmental assessments, and habitat conservation plans. Students will appraise and critique administrative behavior, as well as legislative, regulatory, legal, ethical, and personnel considerations as applied to forestry operations in Washington State and nationally. Students will discuss and demonstrate applications of Washington Forest Practices. This course will taught along with Grays Harbor

College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisite: English 128 and NATRS 390 and instructor's permission.

NATRS 471 Restoration
Course examines forest restoration at multiple spatial scales from stand to watershed to landscape levels. Students will demonstrate outdoor skills and conduct restoration assessments. Goals for biological conservation, invasive species management, carbon sequestration, and economic viability will be compared through field trips and applied experience with restoration techniques and case studies. Prerequisites: English 128 and instructor's permission.

NATRS 493 Advanced Silviculture
Students learn, through classroom and field studies, woody plant interactions with environmental stresses including changes to stand structure caused by humans, nature or time and selection using genetic principles for improved growth. Additionally students will participate in hands-on seedling production methods while applying the theory and practice of controlling forest establishment, composition, and growth. Students will assess fundamentals of forest stand development and dynamics and will use critical thinking to propose forest stewardship techniques to satisfy a range of possible objectives (biological, economic, and social). This course will taught along with Grays Harbor College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisites: English 128 and statistics course or concurrent enrollment in statistics course and instructor permission.

NATRS 494 Capstone in Natural Resources
This course will be offered as a variable credit course between 1 and 5 credits based off of student projects and can be taken more than once to complete 5 total capstone credits. Students will participate within the community in a hands-on application where they will synthesize knowledge and skills to create or construct a desired project outcome for a forestry-related project. Projects will be produced either by a team or by an individual, culminating in a public presentation and report. This course will taught along with Grays Harbor College students in the Operations track and will utilize teaching methods such as: on-line coursework, remote classroom techniques, and joint field trips. Prerequisite: must be in final term prior to graduation and instructor's permission.

Green River College Specialty Track: Sampling and Assessment Courses

NATRS 300: Forest Ecology
This course is a specialized core course for the Sampling and Assessment track. This course prepares students to observe measure and interpret ecological principles applied to forest management including production ecology, biogeochemistry, disturbances, environmental factors, populations, community ecology, forest succession, and forest classification/description. Course will be taught through classroom and field studies. Students will complete assignments utilizing hands-on, applied methodologies. Prerequisite: ENGL 128 and instructor's permission.

NATRS 386 Bio-Invasions: Invasive Species Management
This course walks students through application of invasive species and noxious weeds identification and classification in Washington State as well as sources of invasive species, methods of control and site visits where biological, mechanical and chemical control has been used. Students will analyze and evaluate, through classroom and field studies, the ecology behind biological invasions and assess and control invasive species in the field. Students conduct mechanical control methods in various locations targeting various invasive species. Prerequisite: ENG 128 and instructor's permission.

NATRS 417.1 Resource Management GIS Applications 1
This course is the supplementary GIS lab that accompanies NATRS 493 Advanced Silviculture (Green River College and Grays Harbor College). Students will apply GIS principals to generate projects for NATRS 493. Students will build on their current GIS skills and employ trouble shooting and problem solving with the ultimate outcome of successful spatial mapping and analysis to complete NATRS 493 assignments. Prerequisites: GIS 192. Co-required: NATRS 493.

NATRS 417.2 Resource Management GIS Applications 2
This course is the supplementary GIS lab that accompanies NATRS 361 Wildlife Ecology (GRC only). Students will apply GIS principals to complete projects for NATRS 361. Students will build on their current GIS skills and utilize trouble shooting and problem solving with the ultimate outcome of generating successful spatial mapping and analysis to complete NATRS 361 assignments. Prerequisites: GIS 192. Co-required: NATRS 361.

NATRS 417.3 Resource Management GIS Applications 3
This course is the supplementary GIS lab that accompanies NATRS 386 BioInvasions (GRC only). Students will apply GIS principals to complete projects for NATRS 386. Students will build on their current GIS skills and utilize trouble shooting and problem solving with the ultimate outcome of generating successful spatial mapping and analysis to complete NATRS 386 assignments. Prerequisites: GIS 192. Co-required: NATRS 386.

NATRS 461 Wildlife Ecology
Students in this course will examine, identify and determine important wildlife habitats and their characteristic plants and animals within an ecological and management context through outdoor application of concepts. Identification of species and habitats as well as life histories, and ecology of important species will be discussed. Scientific principles and management implications will be examined and critiqued. Students will organize and carry out a scientific sampling and assessment in the field.

Grays Harbor College Specialty Track: Operations Courses

BASF 301 Resource Economics
This course emphasizes the practical understanding of distribution of limited resources be it financial or physical. Financial topics in this class include forest resource valuation and financial analysis concepts, inflation, risk and uncertainty, taxes related to both property ownership, and business and financial decision making. The student will become familiar with parts of a contract including boilerplate clauses and specialized terms related to logging, road building and timber sales. Timber sale and unit appraisal are additional topics covered. Labs will focus on computational problems and associated computer software used in the forest management industry. Prerequisites: ENGL& 235; MATH&107 or higher; or instructor permission

BASF 401 Advanced Harvest Systems: Cable and Aerial based
This class will focus on more in-depth understanding of various harvest systems for the applied forester or land manger. Topics will include: skyline operations, safety rules, rigging requirements, payload analysis, harvest unit planning and layout. Specialized areas will include helicopter logging, Riparian Management Zone (RMZ) rules, Wetland Management Zones (WMZ) rules, Channel Migration Zone (CMZ) rules and unstable slopes. Labs will consist of timber sale preparation techniques, field statistics applications, software utilization for harvest system analysis and onsite visits to active timber sales Prerequisites: ENGL& 235; MATH&107 or higher; NR 280 (or equivalent) or instructor permission.

BASF 402 Advanced Harvest Systems: Ground based
This class will focus on more in-depth understanding of various harvest systems for the applied forester or land manger. Topics will include: mechanical operations for ground based systems, rigging requirements, payload analysis, harvest unit planning and layout. Specialized areas will include helicopter logging, Riparian Management Zone (RMZ) rules, Wetland Management Zones (WMZ) rules, Channel Migration Zone (CMZ) rules and unstable slopes. Labs will consist of timber sale preparation techniques, software utilization for harvest system analysis and onsite visits to active timber sales Prerequisites: ENGL& 235; MATH&107 or higher; NR 280 (or equivalent) or instructor permission

BASF 403 Transportation System Design
This is an intermediate level class for foresters and resource managers in issues and responsibilities relating to transportation systems. Students will study road types, standards and design procedures. These include understanding of basic soil engineering, route surveying, reconnaissance and office design programs. Specialized topics will include drainage structures design and installation, erosion control techniques and methods, and material stockpiles. Administrative activities covered in the class include road costing, rules, regulations, permits and road maintenance plans. Field labs will involve practical applications of the topics covered along with the understanding and practice of associated permitting processes. This class is not intended to replace the need for engineered design or structures when appropriate. Prerequisites: ENGL& 235; MATH&107 or higher; or instructor permission

Recommended Courses

To enhance the students' preparation for future employment the following additional courses are recommended to students at both GRC and GHC.

- Introduction to AutoCAD (DT 110)
- Introduction to Engineering Problems (ENGR 106)
- Standard First Aid/CPR (Hi Ed 190)
- Wildland FireTraining (NATRS 130/190)
- Cartography Based GIS (GIS 260)

Appendix B: The Pack Test[iii]

"The Pack Test" Work Capacity Testing for Wildland Firefighters: Ensuring Wildland Firefighter Safety

What is the Pack Test?

The Pack Test refers to work capacity tests used to qualify individuals for the three levels of wildland firefighting duty:

- Arduous
- Moderate
- Light

The Pack Test measures:

- Aerobic capacity
- Muscular strength
- Muscular endurance

All wildland firefighters must meet minimum levels of fitness requirements for the type of duties they are assigned:

Arduous: involves field work calling for above-average endurance and superior conditioning. All firefighters are required to perform arduous duty.

Moderate: involves field work requiring complete control of physical faculties and may include considerable walking, standing and lifting 25-50 lbs. Safety officers and fire behavior analysts are examples of moderate duty positions.

Light: involves mainly office-type work with occasional field activity. Examples include: staging area and helibase managers.

Testing wildland firefighters for work capacity is important for several reasons:

- Personal safety and health
- Coworker safety
- Improved operations

About Arduous Work

Wildland firefighting demands a high level of fitness to safely perform physically demanding work in difficult environments.

Firefighters, strike team leaders, line scouts, and others assigned arduous duty must be prepared to work in steep terrain; and in extreme temperatures, altitude, and smoke-while maintaining reserve work capacity to meet unforeseen emergencies.

Prior to reporting for work, applicants are strongly encouraged to train for arduous-level work capacity.

"Pack Test" Training

Training for the Pack-Field-Walk test is important. Start training at least 4-6 weeks before you are scheduled to take the test. To be in shape for work duty, you may want to train in the footwear or boots you will wear on the job. Footwear should be ankle high and protect the ankles.

Begin training before you report for work. Start by walking. Train for the test level you will need to pass for the duties you will be required to perform.

Start training for arduous and moderate duty without a pack. Gradually increase distance and begin carrying appropriate weight. Increase the weight until you can meet the requirement for arduous or moderate duty.

The chart below provides test criteria for arduous, moderate, and light duty performance:

Fitness Requirement	Test	Description
Arduous	Pack Test	3-mile hike with 45-pound pack in 45 min.
Moderate	Field Test	2-mile hike with 25-pound pack in 30 min.
Light	Walk Test	1-mile hike in 16 min.

More on Training

Before you begin to train for testing or substantially increase your level of activity, consult your physician. This is especially important if you are over 40 and have been inactive; have a history of a heart condition, chest pain, loss of balance; or have a joint or bone problem that could be made worse by a change in physical activity.

Once you are cleared to begin training, here's what you'll need:

- Adequate footwear that will cover and protect feet and ankles while testing.
- Comfortable clothing.
- A pack. The type of pack is personal choice, but it must weigh either 45 or 25 lbs, depending on whether you are testing for arduous or moderate duty.
- An accurately measured, safe, and level course.

Taking the Test

- Testing will be monitored and any problems should be brought to the attention of the test monitors.
- No jogging or running is permitted.
- The test is Pass/Fail only.
- Choose your own pack or a standard firefighter backpack pump will be provided.
- Packs will be weighed before and after testing.

For More Information:

Personal health, physical fitness, and work capacity all work towards making conditions safer for firefighters and the people they protect. Ask your local fire management office for more information.

March 2002

Appendix C: Memorandum of Understanding including General Education Crosswalks

MEMORANDUM OF UNDERSTANDING
between

Green River College

And

Grays Harbor College

Terms of Agreement and Operating Guidelines for the Bachelor of Applied Science in Forest Resource Management

THIS AGREEMENT **is made and entered into by and between Green River College, hereinafter referred to as "GRC" and the Grays Harbor College, hereinafter referred to as "GHC".**

This agreement establishes a partnership between GRC and GHC to provide a joint Bachelor of Applied Science in Forest Resource Management (BAS-FRM). It addresses building operations, appropriate use of space, faculty sharing, travel costs, space sharing, and student services to deliver the BAS-FRM degree on each of the campuses of the partner colleges.

SECTION I: MUTUAL BENEFITS

The underlying principles of this agreement emphasize the mutual benefits to be realized for students and staff of the two colleges. Among these shared benefits are the following:

- To expand and coordinate the delivery of undergraduate level programs and degrees to students in the GHC and GRC service districts.
- Interaction among GHC and GRC faculty regarding curriculum development, research opportunities, educational program design, interaction with industry trends, joint field experiences, expansion of educational facilities and other matters of mutual interest.
- Enhanced student recruitment, focusing on educational opportunities offered through the collaboration.
- Increased fulltime enrollment at both colleges.
- Complimentary course work to expand student opportunities such as joint labs and a crosswalk for general education credits.
- Support (library and computing services) for BAS-FRM offerings; improved utilization of each partner college's facilities and services.

SECTION II: DEFINITIONS

A. FTE: The term "FTE" refers to a full-time equivalent, which is calculated based on total student enrollment. One FTE in the context of baccalaureate programs arising out of this agreement represents enrollment in the minimum number of 15 credits required to be a full-time student.

B. Student: For purposes of this agreement, a student is an individual who is enrolled at either GRC or GHC in the BAS-FRM program associated with this agreement. An individual is considered a student of the college where they enroll. If an individual is enrolled at both GRC and GHC, that person shall be considered a student of both colleges yet will retain a "home college."

C. Home college: For the purpose of this agreement, home college refers to the college where a student is registered and will receive their degree from--or the college where the faculty are permanently employed.

D. Visiting faculty: For the purpose of this agreement, faculty teaching at a college other than their "home college" are to be considered visiting faculty. Visiting faculty are paid by their home college.

SECTION III: ACADEMICS

A. Each college is offering their own degree. Individual tracks are offered by both colleges.

B. Sampling and Assessment will be housed and taught at GRC and Operations will be housed and taught at GHC.

C. Students seeking a specific track will need to attend courses for that track at the location of the college offering that track.

D. If one track cannot be offered at the aforementioned college, the other college may offer that track.

E. Each college is responsible for meeting home college enrollment expectations to ensure that courses are enrolled at allowable minimum percentage of home college caps.

F. Specialized courses have an allowable lower enrollment cap. These specialized course caps will be determined by the home college.

G. All the transfer details are outlined in an appendix to this agreement and are subject to change at review or renewal of this MOU.

H. Teaching modalities to utilize include:

1. Intensive courses that meet credit requirements (can include multi-week and/or summer courses), may require additional fees.

2. Audio/visual lecture capture such as recordings of lectures that can be disseminated through internet based learning platforms.

3. Lecture/lab combination courses can be divided with one lecture and multiple lab sections taught across both campuses.

4. Internet Television (ITV) resources may be used

5. Prior Learning Assessments (PLA) – State standards will be utilized unless otherwise agreed upon by both colleges.

I. Combined faculty meetings will occur on a minimum of a quarterly basis at alternating location or utilizing audio visual technology.

J. The State of Washington, including all its agencies and departments, is self-insured for exposure to tort liability, general liability, property damage liability, and vehicle liability as provided for in the Risk Management Act, Revised Code of Washington, Chapter 43.19. The Tort Claims Act, RCW 4.92 et seq., provides the fundamental remedy for all liability claims against the State. Such claims must be filed with the Division of Risk Management for processing according to statute.

K. Students relocating for a specialty class will be given priority in registration. The student must contact the partner college two weeks in advance of registration to be given priority registration.

L. If a program course is cancelled that impacts students nearing graduation, a replacement course may be substituted based on Vice President of Instruction's approval at the home college.

M. Financial aid will be processed by each student's home college.

N. The Green River College Vice President of Instruction (or designee) will be notified of curricular changes in applicable programs at GHC that affects the transfer of GRC students in the BAS-FRM program. The Vice President for Instruction at Grays Harbor College (or designee) will be notified of curricular changes that affect the GHC students entering the BAS-FRM program.

SECTION IV: FACILITIES

A. Transportation resources:
Each home college is responsible for transporting students enrolled in their respective programs to the field site locations that are used as course-specific field experiences. Alternatively, the home college may compensate the other college based on a prorated, per mileage basis.

B. Classroom spaces:
Each partner college will provide classroom space for the students enrolled in the BAS-FRM program courses. Each partner college's staff agrees to identify and schedule appropriate classroom spaces, ensure that storage, computers, printers, appropriate software and wet lab space is available as needed, schedule media equipment, and ensure that visiting faculty have needed keys. Visiting faculty will return keys when no longer needed.

C. Field tools and supplies:
The responsibility of field tools and supplies remains with the home institution of the student for tools and supplies used by that student.

D. Workspace
Each college will provide workspace for visiting faculty and staff. This workspace will include use of a desk, chair, standard telephones with extension numbers, a computer, appropriate software and data-port access to college network.

E. Instructional computing classrooms
Each college partner will provide access to existing computer labs, subject to availability, for scheduled classes and class activities. Visiting students will receive a local login and password to utilize the extension college's computers. The home college is responsible for collecting the technology fee and specific class fees. These fees will be paid to the partner college for classes offered at the partner college.

F. Interactive television
Each partner college will provide access to interactive television facilities, subject to availability. Staff will provide an in-person overview of equipment use. After that point, visiting faculty are expected to operate the equipment. Technical assistance is available during regular working hours, yet may be briefly extended if requested prior to class.

G. Parking

Parking is based on each partner colleges' parking policies.

SECTION V: STUDENT PROGRAMS

A. Student Services
Student service needs will be provided primarily by the home institution, in critical situations partner school will provide short-term services as needed.

Admissions- Each partner institution will provide admissions and advising services for BAS-FRM students interested in enrolling (or currently participating) in the program.

Advising- Each partner institution transfer services can provide basic information to BAS-FRM students looking to attend at the other institution, yet are not a replacement for that college's advising staff. Students will be primarily advised by an advisor at their home college.

B. Conduct
All students will abide by the student conduct policy, as well as operational policies, that apply to the college that they are attending respective BAS-FRM courses at the time. BAS-FRM faculty and staff will be responsible for complying with the operational policies that apply to faculty and staff conduct at the college they are performing BAS-FRM duties at the time. Each partner college will provide notice of these requirements to faculty and students before the beginning of each quarter.

C. ADA Compliance
Both parties certify that they will comply with the Americans with Disabilities Act of 1990, as amended, with regard to programs, services, activities and employment practices.

D. Facilities Access and Fees
In general, BAS-FRM students will have the same access to all facilities (including computer labs) and services as their partner school students, provided BAS-FRM students have paid any

fees associated with those services. Students will pay all course fees associated with courses in which they enroll at their home college regardless of which college is offering the course.

SECTION VI: FINANCIAL

A. The home college will charge for the credits of the course and will pay $70 per student per credit taken by a student at the partner college. This amount is subject to change at future review or renewal of this MOU. This fee may be different for a course that utilizes a remote lab or field technician.

B. Joint program responsibility costs and time will be shared 50/50 by both colleges unless otherwise negotiated including items such as industry assessments, data gathering, and development of curriculum.

C. Home college will be responsible for their own contingency fund addressing home college problems in a timely manner.

D. Fees will be transferred using the quarter's10th day enrollment numbers, paid on a quarterly basis.

E. Home college pays for their own instructors travel, mileage and per diem.

SECTION VI: GENERAL PROVISIONS

This Agreement may be changed, modified, amended, or terminated by written agreement executed by both parties. This Memorandum of Understanding will be reviewed by both colleges once per calendar year and will adapt it to meet any changes in colleges' needs. If this document is not reviewed within a year, the most recent document will be upheld until such meeting can occur, unless it is terminated.

TERMINATION

Either party may terminate this Agreement but both parties agree to continue the program fully-funded in good faith until all students registered at time of termination have completed the program, within a two year period (not to include students taking one class at a time). Both colleges agree to honor credits earned at the partner college toward a degree at the home college in the case that one program must terminate.

TERMINATION FOR CAUSE

If for any cause, either party does not fulfill in a timely and proper manner its obligations under this Agreement, or if either party violates any of these terms and conditions, the aggrieved party will give the other party written notice of such failure or violation. The responsible party will be given the opportunity to correct the violation or failure within 30 working days or submit a mutually acceptable plan for correction within 15 days. If failure or violation is not corrected, this Agreement may be terminated immediately by written notice of the aggrieved party to the other.

NONDISCRIMINATION

To the extent applicable, the colleges agree that they will not discriminate in the performance of this agreement against any individual on the basis of age, sex, sexual orientation, race, creed, color, religious belief, national origin or physical handicap, gender identity and gender expression, marital status, or status as a protected veteran.

STUDENT RECORDS

Each college shall provide to the other college copies of, or access to, student records in a timely manner as needed in order to perform their respective obligations under this agreement. Each college shall protect the personal information and education records of students consistent with the Family Educational Rights and Privacy Act ("FERPA"), 20 U.S.C. § 1232g (and implementing regulations), and other applicable privacy laws in carrying out all of their respective obligations under this agreement. Pursuant to 34 U.S.C. § 99.31(a) (1), each college shall be considered an "other school official" of the other college for the purposes of carrying out the services and functions of this agreement.

DEGREES CONFERRED

Any degrees granted to students participating in BASF degree program shall be conferred by the student's home college and are subject to the approval and degree requirements of that home college.

DISPUTES

The colleges shall employ every effort to resolve any disputes under the agreement themselves. In the event that a dispute cannot be resolved, it shall be determined by a Dispute Board in the following manner: Each party to this Agreement shall appoint one member to the Dispute Board. The members so appointed shall jointly appoint an additional member to the Dispute Board. The Dispute Board shall review the facts, agreement terms and applicable statutes and rules and make a determination of the dispute. The determination of the Dispute Board shall be final and binding on the parties **hereto.**

LIABILITY

Each partner college's faculty and students will not be employees, agents, or officers of the other college as a result of this agreement. Each college will each be responsible for damage to persons or property resulting from negligence on the part of their respective employees, agents, or officers. Neither college assumes any responsibility to the other party for the consequences of any act or omission of any person, firm, or corporation not a party to this Agreement.

GOVERNANCE

This Agreement is entered into pursuant to and under the authority granted by the laws of the State of Washington and any applicable Federal laws. The provisions of this Agreement shall be construed to conform to those laws.

In the event of an inconsistency in the terms of this Agreement, or between its terms and any applicable statute or rule, the inconsistency shall be resolved by giving precedence in the following order:

a. Applicable State and Federal statutes and rules;

b. Terms and Conditions as contained in this Memorandum of Understanding;

c. Any other provision, term or material incorporated herein by reference or otherwise incorporated.

HOLD HARMLESS

Both parties agree that each college partner shall be responsible for the consequences of any act or failure to act on the part of itself, its employees, and agents. Each college partner shall be responsible for the consequences of any act or failure to act on the part of itself, its employees, and agents. Accordingly, each party shall be held responsible for its own negligence, and each party shall indemnify and hold the other party harmless for any loss, which results therefrom. Neither party shall assume any responsibility of the other party for the consequences of any act or failure to act of any person, firm, and corporation not a part to this agreement.

ASSIGNMENT

The work to be provided under this Agreement, and any claim arising thereunder, is not assignable or delegable by either party in whole or in part, without the express prior written consent of the other party, which consent shall not be unreasonably withheld.

WAIVER

A failure by either party to exercise its rights under this Agreement shall not preclude that party from subsequent exercise of such rights and shall not constitute a waiver of any other rights under this Agreement unless stated to be such in a writing signed by an authorized representative of the party and attached to the original Agreement.

SEVERABILITY

If any provision of this Agreement or any provision of any document incorporated by reference shall be held invalid, such invalidity shall not affect the other provisions of this Agreement which can be given effect without the invalid provision, if such remainder conforms to the requirements of applicable law and the fundamental purpose of this agreement, and to this end the provisions of this Agreement are declared to be severable.

CONTRACT MANAGEMENT

The program manager for each of the parties shall be responsible for and shall be the contact person for all communications and billings regarding the performance of this Agreement.

The Program Director for GRC is: **Monica Paulson Priebe** **Faculty Natural Resources Program** **Green River College** **12401 SE 320th St.** **Auburn, WA 98092** **(P) 253-833-9111 x 4509 (F) 253-288-3464** **Email – mpriebe@greenriver.edu**	The Program Director for the GHC is: **JEB Thornton** **Assistant Dean of Baccalaureate Programs** **Grays Harbor College** **1620 Edward P. Smith Dr.** **Aberdeen, WA 98520** **(P) 360-538-4022 (F) 360-538-4299** **Email – jthornto@ghc.edu**

YEARLY REVIEW

GHC and GRC agree to meet a minimum of once per year to discuss issues related to the continued relationship between the two colleges. Substantive changes will be mutually agreed upon and published pursuant to this agreement.

ALL WRITINGS CONTAINED HEREIN

This Agreement contains all the terms and conditions agreed upon by the parties. No other understandings, oral or otherwise, regarding the subject matter of this Agreement shall be deemed to exist or to bind any of the parties hereto.

IN WITNESS WHEREOF**, the parties have executed this Agreement.**

STATE OF WASHINGTON
Green River College

_____

Dr. Eileen Ely
President

STATE OF WASHINGTON
Grays Harbor College

_____

Dr. Ed Brewster
President

APPROVED AS TO FORM:

By: _____

Assistant Attorney General

Appendix D: Reviewer Biographies

Review 1: Larry Mason has worked in the forestry sector or more than 40 years with more than 20 of those years serving the private industry sector in forestry. He also has industry experience in the arena of public policy regarding forestry activities and 20 years of experience in academic research at University of Washington and Washington State University. He serves as the Project Coordinator for the Rural Technology Initiative (RTI) which was established by the United States Congress as a partnership between the University of Washington (UW) and Washington State University (WSU) to aid in transfer of technology for managing forests for increased forest products and environmental values in support of rural forest-resource based communities. In 2002, RTI was selected to receive the National Non-Industrial Private Forest Education Award from the National Association of Professional Forestry Schools and Colleges (NAPFSC) and the National Woodland Owners Association (NWOA). Larry Mason has worked more than 30 years in the Washington forest industry. He has a B.S. in Forest Management and an M.S. in Silviculture from the University of Washington.

Review 2: Kevin Francis offers a diverse set of experiences related to forest management and environmental studies. His educational background is in biology (Reed College, B.A., 1993) and history of science (University of Minnesota, Ph.D., 2002). In the 1990s, he worked for several years as a wildlife biologist in Mount Hood National Forest, where he focused on spotted owl research and critical habitat assessment for several threatened and endangered species. Since 2004, he has been a full-time faculty member at The Evergreen State College, where his courses have included *Temperate Rainforests* (with Nalini Nadkarni) and the first-year core sequence for the Masters of Environmental Studies (MES) program. He is the current director of the MES program, which includes opportunities for graduate studies and research in forest ecology, sustainable forestry, and natural resource management. As part of this review, he consulted with Dylan Fischer Ph.D. and Richard Bigley Ph.D., Evergreen faculty who teach forest ecology and sustainable forestry. Both of them share my view that this program would fill an important educational niche in western Washington.

Appendix E: Reviewers' Original Letters

alternate dimensions
12354 35th Ave NE
Seattle, WA 98125

RE: Request for review of a proposed Bachelor of Applied Science (BAS) degree in Forest Resource Management

October 6, 2014

Dr. Monica Paulson Priebe
Green River Community College
Department of Natural Resources
Auburn, WA 98002

Dear Monica,

Please let me begin with congratulations. You and your colleagues at Green River Community College and Grays Harbor College have embarked upon an ambitious, important and much-needed educational undertaking. I am honored that you seek my counsel in evaluation of your proposed curricula. I have been involved with forestry for more than 40 years with more than 20 years in the private sector, 3 years in public policy, and 20 years in academic research. During my tenure at the University of Washington (UW), I had opportunity on many occasions to interact with the instructors and administrators connected with natural resource education programs at both of these fine schools. With the current shift at state universities away from courses and degree programs that offer applied education in forest sciences and training in professional skills, the timing of this proposal is, in my view, fortuitous. Green River Community College and Grays Harbor College, with close proximity to western Washington forests and years of experience in natural resource science education, would appear to be logical choices to house a shared Bachelor of Applied Science (BAS) Degree in Forest Resource Management. I have read through the materials that you have provided and offer the following comments below for your review and consideration. It is my sincere hope that, with appropriate refinements, your applied forestry education program will move forward to implementation such that the people, students and forest enterprises of Washington might benefit.

A case has been made that a wave of forest worker retirements is creating underserved education/employment opportunities for future students. I can confirm that this is indeed the case. Green River Community College and Gray Harbor College are collaborating on development of a shared educational delivery to meet this need. Your proposal envisions a curriculum based upon applied forest science course offerings and professional trainings that will provide students with "field skills" that are "highly responsive to industry needs". Two programs towards achievement of a Bachelor of Applied Science in Forest Resource Management are described in the proposal. Green River Community College will offer a Forest Resource Management: Sampling and Appraisal degree and Grays Harbor College will offer a Forest Resource Management: Operations. These programs, however, share a core curriculum that accounts for all but 20 credits of degree completion. If indeed the objective is to provide skill sets that prepare students for forest industry employment then, in my view, the curriculum will benefit from some fundamental adjustments. It is the need for these adjustments to which I direct my comments.

WA State surely needs options for four-year forestry education and this proposal is a good beginning but this curriculum appears to lack critical elements of applied forestry such as forest engineering (timber sale layout, road building, surveying, etc), forest measurements (cruising, appraisal, log sorts, values, cost analysis, statistics, logging & processing), forest economics and marketing (accounting, discounting, cost/benefit analysis, forest valuation, soil expectation value, non-timber forest products, forest products marketing, etc.), and forest operations (reforestation, pre-commercial thinning, chemical applications, interim and final commercial harvests, harvest equipment alternatives,

products and process for value optimization, etc.). Also missing is an educational foundation in the history of forestry with particular emphasis on the Pacific Northwest. An introduction to the history of forestry would fit nicely as a prerequisite to the course on "Native American Approaches to the Environment". As well, forest fundamentals such as tree physiology, soils science, and stand dynamics, should be considered prerequisites for "Advanced Silviculture".

Courses such as "Critical Thinking", "Environmental Ethics", "Small Group Communications", and "Environmental Decision Making & Conflict Resolution" may be valuable components of a political science curriculum but are inappropriate in an applied forest management program. In either agency or timber company such considerations fall to management not field professionals. Most importantly, however, these courses take up valuable curriculum space that should be dedicated to inclusion of the missing areas of study mentioned above. Further, it is unclear what the relationship is between NATRS 300, 385, 386, and 493 and whether all are needed. Elimination of course redundancies could help make needed room in a crowded curriculum for missing elements of applied education and professional training.

There is little discussion as to what extent field studies and summer internships might be included in these programs. Lack of mention implies that perhaps the importance of these tools in applied forestry programs may be underappreciated. I hope that this is not the case. Student summer internships facilitated by partnerships between colleges, agencies, forest companies, and Indian tribes create unparalleled opportunities for students to gain field skills and professional contacts. Students should be encouraged to complete summer internships and should receive credits towards their graduation requirements.

Lastly, in the "Faculty Credentials" narrative on p.14 of the proposal it states that,
"...a combination of baccalaureate degree, industry experience, and industry certifications may be considered adequate *[qualifications],* because a master's degree is not typically attained by professional foresters." I suggest that applied experience and technical abilities should be priority criteria for instructor employment and special consideration should be given to applied forestry career experience in the Pacific Northwest. Forestry skills and applications differ considerably by geographical region. Instructors from elsewhere will logically be handicapped here. It should also be understood that PhD education offers little opportunity to acquire applied technical skills. Instructors recruited from industry, guest lecturers, adjunct faculty, field trips, and internship programs will all be critical education tools to help customize this program to meet the special needs of Washington applied forest management students.

This proposal represents an ambitious attempt at much-needed delivery of applied forest management education in Washington. It is a good beginning. However, basic changes as I've described above will be important if the program is to achieve its intended objectives and successfully attract the next generation of professional foresters in Washington. Thank you for this opportunity to provide review comments.

Sincerely,

Larry Mason
Forest Scientist and Outreach Coordinator (Retired)
University of Washington School of Forest Resources

the evergreen state college

RE: Review of Grays Harbor College/Green River College B.A.S. Program in Forest Resource Management

JEB Thornton
Assistant Dean for Transfer and Baccalaureate Programs
Grays Harbor College
Aberdeen, WA 98520

Dear JEB,

Thank you for the opportunity to review the proposal for a B.A.S. Program in Forest Resource Management. From my perspective, this is an exciting and timely proposal. This program would meet an important educational pathway for students interested in forestry careers that currently—and surprisingly—does not exist in western Washington. In addition, this program would provide the forestry industry in western Washington with potential employees who have solid training in technical aspects of forest operations and management as well as an understanding of the broader cultural, economic, and ecological issues related to forestry. The program would build on existing strengths in forestry and natural resource management at both institutions and increase educational opportunities for first-generation and/or place-bound college students. This collaboration between Green River College and Grays Harbor College strikes me as an innovative and thoughtful strategy for drawing on the existing resources of each institution to extend the opportunities for students at both campuses.

My perspective comes from diverse experiences related to forest management and environmental studies. My educational background is in biology (Reed College, B.A., 1993) and history of science (University of Minnesota, Ph.D., 2002). In the 1990s, I worked for several years as a wildlife biologist for Mount Hood National Forest, where I focused on spotted owl research and critical habitat assessment for several threatened and endangered species. Since 2004, I have been a full-time faculty member at The Evergreen State College, where my courses have included *Temperate Rainforests* (with Nalini Nadkarni) and the first-year core sequence for the Masters of Environmental Studies (MES) program. I am the current director of the MES program, which includes opportunities for graduate studies and research in forest ecology, sustainable forestry, and natural resource management. As part of this review, I consulted with Dylan Fischer and Richard Bigley, Evergreen faculty who teach forest ecology and sustainable forestry. Both of them share my view that this program would fill an important educational niche in western Washington.

The proposed program includes relevant coursework in communications, ethics, mathematics, social sciences, and natural sciences as part of its general education and natural resource core credits. In my view, these are valuable components of a B.A.S. in forest resource management. One lesson from the last three decades, especially in the Pacific Northwest, is that a successful career in forest management will require working with diverse scientists, resource managers, and landowners across private, public, and tribal sectors. Moreover, as a result of changes in regulatory policy and practice, an effective forester will need to have a solid foundation in forest ecology, conservation biology, and landscape ecology. The proposed B.A.S. program includes valuable content and technical skills in such disciplines to create foresters who are prepared for forestry in the 21st century.

The proposed curricula at both Grays Harbor College and Green River College include relevant general education courses to support a B.A.S. in Forest Resource Management. In most of the general education areas (humanities, mathematics, natural science, and social science) the proposed courses are quite different at the two institutions, which will produce some challenges in upper-division courses with students from both institutions. Based on their coursework, students from Green River College will likely have a stronger background in Pacific Northwest ecosystems and geology while students at Grays Harbor College will likely have a stronger background in general biology and general chemistry. Both areas of concentration have value for forestry management, but instructors of the combined upper-division courses should be prepared to support students who have followed each of these natural science tracks.

I would suggest two specific areas for improvement in the proposed curriculum:

1. A course in statistics should be required as part of the general education requirement at both institutions. Currently, it is a requirement at Green River College but not at Grays Harbor College. I think it's especially important for all students in the field of forestry management to have a foundation in statistical analysis in order to understand scientific and technical reports and to think about population-level assessment. (I saw that Appendix C included a course in introductory statistics as a potential offering at Grays Harbor College; I would recommend a statistical analysis course focusing on lab and field applications, as offered at Green River College, as a valuable addition.)

2. A more extensive discussion of how students will develop practical skills through experiential learning. The proposal discusses a Department of Natural Resources teaching forest bordering the Green River College campus, but it does not discuss how this forest or others might be used. For example, some forestry programs include a capstone project that involves researching and developing a management plan for a particular location. I would like a more specific discussion and plans for how the program would envision and support such projects.

the evergreen state college

The proposed curriculum, especially if it includes these two additions, would provide a student with solid preparation for the MES program at Evergreen and other graduate programs in natural resource management. With the addition of a course in statistical analysis at Grays Harbor College, the proposed curriculum at both institutions would meet the prerequisites for the MES program. We would welcome qualified students from the B.A.S. program in Forest Resource Management and the practical natural resource management perspective that they would contribute to our learning community.

In addition to these curricular suggestions, I would recommend further attention to the following elements of this proposal:

1. Clarification and expansion on the specific role of adjunct faculty. I saw language to the effect that no adjuncts are planned; I also saw a budget line for part-time faculty. We make use of part-time adjunct faculty in the MES programs to teach 4-credit electives. They are professionals who employed primarily outside academia for state agencies or NGOs, and they provide a valuable bridge between academic coursework and professional work.

2. Clarification on the specific relationship was between Green River College and the Department of Natural Resources, especially details on the length and nature of collaboration, and whether this relationship has been formalized through a memorandum of understanding.

3. Clarification on the plan to support the program at Grays Harbor College, at least initially, as "faculty overload." From both an administrative and faculty compensation view, such language makes me nervous about the institutional support and long-term sustainability of this proposal.

Let me conclude by reiterating my enthusiasm and support for this model, which fills an important niche in our regional educational and economic landscape. Thank you for inviting to me to be part of this review process and please contact me to discuss any part of this letter in more detail.

Sincerely,

Kevin J. Francis

Kevin J. Francis
Director, Graduate Program on the Environment (MES degree)
The Evergreen State College

Appendix F: Sample 4-year course plan for GRC and GHC

Year	Fall Quarter	Winter Quarter	Spring Quarter
GREEN RIVER COLLEGE			
First	NATRS 183 Tree and Shrub ID (5)	NATRS 114Chainsaw Operation and Maintenance (1)	NATRS 182 Aerial Photo, GIS and Navigation (8)
	NATRS 100 Introduction to Natural Resources (5)	NATRS 161 Wildlife Habitat Management (4)	NATRS 184 Shrub and Wildflower ID (3)
	NATRS 172 Computer Applications (4)	# NATRS 180 Natural Resources Measurements (5)	PE 113 Group Dynamics Activities (1)
	ENGL&101 English Composition I (5)	NATRS 270 Stream and Wetland Ecology (5)	ENGL& 128 Research Writing (5)
Total	**19 Credit Hours**	**15 Credit Hours**	**17 Credit Hours**
Second	GIS 192 GIS for Natural Resources (5)	NATRS 210 Introduction to Soils (5)	NATRS 286 Natural Resource Business Principals(5)
	NATRS 205 Wildland Recreation (4)	NATRS 284 Road and Trail Engineering (6)	NATRS 186 Invasive Species Management and Control (4)
	NATRS 292 Resource Sampling and Appraisal (8)	NATRS 290 Internship Seminar (1)	NATRS 294 Natural Resources Internship 1-4 (3-14 credits)*
		NATRS 293 Silvicultural Analysis and Forest Protection (4)	
Total	**17 Credit Hours**	**16 Credit Hours**	**12 Credit Hours***
GRAYS HARBOR COLLEGE			
First	MATH& 107 Math in Society (5)	CHEM& 121 Introduction to Chemistry (or CHEM& 161)* (5)	NR 131 Forest ecology-Plant Taxonomy (5)
	NR 101 Introduction to Forest Management (5)	ENGL& 101 English Composition I (5)	NR 150 Forest Ecology-Disturbances (5)
	NR 280 Harvest Systems and Products (5)	ENVS & 100 Survey of Environmental Science (or NR 120)* (5)	NR 160 Forest Ecology-Habitats (5)
	PE Any activity course (1)	NR 158 Work Experience Seminar (1)	NR 258/259 Cooperative Work Experience (5)*
		PE 177 First Aid/CPR (2)	
Total	**16 Credit Hours**	**18 Credit Hours**	**15-20 Credit Hours**
Second	GEOL& 101 Intro to Physical Geology (or EARTH 102) (5)	BIOL& 160 General Biology (5)	BA 174 Small Business (or BUS& 101 (5)
	NR 110 Principals of GIS (5)	ENGL& 235 Technical Writing (5)	SOC& 101 Introduction to Sociology (or PSYC& 100) (5)
	NR 260 Forest Mensuration (5)	NR 250 GIS & Remote Sensing (5)	SPCH 101 Fundamentals of Speech (5)
	NR 270 Silviculture (5)	NR 285 Forest Resource Planning (2)	NR 258/259 Cooperative Work Experience (5)*
Total	**20 Credit Hours**	**15 Credit Hours**	**15-20 Credit Hours**

Note: Internship credits (NATRS 294 and NR 258/259) are typically taken over summer months when students have internship jobs, but can be taken any quarter a student gets an internship. Here they are displayed in the spring quarters.

Year	Fall Quarter	Winter Quarter	Spring Quarter
GREEN RIVER COLLEGE			
Junior	BIO 110 Northwest Ecology (5)	ENGL 335 Advanced Technical Writing (5)	GEOL& 101 Introduction to Physical Geography (5)
	PHIL 115 Critical thinking (5) or BUS 202 Intro to Project Management (5)	CMST& 230 Small group Communication (5)	NATRS 386 BioInvasions (4)
	NATRS 390 Environmental Decision Making and Conflict Resolution (5)	NATRS 385 Forest Protection and Disease Management (5)	NATRS 300 Forest Ecology (6)
			NATRS 417.1 GIS Applications (1)
Total	**15 Credit Hours**	**15 Credit Hours**	**16 Credit Hours**
Senior	MATH 356 Statistics for Field and Lab Sciences (5)	PHIL 243 Environmental Ethics (5)	NATRS 494 Capstone in Natural Resources (5)
	NATRS 493 Advanced Silviculture (4)	NATRS 400 Forest Practices Law and Policy (5)	GEOL 208 Geology of the Pacific Northwest (5)
	NATRS 471 Restoration (5)	NATRS 361 Wildlife Ecology (5)	ANTH 302 Native Environment Approaches (5)
	NATRS 399 Natural Resources Seminar (1)	NATRS 417.3 GIS Applications (1)	
	NATRS 417.2 GIS Applications (1)		
Total	**16 Credit Hours**	**16 Credit Hours**	**15 Credit Hours**
GRAYS HARBOR COLLEGE			
Junior	NATRS 390 Environmental Decision Making and Conflict Resolution (5)	NATRS 385 Forest Protection and Disease Management (5)	BASM 309 - Project Management - Time, Goals and Budget Management (5)
	MATH 146 Intro to Stats (5) or MATH& 141 Precalc I, [for those who completed MATH 146 in AAS]	BIOL& 212 Biological Science II: Majors Animal (5)	BIOL& 213 Biological Science III: Majors Animal (5)
	ENGR 104 Introduction to Engineering and Design (5)	ECON 100 Introduction to Economics (5)	BASF 403 Transportation System Design (5)
Total	**15 Credit Hours**	**15 Credit Hours**	**15 Credit Hours**
Senior	NATRS 493 Advanced Silviculture (4)	NATRS 400 Forest Practices Law and Policy (5)	NATRS 494 Capstone in Natural Resources (5)
	NATRS 399 Natural Resources Seminar (1)	BASF 301 Resource Economics (5)	ENG. 304: Advanced Business Writing (5)
	NATRS 417.1 GIS Applications (1)		
	NATRS 471 Restoration (5)	BASF 401 Advanced Harvest Systems: Cable and Aerial Based (5)	BASF 402 Advanced Harvest Systems: Ground Based (5)
	GEOL& 101 Intro to Physical Geology (5) or ENVS& 100 Survey of Env Sci (5) [those who completed GEOL&101 in AAS]		
Total	**16 Credit Hours**	**15 Credit Hours**	**15 Credit Hours**

Appendix G: Letter of Support

School of Environmental and Forest Sciences

UNIVERSITY of WASHINGTON

College of the Environment

March 22, 2015

State Board of Community and Technical Colleges

Dear State Board:

I recently reviewed the proposal developed by Green River and Grays Harbor Colleges for a Bachelor of Applied Science degree in forestry. As a professional forester and educator of nearly 60 years, I was excited by the content and quality of the proposal. I think that this would be an excellent addition to the forestry educational programs available within the State of Washington.

I also wanted to share with you my view that this program very much compliments the program that we have at the University of Washington. It has a strong applied focus that will provide students with the knowledge and technical skills that will allow them to go directly into the practical forest management work.

We have very much needed a program of this type, which is keyed to providing well-qualified personnel to carry out forest activities on the ground. Hopefully other community colleges will follow this example.

Sincerely yours,

Jerry F. Franklin

Jerry F. Franklin
Professor of Ecosystem Analysis

[i] Rudd, C.M., Bragg, D.D. 2010. The applied baccalaureate: What we know, What we learned and What we need to know. Office of Community College Research and Leadership. University of Illinois at Urbana-Champaign.
[ii] Green River College, About GRC, http://www.greenriver.edu/about-GRC/welcome-from-president.htm Oct, 2012.
[iii] United States Forest Service. March 2002. Testing for Wildland Firefighters. Fire Safety. The Pack Test. URL: http://www.fs.fed.us/fire/safety/wct/2002/pack_test_info_sheet.pdf Accessed on 9/22/14.
[iv] Washington State Board for Community and Technical Colleges, Washington State Community Colleges FY2012-13 Tuition Schedule for Upper Division Courses in Applied Baccalaureate Degree Programs, http://www.sbctc.edu/college/finance/2012-13UpperDivisionTuitionandFees.pdf Oct, 2012.