



Precalculus I: College Algebra and Precalculus II: Trigonometry

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PROJECT BACKGROUND

- *Course/project title*
- mini-grant : Adopt/Adapt OER;
 - *Brief description of OER project*
- A two-semester sequence of Precalculus courses with adopting of one book was the focus of the project:
- Precalculus I: College Algebra;
- Precalculus II: Trigonometry and Analytic Geometry;
 - *Objectives/goals of project*
- Replace traditional textbooks with OER as a means to reduce students' costs and make education more affordable; after the project, total course materials costs will not exceed \$40;
- Replace traditional textbooks with accessible and openly licensed instructional materials;
- Target OER adoption in a high enrollment course for which high-quality OER content already exists and has been developed into comprehensive course materials, including supplemental materials such as test questions, presentation slides, and handouts.

IMPACT (CON'T.)

- **Fall 2018 pass rates** for MAT 128 & MAT 129 by modality are following:
- **MAT 128**—Total: 56.3%; Face-to-Face (F2F) OER: 44.5%; F2F non-OER: 78.8%; online: 26.1%
- **MAT 129**—Total: 67.7%; F2F OER: 75.0%; online: 54.5%;
- The results show that passes rates for MAT 128 F2F OER courses is lower than F2F non-OER and high for MAT 129.
- We will look at pass rates for Spring 19.
- The team did additional OER customization:
prof. Reznichenko created on-line assessments (Quizzes & Tests);
prof. Gleger did alignment of course materials with Students Learning Outcomes (SLO).
 - *Successes*
 - Project OER provides students with day-one access to their learning materials and allows students to retain access to content after the course is completed;
 - The project provides classroom use of the MOM platform, without any required cost to students and students self-study opportunities;

IMPLEMENTATION

- Project replaces traditional textbook with learning recourses that are:
- Openly licensed with a Creative Commons CC-BY Attribution 4.0 International License;
- Fully accessible according to WCAG 2.0 and WCAG 2.1 Standards;
- Openly and freely available outside their delivery platform;
- Continuously updated and maintained;
- Easily discoverable;
- The team used existing course shells for the courses developed for Washington State's Open Course Library Project for Precalculus 2: Math& 142; precalcbook@opentextbookstore.com;
- The course is developed using the "MyOpenMath" (MOM) platform. MOM runs on the open source, providing free hosted use of this platform in support of free, open textbooks.
- OER content/platform was integrated with college Learning Management System (LMS) Canvas.
- Hard copy of the textbook is available for purchase in the Bookstore.

LESSONS LEARNED

- *Challenges*
- To sustain our OER courses past the duration of the grant over the longer-term, there will be need for additional resources:
time and effort for preparation and teaching of 60 hr of 4 credits for each course, developing on-line assessments, funds for attending conferences with the purpose of professional development and experience exchange, OER print copies;
- The team needs to adjust teaching materials and strategy for MAT 128 and improve pass rates;
 - *Advice for others who are interested in undertaking a project:*
- Faculty teaching the same math course using OER should have similar training on the materials;
- Instructors should conduct monthly short individual meetings with students to discuss their progress in class;
- Assessments, tests and quizzes, should be in two modalities, on-line and paper-pencil.

IMPACT

- Number of sections and students **impacted by project in Fall 18:**
Precalculus I: 2 sections, 44 students; Precalculus II: 2 sections, 20 students; **Total: 4 sections, 64 students;**
- Number of sections and students **impacted by project in Spring 19:**
Precalculus I: 3 sections, 41 students; Precalculus II: 2 sections, 17 students; **Total: 5 sections, 58 students;**
- As compared to Fall 18, in Spring 19 one more section was added to MAT 128 OER course.
- Number of sections and students **impacted by the project in Summer 2019: none**
- Number of sections and students **impacted by the project in academic year 2018 – 19**, Precalculus I: 5 sections, 85 students; Precalculus II: 4 sections, 37 students;
Total: 9 sections, 120 students;
 - Estimated cost savings per student in most recent semester
- Cost of the textbook used before replacing with OER:\$ 135.
- Cost of OER for students available for these courses: \$16;

FUTURE PLANS

- *Future plans:*
- Since Fall 18 and over the longer-term, through the Mayor's Scholars Program, the college is accommodating Baltimore City public high school graduates who can attend BCCC tuition-free;
- Also, the department is involved in the P-TECH (Pathways in Technology Early College High school) program offering MAT 128 course off-campus;
- The team received 2019 Mini Grant in \$2250 for Scaling Project. We intend to develop supplemental materials such as presentation slides, and handouts;
- With the OER Mini-Grant the department will be able to develop and implement an OER pathway for all of our mathematics course offerings. Additionally, in this process the department plans to develop course shells for face-to-face and blended (hybrid) methods.