NSF-funded project aims at improving students’ math skills

Rogue Community College has received a $150,000 National Science Foundation (NSF) grant to develop an innovative and effective community college and high school algebra and geometry curriculum.

The project’s goal is to improve high school and college students’ math skills so they are better prepared for college entry and/or for success in career and technical programs. The curriculum will teach math concepts using real world applications from several career and technical areas. The NSF grant will involve up to 14 local high schools and the Southern Oregon Education Service District (SOESD).

The grant will provide seed money to develop and pilot the curriculum at the college, establish high school partnerships, align community college math curriculum to high school, and seek approval of Math 63 as a third-year high school math option.

Also known as “Applied Technical Math,” Math 63 introduces the study and application of algebra topics and applications of real numbers in work-related settings for occupations requiring career and technical training. Career and technical education (CTE) math courses are interdisciplinary, competency-based, industry-verified classes designed for the following areas: construction, diesel and automotive, manufacturing and engineering, welding, and electronics technologies.

The grant will allow RCC to:

• Develop and share a one-term community college and a semester or year-long high school Math 63 course, with Algebra I and geometry concepts from the five career technical areas;

• Facilitate a summer math institute and follow-up sessions to be offered to CTE, math and industrial education teachers from 14 Jackson and Josephine County high schools, as well as RCC instructors and regional employers;

• Align college and high school courses, including integration of Math 63 into all CTE curriculum areas, and approve Math 63 as a third-year high school math requirement that satisfies Oregon diploma requirements.

Ultimately, the training will be sustained by incorporating the new math curriculum into RCC’s regular offerings.

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“The project is an attempt to produce greater numbers of competent CTE graduates needed to fuel the economy,” said Serena Ota St. Clair, Pathways and Articulations coordinator. “At RCC, all incoming students take a placement test, but in the past five years, more than 70 percent — including incoming high school students — have tested into developmental or pre-college math,” she explained.

RCC faculty developing and overseeing the project are St. Clair; Doug Gardner, math instructor; Ann Trausch electronics and math instructor; and Dennis Kimzey, Math Department head. Dr. Panos J. Photinos, Southern Oregon University (SOU) department chair in physics and engineering, will serve as the external evaluator.

The project advisory committee will include Photinos, the senior project staff, and representatives from local high schools, SOESD, SOU, and industry. The RCC Office of Budget and Financial Services will monitor and disperse funds.

According to the National Commission on Mathematics and Science Teaching for the 21st Century, the preparation U.S. students receive in math and science is unacceptable, while the National Association of Manufacturers reports a growing skills gap:

“More than 80 percent of manufacturers say they are having trouble finding qualified employees. Sixty percent of manufacturers typically reject half of all applicants as unqualified because of the lack of basic skills. Moreover, entry-level skills in manufacturing have become more sophisticated, requiring more education and training.”

And according to the Alliance for Better Education, the United States is not only failing to prepare students for the demands of college and the modern workforce, but the country would save $3.7 billion a year in reduced college expenses if more high school graduates were prepared for college and did not require remediation.

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