

Eastern Wyoming College

Instructional Program Review 2014-2015

Program: Mathematics

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EASTERN WYOMING COLLEGE Instructional Program Review

Program Name: Mathematics

Part 1: Statistical Data from the past three years:

	2011-2012	2012-2013	2013-2014	5-year Average
Annualized FTE Enrollment	131	147	156	132
Annualized FTE Faculty	9.8	12.1	12.8	11.0
Number of Students	5	4	5	3
Number Graduated	0	0	1	0

FTE = Full-time equivalent

Modes of Delivery

Online Compressed Video Face-to-Face

Advisory Committee Members and Title or Role: (if applicable) none

Community Partners or Internships: Coordination with regional high school to sponsor and host the annual Wolzborn-Drazovich Memorial State Math Contest

Revisions in Curriculum Since Last Review:

Math 2310, Applied Differential Equations has been added to our catalog in anticipation for the upcoming "2 + 2" agreement with the University of Wyoming

Math for Elementary Education sequence has been changed back to 2 semesters.

Math 0900, Pre-algebra Arithmetic has been changed to Math 0903, Bridge Mathematics and will be taught in a lab setting starting Effective Fall 2015.

Math 0920, Elementary Algebra has been changed from a 4 credit class that meets M-TH for the full semester to a 3 credit class that meetings M-F for (8) eight weeks. The class will be offered both block A and block B. Effective Fall 2015.

Math 0930, Intermediate Algebra has been changed from a 4-credit class that meets M-TH for the full semester to a 3 credit class that meetings M-F for (8) eight weeks. The class will be offered both block A and block B. Effective Fall 2015.

Math 2200, Calculus I has been changed from a 5-credit course meeting M-F to a 4-credit class that will meet M-TH. Effective Fall 2015.

Part II Narrative Analysis

Description of Community Need: The mathematics department is a service-oriented department. The department offers courses that support nearly all programs at Eastern Wyoming College. We have classes for the AAS programs such as Math 1515, Applied Technical Mathematics used in the welding program. The department also offers a sequence of developmental classes to prepare students for college level classes. This sequence of classes has been modified to support the mission of Complete College America http://completecollege.org/docs/CCA_joint_report-printer.pdf. We believe that the modifications we have made to these courses will “Improv[e] student progress through gateway courses and into programs of study that lead quickly and efficiently to completion” and allow them to take college level courses. The department also offers a robust selection of courses for both math intensive programs, with a standard STEM program, as well as minimal math requirement programs, such as Problem Solving.

As part of the concurrent and dual enrollment program in Wyoming, Eastern Wyoming College has been able to offer many classes in the high schools in our out-reach service area. The tables below shows the town and the classes that were offered and below each school year pair of tables is the number of credits that were issued to those students taking outreach classes. It is clear from this table how important outreach classes are to the mathematics department at Eastern Wyoming College.

School Year 2011-2012

Fall 2011	Towns where course was offered
Elementary Algebra	
Intermediate Algebra	
Problem Solving	Douglas, Glendo
Pre-calc Algebra	Douglas, Glendo, Glenrock, Lingle, Moorcroft, Newcastle, Sundance and Torrington
Pre-calc Trig	Newcastle
Calculus I	Douglas, Sundance, Torrington and Wheatland
Calculus II	

Spring 2012	Towns where course was offered
Elementary Algebra	Torrington
Intermediate Algebra	
Problem Solving	Douglas
Pre-calc Algebra	
Pre-calc Trig	Douglas, Glendo, Glenrock, Lingle, Moorcroft, Sundance and Torrington
Calculus I	
Calculus II	

Total credits issued: 826 credits

School Year 2012-2013

Fall 2012	Towns where course was offered
Elementary Algebra	Douglas, Lusk, Moorcroft, Newcastle, Torrington and Wheatland
Intermediate Algebra	
Problem Solving	Douglas, Glendo and Glenrock
Pre-calc Algebra	Douglas, Lingle, Lusk, Moorcroft, Newcastle, Sundance and Torrington
Pre-calc Trig	Newcastle
Calculus I	Sundance and Wheatland
Calculus II	

Spring 2013	Towns where course was offered
Elementary Algebra	Lingle
Intermediate Algebra	Douglas, Lusk, Newcastle, Torrington and Wheatland
Problem Solving	
Pre-calc Algebra	
Pre-calc Trig	Douglas, Luck, Moorcroft, Sundance and Torrington
Calculus I	Douglas
Calculus II	

Total credits issued: 1323 credits

School Year 2013-2014

Fall 2013	Towns where course was offered
Elementary Algebra	Douglas, Lingle, Lusk, Newcastle and Torrington
Intermediate Algebra	
Problem Solving	Douglas, Glenrock, Glendo and Lusk
Pre-calc Algebra	Douglas, Glendo, Lingle, Lusk, Moorcroft, Newcastle, Sundance and Torrington
Pre-calc Trig	Newcastle
Calculus I	Douglas, Sundance and Wheatland
Calculus II	

Spring 2014	Towns where course was offered
Elementary Algebra	Moorcroft
Intermediate Algebra	Douglas, Lingle, Lusk, Newcastle and Torrington
Problem Solving	Wheatland
Pre-calc Algebra	Glenrock and Lusk
Pre-calc Trig	Douglas, Glendo, Lingle, Moorcroft, Sundance and Torrington
Calculus I	Douglas
Calculus II	

Total credits issued: 1508 credits

School Year 2014-2015

Fall 2014	Towns where course was offered
Elementary Algebra	Douglas, Lingle, Newcastle and Torrington
Intermediate Algebra	Guernsey and Wheatland
Problem Solving	Douglas, Glendo and Glenrock
Pre-calc Algebra	Douglas, Glendo, Hulett, Lingle, Lusk, Moorcroft, Newcastle, Sundance and Torrington
Pre-calc Trig	Newcastle
Calculus I	Douglas, Sundance Torrington and Wheatland
Calculus II	

Spring 2015	Towns where course was offered
Elementary Algebra	
Intermediate Algebra	Douglas, Lingle, Newcastle and Torrington
Problem Solving	Hulett and Wheatland
Pre-calc Algebra	Glenrock
Pre-calc Trig	Glendo, Hulett, Lingle, Lusk, Moorcroft, Sundance and Torrington Wheatland
Calculus I	
Calculus II	Torrington

Total credits issued: 1431 credits

The mathematics department, in recognition, of the importance of the concurrent and dual enrollment credits offered through Eastern Wyoming College works with the concurrent instructors by participating in the annual concurrent meeting held in August in conjunction with the Associate Vice President for Learning, Mike Durfee. We feel that open, continued and more frequent communications would be helpful in maintaining a high number of credit offerings as well as to ensure that the courses are being taught with the rigor and consistency of those taught by the on campus instructors.

The mathematics department has been aggressively working to offer all our freshmen level mathematics classes via distance learning for students who are not able to make it to campus. Currently we offer both Math 1400 and Math 1000 every year via distance education. Also, we have started to offer the Math for Elementary Teachers sequence online.

The overall goal of the mathematics department is to provide students with the mathematical preparation necessary for successful transfer or career opportunities.

Activities in Support of Student Recruitment and Retention (if applicable)

The mathematics department hosts the Annual Wolzborn-Drazovich Memorial Math Contest where approximately 200 students attend and take the test. We award a two-year scholarship and a \$500 book scholarship. The science division has also awarded some of their scholarships to math majors during this review cycle. We also participate in the advising and serve on the Learning Skills Lab advisory board.

Assessment of Student Learning: Analysis of Student Learning- What has been learned?

During this review period we have had a few math majors graduate. As part of their graduation requirements they are required to participate in a Capstone experience. We have gained many insightful things from our students during these experiences. It is our opinion that students who complete the Associated of Science degree in Mathematics are well prepared for the next step in their educational experience. Our graduate students will be on par with any other student who would graduate from a similar program.

It is important to be reminded that while the mathematics department has very few graduates, we will impact nearly 100% of the students of Eastern Wyoming College. We have grown, offering more sections of courses to accommodate more students. A full-time math instructor has been added to the Douglas campus. The added faculty member in Douglas will provide those students with a consistent offering of classes as well as provide the Douglas students with a contact person if they were to run into trouble with their math.

All the faculty in the mathematics department actively use the Classroom Assessment Techniques and Course Assessments to improve the quality of learning for our students. These two assessment tools allows us to look at what we are doing and examine if there are ways that we can do it better in the future. We all know that we are not perfect and being able to reflect on our own teaching maybe makes improvement in our teaching.

In addition to the Classroom Assessment Techniques and Course Assessments, we complete the program review when we have graduates to determine if we need to make any program level changes to better prepare our students as they transfer to four-year institutions.

Strengths of the Program and Faculty:

The Department has five very qualified full-time faculty members who not only care about the students but have deep respect for one another. Three of our full-time faculty members are new since the last review cycle and we find that we are very compatible and working in a cohesive manner. All five of the faculty members hold either a masters in mathematics or mathematics education, one is working on their PhD in Mathematics Education. The adjunct and concurrent instructors also typically hold a master's degree or have at least 18 graduate hours in mathematics.

The Department articulates each year with the University of Wyoming and the other Wyoming Community colleges. Standardization of course curricula and discussions involving transferability are the topics of regular meetings with Chadron State College and other schools. For example, Rick Darnell traveled to Chadron in the Fall of 2013 to visit with the mathematics professors to ensure that our Math for Elementary Teachers was consistent with theirs as many of our education majors transfer to Chadron State College. All the community colleges have common course numbers and very similar cut off scores for entry into each class offered.

Not only does the Department articulate with the University of Wyoming to ensure that we are offering the best for our students we have participated in numerous professional developmental activities during this review period. Some of the activities have included taking additional graduate classes, attending the International Conference on Technology in Collegiate Mathematics, as well as participate in the summer meetings between the college faculty and area high school math teachers.

The Department has a positive working relationship with the University of Wyoming and are in talks with representatives to develop a 2 + 2 agreement whereas students who graduate from the any of the community colleges will be able to finish their bachelors degree with two more years at the university. This potentially will be accomplished by having a series of classes rotate around the seven college so that a full class can be offered while at the same time not placing any additional burden on the loads of the colleges. The classes that may rotate include Differential Equations, Linear Algebra and a Freshman Seminar. We are excited for this opportunity.

Having a full-time instructor in Douglas is good for the campus. The students are able to get help from the instructor almost every day of the week. Since the campus does not have the benefit of a tutoring center, this has helped a lot of the Math 1400, College Algebra students this semester. The instructor has had an excellent turn-out for the lab hours, always having at least one student attending and occasionally having the entire class in for further assistance. Timing of the lab has been instrumental in students attending, with three of the labs being held right before class time. The Douglas campus plans to implement the block Math 0920 and Math 0930 classes fall 2015, to be consistent with the Torrington campus. However, it has not been decided if Math 0920 block B class will be offered. This topic is still under discussion. We feel that we should try offering the Math 0920 both blocks for the first couple of semesters and then evaluate the effectiveness and practicality at that time. Sherri, the Douglas instructor, should teach the developmental classes AND the college level math classes as well, this will give her the workload credit needed as well as give students some consistency in order to build their mathematical confidence. Sherri, also supports students who take Torrington online classes by encouraging them to email their instructors, use the message boards and email to reach out to fellow classmates to get the support they need for success.

Part III Recommendations

Faculty Recommendations: The faculty recommends that we continue to work on obtaining professional development. As we shift from a traditional remedial class to our new “math

bootcamp” classes it is important that we continue to evaluate the success of such classes and be ready and willing to modify the curriculum quickly to best serve the students.

In working with the college as a whole we will be working on implementing additional reading opportunities for students in our curriculum. This may be accomplished by having students complete more “story” problems or deeper problem based learning techniques that will require more reading and reasoning. Moreover, by offering my problem based learning students will improve their ability to become more proficient problem solvers, one area that we have realized during the capstone projects. While reading is an important initiative for the whole college the mathematics department will be working hard to use more reading to enhance our students’ problems solving skills and overall conceptual understanding.

We need to continue to work on developing courses that meet the needs of all our students, both on- campus and those at a distance. It is our recommendation that there be a policy developed that would discourage students who are on-campus taking online courses. We believe that classroom discussions add to the richness of a course and therefore are important to the overall learning process. The best setting for most students, especially most math courses, is in a face-to-face classroom.

College ready students also face challenges at Eastern because they are often forced to take an independent study course as part of their degree because there are insufficient numbers to create face-to- face classes. The Department would like to see more recruitment geared towards college-ready students. Having more of these students will help the institution in many ways. First, it will increase our graduation rate. Secondly, having more college-ready students will provide the opportunity for a deeper pool of candidates for the Learning Skills Lab tutoring program.

Division Chair Recommendations:

The Math Department continues to provide a solid Math curriculum which meets the needs of EWC students very well. The curriculum is broad and diverse, offering developmental level through advanced courses. A new format for the developmental level courses will be piloted beginning Fall Semester 2015. This format will provide students the opportunity to qualify for college level math courses in a more efficient manner, and will provide an appropriate response to the current Complete College Wyoming initiatives. It will also provide students a path to a college level class by their second semester, and because the courses will be offered in a block format, it will decrease the total number of credits needed to complete the developmental level requirements. In addition, a new course (Differential Equations –MATH 2310) is being offered beginning next academic year (2015-16). Due to a retirement, a resignation, and a re-structuring, three new instructors have been hired within the past two years. All have been positive additions and have provided both innovation and enhancement to the Department. A new Math instructor was added to the Douglas campus beginning Fall 2014. My recommendations include the following:

- 1) Continue to work effectively as a team and incorporate the strengths of the new instructors into the program offerings.
- 2) Continue to work with other departments on campus to meet the curricular needs of the various programs offered at EWC.
- 3) Monitor the changes in the developmental level courses and make changes and refinements if necessary.
- 4) Work with marketing and recruiting personnel to advertise Math as a major at EWC and the options and opportunities it may provide our students.
- 5) Continue to work with instructors at area high school and outreach sites to assure that high quality Math courses are offered both on-campus and concurrently.
- 6) Continue to attend articulation meetings throughout the state to assure that EWC offerings are consistent with those of other Wyoming colleges. In addition, continue the exemplary teamwork exhibited over the past year to prepare for hosting the statewide articulation meeting during the Spring Semester 2016.

Vice President's Recommendations

The full-time math faculty work together as a cohesive team. I commend them on their work over the last year as they participated in the general education revisions and worked extensively on the math curriculum. I concur with the faculty and division chair recommendations.

- Analyze the enrollment patterns in the developmental classes and make scheduling adjustments as necessary.
- Continue to mentor the concurrent enrollment instructors in our area high schools to help ensure the quality of instruction throughout our service area.
- Explore and attend professional development opportunities that may emphasize best practices for teaching developmental studies math.
- Host the Math articulation conference in Spring 2016.