

Weber State University  
Annual Assessment of Evidence of Learning

Cover Page

Department/Program: Developmental Mathematics  
Academic Year of Report: 2015 -2016  
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**A. Brief Introductory Statement:**

**Please review the Introductory Statement and contact information for your department displayed on the assessment site: <http://www.weber.edu/portfolio/departments.html> - if this information is current, please indicate as much. No further information is needed. We will indicate “Last Reviewed: [current date]” on the page.**

**If the information is not current, please provide an update:**

Developmental mathematics offers two sequences of pre-college level math courses designed to prepare students for college level mathematics. The traditional sequence of Pre-algebra (Math 0950), a First Course in Algebra (Math 0990) and Intermediate Algebra (Math 1010) prepares students for College Algebra (Math 1050). An alternate sequence of R.E.A.L. Pre-algebra (Math 950) and Pathway to Contemporary Mathematics (Math 0970) prepares students for Contemporary Mathematics (Math 1030) or Intro to Statistics (Math 1040). The program uses multiple methods of course delivery: online courses, hybrid courses (modified emporium, aka TERM), collaborative classroom courses, and flipped courses. It is the goal of the WSU 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.

## **B. Mission Statement**

**Please review the Mission Statement for your department displayed on the assessment site:**

**<http://www.weber.edu/portfolio/departments.html> - if it is current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.**

**If the information is not current, please provide an update:**

The Developmental Mathematics Program of Weber State University prepares students for success in college level mathematics courses and lays the foundation for general academic success through course options that meet the diverse learning needs of students. Meaningful, learner-centered instruction provides students the opportunity to think and reason mathematically. Our curriculum is designed to develop conceptual, contextual and procedural understanding of mathematics, and the habits of mind needed for success.

### **C. Student Learning Outcomes**

**Please review the Student Learning Outcomes for your department displayed on the assessment site:**

<http://www.weber.edu/portfolio/departments.html> - if they are current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.

**If they are not current, please provide an update:**

#### **Outcomes measured for the 2015/16 Academic Year:**

50% of our students complete their courses at 70% or better.

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

#### **Outcomes to be measured beginning with the 2016/17 Academic Year:**

These 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.

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.

#### D. Curriculum

Please review the Curriculum Grid for your department displayed on the assessment site:

<http://www.weber.edu/portfolio/departments.html> - if it is current, please indicate as much; we will mark the web page as “Last Reviewed: [current data]”. No further information is needed.

If the curriculum grid is not current, please provide an update:

#### Effective Summer 2016

Note: The scale of one to three indicates the extent that the course curriculum is intended to address each Student Learning Outcome. One = minimal, Three = significant. Learning outcomes will be assessed in courses rated 3, and for some rated 2.

Course #/title (type of course)	Outcome #1 Procedural Knowledge	Outcome #2 Contextual Knowledge	Outcome #3 Conceptual Knowledge	Outcome #4 Mathematical Reasoning	Outcome #5 Persistence
Math 0950 (Online/Flipped)	3	1	1	2	3
Math 0950 (R.E.A.L.)	3	3	2	3	3
Math 0990 (Online/Flipped)	3	1	1	2	3
Math 1010 (Online/Flipped)	3	1	1	2	3
Math 0970 (Pathway)	2	3	3	3	3

### **E. Assessment Plan**

**Please review the Assessment Plan for your department displayed on the assessment site:**

<http://www.weber.edu/portfolio/departments.html> - if the plan current, please indicate as much; we will mark the web page as “Last Reviewed [current date]”. No further information is needed.

**If the plan is not current, please provide an update:**

**The site should contain an up-to-date assessment plan with planning going out a minimum of three years beyond the current year. Please review the plan displayed for your department at the above site. The plan should include a list of courses from which data will be gathered and the schedule, as well as an overview of the assessment strategy the department is using (for example, portfolios, or a combination of Chi assessment data and student survey information, or industry certification exams, etc.).**

### **Data Collection for the 2015/16 Academic Year**

*Learning Outcome 1: 50% of our students complete their courses at 70% or better.*

Four years ago, pass rates in developmental math courses were below national averages. Therefore, the focus for the past few years has been on improving course outcomes. Pass and success rates have been measured in each course and for each course type using Argos data. Now that pass rates have improved significantly, we are moving our focus to essential student learning outcomes.

*Learning 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 seeks to measure one very important aspect of the students' development, the ability to be an independent learner. Data for this outcome is collected from student evaluations of the course conducted near the end of each semester.

## Assessment Plan beginning with the 2016/17 Academic Year

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 <sup>rd</sup> week will persist through the end of the semester.	Every semester.
5. QL Course Success	<p>a. QL course pass rates of students who took dev math</p> <p>b. Comparison of the dev math cohort's QL pass rate with those students who placed directly into QL.</p>	<p>a. Students who enrolled in one or more dev math classes will pass QL courses at a rate of 70% or better.</p> <p>b. 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.</p>	Annually.

**F. Report of assessment results for the most previous academic year:**

There are a variety of ways in which departments can choose to show evidence of learning. This is one example. The critical pieces to include are 1) what learning outcome is being assessed, 2) what method of measurement was used, 3) what the threshold for ‘acceptable performance’ is for that measurement, 4) what the actual results of the assessment were, 5) how those findings are interpreted, and 6) what is the course of action to be taken based upon the interpretation.

a. Evidence of Learning: Courses within the Major

c. Evidence of Learning: General Education Courses

(duplicate this page as needed or delete if department does not offer GE courses)

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: 50% of our students complete their courses at 70% or better	Measure 1: Grade distributions from Argos	Threshold 1: The number of students receiving a grade of C or better divided by the number of students enrolled in the course.	Findings 1: See Table 1	Interpretation 1: Overall department pass rates were over 50%. They are on an upward trend.	Action1: Evidence indicates efforts to offer students a choice of course delivery methods and to direct students to the best choice have helped improve student success. We will continue on this route. Efforts are now focusing on improving teaching and developing a Tech Path and a REAL Path to better meet student needs.



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 2: 50% of our students who complete evals indicate improved skills for independent learning	Measure 2: Responses to a question in student evaluations	Threshold 2: The number of students indicating <i>agree</i> or <i>strongly agree</i> divided by the number of students submitting evaluations.	Findings 2: Out of 1438 students submitting evaluations, 1011 agree or strongly agree that they have improved their ability to learn by using resources, asking questions, and seeking answers -70%	Interpretation 2: Outcome goal was met. This is a 7 point increase over last year's outcome. If we were continuing to measure this outcome, we might want to raise the threshold.	Action 2: Continue to improve student engagement in learning. We will be improving our instruction for developing independent learners.

\*At least one measure per objective must be a direct measure; indirect measures may be used to supplement direct measure(s).

**G. Summary of Artifact Collection Procedure**

N/A

Artifact	Learning Outcome Measured	When/How Collected?	Where Stored?
Pearson and Chi Tester Reports	All	Faculty run reports	Director's computer

Summary Information (as needed)

Appendix A

**Table 1**  
**Developmental Mathematics**  
**2015-16 Course Pass Rates (70% or greater)**

**FY 2015-16 Department Pass Rate: 61%**  
**FY 2015-16 Department Success Rate: 79%**

**Pass Rates by Course**

<b>Math 0950</b>	<b>Math 0970</b>	<b>Math 0990</b>	<b>Math 1010</b>
61%	71%	57%	62%

**Pass Rates by Course Type**

<b>Flipped</b>	<b>Pathway</b>	<b>REAL</b>	<b>TERM</b>	<b>Online</b>
64%	71%	61%	50%	53%

**Please respond to the following questions.**

- 1) Reflecting on this year's assessment(s), how does the evidence of student learning impact your faculty's confidence in the program being reviewed; how does that analysis change when compared with previous assessment evidence?

To answer this question, compare evidence from prior years to the evidence from the current year. Discuss trends of evidence that increases your confidence in the strengths of the program. Also discuss trends of concern (e.g. students struggling to achieve particular student outcomes).

*With the continued trend in improved pass rates, the faculty have developed greater confidence in the program as a whole. The Pathway course continues to provide the greatest outcome and has spurred us into developing REAL 0950 and 1010 courses using similar methodologies.*

- 2) With whom did you share the results of the year's assessment efforts?

*Results have been discussed with full time and adjunct faculty, the dean of the College of Science, as well as the Developmental Mathematics Advisory committee and with the Associate Provost.*

- 3) Based on your program's assessment findings, what subsequent action will your program take?

*While TERM pass rates have improved, they continue to be significantly lower than our other course options. We have decided to completely eliminate the TERM program – meaning the computer-based courses that meet one hour a week in a classroom. Computer-based online and flipped courses will continue with some modifications. REAL 1010 was piloted this semester with success and makes it possible to offer students a choice of two paths to QL – the Tech Path and the R.E.A.L. Path.*