Analyzing Student Success in Introductory Courses: Is Mathematics an Outsized Challenge?

— Call for Participants—

Application Deadline: March 16th
Program Duration: March 2026—May 2027

Introductory courses are critical to student success in completing a degree and preparing to participate in the workforce. This project seeks to address the commonly voiced notion across academic leaders that mathematics is the most significant hurdle to students succeeding in gateway courses. Working with collaborating partners, the Association of Public and Land-grant Universities seeks 25 public universities to contribute to the evidence base. The project will analyze student success in introductory courses, with an emphasis on introductory mathematics.

In collaboration with the Association for Undergraduate Education at Research Universities (UERU), and funding from the Gates Foundation, APLU will work with public universities to examine rates of students earning Ds, Fs, or Withdrawing from introductory math courses. The project will also highlight effective teaching practices that appear to be linked with higher student success in math. The project builds upon APLU's prior Powered by Publics work, expanding the research of a subset of the Big Ten Academic Alliance that pointed toward the outsized barrier of introductory mathematics courses. This effort is linked with Project EMBER, which seeks to transform introductory mathematics courses nationally.

Please use the linked form to apply for participation and see below details for further information.

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Goals of the Research

The primary goals of this research project are to:

- Quantify the scope of DFW rates in introductory mathematics courses across a robust set of public universities and examine how these outcomes vary by institution, course, and student population.
- Identify institutions that have achieved measurable improvements in gateway math outcomes and document the instructional, curricular, and policy reforms potentially associated with those gains.
- Elevate stories of success through institutional case studies from exemplary institutions that have implemented meaningful reforms with documented evidence of impact.
- Produce a field-facing report, institutional case studies, and an open-access repository of data-informed strategies that can support mathematics departments and institutional leaders in advancing reform.

What Participation Looks Like

APLU and UERU will recruit **25 public universities** representing a range of institutional missions, sizes, and student populations to participate in this study. Participating institutions will engage in several core activities:

Institutional Engagement

Each participating university will designate one or more staff members to serve as institutional data leads and project contacts. These representatives will coordinate data submission, provide feedback on templates, and engage with APLU's research team throughout the project.

For more information contact Dr. Megan Tesene, mtesene@aplu.org

Data Sharing

Institutions will submit aggregated, anonymized data using standardized APLU templates. Required data elements include:

- **Course-level grade and enrollment data.** For selected institution-wide high-enrollment, lower-division courses (not just within one academic department) offered in Fall and Spring terms from Fall 2019 through Spring 2025, institutions will submit course-level data including: (1) Total enrollment by course and term, (2) Enrollment disaggregated by Low-income (Pell or institution-defined), First-generation status, (3) Counts of students receiving A, B, C, D, F grades, Pass and Fail grades, Withdrawals (W).

    - **Data preparation and submission.** All data must be aggregated and anonymized in compliance with applicable laws, with no reasonable basis for identifying individual students, faculty, or staff. Institutions will submit data using APLU's standardized templates. Data will be transmitted to APLU via the designated secure file-transfer method.

- **Retention and graduation outcomes.** Institutions will submit retention and graduation rates for one first-time, full-time freshman cohort, disaggregated by the number of D/F grades earned in the first fall term

- **Course policy changes.** For any selected course and term where policy changes may affect grade distributions, institutions will document relevant changes, including Retake and grade-replacement policies, Drop and withdrawal policies, Placement testing policies, Prerequisite policies, Stop-out policies, Incomplete grade policies

- **Institutional contacts.**
    - Data Lead. Each institution will designate one or more faculty or staff members to serve as authorized project representatives and "data leads" to coordinate data submission.
    - Leadership. Each institution will designate an institutional leader or executive sponsor that will serve as an additional point of contact and key support person to the data lead.

Additional guidance, templates, and timelines will be shared separately.

In-Person Convening

Participating institutions will be invited to attend an in-person convening, co-hosted by APLU and UERU, bringing together teams from all 25 participating universities. The convening will provide opportunities to:

- Review and react to key research findings.
- Share reform experiences and lessons learned with peer institutions.
- Learn about evidence-based instructional and curricular strategies that have improved gateway math outcomes.
- Contribute feedback to the development of a national research repository and final report for the field.

The convening is designed to support cross-institutional learning and foster collaboration among institutional leaders, mathematics department chairs, and faculty coordinators.

Benefits to Participating Institutions

Institutions selected to participate will receive several direct benefits, including:

- A modest participation stipend of **$8,000** to support data coordination and attendance at the in-person convening.
- Access to benchmarking analyses that allow institutions to compare their gateway math outcomes with peer institutions.
- A synthesized analysis of DFW rates and student success metrics that can be used to inform internal conversations with academic departments and leadership.
- Opportunities to connect with a national network of institutions engaged in improving mathematics outcomes and to learn from proven, evidence-based reform approaches.

Project Timeline and Key Milestones

The research will take place over approximately 15 months and includes several milestones to support institutional engagement, data coordination, and peer collaboration:

- **February 23, 2026** – APLU opens formal institutional recruitment and selection process.
    - Institutional selection may take place on a rolling schedule, depending upon the number of applications received by APLU.

- **March 16, 2026** – APLU closes submissions

- **April 2026** – Participating institutions identify institutional data leads.
    - APLU, UERU, and participating universities finalize common course lists, data definitions, data-sharing agreements (DSAs), and standardized data templates, with participating data leads' feedback.

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- **By August 15, 2026** – All participating institutions sign DSAs and begin submitting data using APLU-provided templates. Initial data submissions from early participants are received and reviewed.

- **January 2027** – APLU and UERU host an in-person convening for teams from all 25 participating universities to review preliminary research findings and engage in cross-institutional learning.

- **February 15, 2027** – Data collection is completed across all institutions, and a combined, de-identified dataset is shared with participating universities.

- **May 31, 2027** – APLU publishes a suite of field-facing research materials, including a formal research report, institutional case studies highlighting effective reform strategies, and an online repository to support ongoing gateway mathematics reform efforts.

Call for Participation

APLU is currently seeking institutions interested in contributing to this important national effort to better understand and address the role of gateway mathematics in student success. Universities that are willing to share data, engage in collaborative learning, and contribute to a field-facing body of evidence are encouraged to participate.

Submit your Application

To submit your application for consideration, please complete the **Linked Form**.

If you have questions about the project, please **email** Megan Tesene, Ph.D., APLU's Assistant Vice President, Digital Transformation for Student Success.

About Us

Founded in 1887, the **Association of Public and Land-grant Universities** (APLU) is a membership organization that fosters a community of university leaders collectively working to advance the mission of public research universities. The association's membership consists of more than 250 public research universities, land-grant institutions, state university systems, and affiliated organizations spanning across all 50 states, the District of Columbia, six U.S. territories, Canada, and Mexico. APLU fosters a community of public and land-grant university leaders committed to improving the lives and livelihoods of individuals, communities, and society through the continuous advancement of public higher education. APLU brings deep, field-tested experience in advancing and sustaining reforms in introductory mathematics and other high-enrollment STEM courses—reforms designed to improve student success and reduce persistent barriers to degree completion. This experience is rooted in APLU's ability to align rigorous research, institutional leadership engagement, and cross-sector collaboration at scale.

Note: This project will be undertaken in conjunction with Project EMBER, a national movement to support every higher education student to succeed in mathematics in ways that align with their personal and professional aspirations. APLU is a key partner and collaborator with Transforming Postsecondary Education in Mathematics on Project EMBER.

The **Association for Undergraduate Education at Research Universities** (UERU, pronounced "You-Roo") is a growing national consortium of 138 public and private research universities dedicated to strengthening undergraduate education and recognizing its driving role in the university's growth and development. Collectively, UERU members serve some 3 million undergraduate students. Founded in 2000 to implement the original 1998 Boyer Commission's recommendations, UERU has been hosted by Colorado State University since 2013 (Boyer Commission, 1998).

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