

SBCTC Online Grant Management System

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Applicant Information

Institution: Everett Community College
Consortium: No

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Section 1

Team Lead's Department

The Everett Community College (EvCC) Mathematics Department is comprised of 11 full-time faculty (seven tenured faculty and four tenure-track faculty) and 14 associate faculty. In Fall of 2008, three new full-time mathematics instructors and the department's first developmental mathematics instructor were added to the faculty.

Consent and support to move ahead with the application of this grant and the implementation of the project described below has been provided by the Dean of Math and Sciences and the Vice President of Instruction along with a consensus approval from the department. At a Nov. 19th 2009 meeting to discuss the prospect of participating in the Re-Thinking Pre-College Math Project (RPM), 12 mathematics faculty offered and discussed proposals for re-thinking the curriculum, assessment, and delivery of developmental mathematics at EvCC. From this meeting and subsequent communication, the following faculty have offered to help with the leading and/or implementation of this project.

Core Team and Partners

1A. List other faculty/staff (including titles, departments, and email addresses) at the college who will be directly involved in leading and/or implementing the project.

Michael Nevins, Lead, Full-Time Faculty Developmental Mathematics,
mnevins@everettcc.edu

Tophe Anderson, Full-Time Faculty Mathematics, cranderson@everettcc.edu

Peg Balachowski, Full-Time Faculty Mathematics, mbalachowski@everettcc.edu

Kevin Bolan, Full-Time Faculty Mathematics, Department Chair 2009-2010,
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Andrea Cahan, Associate Faculty Mathematics, acahan@everettcc.edu

Rachel Kingsley, Full-Time Faculty Mathematics, rkingsley@everettcc.edu

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Gloria McPherson, Associate Faculty Mathematics, gmcpherson@everettcc.edu

Christopher Quarles, Full-Time Faculty Mathematics, cquarles@everettcc.edu

Heidi Weiss-Green, Full-Time Faculty Mathematics, hweiss@everettcc.edu

Sharon Wellman, Associate Faculty Mathematics, swellman@everettcc.edu

Lois Wentink, Associate Faculty Mathematics, lwentink@everettcc.edu

Nina Benedetti, Full-Time Faculty ABE, nbenedetti@everettcc.edu

Merritt Hicks, Associate Faculty ABE, mhicks@everettcc.edu

1B. Indicate which, if any, other departments or offices at the college or other schools or institutions that will play supportive roles in implementing the proposal. (optional)

- Institutional Research (Darryl Dieter and Bonnie January) will help the department collect and analyze important student data during the development and implementation of the project.
- The Instructional Office (Sandra Fowler-Hill) has been a constant supporter of developmental mathematics reform at EvCC and has pledged support for this project.
- The Teaching and Learning Cooperative (Paul Marshall) supports faculty development across campus and has offered to assist with the faculty development proposals described in the project.
- The Math and Science Division (Al Friedman, Sarah Damp, and Carol Tompkins) has allocated 1/4 time of an administrative assistant to help with the organization of the project.
- The Developmental Education Department (Christine Wilson) will continue its relationship with the mathematics department through link courses and learning communities.

Section 2

Existing Resources/Capacity

2A. Describe the current program structure/format of your pre-college to college-level math offerings including number of full- and part-time faculty who teach courses in the program.

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EvCC's current developmental mathematics program consists of an arithmetic to intermediate algebra course sequence and a number of alternative courses designed to support our students' progress to college-level mathematics.

The typical arithmetic to intermediate algebra sequence is Math 70 - Basic Mathematics, Math 80 - Pre-Algebra, Math 81 - Elementary Algebra I, Math 82 - Elementary Algebra II, and Math 99 - Intermediate Algebra.

As an alternative to the two course elementary algebra (Math 81/82) curriculum the department offers Math 90 - Elementary Algebra Review. This course is designed for students who have already had some success in algebra, but need a review of those topics before entering Intermediate Algebra.

Math 78 - Review of Arithmetic and Algebra is a course designed for students needing to "brush up" on specific arithmetic and algebra concepts as either a supplement to their current math course or an attempt to improve their placement. Math 78 uses ALEKS software to design personalized curricula for students in this course.

The Math Learning Center (MLC), directed by Larry Baxter, offers self-paced instruction of Math 70, Math 75 - Aviation, Welding, and Precision Machining, Math 87/88 - Programmed Algebra I & II, Math 95 - Essentials of Geometry, and Math 105 - Trigonometry. Math 70, 70V, 80V, 87, and 88 are offered as variable credit courses in the MLC.

All 25 full-time and associate faculty in the department either are teaching or have experience teaching developmental courses at EvCC. A majority of these courses are lecture/discussion-based with in-class examinations the most common form of assessment. With that said, more faculty are beginning to employ collaborative learning techniques, technology, alternative assessments, online discussion boards, online homework tools, and WAMAP assessments to enhance their students' learning experience. Math 90 and Math 99 are also offered as online courses throughout the year.

2B. Summarize any local research findings you've reviewed on student success in the pre-college math sequence (from Adult Basic Education through developmental education) and in college-level math courses.

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In order to continually refine, update, and improve the entire mathematics program, the mathematics department, the math and science division, and other offices/departments have researched various factors of student success:

- While moving toward mandatory placement, we reviewed data comparing student placement scores to actual course enrollment. The data showed that students who followed the advice of their placement scores (by enrolling in the suggested course or one course lower) performed better than those who chose to enroll in a higher course than placed. Furthermore, in a review of the established placement score cut-offs, student success data prompted the department to choose a higher placement score threshold for Intermediate Algebra.
- Quarterly data of student placements scores before and after enrollment in Math 78 has shown that a majority of students who enroll in Math 78 place one course higher post-enrollment. One third of students place two courses higher.
- In 2008-2009, Everett Community College participated in the Foundations of Excellence First Year Experience self study project. This project produced two pieces of data very relevant to pre-college math: 92% of first year students are not ready for college-level math and 59% of students pass intermediate algebra with a C or better.
- In an effort to better understand the population of students enrolled in online mathematics courses, a gender analysis of the online mathematics courses was conducted. The data showed that while 67% of the EvCC student population was female, 77% of online students were female. This data helped with decisions regarding online course offerings and development.
- Recently, department faculty have administered placement testing at Lake Stevens, Granite Falls, and Everett school districts in an attempt to help EvCC better understand the struggles of students placing into college-level mathematics out of high school.

2C. Describe any current or recent projects, grants, campus initiatives, etc. that serve as a foundation for the work being proposed; what existing work are you building on in this proposal and how is it connected?

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There are a number of exciting projects and initiatives on campus that will support the projects described in this application, including:

- Rainier Third Floor Renovation. The summer 2010 renovation will co-locate all math faculty for the first time, and will enhance collaboration among math instructors. Three new

classrooms dedicated to math instruction and designed to accommodate active-learning modes of instruction, will also be added. One classroom will be equipped with laptop computers that can be deployed as needed. Student study areas will be constructed between the new classrooms and math faculty offices to encourage student-instructor interactions outside of class.

- Title III Grant. With the help of a recent Title III grant, Math 78 was developed using ALEKS software in a computer lab setting. The course has continued to grow post-Title III and has now found a permanent place on the course schedule.
- Workshop Wednesdays. Workshop Wednesdays is a collaborative learning-based curriculum developed from self-regulated learning, self-efficacy, and volition control research. During the 2008-2009 year, this curriculum was piloted successfully in four Math 81 courses.
- Board of Trustees Proposal. In response to a mandate from the Board of Trustees, the department has developed a proposal that details four projects aimed at helping students move quickly through the developmental curriculum. These projects are: Appointing liaisons to local high schools, re-implementing the high school teacher conference at EvCC, developing pre-fall “boot camps” for elementary and intermediate algebra, and designing an alternative placement model.
- Math 70 and FYI Learning Community. During the fall of 2009, a Math 70 course was linked with the developmental education department’s (Dev Ed) First Year Intelligence Learning Community. Also, during spring 2010, a Math 80 course will be linked with Dev Ed’s study skills course.

2D. What professional development opportunities currently exist for pre-college math faculty (part-time as well as full-time)?

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The division offers \$400 for full-time faculty and the Faculty Development Committee offers up to \$1000, on an application basis, to any faculty interested in attending conferences and/or workshops.

- Teaching and Learning Labs. The Teaching and Learning Cooperative (TLC) facilitates cross-campus faculty learning communities. These labs are available to all staff and faculty. The TLC also organizes an annual retreat for faculty, administration, and staff. In 2008-2009, a lab was devoted to reviewing the research on what makes students successful.
- Course Learning Communities. Math course-specific faculty learning communities have been developed as a way of supporting communication between faculty around assessment topics.
- Regional and National Conferences. Many math faculty are members of regional and national mathematical associations and regularly attend conferences such as the annual WAMATYC and AMATYC conferences, and the Washington Center’s College Readiness

Retreats.

2E. Based on the evidence you have, what are the current strengths of the pre-college math program and what are the major issues/challenges that need to be addressed?

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Strengths of the pre-college program:

- High Student Satisfaction. Student evaluations of instructors in the developmental math sequence have consistently described high student satisfaction of the faculty.
- Committed Associate Faculty. The department has a very low turnover rate of associate faculty and many of them have committed to help with the design and implementation of this project.
- New Full-Time Faculty. The addition of four tenure-track faculty to the department has brought new ideas and energy into the growth of the developmental math sequence.
- Use of Technology to Facilitate Learning. Many developmental courses are offered in multiple delivery methods such as online, computer-based instruction, and hybrid learning. Faculty continue to broaden the use of technology in these courses through the use of Illuminate, WAMAP, Course Compass, Web Assign, and Camtasia-created instructional videos.
- Tutoring Center. The Tutoring Center (TC) offers e-tutoring and extended weekday evening and weekend hours and several targeted workshops during each quarter.

Issues and Challenges:

- Content-Intensive Curriculum. Many students enrolled in the elementary algebra to intermediate algebra sequence find it difficult to keep pace with the number of topics presented in their courses.
- High Student to Instructor Ratio. The department maintains a 36 to 1 student to instructor ratio in developmental mathematics courses. This ratio continues to grow with the current economical issues the state faces.
- Communication between Associate and Full-Time Faculty. With offices spread around campus it has been difficult for associates and full-time faculty to collaborate. It is believed that the Rainier Hall renovation will resolve this issue.
- Calculators. Many students struggle in their transition from high school courses that allow calculators to similar developmental math courses at EvCC that do not allow calculators on examinations.

Section 3

Goals/Strategies/Activities

3A. The overall long-term goal of the project is to increase student achievement in college-level math courses by improving student success in and progress through their pre-college math (ABE and Dev Ed) experience in Washington community and technical colleges. To achieve this goal participating colleges are asked to address core areas of educational practice: what math is taught (restructuring/redefining the curriculum), how it is taught (emphasizing student understanding and engagement), and how it is assessed (refining diagnostic and classroom-based assessments). Given these parameters and the description of your program's strengths and challenges in section 2, describe what you'd like to accomplish if your institution were selected to participate in this project.

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During the Nov. 19th meeting to discuss the RPM project, faculty began by offering proposals and then subdivided into six separate taskforces based on interest and experience. These six taskforces are: Algebra Curriculum Efficiency (ACE), Alternative Intermediate Algebra and Non-STEM Pathway (Alternative), Modular, Online, and E-Learning Resources (MOLE), Pre-Algebra and Study Skills Curriculum Development (PASS), Professional Development for Faculty (PDF) , and High School Communication and Placement Issues (High School) . Within these six categories lie opportunities for EvCC to increase student achievement in the pre-college sequence. The roles that these taskforces will have in addressing what math is taught, how it is taught, and how it is assessed are described below.

The ACE Taskforce

- What is Taught. The ACE Taskforce will investigate the current concepts in the algebra sequence and address the content-intensive issue described above. This taskforce will also look to align the topics in this sequence with the TMP College Readiness Standards.
- How it is Assessed. The taskforce will work to describe a standard for assessment along with the revised curriculum it develops.

The Alternative Taskforce

- What is Taught. The Alternative Taskforce will develop a pilot alternative intermediate algebra course and analyze the viability of a non-STEM pathway through the sequence (the implementation of a non-STEM pathway is dependent upon the pending DTA agreement).

The MOLE Taskforce

- What is Taught. The MOLE Taskforce will develop modules to complement the work of the Alternative Taskforce by creating bridges between the STEM and non-STEM developmental

courses.

- How it is taught. This taskforce will also target difficult algebra concepts and develop modules of this content which will be available through multiple delivery methods (hybrid, online, and self-paced learning). The new math classrooms (see Rainier Third Floor Renovation above) will provide the space and technology to support this modular curriculum.

The PASS Taskforce

- What is Taught. The PASS Taskforce will develop student study skills and attributes curricula for the developmental sequence. This work will rely on the TMP Student Attributes and the work of the current Workshop Wednesdays curriculum. They will also analyze the effectiveness of the current Math 70 to Math 80 (Arithmetic and Pre-Algebra) sequence and recommend changes to the current curriculum and presentation of these courses.

The PDF Taskforce

- How it is Taught. The PDF Taskforce will organize faculty learning communities and instructor resources based upon current research and best practices literature. The resources developed by this committee will be fundamental to sustaining pedagogy that will increase student engagement and deepen student understanding in the pre-college course offerings.
- How it is assessed. This taskforce will also provide faculty with research in formative and summative assessment techniques and work to develop models of formative assessment for pre-college courses.

The High School Taskforce

- How it is assessed. It is important to the department that we improve our communication with local high schools and help incoming students accurately place into math at EvCC. Facilitating high school liaisons and developing an alternative placement model will be a focus of this taskforce.

3B. Do you intend to address a particular aspect of your pre-college math program (e.g., a specific course or transition) rather than take a more global approach to the overall program?

- Yes
 No

If you answered "yes" to 3B, please describe why you chose that aspect.

(max. characters: 1,000)

3C. At this point what is your best thinking about pursuing what is described in 3A., i.e., what strategies or approaches seem most promising to you and why?

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We believe it is important to not only have good ideas for change, but to involve the whole department in that change, as outlined in the article, “Barriers and Promises in STEM Reform” by Dancy & Henderson. To that end, we are taking a very thoughtful approach in planning the process by which we will perform research and make decisions.

The math department has already formed six taskforces that have dual roles: (i) Change agents as specified in item 3A and (ii) as professional development for the participants in the model of EvCC’s successful Teaching Labs. These taskforces will follow a specific set of guidelines including: Developing a timeline, examining research, making & executing a plan for change, collecting data, and evaluating the data. These guidelines are based on AMATYC’s Beyond Crossroads Curriculum Implementation cycle. We expect each taskforce will be comprised of a core group of people, who have already self-selected themselves, though meetings will be open and announced to the whole department and other interested parties.

Each committee will have a chair who will be responsible for keeping the meetings insightful & productive. Adjunct faculty will be paid for their participation. Therefore, we will maintain a list of resource people – such as educational researchers, math specialists, and educational support specialists – whom we will rely upon to answer questions, resolve disagreements on best practices, or call upon for additional assistance. Our hope is to create a vibrant community, including full and part-time faculty, that discusses and debates, then makes a data-based decision that helps our students.

3D. A critical component of this overall project is faculty leadership and program/department-wide ownership of the proposed efforts to improve pre-college math. How do you plan to involve a "critical mass" of faculty in the efforts you propose (full-time and part-time) and build a collective program commitment to collegial learning about effective educational practice in pre-college mathematics?

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This is a component of the project that the department has taken very seriously. From the very first discussions regarding the project an understanding of the need to have a critical mass of faculty directly involved in the project has been evident. It cannot be understated that without this critical mass the department would not have gone through with this application. We recognize that a project of this size necessitates this level of commitment. With that said, during the November 19th meeting 14 of 25 math faculty have committed to roles of leadership and/or support in this project. Full-time and associate faculty alike have been involved in the development of project ideas throughout the grant writing process. It is a fundamental belief in the department that associate faculty must feel empowered to not only share their ideas, but also allowed to take on leadership positions with a decision making role

in their respective taskforces.

3E. What professional development, support and/or technical assistance would help you achieve your goals?

(max. characters: 2,000)

Within the grant description, a support network of colleges involved in the project has been described. The department hopes to make use of this network during every step of the project. It is noted that many colleges are currently employing techniques in their pre-college sequence that EvCC has yet to develop. The work of creating alternative assessments and revamping the algebra curriculum are examples of projects that will be heavily supported by conversations with other colleges that are currently implementing these concepts.

Release time for faculty to research their respective areas, the development of faculty learning communities with the assistance of the Teaching and Learning Cooperative of EvCC, and opportunities to interact with specialists in developmental mathematics education will be other forms of professional development that help support this project.

A stronger integration of technology in the presentation of mathematical concepts, specifically in the area of iClickers, Smartboards, and WAMAP will require assistance from technology experts.

Section 4

Evaluation Plan

4A. What evidence will you use to help assess the success of the work you propose and how do you intend to gather and use that evidence?

(max. characters: 2,000)

With the help of Institutional Research (IR), the department will gather data on:

- Student success rates before and after project implementation.
- Student persistence rates in developmental math courses.
- Momentum Point data collected through the Student Achievement Initiative.
- Qualitative data in the form of student surveys.
- Retention rates of students in the developmental math sequence.
- Placement score data.

This information will be gathered through collaboration with IR. This data will be used to analyze the current pre-college math program and the effects of changes to the program. One piece of data alone will not be enough to make effective decisions, but a synthesis of the data listed above should provide the department with a clear picture of the strengths and weaknesses of the program before, during, and after the project implementation.

4B. What support/technical assistance do you envision needing in order to evaluate the impact of the work you propose?

(max. characters: 1,000)

Regional and national data of student success rates in developmental mathematics will be useful while analyzing EvCC's present pre-college math program and future modifications to the program. It would be helpful if the State Board would aid us in the collection of this data.

Section 5

Sustainability Plan

5A. What is the potential for continuing, and if possible scaling up, this work beyond the grant period, and how are you addressing directly this issue of sustainability as part of your proposed work?

(max. characters: 2,000)

The department will use a majority of the grant funding for faculty release time and to compensate associate faculty for attending meetings. The work produced by the taskforces will have an immediate and integral impact on pre-college math at EvCC through changes in curriculum and professional development. Therefore, the potential for continuing the work proposed is not only very good, but certain. Also, an anticipated outcome of full-time and associate faculty working together on such large-scale projects for sustained periods will be a shift in the department culture towards more collaboration between associate and full-time faculty. These reasons and the faculty resources that will be developed throughout the project will ensure that the changes made will not be fleeting attempts, but instead new directions for the curriculum and pedagogy offered in these courses.

Our Board of Trustees (BoT) has committed to helping the department improve the developmental math sequence (see 2C). Future scaling of the proposed projects will be based on student success data and supported by the BoT.

5B. What support/technical assistance do you need in order to be able to address the long-term sustainability of the work you are proposing?

(max. characters: 1,000)

The department believes that communication and collaboration with other state colleges will be essential to not only the implementation but also the long-term sustainability of this project. We would appreciate support from the State Board in facilitating future conversations about pre-college math between schools.

The SnoMath Regional High School Placement Testing Consortium, a collaborative effort between EvCC, Cascadia, and Edmonds Community College, is an example of the collaboration with other schools that EvCC is interested in continuing to develop.

VP of Instruction Approval

5C. My college's Vice President of Instruction has reviewed and approved this application.



Section 6

Budget Narrative

6A. Description of how funds will be used for Project Development Salaries, Wages, and Benefits.

Three faculty will be given 1/3 release time during spring quarter to chair their respective taskforces. The release time will give the chairperson time to support the development of their taskforce, facilitate taskforce meetings, report back to the department, and develop related taskforce materials. These release times, and their cost of \$12,067, equate to one full teaching load. Benefits for these release times are calculated at the school standard 30% rate.

Associate faculty will be compensated for attending department and taskforce meetings during the project. Ninety hours, at \$40.22 per hour, have been allocated for this purpose. Benefits for these hourly wages are calculated at a 15% rate.

6B. Description of how funds will be used for Project Development Goods and Services.

6C. Description of how funds will be used for Project Development Building Rental and Utilizations.

6D. Description of how funds will be used for Project Development Travel.

6E. Description of how funds will be used for Project Development Contracts.

6F. Description of how funds will be used for Instruction Salaries, Wages, and Benefits.

6G. Description of how funds will be used for Instruction Goods and Services.

6H. Description of how funds will be used for Instruction Building Rental and Utilizations.

6I. Description of how funds will be used for Instruction Travel.

6J. Description of how funds will be used for Instruction Contracts.

6K. Description of how funds will be used for Administration Salaries, Wages, and Benefits.

6L. Description of how funds will be used for Administration Goods and Services.

6M. Description of how funds will be used for Administration Building Rental and Utilizations.

6N. Description of how funds will be used for Administration Travel.

6O. Description of how funds will be used for Administration Contracts.

Budget

Institution: Everett Community College

Activity	Salary and Wages	Employee Benefits	Goods and Services	Building Rental & Utilizations	Travel	Contracts	Total
Project Development	\$15,687.00	\$4,163.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19,850.00
Instruction	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Administration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Total	\$15,687.00	\$4,163.00	\$0.00	\$0.00	\$0.00	\$0.00	\$19,850.00