

Beginning College Level (Gateway) Credit Bearing Courses: Mathematics

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Gateway Mathematics courses: Questions and answers

Degree-seeking college students must successfully complete a *Gateway Mathematics* course – the beginning credit bearing Mathematics course – as a part of their degree completion requirements.

Specific questions for baseline information

- How many students attending Ohio public institutions of higher education attempt Gateway Mathematics courses in an academic year?
- How many gateway courses are attempted by them?
- What is the average number of gateway courses attempted per student?
- What are the completion rates in gateway courses?
- Do completion rates differ by campus-type (across groups of two-year, four-year regional, four-year main, etc.)?
- Do completion rates differ across institutions of the same type (within groups of two-year, four-year regional, four-year main etc.)?
- What are the common Gateway Mathematics courses?

Data

- The questions are answered using data from the Higher Education Information (HEI) system of the Ohio Department of Higher Education.
- Gateway courses were identified as part of the Strong Start to Finish grant reporting requirements
- The data are from academic year 2017-18.
- Because institutions assign Gateway courses to their students, identification of Gateway English courses at the institutions is a necessary step to preparing the report. Such information was available for 15 two-year institutions, and eight four-year universities – eight four-year university main campuses, and the nine affiliated four-year regional campuses.

Institutions with identified Gateway Mathematics courses

- **Two-year institutions (15):** Clark State Community College, Cincinnati State Community & Technical College, Central Ohio Technical College, Columbus State Community College, Edison State Community College, Hocking College, Lorain County Community College, Marion Technical College, North Central State College, Owens Community College, Sinclair Community College, Southern State Community College, Stark State College of Technology, Terra State Community college and Washington State Community College.
- **Four-year university regional campuses (9):** Miami University – Hamilton campus, Miami University – Middletown campus, Ohio State University – AGTI campus, Ohio State University – Lima campus, Ohio State University – Marion campus, Ohio State University – Mansfield campus, Ohio State University – Newark campus, University of Cincinnati – Clermont campus, University of Cincinnati – Blue Ash campus.
- **Four-year university main campuses (8):** Bowling Green State University, University of Cincinnati, Cleveland State University, Miami University, Ohio State University, Shawnee State University, University of Toledo, Wright State University.

Findings

- 65,117 students attempted 76,343 Gateway Mathematics courses, 1.17 courses per person on average.
- Four-year university main campuses and two-year institutions accounted for 44.8% 43.1%, respectively, of enrollments. Four-year regional campuses accounted for 12.1% of enrollment.
- Average course completion rates were 75.2%.
- Completion rates were the highest at four-year main campuses (80.9%), followed by four-year regional campuses (79.8%), and two-year institutions (68.0%).
- Among two-year institutions, completion rates were higher for smaller Gateway Course enrollment. Among four-year main campuses, higher quality institutions had higher completion rates.

Students, enrollments, and completion rates: By campus type

Institution/Campus Type	# Students	# Course Enrollment	#Course Enrollment/ Student	Course Completion Rate
All institutions	65,117	76,343	1.17	75.2%
Two-year institutions	28,070	32,892 (43.1% of total)	1.17	68.0%
Four-year regional campuses	8,041	9,257 (12.1% of total)	1.15	79.8%
Four-year university main campuses	29,653	34,194 (44.8% of total)	1.15	80.9%

Note: 1,647 students attempted gateway mathematics courses at multiple campus types. As a result, the sum of the number of students attending different types of campuses exceeds the total number of students in the sample.

Students, enrollments, and completion rates: Two-year institutions

Institution/Campus	# Students	# Course Enrollment	#Course Enrollment/ Student	Course Completion Rate
All Two-Year Institutions	28,070	32,892	1.17	68.0%
Clark State Community College	1,222	1,338	1.09	68.4%
Cincinnati State Comm. & Tech.	2,617	3,108	1.19	67.2%
Central Ohio Technical College	911	1,025	1.13	66.0%
Columbus State Community College	9,172	11,388	1.24	69.4%
Edison State Community College	435	450	1.03	73.6%
Hocking College	927	1,007	1.09	59.7%
Lorain County Community College	2,402	2,682	1.12	63.4%
Marion Technical College	151	153	1.01	70.6%
North Central State College	769	824	1.07	79.5%
Owens Community College	2,056	2,249	1.09	71.2%
Sinclair Community College	4,651	5,712	1.23	65.7%
Southern State Community College	468	485	1.04	70.3%
Stark State College of Technology	1,833	1,993	1.09	67.7%
Terra State Community College	122	123	1.01	69.9%
Washington State Community College	334	355	1.06	75.8%

Students, enrollments, and completion rates: Four-year regional campuses

Institution/Campus	# Students	# Course Enrollment	#Course Enrollment/ Student	Course Completion Rate
All Four-Year Regional Campuses	8,041	9,257	1.15	79.8%
Miami University, Hamilton campus	723	777	1.07	76.7%
Miami University, Middletown campus	651	697	1.07	83.4%
Ohio State University, AGTI campus	208	219	1.05	89.5%
Ohio State University, Lima campus	409	484	1.18	80.2%
Ohio State University, Marion campus	462	551	1.19	79.7%
Ohio State University, Mansfield campus	465	549	1.18	84.7%
Ohio State University, Newark campus	1,248	1,438	1.15	83.4%
University of Cincinnati, Clermont campus	1,757	1,963	1.12	81.7%
University of Cincinnati, Blue Ash campus	2,118	2,579	1.22	74.6%

Students, enrollments, and completion rates: Four-year main campuses

Institution/Campus	# Students	# Course Enrollment	#Course Enrollment/ Student	Course Completion Rate
All Four-Year Main Campuses	29,653	34,194	1.15	80.9%
Bowling Green State University	3,023	3,046	1.01	84.0%
University of Cincinnati	7,501	9,795	1.31	82.6%
Cleveland State University	2,566	2,988	1.16	81.4%
Miami University	3,192	3,430	1.07	84.7%
Ohio State University	7,107	8,345	1.17	79.2%
Shawnee State University	1,243	1,495	1.20	71.6%
University of Toledo	3,968	3,998	1.01	78.2%
Wright State University	1,053	1,097	1.04	80.7%

Gateway Mathematics course types: Numbers

By college type

Institution	All Gateway Mathematics Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Mathematics Courses
All institutions	76,343	17,503	20,408	21,162	5,677	11,593
Two-year institutions	32,892	8,511	3,648	11,949	2,374	6,410
Four-year regional campuses	9,257	2,876	2,606	2,289	702	784
Four-year university main campuses	34,194	6,116	14,154	6,924	2,601	4,399

Gateway Mathematics course types: **Shares** By college type

Institution	All Gateway Mathematics Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Mathematics Courses
All institutions	76,343	22.9%	26.7%	27.7%	7.4%	15.2%
Two-year institutions	32,892	25.9%	11.1%	36.3%	7.2%	19.5%
Four-year regional campuses	9,257	31.1%	28.2%	24.7%	7.6%	8.5%
Four-year university main campuses	34,194	17.9%	41.4%	20.2%	7.6%	12.9%

Gateway Mathematics course types: **Completion rates** By college type

Institution	All Gateway Mathematics Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Mathematics Courses
All institutions	75.2%	70.4%	75.9%	76.9%	80.3%	76.0%
Two-year institutions	68.0%	62.0%	67.1%	69.9%	74.2%	70.7%
Four-year regional campuses	79.8%	76.8%	78.8%	83.5%	77.8%	85.6%
Four-year university main campuses	80.9%	78.9%	77.6%	86.8%	86.5%	81.9%

Gateway Mathematics course types: Shares Two-year institutions

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Two-Year Institutions	32,892	25.9%	11.1%	36.3%	7.2%	19.5%
Clark State Community College	1,338	10.5%	-	29.4%	-	60.1%
Cincinnati State Comm. & Tech.	3,108	27.8%	6.6%	37.5%	15.5%	12.6%
Central Ohio Technical College	1,025	27.7%	8.1%	64.2%	-	-
Columbus State Community College	11,388	35.3%	12.9%	31.1%	9.9%	10.8%
Edison State Community College	450	13.6%	-	86.4%	-	-
Hocking College	1,007	13.5%	-	36.1%	-	50.3%
Lorain County Community College	2,682	12.5%	4.5%	49.7%	21.0%	12.4%
Marion Technical College	153	3.9%	-	51.0%	45.1%	-
North Central State College	824	12.4%	2.7%	75.8%	-	9.1%
Owens Community College	2,249	24.3%	3.4%	48.9%	-	23.4%
Sinclair Community College	5,712	25.5%	29.1%	18.9%	2.3%	24.2%
Southern State Community College	485	20.0%	-	-	-	80.0%
Stark State College of Technology	1,993	17.1%	-	52.1%	-	30.8%
Terra State Community College	123	46.3%	-	53.7%	-	-
Washington State Comm. College	355	17.5%	2.0%	34.9%	-	45.6%

Gateway Mathematics course types: Shares Four-year regional campuses

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Four-Year Regional Campuses	9,257	31.1%	28.2%	24.7%	7.6%	8.5%
Miami University, Hamilton	777	29.0%	56.1%	1.9%	13.0%	-
Miami University, Middletown	697	-	23.8%	73.3%	-	2.9%
Ohio State University, AGTI	219	76.3%	23.7%	-	-	0.0%
Ohio State University, Lima	484	41.7%	35.3%	-	-	22.9%
Ohio State University, Marion	551	47.9%	35.8%	-	-	16.3%
Ohio State University, Mansfield	549	47.9%	34.2%	-	-	17.9%
Ohio State University, Newark	1,438	53.0%	31.9%	-	-	15.1%
University of Cincinnati, Clermont	1,963	17.5%	26.8%	40.6%	15.1%	-
University of Cincinnati, Blue Ash	2,579	33.9%	24.1%	21.2%	15.2%	5.7%

Gateway Mathematics course types: Shares Four-year main campuses

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Four-Year Main Campuses	34,194	17.9%	41.4%	20.2%	7.6%	12.9%
Bowling Green State University	3,046	19.9%	17.5%	39.0%	15.7%	7.9%
University of Cincinnati	9,795	13.2%	39.5%	22.9%	7.4%	17.0%
Cleveland State University	2,988	-	12.6%	35.0%	32.8%	19.5%
Miami University	3,430	-	56.8%	39.2%	-	4.0%
Ohio State University	8,345	25.4%	68.1%	-	-	6.5%
Shawnee State University	1,495	37.3%	12.9%	36.2%	3.3%	10.2%
University of Toledo	3,998	26.3%	35.8%	10.2%	9.2%	18.5%
Wright State University	1,097	44.8%	11.2%	14.1%	-	29.9%

Gateway Mathematics course types: Completion rates

Two-year institutions

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Two-Year Institutions	68.0%	62.0%	67.1%	69.9%	74.2%	70.7%
Clark State Community College	68.4%	66.4%	-	78.4%	-	63.8%
Cincinnati State Comm. & Tech.	67.2%	63.8%	70.9%	67.7%	66.5%	72.4%
Central Ohio Technical College	66.0%	60.2%	53.0%	70.1%	-	-
Columbus State Community College	69.4%	63.5%	69.2%	70.4%	82.7%	73.3%
Edison State Community College	73.6%	62.3%	-	75.3%	-	-
Hocking College	59.7%	65.4%	-	63.5%	-	55.4%
Lorain County Community College	63.4%	56.7%	60.8%	63.3%	65.1%	68.8%
Marion Technical College	70.6%	66.7%	-	75.6%	65.2%	-
North Central State College	79.5%	81.4%	100.0%	77.9%	-	84.0%
Owens Community College	71.2%	63.4%	68.4%	71.1%	-	79.8%
Sinclair Community College	65.7%	57.9%	65.1%	72.3%	72.5%	68.7%
Southern State Community College	70.3%	60.8%	-	-	-	72.7%
Stark State College of Technology	67.7%	50.0%	-	67.0%	-	78.7%
Terra State Community College	69.9%	66.7%	-	72.7%	-	-
Washington State Comm. College	75.8%	75.8%	100.0%	67.7%	-	80.9%

Gateway Mathematics course types: Completion rates

Four-year regional campuses

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Four-Year Regional Campuses	79.8%	76.8%	78.8%	83.5%	77.8%	85.6%
Miami University, Hamilton	76.7%	58.7%	83.3%	80.0%	88.1%	-
Miami University, Middletown	83.4%		82.5%	83.2%	-	95.0%
Ohio State University, AGTI	89.5%	86.8%	98.1%	-	-	-
Ohio State University, Lima	80.2%	77.2%	80.7%	-	-	84.7%
Ohio State University, Marion	79.7%	79.5%	80.2%	-	-	78.9%
Ohio State University, Mansfield	84.7%	84.8%	80.9%	-	-	91.8%
Ohio State University, Newark	83.4%	79.8%	86.5%	-	-	89.4%
University of Cincinnati, Clermont	81.7%	70.6%	85.4%	83.0%	84.1%	-
University of Cincinnati, Blue Ash	74.6%	71.4%	70.7%	84.6%	72.9%	77.6%

Gateway Mathematics course types: Shares Four-year main campuses

Institution/Campus	All Gateway Math. Course Enrollments	Algebra	Calculus	Statistics	Quantitative Reasoning	Other Math. Courses
All Four-Year Main Campuses	80.9%	78.9%	77.6%	86.8%	86.5%	81.9%
Bowling Green State University	84.0%	77.2%	80.8%	87.5%	86.0%	86.8%
University of Cincinnati	82.6%	86.9%	76.0%	88.3%	90.8%	83.7%
Cleveland State University	81.4%	-	75.6%	78.6%	90.8%	39.9%
Miami University	84.7%	-	78.7%	92.0%	-	97.1%
Ohio State University	79.2%	80.9%	77.3%	-	-	91.7%
Shawnee State University	71.6%	72.0%	61.1%	77.6%	68.0%	63.4%
University of Toledo	78.2%	71.7%	84.6%	91.2%	79.5%	67.5%
Wright State University	80.7%	74.7%	61.8%	92.3%	-	91.2%

Gateway Mathematics course types: What other courses did students take?

Course Title	Number of Enrollments	Shares of Enrollment
Business Mathematics	2,939	25.4%
Mathematics for Teachers	1,153	9.9%
Technical Mathematics	891	7.7%
Explorations/Excursions into Mathematics	835	7.2%
Other course titles combined	5,775	49.8%
Total	11,593	-

How do the completion rates look?

Comparison with all courses taken in 2017-18

Institution/Campus Type	All Courses		Only Gateway Mathematics Courses	
	Number of Enrollments	Course Completion Rates	Number of Enrollments	Course Completion Rates
All institutions	2,266,753	86.3%	76,343	75.2%
Two-year institutions	630,863	76.1%	32,892	68.0%
Four-year regional campus	176,659	84.4%	9,257	79.8%
Four-year main campus	1,459,231	90.8%	34,194	80.9%

How do the completion rates look? Comparison with Gateway English courses taken in 2017-18

Institution/Campus Type	Only Gateway English Courses		Only Gateway Mathematics Courses	
	Number of Enrollments	Course Completion Rates	Number of Enrollments	Course Completion Rates
All institutions	49,744	74.6%	76,343	75.2%
Two-year institutions	25,055	66.2%	32,892	68.0%
Four-year regional campus	6,635	74.8%	9,257	79.8%
Four-year main campus	18,054	86.2%	34,194	80.9%

What did we learn?

- Almost identical numbers of two-year and four-year main campus students – 32,892 and 34,194, respectively – took Gateway Mathematics courses in 2017-18.
- Completion rates in Gateway Mathematics courses were the highest for four-year main campus students (80.9%), followed by students from four-year regional campuses (79.8%), and two-year institutions (68.0%), respectively.
- Statistics was the most common Gateway Mathematics courses with a share of 27.7%, followed closely by Calculus (26.7%). Algebra had a share of 22.9%, while Quantitative Reasoning had a share of only 7.4%.
- Completion rates, however, were the highest for Statistics (80.3%), followed by Statistics (76.9%), and Calculus (76.9%).
- Relative to completion rates in all courses taken by students in 2017-18, average completion rates in Gateway Mathematics courses were approximately 10 points lower.