

Developmental Mathematics

Weber State University
Five-Year Program Review
Self-Study

Cover Page

Department/Program:	Developmental Mathematics
Semester Submitted:	Fall 2017
Self-Study Team Chair:	Kathryn Van Wagoner
Self-Study Team Members:	Kathryn Van Wagoner, Lorriellee Lee, Loyal Baker

Contact Information:
Phone: (801) 626 - 7585
Email: kathrynvandwagoner@weber.edu

Version Date: April, 2017

Brief Introductory Statement

Developmental Mathematics is a sequence of pre-college level math courses designed to prepare students for college level mathematics. The Developmental Mathematics Program at Weber State University offers Pre-algebra (Math 0950), a First Course in Algebra (Math 0990), Intermediate Algebra (Math 1010), and Pathway to Contemporary Math (Math 0970). Consistent with national norms, approximately 2/3 of students entering this open enrollment institution need the Developmental Mathematics Program to assist students in gaining the math skills they need for success in college level mathematics in as short a time as possible. Weber State University is a leader in the state when it comes to Developmental Mathematics innovation. Flipped courses were introduced in Fall 2012. Pathways courses were introduced in Spring 2014. R.E.A.L. (Real-life Explorations. Active Learning) courses were introduced Spring 2015 for Math 0950 and Spring 2016 for Math 1010. Emporium model, TERM, courses were eliminated after Summer 2016.

Standard A - Mission Statement

The Developmental Mathematics Program of Weber State University opens doors of opportunity by preparing students for success in college level mathematics courses. The program seeks to build confidence, promote learning skills, develop problem-solving skills, and teach mathematical concepts in a learner-centered environment.

Standard B - Curriculum

Curriculum Map

	Department/Program Learning Outcomes							
	Learning Outcome 1	Learning Outcome 2	Learning Outcome 3	Learning Outcome 4	Learning Outcome 5			
Core Courses in Department/Program								
Pre-algebra	A	A	A	A	P			
First Course in Algebra	A	A	A	A	P			
Intermediate Algebra	A	A	A	A	P			
Pathway to Contemporary Math	A	A	A	A	P			
A = Assessed post-course								
P = Assessed post-completion of our program								

Note^a: Define words, letters or symbols used and their interpretation; i.e. 1= introduced, 2 = emphasized, 3 = mastered or I = Introduced, E = Emphasized, U = Utilized, A = Assessed comprehensively; these are examples, departmental choice of letters/numbers may differ

Note^b: Rows and columns may be transposed as required to meet the needs of each individual department

Summary Information (as needed)

Standard C - Student Learning Outcomes and Assessment

Measurable Learning Outcomes

At the end of their study at WSU, students in this program will

SLO #1: Students will be able to demonstrate procedural knowledge of mathematics by competently performing computational operations, avoiding common errors, and attending to precision.

SLO #2: Students will have contextual knowledge of mathematics by knowing when and how to apply mathematical knowledge to real world problems and understand and use mathematics as a language to communicate

SLO#3: Students will gain understanding of foundational concepts such as positionality, identity, inverse, distribution, equivalence, variable.

SLO #4: Students will persist through difficulty and work through the entire semester

SLO #5: Students who complete one or more developmental math course will have the knowledge and skills needed to successfully complete a Quantitative Literacy course.

Five-year Assessment Summary

Annual assessment reporting of the Developmental Mathematics program began with the 2011-12 academic year and consisted of reporting course pass rates. The entire program had been converted to a modified emporium model in Fall 2009, and over the first two years of the program departmental pass rates declined from around 50% to:

Semester	Math 0950	Math 0990	Math 1010
Summer 2011	35.80%	25.13%	43.88%
Fall 2011	35.13%	20.65%	38.42%
Spring 2012	35.99%	33.56%	41.00%

The following outcomes were established and measured for the next four years, through 2015-16. These were program outcomes rather student learning outcomes, but there was a clear need to improve program outcomes at that time.

- 1) 50% of our students complete their courses at 70% or better.
- 2) 50% of students who complete course evaluations will indicate they have improved their ability to learn by using resources, asking questions, and seeking answers
- 3) Students completing Math 0950, Math 0990 and Math 1010; OR Math 0990 and Math 1010 at Weber State University will pass quantitative literacy mathematics at a rate equal to or better than students who placed directly into their quantitative literacy course (Math 1030, Math 1040, or Math 1050).

Outcome #1 50% of our students complete their courses at 70% or better

Over the years, department pass rates have improved significantly:

Academic Year	Pass Rate - Grade of C (70%) or better
2011-12	35%
2012-13	41%
2013-14	47%
2014-15	53%
2015-16	61%
2016-17	64%

FY 2016-17 Department Pass Rate: 64%

FY 2016-17 Department Success Rate: 84%

FY 2016-17 Department Retention Rate: 76%

Pass Rates by Course

Math 0950	Math 0970	Math 0990	Math 1010
64%	72%	59%	65%

Pass Rates by Course Type

Flipped	Pathway	REAL	Online
64%	72%	71%	57%

Efforts that contributed to the improvements included adding deadlines to the modified emporium courses (TERM) and eventually phasing out the course, implementing new course modalities – flipped and pathway/REAL, improving teaching through professional development, better communication with students about expectations of their course, and teaching growth mindset in the classes.

Outcome #2 50% of students who complete course evaluations will indicate they have improved their ability to learn by using resources, asking questions, and seeking answers

What distinguishes developmental education from remedial education is that developmental education seeks to holistically influence the development of the student, not just remediate deficiencies in course content. This learning outcome sought to measure one very important aspect of the students' development, the ability to be an independent learner. This outcome was measured through student course evaluations. The goal was met each year of assessment.

Year	% agreed or strongly agreed
2012-13	57%
2013-14	63%
2014-15	70%
2015-16	70%

Version Date: April, 2017

Outcome #3 Students completing Math 0950, Math 0990 and Math 1010; OR Math 0990 and Math 1010 at Weber State University will pass quantitative literacy mathematics at a rate equal to or better than students who placed directly into their quantitative literacy course (Math 1030, Math 1040, or Math 1050).

Part of the mission of the Developmental Mathematics Program is to prepare students for college level mathematics. The purpose of this learning outcome was to assess how well our students perform in their first college level math course. Measurement of this outcome indicated our students were performing comparably to students who placed directly into QL courses, except for those in Math 1040 Introduction to Statistics.

2014 Report: Comparison of Students Completing Dev Math Courses and Those Placing Directly into QL

For math classes taken since Fall 2009

Course	Dev Math Cohort % Passed	Directly Placed Cohort % Passed
Math 1030	77.20%	75.54%
Math 1040	63.72%	75.36%
Math 1050	66.43%	62.31%

In response to this data and to other needs of our students the Math 0970 Pathway to Contemporary Mathematics course was developed as a more appropriate prerequisite to Math 1030 and Math 1040.

2017 data indicates a greater distinction in Math 1030 outcomes between the Dev Math cohort and the directly placed cohort, although pass rates in both cohorts have declined – 4 pts in the DM cohort and 8 pts in the direct cohort. Math 1040

Starting Fall 2017 students were allowed to use Math 970 as a prereq to Math 1040. We expect to see improved outcomes from the Dev Math cohort in the Math 1040 outcomes in the near future.

Full implementation of the Math 970 class in Fall 2014 led to more students being channeled out of Math 1050 and into Math 1030. These students are typically less mathematically inclined. This could account for the decrease in Math 1030 pass rates and the increase in Math 1050 pass rates.

2017 Report: Comparison of Students Completing Dev Math Courses and Those Placing Directly into QL

For math classes taken 2014-2017

Course	Dev Math Cohort % Passed	Directly Placed Cohort % Passed
Math 1030	73%	67%
Math 1040	68%	77%
Math 1050	70%	72%

Additional

Outcome. Developmental Math through QL throughput.

The ultimate programmatic goal of Developmental Mathematics is to get more students through QL more efficiently.

2013 Report: Pass rates in QL of students starting in Math 0950, Math 990, or Math 1010 compared to those directly placed in QL. (First attempt at the course between Summer 2007 and Spring 2013).

	Directly placed		Start in 950		Start in 990		Start in 1010	
QL course	N	% Passed	N	% Passed	N	% Passed	N	% Passed
1030	543	80.8%	58	87.9%	130	83.1%	262	83.20%
1040	270	76.30%	11	45.5%	16	50.0%	11	58.70%
1050	1254	71.80%	151	64.9%	258	67.1%	820	68.50%

2017 Report: Pass rates in QL of students starting in Math 0950, Math 990, Math 970, or Math 1010 compared to those directly placed in QL. (First attempt at the course during academic years 2013 - 2017)

	Directly placed		Start in 950		Start in 970*		Start in 990*		Start in 1010	
QL course	N	% Passed	N	% Passed	N	% Passed	N	% Passed	N	% Passed
1030	526	78%	933	81%	107	82%	309	84%	665	86%
1040	558	83%	287	72%	6	50%	394	73%	437	80%
1050	4101	79%	1422	82%	n/a	n/a	707	84%	2128	83%

*Data includes students who started in Math 810 (with Math 970) and Math 955 and Math 960 (for Math 990)

2016-17 Reporting

The program has struggled to identify measurable student learning outcomes over the years. As a first step the following Vision Statement was drafted. It contains many unmeasurable objectives; therefore, the introductory paragraph explains the purpose of the statement.

Vision Statement

These five statements summarize and clarify our priorities regarding what students will be able to know, think or care about, and do, after completing our program. These ideal learning outcomes will inform our curriculum development, as well as teaching and assessment practices.

#1 – Habits of Mind

- Know the value of questioning to ask for help, and to verify reasonableness of solutions.
- Make sense of problems and persist when the solution or process is not immediately obvious
- Eliminate learned helplessness through positive self-talk and develop a belief in ability to learn math.
- Understand the process of learning and how to apply it to learning math
- Know why & how to use study resources effectively, e.g. textbooks, software, tutors, peer study groups – and use them.

#2 Demonstrate procedural knowledge

- Competently perform basic computational/arithmetic operations
- Know and avoid common errors – divide by zero, square root multiple terms, cancel terms
- Attend to precision.

#3 – Apply contextual knowledge

- Develop positive perceptions of the value of math and its usefulness in the world and in individual lives.
- Model with math. Know when and how to apply mathematical knowledge to real world problems
- Use tools, including technology, appropriately and strategically
- Understand and use mathematics as a language to communicate

#4 – Explore and analyze mathematical concepts

- Conceptualize – attend to the meaning of the quantities, symbols, and their relationships - and deconceptualize - abstract a given situation and represent it symbolically.
- Look for and make sense of structure, patterns and connections between concepts for a more solid framework of knowledge.
- Gain conceptual understanding of underlying concepts: Meaning of equal sign, order of operations, expressions vs. equations, inverse, vocabulary, linear relationships, functional relationships, term, and variable

#5 – Think and reason mathematically

- Construct logical quantitative arguments
- Interpret and critique quantitative information and arguments
- Explain and defend solutions

The vision statement informed the identification of the following five Student Learning Outcomes to be measured beginning with the 2016-17 year.

SLO #1: Students will be able to demonstrate procedural knowledge of mathematics by competently performing computational operations, avoiding common errors, and attending to precision.

SLO #2: Students will have contextual knowledge of mathematics by knowing when and how to apply mathematical knowledge to real world problems and understand and use mathematics as a language to communicate

SLO#3: Students will gain understanding of foundational concepts such as positionality, identity, inverse, distribution, equivalence, variable.

SLO #4: Students will persist through difficulty and work through the entire semester

SLO #5: Students who complete one or more developmental math course will have the knowledge and skills needed to successfully complete a Quantitative Literacy course.

This assessment plan was developed.

Learning Outcome	Assessment Measure	Threshold of Evidence	When Assessed
1. Procedural Knowledge	Specified procedural problems on the final exams of every course.	80% of students who take the final exam will get 80% of the specified questions correct.	Every Spring semester starting Spring 2017
2. Contextual Knowledge	Specified contextual problems on the final exams of every REAL & Pathway course.	80% of students who take the final exam will get 80% of the specified questions correct.	Every Fall semester starting Fall 2016
3. Conceptual Knowledge	Specified conceptual problems on the final exams of every REAL & Pathway course.	80% of students who take the final exam will get 80% of the specified questions correct.	Every Fall semester starting Fall 2016
4. Persistence through Semester	W/UW rates	80% of students enrolled at 3 rd week will persist through the end of the semester.	Every semester.
5. QL Course Success	a. QL course pass rates of students who took dev math b. Comparison of the dev math cohort's QL pass rate with those students	a. Students who enrolled in one or more dev math classes will pass QL courses at a rate of 70% or better. b. The pass rate of the dev math cohort of	Annually.

	who placed directly into QL.	students will be statistically similar to or better than the pass rate of students who placed directly into QL.	
--	------------------------------	---	--

Assessment of these outcomes has been more challenging than anticipated. See Appendix G for those results we've been able to collect. We are working on creating a better assessment plan.

Standard D - Academic Advising

Role of Advisor/Learning Strategist

Developmental Mathematics has one full-time employee in the position of advisor and learning strategist whose role is to:

- Provide accurate information about the program to new, continuing and prospective students in person, via email or over the phone
- Counsel students in implementing learning strategies.
- Suggest appropriate course to be taken.
- Assist students with enrollment and registration.
- Bridge the gap between instructors and students.
- Meet frequently with struggling students to help them understand expectations and requirements to succeed in math as well as understand the content.
- Work closely with other departments
- Help students and departments have comprehensive knowledge of the progressive changes we are making
- Ensures students have the right prerequisite to take a class

The department employs one or more peer retention mentors who assists in these efforts in a mentoring role.

Advising Strategy and Process

The goal of advising is to provide students with accurate information, assist them in making appropriate choices to help them reach their educational goals. Additionally, our advisor acts as a learning strategist to coach students in developing better academic skills. Depending on the need of the student, the advisor may assess the student's academic and math background, learning skills, awareness and use of available resources, and use of time. Based on this assessment, the advisor will provide a recommendation that meets the individual needs of the student. Furthermore, the advisor and retention mentor reach out to struggling students and provide the necessary help. These students are identified through various methods including Banner reports, manual review of MyMathLab gradebooks, and referrals from faculty and campus advisors.

Effectiveness of Advising

The advisor does not have a formal assessment process in place to measure the effectiveness of advising. Having an advisor in place has generally improved the effectiveness of the department by removing the load of advising from the administrative assistant, allowing her to focus on departmental needs. It is also beneficial having a qualified individual dedicated solely to advising students and assisting them in their learning needs. The climate of student satisfaction has improved due to providing better service to our students. Having the advisor has helped many students to take the right math path towards their qualitative literacy.

Past Changes and Future Recommendations

Past Changes:

This position is new as of August 2012. Prior to this time the department administrative assistant advised students and managed registration needs. Creation of an advisor and learning strategist position has strengthened the department's ability to serve student needs. The following activities are a result of creating this position.

- Learning strategies are discussed in meetings with students.
- An advising web page has been created with essential information for students.
- Interventions are made with struggling students through intentional advising and outreach by a peer mentor.
- The advisor is available on the Davis campus one afternoon per week.
- Students can meet with the advisor in the absence of an instructor to get additional attempts on quizzes and/or tests.
- Increased collaboration with support program across campus.
- Along with the advisor, a new retention mentor contact struggling students and provide help: coping with anxiety, test taking skills, time management, and refer to appropriate support programs.

Future Recommendations:

- Inventory/survey students' level of satisfaction after meeting with the advisor.
- Create a tracking/log in system to quantify number and type of advising session.
- Class visit to ensure students are registered for the right class

Standard E - Faculty

Faculty Demographic Information

See Appendix B

Programmatic/Departmental Teaching Standards

Faculty are taught and expected to implement the NCTM Effective Mathematics Teaching (EMT) practices as much as possible depending on the type of course they teach. The R.E.A.L./Pathway courses rely heavily on EMT practices to properly enact the curriculum. Instructors of flipped courses are expected to integrate EMT practices on a regular basis.

Faculty Qualifications

Hiring qualifications:

Full time: Bachelor's degree in Mathematics, Mathematics Education, or equivalent plus two years teaching Developmental Mathematics or equivalent. Preference is given to Master's degrees.

Adjunct: A bachelor's degree in mathematics or related field

Faculty & Staff (current academic year)

	Tenure	Contract	Adjunct
Number of faculty/staff with Doctoral degrees	1	1	2
Number of faculty with Master's degrees	0	11	15
Number of faculty with Bachelor's degrees	0	1	16
Other Faculty			
Total	1	13	33

Evidence of Effective Instruction

Regular and Adjunct Faculty are evaluated through student evaluations.

Mentoring Activities

Course leads play a mentoring role for newly hired faculty as well as those new to teaching the course type. They orient the faculty prior to the semester, work collaboratively to develop departmental assessments, observe and provide support during the semester.

Diversity of Faculty

All faculty are Caucasian.

Full time faculty - 38% male and 62% female.

Adjunct faculty - 21% male and 79% female.

Staff - 2 Caucasian females and one Black male.

Ongoing Review and Professional Development

Every full time instructor completes an annual review at the end of each calendar year. Each full time instructor completes a more in depth review every three years. No formal review process exists for adjuncts.

Professional development is informally conducted in bi-weekly department meetings for full time faculty. Adjunct participate in at least one departmental professional development retreat per year. The university provides optional professional development retreats for adjunct faculty each semester. Faculty have the opportunity to attend regional and national conferences. Typically, about 5 faculty attend AMATYC each year. Sometimes faculty attend other conferences and meetings, one per person per year.

Standard F – Program Support

Support Staff, Administration, Facilities, Equipment, and Library

Adequacy of Staff

- 1 – Program director
- 1 – Administrative Assistant
- 1 – Advisor & Learning Strategist
- 1- Student hourly employee

i. Ongoing Staff Development

Staff are encouraged to participate in training and development offered regularly by the university human resources department

Adequacy of Administrative Support

The program has one administrative assistant, which is adequate at this time

Adequacy of Facilities and Equipment

Facilities:

Ogden Campus:

Developmental math offices are located in the new Tracy Hall Science Center where faculty are also housed. Additional faculty offices are located on the Davis and West Center campuses. The majority of our classes are taught in Lind Lecture Hall, a 5 – 10 minute walk up the hill from THSC. Other classes are taught in Lampros Hall and on the Davis and West Center campuses. These facilities are adequate for the department. Equipment resources (copier, computers, etc) are adequate.

Davis Campus:

Developmental Math occupies three faculty offices and three classrooms at the Davis Campus. Two of the classrooms are used for Dev Math tutoring and testing. The third is a classroom computer lab. Since offering R.E.A.L. and Pathway classes at the Davis campus we have used additional classrooms as available. We have sometimes been unable to find classroom space to teach without computers.

West Center

Developmental Math occupies one faculty office at the Weber State West Center. Classroom space is scheduled as needed. This meets our needs at this location.

Adequacy of Library Resources

Library resources are not needed for Developmental Mathematics courses

Standard G - Relationships with External Communities

Description of Role in External Communities

The Developmental Mathematics Program is foundational to all majors on campus and takes this role seriously by working with all parts of the campus community to improve student success in our courses. Additionally, Math 1010 is offered through high school concurrent enrollment. We have

contributed to the professional development of the CE teachers and work collaboratively with the teachers to grade exams. One of our faculty teachers a cluster First Year Experience course, combining Math 0950 with the FYE course.

Summary of External Advisory Committee Minutes

Developmental Mathematics has an advisory committee that consists of the program director, the Developmental Mathematics course leads, and representatives from student support services and central advising. The dean of the College of Science and the Associate Provost participate on an as-needed basis.

Minutes of the advisory committee meetings are on file in the department. Advisory committee meetings discuss a range of information including coordinating logistics between Developmental Mathematics and student support services, reforming Developmental Mathematics courses, and improving math placement.

Standard H – Program Summary

Results of Previous Program Reviews

Year 1: 2014-15

Year 2: 2015-16

Year 3: 2016-17

Problem Identified	Action Taken	Progress
Issue 1 Review Team Recommendation: Implement a Tenure process	This is a recommendation that is outside the control of the Developmental Mathematics program. To assist in efforts made in our behalf, we have provided documentation indicating developmental mathematics courses are typically taught by tenured professors with PhD's. We have discussed the need for faculty who are well educated in the research in mathematics education. The dean has taken this information to the Provost and other administrators. The institution does not have the resources to make developmental mathematics a department with tenure-track faculty. In lieu of accomplishing these goals, the dean has worked to make changes to improve the status of the faculty. Through the faculty senate, he has pursued the possibility of changing the PPM to allow for 1, 2, or 3-year non-tenurable appointments for instructors, but this has not been approved. He has included DM faculty as equals in college-wide meetings and has publicly recognized DM for positive accomplishments in the program, particularly in improved pedagogy and student success. This year, an institutional-wide math task force has been formed to explore and address issues related to QL and student success in mathematics. The need for tenured developmental mathematics faculty will be raised with the task force.	

<p>Issue 2 Review Team Recommendation:</p> <p>Require students complete Developmental Math before upper division courses</p>	<p>This is a recommendation that is outside the control of the Developmental Mathematics program. In February 2014, the Faculty Senate passed a resolution that they “encourage the administration to explore appropriate strategies to ... ensure the developmental courses are completed” as early as possible. The faculty senate has not followed upon that resolution, that we are aware of. The DM program director has researched and discussed this issue with stakeholders across campus in an effort to find a workable solution. There has not been any effort on the part of the administration to support this endeavor, in spite of a data study showing as many as 75% of incoming students do not take math in their first year. One possible solution - to have a stated, but not enforced, policy of mandatory completion of QL within the first 60 credits - was considered infeasible by administration. An idea to do a poster campaign to encourage completion of QL within 60 credits was not approved. Admissions has added statements in their new student materials encouraging early enrollment in math and completion of QL. Dev Math has decided to focus efforts on what we can control. Knowing much of the problem with students avoiding math is due to a fear of math and misconceptions about our program, we have run a number of marketing campaigns to create a positive image of students succeeding developmental math. We attend events where we can talk to students about math and give them good information. This summer we set up a booth at the Ogden Farmer’s Market to build more positive rapport in the community. In addition to marketing our program, we have worked to develop a program that gives students a positive and successful experience with math. In Spring 2016, the program director partnered with faculty from mathematics to present a workshop for “math avoiders” that informed them about how they can succeed in math. The Provost’s office paid a course fee waiver for students who enrolled in math in the subsequent summer and/or fall semesters. In Fall 2016, we partnered with a Public Relations course to have a student PR team research the causes of students not enrolling in mathematics, and are</p>
--	---

	implementing recommendations. We continue to work on getting positive messaging to students about math at Weber State.
<p>Issue 3</p> <p>Review Team Recommendation:</p> <p>Drop Students if not logged in to software or not attending class</p>	<p>After discussing how this policy might be drafted and implemented, we discovered an existing institutional policy (PPM 6-3.VII.B) that students who have not attended the first two class periods may be administratively dropped from a course. We established a procedure to communicate to students the policy and the action we were taking for their non-attendance. This policy continues to be administered successfully.</p>

<p>Issue 4 Review Team Recommendation:</p> <p>Define QL & Backwards Map curriculum</p>	<p>This is a recommendation that is somewhat outside the control of the Developmental Mathematics program. In the first year of the review period there were discussions between the dean and program director about the role developmental math might play in defining QL. Per the dean's response to the previous program review, consideration was given to the idea of reorganizing the DM program to be a department including QL. This was not a feasible plan. It was determined that we may contribute to conversations, but have no authority over QL. A mathematics/QL task force has been created and will begin meeting this semester, Fall 2017, to address QL-related concerns. Over the years there have been discussions with the mathematics department about prerequisite skills needed for Math 1040 as they considered Math 970 as a prerequisite for Math 1040. We also received from the math department an updated list of prerequisite skills needed for Math 1050 as REAL Math 1010 course was piloted. We continue to refine curriculum in our 970 and REAL 1010 courses</p>
<p>Issue 5 Review Team Recommendation:</p> <p>Boot camp</p>	<p>This is a recommendation that is outside the control of the Developmental Mathematics program. Summer workshops is under the purview of Academic Support. In Summer 2014, we began offering our courses on the block, only during summer term, and promoted them as Summer Intensive Courses to finish math faster. Over the years we have also partnered with Trio, Upward Bound and student outreach programs to provide math content for their summer programs. Another project we have partnered on is Math Prep workshops designed for students whose prerequisites have expired. By attending a one week, 9-hour workshop students can get an override into their next math class. In addition to the sections offered for college level mathematics, we offered this for students wanting to place into Math 1010. Enrollment was too low to justify continuing at the 1010 level. The higher-level workshops are successfully operating each semester. In Spring 2017, as the institution has moved to the ALEKS PPL for placement, we broached the subject of creating a summer workshop using ALEKS with the Academic Support</p>

	Center. We were told they would handle it. We will continue to support their summer programs as requested.
Issue 6 Faculty Senate Executive Committee: The development of measurable expected learning outcomes for each level of the developmental math program.	This is still a work in progress. We have established SLO's for each level of the program. See artifacts for lists. However, these still need further review and improvement.
Issue 7 Faculty Senate Executive Committee: Devise a means of addressing morale among the program faculty. Work with the Dean to help the Developmental Math instructors become better integrated with the broader institutional community.	The dean has worked diligently to address the morale of the program faculty. Efforts to make changes to their employment status (ie. tenure, longer contract periods, etc) have been unsuccessful at this time. He has been successful in finding ways to improve morale. In particular, faculty are well aware of the dean's appreciation for and recognition of the excellent work they do. Developmental Math has been held up as an exemplar program in many College of Science meetings. The faculty were recently surveyed about their perceptions of how integrated they are with the broader institutional community. In general, faculty are satisfied with their level of engagement. The results of the survey, including comments are available in the artifacts.
Issue 8 Faculty Senate Executive Committee: Ensure complete transparency when publishing student completion outcomes. Provide both a 'pass' rate (which does include students receiving 'W' and 'UW' grades) as well as a 'success' rate (which does not include students receiving 'W' and 'UW' grades).	We have student outcomes data that meet these criteria going back to 2008-09. (See artifacts.) We have shared the data within and without our department, as needed.

<p>Issue 9 Faculty Senate Executive Committee: Review and reconsider faculty/instructor standards.</p>	<p>We have held one faculty search during the review period. It was in Spring 2016, for an appointment beginning July 1, 2016. We only considered candidates with master's degrees. The person we hired has a Master's of Math Education and 17 years full time experience teaching in secondary education. We are starting a new faculty search and the preferred qualifications are a master's degree in mathematics education, as well as</p> <ul style="list-style-type: none"> - Knowledge of and experience with implementing NCTM Effective Mathematics Teaching Practices. - Demonstrated commitment to high-quality, student-focused undergraduate education. - A comprehensive understanding of developmental education. <p>These are the qualifications we look for in hiring adjunct. Unfortunately, the supply of highly qualified candidates does not match demand. We require all new faculty to participate in professional development to learn the pedagogy we expect of our faculty.</p>
<p>Issue 10 Faculty Senate Executive Committee: The program faculty work to develop a backward mapping of QL requirements to their other courses. This should begin within the current academic year (2013-2014), in advance of any changes to QL that might be made at the state level.</p>	<p>See Issue 4, above. Note: no changes to QL have been made at the state level.</p>

Summary Information (as needed)

Action Plan for Ongoing Assessment Based on **Current Self Study Findings**,

Action Plan for Evidence of Learning Related Findings

Problem Identified	Action to Be Taken
Issue 1 Additional refinement of the assessment plan is needed.	A department assessment committee will be formed and they will meet with the director of institutional effectiveness to develop a solid assessment plan. The committee will assist the program director in completing the work of the assessment plan.
Issue 2 Online course pass/success/retention rates lag behind other methods	Explore and implement new methodologies for online courses that contribute to greater student persistence.

Summary Information (as needed)

Action Plan for Staff, Administration, or Budgetary Findings

Problem Identified	Action to Be Taken
Issue 1 Classroom space	Consider adapting our current classrooms to accommodate both styles of courses. Work with Davis administration to secure more classroom space.

Summary Information (as needed)

List of Artifacts

Artifact
REAL Math 1010 SLOs
Math 970 SLOs
Flip/ONL course SLOs
Faculty Engagement Survey Results
16-17 Data Outcomes Summary
2008-2016 Data Summary

Summary Information (as needed)

APPENDICES

Appendix A: Student and Faculty Statistical Summary (*Note: Data provided by Institutional Effectiveness*)

	2012-13	2013-14	2014-15	2015-16	2016-17
Student Credit Hours Total	28,065	26,263	19,749	16,980	20,716
Student FTE Total	935.50	875.43	658.30	566.00	690.53
Student Majors	n/a	n/a	n/a	n/a	n/a
Program Graduates	n/a	n/a	n/a	n/a	n/a
Student Demographic Profile					
Female	n/a	n/a	n/a	n/a	n/a
Male					
Faculty FTE Total	11.11	8	18.14	16.14	n/a
Adjunct FTE	7.01	6.09	14.42	12.79	n/a
Contract FTE	4.1	1.91	3.72	3.35	n/a
Student/Faculty Ratio	84.20	109.43	36.29	35.07	n/a

Student Credit Hours Total represents the total department-related credit hours for all students per academic year. Includes only students reported in Banner system as registered for credit at the time of data downloads.

Student FTE Total is the Student Credit Hours Total divided by 30.

Student Majors is a snapshot taken from self-report data by students in their Banner profile as of the third week of the Fall term for the academic year. Only 1st majors count for official reporting.

Program Graduates includes only those students who completed all graduation requirements by end of Spring semester for the academic year of interest. Students who do not meet this requirement are included in the academic year in which all requirements are met. Summer is the first term in each academic year.

Student Demographic Profile is data retrieved from the Banner system.

Faculty FTE is the aggregate of contract and adjunct instructors during the fiscal year. **Contract FTE** includes instructional-related services done by "salaried" employees as part of their contractual commitments. **Adjunct FTE** includes instructional-related wages that are considered temporary or part-time basis. Adjunct wages include services provided at the Davis campus, along with on-line and Continuing Education courses.

Student/Faculty Ratio is the Student FTE Total divided by the Faculty FTE Total.

Appendix B: Contract/Adjunct Faculty Profile

Name	Gender	Ethnicity	Rank	Tenure Status	Highest Degree	Years of Teaching				Areas of Expertise
						Weber FT	Adj	Other FT	Adj	
Acor, Brenda	Female	Caucasian	Instructor	n/a	MS	14	2	11	0	Math Education
Ashby, Whitney	Female	Caucasian	Adjunct	n/a	BS	0	1	2	0	Math Education
Baker, Christin	Female	Caucasian	Adjunct	n/a	MEd	0	1	4	0	Math Education
Baker, Loyal	Male	Caucasian	Instructor	n/a	MS	15.5	8	0	12	Devmath/Statistics
Barney, Corine	Female	Caucasian	Adjunct	n/a	BS					
Barrett, Catherine	Female	Caucasian	Adjunct	n/a	BS	0	7	3	0	Dev Math
Beck, Kimberly	Female	Caucasian	Adjunct	n/a	MEd	0	5	0	0	Math/Engineering
Bockholt, Allison	Female	Caucasian	Adjunct	n/a	BS	0	.5	2	0	Math
Canales, Lauri	Female	Caucasian	Adjunct	n/a	MS	0	6	0	4	Math
Dunn, Christopher	Male	Caucasian	Instructor	n/a	MEd	1	0	17	0	Math Education
Edmonson, Stephanie	Female	Caucasian	Adjunct	n/a	BS	0	.5	0	0	Medical Tech
Gabbitas, Allison	Female	Caucasian	Adjunct	n/a	BS	0	12	0	0	Math Education
Groesbeck, John	Male	Caucasian	Adjunct	n/a	PHD	0	0	24	3	Math
Hallin, Stephen	Male	Caucasian	Adjunct	n/a	MS	2	8	0	11	Atmospheric Scien
Hansen, Amber	Female	Caucasian	Adjunct	n/a	MEd	0	6	0	0	Dev Math
Imig, David	Male	Caucasian	Instructor	n/a	MS	14	0	0	0	Engineering
Jennings, Cristine	Female	Caucasian	Instructor	n/a	MA	4	11	0	5	Geoscience
Jones, Charity	Female	Caucasian	Instructor	n/a	MEd	4	4	7	0	Physics/Dev Math
Marriott, Katrina	Female	Caucasian	Adjunct	n/a	MEd	0	7.5	3	0	Dev Math/Math
McKee, Debi	Female	Caucasian	Instructor	n/a	MS	6	8	6	0	Dev Math
Moe, Jarrod	Male	Caucasian	Adjunct	n/a	BS	0	.5	0	0	Math
Muirbrook, Meghann	Female	Caucasian	Adjunct	n/a	BS	0	3	15	0	Dev Math
Orton, Natasha	Female	Caucasian	Adjunct	n/a	BS	0	1	0	0	Dev Math

Penrod, Janette	Female	Caucasian	Instructor	n/a	MEd	4	5	0	5	Dev Math
Poore, Darrell	Male	Caucasian	Instructor	n/a	BS					
Portz, Heidi	Female	Caucasian	Adjunct	n/a	BS	0	6	10	0	Dev Math
Quesnell, Carrie	Female	Caucasian	Instructor	n/a	MS	14	2	0	1	Dev Math
Reynolds, Michelle	Female	Caucasian	Adjunct	n/a	BS	0	3	0	10	Dev Math
Rich, Michelle	Female	Caucasian	Adjunct	n/a	MBA	0	6	0	0	DevMath/Statistics
Sandoval, Suzanne	Female	Caucasian	Adjunct	n/a	MS	0	1	16	7	Dev Math/Math
Schilling, Pam	Female	Caucasian	Instructor	n/a	MS	8	0	1	8	DevMath/Statistics
Scholz, Katherine	Female	Caucasian	Adjunct	n/a	MS	0	3	6	10	Math Education
Schroeder, Jo	Female	Caucasian	Adjunct	n/a	MA	1	1	10	0	Education/Math
Smith, Amy	Female	Caucasian	Adjunct	n/a	BS	0	2	10	0	Mathematics
Sonogini, Ryan	Male	Caucasian	Adjunct	n/a	BS	0	2	5	0	Math Education
Symonds, Kassidy	Female	Caucasian	Adjunct	n/a	MEd	0	3	0	0	Math Education
Thaeler, John	Male	Caucasian	Professor	Tenure	PHD	35.5	0	9.5	2	Math Ed/Dev Math
Ward, Jonathan	Male	Caucasian	Adjunct	n/a	MEd	0	.5	11	0	Physics
Webster, Lori Jo	Female	Caucasian	Adjunct	n/a	BS	0	10	6	4	Dev Math
Webster, Scott	Male	Caucasian	Adjunct	n/a	BS	0	1	0	1	Math
Wheeler, Anita	Female	Caucasian	Adjunct	n/a	BA	0	0	26	0	Math/Engineering
Wilcox, Jennifer	Female	Caucasian	Adjunct	n/a	EDD	0	3.5	0	15	Dev Math / 1030
Wilhelmsen, Diana	Female	Caucasian	Adjunct	n/a	MEd	0	9	0	0	Math 1030
Woodbury, Sara	Female	Caucasian	Adjunct	n/a	MS	0	2	6	0	Dev Math
Yablonovsky, Martin	Male	Caucasian	Adjunct	n/a	MBA	0	1	2	0	Dev Math
Yonkee, Mary Ellen	Female	Caucasian	Instructor	n/a	MS	6	10	1	4	Dev Math

Summary Information (as needed)

Appendix C: Staff Profile

Name	Gender	Ethnicity	Job Title	Years of Employment				Areas of Expertise
				Weber FT	Adj	Other FT	Adj	
Lee, Lorrielee	Female	Caucasian	Admin Specialist	3	0	0	0	Geospatial
Van Wagoner, Kathryn, PhD	Female	Caucasian	Director	5	0	12	7	Math Education
Yadete, Tesfaye	Male	Black	Advisor	4	0	0	1	Dev Math

Summary Information (as needed)

Appendix D: Financial Analysis Summary
 (This information is provided by the Provost's Office)

Developmental Math					
Funding	12-13	13-14	14-15	15-16	16-17
Appropriated Fund	419,911	400,903	449,766	436,427	518,732
Other:					
Self-Support Tuition	1,022,487	1,289,551	1,336,866	1,405,309	1,523,501
Grants or Contracts					
Special Fees/Differential Tuition	877,901	784,020	560,590	441,655	468,400
Total	2,320,299	2,474,474	2,347,222	2,283,391	2,510,633

Student FTE	935.5	875.4	658.3	566.0	690.5
Cost per student FTE	\$2,480	\$2,827	\$3,566	\$4,034	\$3,636

Appendix E: External Community Involvement Names and Organizations

Name	Organization
Debi McKee	First Year Experience
Charity Jones Christopher Dunn Kathryn Van Wagoner	Concurrent Enrollment Professional Development and Course oversight

Appendix F: Site Visit Team (both internal and external members)

Name	Position	Affiliation
Sheryl Rushton	Asst Professor	WSU College of Education
Janean Montgomery	Secondary Math Specialist	Ogden School District
Linda Zientek	Professor of Mathematics	Sam Houston State Univ
Debra Ward	Asst Professor Dev Math	Utah Valley University

Appendix G: Evidence of Learning
(use as a supplement to your five-year summary, if needed.)

Evidence of Learning: Courses within the Major					
Measurable Learning Outcome	Method of Measurement	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will...	Direct and Indirect Measures*				
Learning Outcome 1: Students will be able to demonstrate procedural knowledge of mathematics by competently performing computational operations, avoiding common errors, and attending to precision.	Measure 1: Specified procedural problems on the final exams of every course.	Measure 1: Original: 80% of students who take the final exam will get 80% of the specified questions correct. Actually measured: 80% of the specified questions will be answered correctly.	Measure 1: Data only reported for Online courses, Fall 2016 429 students correctly answered 76% of specified questions correctly. (1904 of 2499 questions)	Measure 1:	Measure 1: We realized we don't have the manpower to implement the designed study. We will make a new plan for measuring procedural knowledge of our students. We also need to figure out how to get better analytics from our online/flipped courses.
Learning Outcome 2.A: Students will have contextual knowledge of mathematics by knowing when and how to apply mathematical knowledge to real world problems and understand and use mathematics as a	Measure 1: Specified contextual problems on the final exams of every REAL & Pathway course.	Measure 1: 80% of students who take the final exam will get 80% of the specified questions correct.	Measure 1: Not available	Measure 1: None	Measure 1: We realized we don't have the manpower to implement the designed study. We will make a new plan for measuring contextual knowledge of our students.

Evidence of Learning: Courses within the Major					
Measurable Learning Outcome	Method of Measurement	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will...	Direct and Indirect Measures*				
language to communicate					
Learning Outcome 3: Students will gain understanding of foundational concepts such as positionality, identity, inverse, distribution, equivalence, variable	Measure 1: Specified conceptual problems on the final exams of every REAL & Pathway course.	Measure 1: 80% of students who take the final exam will get 80% of the specified questions correct.	Measure 1: Not available	Measure 1: None	Measure 1: We realized we don't have the manpower to implement the designed study. We will make a new plan for measuring conceptual knowledge of our students.
Learning Outcome 4: Students will persist through difficulty and work through the entire semester	Measure 1: W/UW rates	Measure 1: 80% of students enrolled at 3 rd week will persist through the end of the semester.	Measure 1: 76% of students enrolled at 3 rd week persisted through the end of the semester. Based on course type, persistence rates are: Flipped 81%, REAL 84%, Pathway 88%, Online 64%	Measure 1: Face-to-face courses are exceeding the threshold. Online courses are significantly below the threshold. (An expectation of 80% retention in an online class may be very unrealistic.)	Measure 1: Continue and increase use of growth mindset lessons in F2F courses. Explore new methodologies for online courses that contribute to greater student persistence.
Learning Outcome 5: Students who complete one or more developmental math course will have the knowledge and skills	Measure 1: QL course pass rates of students who took dev math	Measure 1: Students who enrolled in one or more dev math classes will pass QL courses at a rate of 70% or better.	Measure 1:	Measure 1:	Measure 1:

Evidence of Learning: Courses within the Major					
Measurable Learning Outcome	Method of Measurement	Threshold for Evidence of Student Learning	Findings Linked to Learning Outcomes	Interpretation of Findings	Action Plan/Use of Results
Students will...	Direct and Indirect Measures*				
needed to successfully complete a Quantitative Literacy course	Measure 2: Comparison of the dev math cohort's QL pass rate with those students who placed directly into QL.	Measure 2: The pass rate of the dev math cohort of students will be statistically similar to or better than the pass rate of students who placed directly into QL.	Measure 2:	Measure 2:	Measure 2: