

Math Pathways – Montana

The Montana Governor's Office, Office of the Commissioner for Higher Education and Office for Public Instruction share a sense of urgency to improve student success in mathematics at the college level. Montana Governor Steve Bullock joined the Complete College America Alliance of States in 2013 and, in partnership with the Montana University System (MUS), set new priorities for higher education in Montana – reaffirming the completion agenda he set the year before, to collect baseline data for common measures of success, and to identify and develop system and campus level action plans to meet those completion goals.

Math Pathways – Montana is a Task Force appointed by the Commissioner of Higher Education to serve as a partner in the national organization Complete College America (CCA, see their website at www.completecollege.org). The work of the Task Force will contribute to the achievement of the Governor's goals for higher education completion in Montana.

Based on the college completion data that CCA has compiled nationwide, they argue that student graduation rates need to improve in order to meet requirements for future jobs. Data from 2011 show that in Montana, for every 100 high school graduates, 61 enroll in 4-year public colleges and 14 enroll in 2-year public colleges. Of those: (4-year) 43 of the 61 return as sophomores, (2-year) 8 of the 14 return as sophomores. In another report (2002-4), Montana found that less than half of the students in 4-year programs finish a bachelor's degree within 6 years, and less than a quarter of the students in 2-year programs finish an associate's degree within 3 years.

CCA has determined that the way mathematics is incorporated into a student's college education is an obstacle to college completion. Through the Charles A. Dana Center at the University of Texas at Austin, directed by Uri Treisman, CCA is seeking solutions to improve mathematics-related college completion rates in six states; Montana is one of the six.

Mathematics is a broad field and most university math departments offer a variety of courses. A pathway as defined in this document is a sequence of courses required for a college degree. Some mathematics pathways lead to careers in science, engineering, and technology. Others lead to fields that utilize statistics. Some develop quantitative literacy for a liberal arts education. The career field that a student chooses should determine his or her pathway through mathematics.

Membership: Math Pathways – Montana Task Force

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Goals: Math Pathways – Montana

From our perspective, mathematics itself is not the problem. Issues with college completion related to mathematics may originate in

- alignment of mathematical content with programs,
- placement and advising, and
- availability of appropriate pathways (secondary and post-secondary).

Our aim is to research these aspects of mathematics in higher education in Montana and propose recommendations that would contribute to a statewide solution. The Task Force has been charged by the Montana University System to develop system-wide guidelines that address the following goals:

1. Increase success rates in college mathematics courses that lead to graduation.
2. Improve the articulation between mathematics requirements and other academic programs.
3. Use data to support the system recommendations (placement and student support).
4. Strengthen communication between secondary schools and colleges.

We will investigate the following questions with respect to each of the goals listed above (or identified subgoals):

- What is the essential problem we are trying to solve?
- How do we know it is a problem? What is the evidence?
- What is the root cause of this problem?
- What additional information do we need about this?
- Who are the key stakeholders interested in the solution of this problem?
- Are there promising strategies to address the problem that we should investigate?